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Focus on quality: a scoping review and data summary of clinical emergency care quality indicators in Africa

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Focus on quality: a scoping review and data summary of clinical emergency care quality indicators in Africa

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ABSTRACT

Objectives

An exhaustive search of medical and gray literature to identify all publications from Africa containing data relevant to the AFEM-CC process clinical and/or outcomes quality indicators.

Setting

Emergency care services are rapidly expanding in Africa; however, development must focus on improving care quality rather than just access. The African Federation of Emergency Medicine consensus conference (AFEM-CC) based quality indicators, specific to the African emergency care context, were published in 2018.

Participants

None, review.

Primary and secondary outcome measures

We conducted searches for quality in African emergency care and for each of 28 AFEM-CC process clinical and five outcome clinical quality indicators individually, in PUBMED, Embase, Cinahl and various forms of gray literature. Document screening was done in duplicate by two authors, using Covidence, and conflicts were adjudicated by a third. Simple descriptive statistics were calculated. For inclusion, studies had to match AFEM-CC process quality indicator parameters exactly. Studies with similar, but not exact match, data were collected separately as "AFEM-CC quality indicators near match".

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Results

1314 documents were reviewed, 314 in full text. 41 studies met a priori criteria and were included, yielding 59 unique quality indicator data points across five clinical care domains, six documentation and assessment domains, and four clinical outcomes. Documentation and assessment quality indicators accounted for 64% of data points identified, clinical care for 25% and outcomes 10%. An additional 53 "AFEM-CC quality indicators near match" publications were identified (38 new publications and 15 previously identified studies that contained additional "near match" data), yielding 87 data points across six clinical care domains, six documentation and assessment domains, and four clinical outcomes.

Conclusions

Data relevant to African emergency care facility-based quality indicators is highly limited. Future publications on emergency care in Africa should be aware of, and conform with, AFEM-CC quality indicators to strengthen understanding of quality.

SUMMARY BOX

What is already known?

- Emergency care quality indicators specific to the African context, compiled during an expert consensus conference hosted by the African Federation of Emergency Medicine, were published in 2018.

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- To date few publications have sought to measure the quality of facility-based emergency care in Africa or addressed these quality indicators.

What are the new findings?

- 570 exhaustive searches of the medical and gray literature yielded only 59 data points meeting AFEM-CC quality indicators precisely enough to enable comparison between sites and studies.
- No data matching the AFCEM-CC quality indicators was found for 55% (18/33) of the indicators.

What do the new findings imply?

- Emergency care quality research in Africa is in its infancy and would benefit from use of specific indicators to standardize research efforts, reporting and benchmarking of quality in emergency care across the continent.

INTRODUCTION

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Emergency care can address much of the excess morbidity and mortality from acute illness and injury in Africa.[1–3] However, to achieve this impact emergency care services must be both timely and high-quality. Emergency care services (including prehospital, facility-based and interfacility networks) are rapidly developing in Africa.[4,5] While health outcomes are improving in Africa, it is widely recognized that health development in the Sustainable Development Goals era must focus on improving care quality rather than just access.[6] Measuring quality of emergency care delivery, however, has not been a significant focus for emergency care researchers or policymakers in Africa to date.

In 2013, the International Federation for Emergency Medicine issued a consensus statement suggesting a framework for the delivery of safe and high-quality emergency care globally.[7] In response, the African Federation of Emergency Medicine (AFEM) held an consensus conference of experts in 2018. The conference produced a series of consensus-based emergency care quality indicators specific to the African context, with interventions and measures obtainable in most African emergency care settings.[8] These quality indicators, referred to here as the AFEM Consensus Conference Quality Indicators (AFEM-CC-QI), consisted of

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outcomes, processes, and structural measures. The consensus methods used were similar to other published efforts to define quality indicators for emergency medicine.[9–11]

The only review of emergency care quality in low- and middle-income countries (LMIC) to date was a 2015 ecological review that described the regional distribution and types of indicators.[12] It acknowledged the lack of established clinical quality indicators for emergency care in LMICs to date. This review did not define the indicators found nor provide or summarize the quality data identified. Neither this review nor others to date have focused specifically on Africa.

We undertook the following review with the presupposition that the AFEM-CC-QI provided the most logical starting point for a common language of emergency care quality for Africa. We had two objectives for this scoping review. First, to execute a rigorous review of the medical and gray literature looking for quality indicators for emergency care that have been proposed and/or put into practice in Africa. Second, to execute an exhaustive review of the medical and grey literature looking at all published clinical data from African facility-based emergency care settings that contains data relevant to the measures the AFEM consensus conference identified as quality indicators, even if that data was not published explicitly referring

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to quality. It is our hope that by collating and presenting this data in an accessible form, we can provide a starting point for future research, development, and benchmarking efforts for emergency care quality for health facilities in Africa.

METHODS

This scoping review was developed using the PRISMA scoping review guidelines.[13] It aims to identify and compile all documents:

1. Pertaining to quality indicators for facility-based emergency care in Africa
2. Containing specific data on the AFEM-CC process clinical and/or outcomes quality indicators, even if they do not explicitly report on quality of emergency care or quality indicators

A scoping review was chosen to map the spectrum of applicable documents. Due to the diversity of potentially relevant documents a broad search was undertaken to maximize inclusivity. Electronic searches were performed across multiple databases and African emergency care journals. The WHO database, national ministries of health websites, NGO databases/websites were queried, Google and Google Scholar were utilized to assist in identifying pertinent grey literature.

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A study protocol was established and documented *a priori*, however was not formally published. Any deviations from the pre-established protocol are specifically noted. The study was reported according to the PRISMA scoping review guidelines.[13]

Eligibility Criteria

All publicly available studies and documents relevant to quality indicators for facility-based emergency care in Africa and the AFEM-CC process clinical and outcomes quality indicators were included, with no limitation based on year of publication, if:

1. The data was collected in Africa.
2. The text was published in English.
3. The emergency care population as a whole or large subsegment of this population (ex: trauma, pediatrics) was studied.

For inclusion, studies containing AFEM-CC process clinical and outcomes quality indicator data had to comply with the exact parameters as stated in "Defining quality indicators for emergency care delivery: findings of an expert consensus process by emergency care practitioners in Africa by Broccoli et al.[14] and outlined in Appendix 1. These studies are compiled in Appendix 2. All

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studies with data that were similar but not an exact match for the AFEM-CC-QI definitions were collected separately as "AFEM-CC quality indicators near match" studies, Appendix 3. Documents on emergency care quality not relating to quality indicators, prehospital emergency care, inpatient (wards, ICU, theater, labor and delivery, etc.) and disease specific study populations were excluded; see Figure 1 for a full list of exclusion criteria.

AFEM-CC produced structure quality indicators (both intra-facility and health systems) and time-based process indicators alongside the process clinical and outcome clinical quality indicators that this review centers on. An *a priori* decision was made to focus the review on clinical care; structure quality indicators were not reviewed. While the time-based process indicators, focusing on timeliness of assessment or treatment provided at an EC facility, apply to clinical care these were excluded as they are largely unattainable due to the limitations of documentation in most low resource African emergency care settings.

Information Sources and Searches

A medical librarian at Stanford University was engaged to assist in identifying relevant databases and creating the search strategy. PUBMED (1964-present), Embase (1947-present) and

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Cinahl (1982-present) were selected based on providing international, medical, allied health and conference publications. All databases were searched between 12/30/2021 and 1/3/2022.

First an overarching search for facility-based emergency care quality literature was performed on each database and source of grey literature utilized. This search included *Emergency Care AND Africa AND Quality* terms and database specific controlled language. As an example, the Pubmed *Quality* terms utilized were: ("quality indicator*" [tw] OR "performance indicator*" [tw] OR "quality measure*" OR (quality [ti] AND (perform* [ti] OR measure* [ti] OR indicator* [ti])) OR "quality indicators, health care" [mesh]). See Appendix 4 for full search terms.

Second, each of the 28 AFEM-CC process clinical and five outcome clinical quality indicators were queried individually with *Emergency Care AND Africa AND Process Clinical or Outcomes Clinical Quality Indicator* keywords and database specific controlled language. These searches did not contain quality terms as they sought to obtain AFEM-CC process clinical and outcomes quality indicator data from any source, even those not explicitly related to emergency care quality. This yielded a total of 33 independent searches (28 searches for process clinical quality indicators and five for clinical outcomes quality indicators) in each database and source

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of grey literature. Note, the adult and pediatric morality from lower respiratory tract infection outcomes quality indicators were combined due to overlapping search terms. See Appendix 4 for full documentation of the database search strategy and yield of each search.

A second tier of similar — general quality and AFEM-CC process clinical and outcomes clinical quality indicators specific — searches was performed by hand between 1/4/2022 and 2/13/2022. The African Journal of Emergency Medicine was searched directly for relevant publications published prior to Pubmed indexing. Sources of grey literature were queried: the WHO website and IRIS database (including separate searches of IRIS Subjects: Emergencies, EMS, EM, Emergency Nursing, Emergency Responders, Emergency Service, Emergency Service-Hospital, Emergency Services-Psychiatric, Disaster Medicine), national ministries of health websites, Google, Google Scholar, and the public health NGO PATH's database of publications, presentations and resources. References from included publications were reviewed and any additional relevant documents included. See Appendix 5 for details of these searches.

Policy and clinical experts working in African emergency care development, identified through published works on emergency care quality and quality indicators, were contacted. They provided insights into unidentified published, grey literature and unpublished documents.

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Study Selection

All identified documents were imported into Covidence.[15] Title and abstract screening was performed independently and in duplicate by AP and PM. Full texts were then screened for eligibility and relevance by AP and PM in the same manner. Exclusions were based on criteria determined *a priori*. Conflicts were adjudicated by BR. During the full text review "AFEM-CC quality indicators near match" publications — documents with data points relevant to but not an exact match for the AFEM process clinical and outcome clinical indicators — were identified as potentially useful. The decision was made to exclude these studies as per the *a priori* protocol, but to extract and compile the data.

The data differences that defined studies as "near match" instead of "exact match" fell into three categories: differences in exclusion or inclusion criteria for populations (too narrow or too broad), differences in variable definition, or differences in the timing of interventions or follow-up. For "clinical care" and "documentation and assessment" near match quality indicators most differences were due to population and/or variable definitions, while for "clinical outcomes" most differences were due to the timing of mortality follow-up data.

Data Charting

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AP extracted data from included "AFEM-CC quality indicators exact match" (Appendix 2) and separately from the "AFEM-CC quality indicators near match" (Appendix 3) documents using a data extraction form in Microsoft Excel[16] spreadsheet that was developed *a priori* by the authors. AFEM-CC process clinical and outcomes quality indicators data points were extracted, either singularly or pre/post in studies describing an intervention. Additionally, information on the publication, location and type of emergency care facility, study objective, years of data collection, number of participants, subpopulation included, and any intervention studied were noted. Extracted data was reviewed for quality and completeness by PM and BR. Any discrepancies were adjudicated through consensus.

Data Analysis

Data was categorized by AFEM-CC process clinical and outcomes quality indicators as defined in Appendix 1. Variations between groups and within groups were analyzed by quality indicator, country, date of publication, emergency care facility type (university, referral hospital, etc.), subpopulation and trauma registry derived data. Descriptive statistics were utilized, and figures produced with Microsoft Excel[16] and Adobe Photoshop[17].

Patient and Public Involvement

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Neither patients or the public were involved in this study.

RESULTS

Selection of sources of evidence

A total of 1314 unique documents were included in the review. After title and abstract screening 1000 of these studies were deemed irrelevant. This left 314 studies for full text review. Of these, 41 studies met the *a priori* inclusion criteria with data on quality indicators in Africa in general or "AFEM-CC quality indicators exact match" data. Another 53 studies (38 new studies and 15 previously identified studies that contained additional quality indicator data) identified during the search process had data which closely aligned with the AFEM-CC-QI but did not exactly match case or variable definitions. These variations in case and variable definitions made the data too heterogeneous to include and compared directly with the AFEM-CC quality indicators. However, because this corpus of studies contained important data and was similar in size to the group of studies exactly matching AFEM-CC-QI definitions, the *a posteriori* decision was made during the review process to organize and report these studies separately as "AFEM-CC quality indicators near match" data. Figure 1 provides the detailed flowchart for the selection of sources of evidence.

Figure 1: PRISMA Diagram

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Characteristics of evidence

Geographic distribution of evidence

The 41 included studies represent data from only 26% (14 of 54) of African countries, with no relevant publications identified from the other 74% (40 of 54) countries. Just four countries produced 61% (25 of 41) of included studies: South Africa (27%, 11 of 41), Tanzania (15%, 6 of 41), Ethiopia (10%, 4 of 41) and Uganda (10%, 4 of 41). Regionally, 37% (15 of 41) of studies were produced in Southern Africa, 42% (17 of 41) in East Africa, 7% (3 of 41) in West Africa, 7% (3 of 41) in Central Africa, and 5% (2 of 41) in North Africa. Appendix 6 graphically depicts the distribution of included quality indicator studies by country.

Temporal distribution of evidence

The earliest study was published in 2001. A significant uptrend in publication of relevant studies was seen over time, with 67% of included studies published in the last seven years (2015-2022). Appendix 7 graphically depicts the temporal distribution of included studies.

Characteristics of the General African Quality Indicator evidence

Two studies were identified that focused explicitly on facility-based emergency care quality indicators for Africa.[14,18] One was the manuscript by Broccoli et al. which published the

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AFEM-CC process clinical and outcomes quality indicators used in this review.[14] The other study by Maritz et al. contained quality indicators developed specifically for emergency care in South Africa, and focused on indicators relating to time, process, structure, training, equipment and availability.[18] This manuscript contained a number of quality indicators overlapping with the AFEM-CC quality indicators, but did not contain any additional clinical care or outcome quality indicators that would supplement the AFEM-CC quality indicators in this review. Neither of these studies contained patient-level data points data for process clinical and/or outcomes quality indicators to be included in this review.

Characteristics of the "AFEM-CC quality indicators exact match" evidence

In total, 39 studies were seen to contain "AFEM-CC quality indicators exact match" data for process clinical and/or outcomes quality indicators.[19–57] Only 8% (3 of 39) of these studies explicitly mentioned quality in the stated research objectives. The 39 studies contained patient-level data across 15 distinct quality domains: five clinical care domains, six assessment and documentation domains, four outcomes. Because some studies contained data pertaining to more than one quality indicator, 59 total quality data points were identified. Five of the 39 studies had pre- and post-intervention data accounting for 13 total data points. Table 1 contains summary

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data for all included studies, while more detailed information on each study is available in Appendix 2.

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Table 1: AFEM-CC quality indicator exact match studies

Quality Indicators: Data						Clinical Care					Assessment and Documentation					Outcomes			
Title	Author	Year	Setting	Population	Ages	Antibiotics for Sepsis	Blood transfusion for anemia	Corticosteroids for asthma	Bronchodilator for asthma	Analgesia for pain	Complete vital signs recorded	Documentation of concise yet comprehensive chief complaint	Documentation of disposition	Documentation of diagnosis	Received triage score	Received triage level categorization	Trauma mortality (24 hr)	LRTI Mortality (24 hr)	Asthma mortality (24 hr)	Left without being seen
Monitoring of characteristics of the patients visiting an emergency center in Cameroon through the development of hospital patient database	Jeong[19]	2022	Cameroon	All Patients	All Ages								87%			95%				
Emergency Care of Sepsis in Sub-Saharan Africa: Incidence, Mortality and Non-Physician Clinician Management of Sepsis in rural Uganda from 2010 to 2019	Rice[20]	2022	Uganda	All Patients	Adult (≥18y)	82 %														
One in four die from acute infectious illness in an emergency department in Eastern Cape Province, South Africa	Jenson[21]	2021	South Africa	All Patients	Adult (>18y)						6%									
Pediatric sepsis interventions and in-hospital mortality in a resource limited emergency medicine department	Lau-Braunhut[22]	2021	Tanzania	All Patients	Pediatric (>28d-14y)	46 %														
Completeness of medical records of trauma patients admitted to the emergency unit of a university hospital, upper Egypt	Mohammed[23]	2021	Egypt	Trauma	All Ages								99%							
We need to target trauma: a prospective observational study in Eastern Cape Province, South Africa	Clark[24]	2020	South Africa	All Patients	Adult (>18y)											93%				
What presents to a rural district emergency department: A case mix.	Meyer[25]	2020	South Africa	Trauma	All Ages								99%	84%						
Transfusion, mortality and hemoglobin level: Associations among emergency department patients in Kigali, Rwanda	Moretti[26]	2020	Rwanda	Medical	Adult (>15y)		67%													
Development and pilot implementation of a standardised trauma documentation form to inform a national trauma registry in a low-resource setting: lessons from Tanzania.	Sawe[27]	2020	Tanzania	Trauma	All Ages								63% 100 %							
The burden of trauma in Tanzania: Analysis of prospective trauma registry data at regional hospitals in Tanzania.	Sawe[28]	2020	Tanzania	Trauma	All Ages												3%			
Evaluation of a modified South African Triage Score as a predictor of patient disposition at a tertiary hospital in Rwanda.	Uwamahoro[29]	2020	Rwanda	All Patients	Adults (>15 y)								85%							
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin[30]	2019	Ethiopia	Trauma	All Ages								71%	97%						
The epidemiology of sepsis in a district hospital emergency centre in Durban, KwaZulu natal	Ndadane[31]	2019	South Africa	All Patients	Adults (>11y)	89 %														
The burden of trauma at a district hospital in the Western Cape Province of South Africa.	Zaidi[32]	2019	South Africa	Trauma	All Ages								92%			93%				
Assessment of Acute Pain Management and Associated Factors among Emergency Surgical Patients in Gondar University Specialized Hospital Emergency Department, Northwest Ethiopia, 2018: Institutional Based Cross-Sectional Study	Anduale m[33]	2018	Ethiopia	Surgical	Adult (>18y)					66 %										

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A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab[34]	2017	Ethiopia	All Patients	Adult (>18y)									42 %	76%				
Key findings from a prospective trauma registry at a regional hospital in Southwest Cameroon	Chichom-Mefire[35]	2017	Cameroon	Trauma	All Ages							45% 98%							
Saving children's lives with colours	Dekker-Boersema[36]	2017	Mozambique	All Patients	Pediatric (<15y)										86%				
Task Shifting: The Use of Laypersons for Acquisition of Vital Signs Data for Clinical Decision Making in the Emergency Room Following Traumatic Injury	Haac[37]	2017	Malawi	Trauma	Adult (>18y)						4% 91%								
Clinical Presentation and Outcomes among Children with Sepsis Presenting to a Public Tertiary Hospital in Tanzania.	Kortz[38]	2017	Tanzania	All Patients	Pediatric (28d-14y)	54 %													
Emergency blood transfusion practices among anaemic children presenting to an urban emergency department of a tertiary hospital in Tanzania.	Shari[39]	2017	Tanzania	All Patients	Pediatric (<5y)		23%												
An evaluation of the use of the South African Triage Scale in an urban district hospital in Durban, South Africa	Soogun[40]	2017	South Africa	All Patients	All Ages							97%			76%				
Head injury is the leading cause of presentation and admission to a tertiary care center in Kenya: A descriptive analysis of emergency department patients at Kenyatta national hospital	Ekernas[41]	2016	Kenya	All Patients	All Ages									85 %					
Evaluation of trauma patient presentations and outcomes at a Ugandan regional referral hospital	Schriger[42]	2016	Uganda	Trauma	All Ages						3%								
Analysis of acute pain management in the emergency department of a large private hospital in Cape Town, South Africa	Stander[43]	2016	South Africa	All Patients	All Ages					71 %									
Enhancing emergency medicine initiatives with a quality improvement program: lessons learned in the emergency department of Tikur Anbessa Hospital, Addis Ababa Ethiopia.	Azazh[44]	2014	Ethiopia	All Patients	All Ages									20% 96%					
Reduced overtriage and undertriage with a new triage system in an urban accident and emergency department in Botswana: a cohort study	Mullan[45]	2014	Botswana	All Patients	All Ages							88% 96%			98%				.01% .05%
Epidemiology of injuries, outcomes, and hospital resource utilisation at a tertiary teaching hospital in Lusaka, Zambia	Seidenberg[46]	2014	Zambia	Trauma	All Ages							95%							
Hospital-based injury data from level III institution in Cameroon: Retrospective analysis of the present registration system	Chichom-Mefire[47]	2013	Cameroon	Trauma	Adult (>15y)							42%							
Vital signs for children at triage: a multicentre validation of the revised South African Triage Scale (SATS) for children.	Twomey[48]	2013	South Africa	All Patients	Pediatric (<13y)							98%			99%				
Audit of acute asthma management at the Paediatric Emergency Department at Wad Madani Children's Hospital, Sudan.	Ibrahim[49]	2012	Sudan	All Patients	Pediatric (1-16y)			75%											
The proportion of asthma and patterns of asthma medications prescriptions among adult patients in the chest, accident and emergency units of a tertiary health care facility in Uganda	Kirenga[50]	2012	Uganda	All Patients	All Ages			44%	21%										
Pattern of respiratory diseases seen among adults in an emergency room in a resource-poor nation health facility	Desalu[51]	2011	Nigeria	All Patients	Adult (>18y)												7%	4%	
Evaluation of pain incidence and pain management in a South African paediatric trauma unit.	Thiadens[52]	2011	South Africa	Trauma	Pediatric (<13 y)					58 %									
Emergency medicine in Paarl, South Africa: a cross-sectional descriptive study	Hanewinckel[53]	2010	South Africa	All Patients	All Ages										54%				7%
Severe sepsis in two Ugandan hospitals: a prospective observational study of management and outcomes in a predominantly HIV-1 infected population	Jacob[54]	2009	Uganda	All Patients	Adult (>18y)	83 %													
Acute asthma in a children's emergency room: a clinical audit and management guideline proposal.	Okoromah[55]	2006	Nigeria	All Patients	Pediatric (<13y)			80%	80%										
Trauma at a Nigerian teaching hospital: pattern and documentation of presentation.	Thanni[56]	2006	Nigeria	Trauma	All Ages							97%							
Injury registration in a developing country. A study based on patients' records from four hospitals in Dar es Salaam, Tanzania	Mutasingwa[57]	2001	Tanzania	Trauma	All Ages								100 %						

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Distribution of data by emergency care setting

Overall, 59% (23 of 39 studies) providing "AFEM-CC quality indicators exact match" data were conducted at national, quaternary or tertiary care facilities. 21% (8 of 39) of studies contain data from regional hospitals and 15% (6 of 39) from district level facilities. Two studies were multicenter, with facilities of differing designations. Furthermore, 38% (15 of 39) studies identified the facility where data was collected as a teaching or university hospital. These details are again provided on a study-by-study basis in Appendix 2.

Results of individual sources of "AFEM-CC quality indicators exact match" evidence

The AFEM-CC-QI were grouped into three categories: clinical care, documentation and assessment, and clinical outcomes. The full listing of indicators and their definitions is presented as Appendix 1. Overall, 59 quality indicator data points were identified and are displayed in Figure 2 below.

Figure 2: Quality Indicator Data Published to Date

Documentation and assessment quality indicators account for 64% (38 of 59) of all data points identified in the scoping review with a single quality indicator (Documentation of

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disposition) yielding 29% (17 of 59) of all data compiled. Clinical care accounted for 25% (15 of 59) of data points and outcomes were only 10% (6 of 59) data points.

Results of individual sources of "AFEM-CC quality indicators near match" evidence

The 53 studies containing "AFEM-CC quality indicators near match" evidence were split between two groups of publications. The first group included 38 publications which were identified as containing only "AFEM-CC quality indicators near match" data.[58–95] The second group included 15 publications which were cited above as containing "AFEM-CC quality indicators exact match" data, but which contained additional "AFEM-CC quality indicators near match" data.[23,26,27,29,30,32,34,35,40,42,46,47,55–57] This brings the total number of publications containing "AFEM-CC quality indicators near match" data to 53 and the total number of data points identified within those publications to 87. Tables 2 and 3 contains summary "AFEM-CC quality indicators near match" data, while further detail about each included publication is provided in Appendix 3.

Results of individual sources of "AFEM-CC quality indicators near match" evidence

The 53 studies containing "AFEM-CC quality indicators near match" evidence were split between two groups of publications. The first group included 38 publications which were

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identified as containing only "AFEM-CC quality indicators near match" data.[58–95] The second group included 15 publications which were cited above as containing "AFEM-CC quality indicators exact match" data, but which contained additional "AFEM-CC quality indicators near match" data.[23,26,27,29,30,32,34,35,40,42,46,47,55–57] This brings the total number of publications containing "AFEM-CC quality indicators near match" data to 53 and the total number of data points identified within those publications to 87. Tables 2 and 3 contains summary "AFEM-CC quality indicators near match" data, while further detail about each included publication is provided in Appendix 3.

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Table 2 Clinical Care and Outcomes Near Match Quality Indicators

AFEM-CC Quality Indicator	First Author	Year	Country	Data Difference 1	Data Difference 2	%
Clinical Care Near Match Quality Indicators						
Blood glucose checked in patients with change in mental status: % of patients with documented change in mental status who have blood glucose checked	Berends[58]	2021	South Africa	Too narrow - First time seizures		91%
	Smith[59]	2013	South Africa	Too narrow - Sentinel conditions		79%
	Yusuf[60]	2013	Tanzania	Too narrow - Acute psychosis		82%
Oxygen for patients with hypoxia - % of patients with SaO2 <92% who had supplemental oxygen given	Berends[58]	2021	South Africa	Too narrow - Sentinel conditions	Variable definition - O_2 for respiratory distress	100%
	Muhanuzi[61]	2019	Tanzania	Variable definition - O_2 for respiratory distress		87%
	Kuti[62]	2015	Nigeria	Variable definition - O_2<90%		96%
	Kiwango[63]	2014	Tanzania	Too narrow - Traumatic brain injury		36%
Corticosteroid treatment given for asthma patients: % of patients with documentation of asthma who receive corticosteroid treatment	Shirani[64]	2018	South Africa	Too narrow - Triaged red		83%
	Nantanda[65]	2013	Uganda	Variable definition - Med prescribed NOT given		43%
Bronchodilator treatment given for asthma patients: % of patients with documentation of asthma who receive bronchodilator treatment	Shirani[64]	2018	South Africa	Too narrow - Triaged red		100%
	Nantanda[65]	2013	Uganda	Variable definition - Med prescribed NOT given		88%
Analgesia given to patients reporting pain: % of patients with documentation of pain who receive pain medications	Berends[58]	2021	South Africa	Too narrow - Sentinel conditions	Variable definition - pain meds given WITHOUT requiring pain complaint	86%
	Oluwaniyi[66]	2020	Nigeria	Too narrow - Trauma	Variable definition - pain meds given WITHOUT requiring pain complaint	92%
	Haonga[67]	2011	Tanzania	Too narrow - Fractures	Variable definition - pain meds given WITHOUT requiring pain complaint	53%
	Mattson[68]	2019	Rwanda	Too narrow - Fractures	Variable definition - pain meds given WITHOUT requiring pain complaint	52%
Long bone splinting for patients presenting w/ extremity fracture: % of patients w/ extremity fracture get splinted	Haonga[67]	2011	Tanzania	Variable definition - included patients splinted in EU and pre-hospital		>100%
Clinical Outcomes Near Match Quality Indicators						
Mortality from trauma - 24hour	Bundu[73]	2019	Sierra Leone	Wrong timing - Inpatient deaths		23.0%
	Demirel[74]	2019	Somalia	Wrong timing – EU deaths		1.3%
	Gallaher[72]	2019	Malawi	Wrong timing - Inpatient deaths		1.8%
	Ndung'u[75]	2019	Kenya	Wrong timing - Inpatient deaths		2.1%
	Saleeby[76]	2019	Kenya	Wrong timing - Inpatient deaths		6.6%
	Zaidi[32]	2019	South Africa	Wrong timing – EU deaths		0.5%

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	Lampi[77]	2018	Kenya	Wrong timing - Inpatient deaths		1.8%
	Richards[78]	2018	South Africa	Wrong timing - Inpatient deaths		6.3%
	Botchey[79]	2017	Kenya	Wrong timing – EU deaths		0.9%
	Sanyang[80]	2017	The Gambia	Wrong timing – EU deaths		0.9%
	Getachew[81]	2016	Ethiopia	Wrong timing – EU deaths		1.0%
	Schriger[42]	2016	Uganda	Wrong timing - Inpatient deaths		7.0%
	Chamberlain[82]	2015	Uganda	Wrong timing – 72 hr		1.2%
	Ndukwu[83]	2015	Nigeria	Wrong timing – EU deaths		5.1%
	Juillard[84]	2014	Cameroon	Wrong timing – EU deaths		1.0%
	Seidenberg[46]	2014	Zambia	Wrong timing - Inpatient deaths		3.0%
	Hsia[85]	2010	Uganda	Wrong timing - Inpatient deaths		2.0%
	Thanni[56]	2006	Nigeria	Wrong timing – EU deaths		2.1%
	Solagberu[86]	2003	Nigeria	Wrong timing – EU deaths		4.4%
	Taye[87]	2003	Ethiopia	Wrong timing – EU deaths		0.5%
Mortality from lower respiratory tract infection (adult)- 24 hour	Chamberlain[82]	2015	Uganda	Wrong timing – 72 hr		3.3%
	Onwuchekwa[88]	2008	Nigeria	Wrong timing – 72 hr		1.3%
Mortality from lower respiratory tract infection (child) – 24 hour	Ibraheem[89]	2020	Nigeria	Too broad - <18yo		8.3%
	Negash[90]	2019	Ethiopia	Wrong timing – EU deaths	Too broad - <15yo	2.4%
	Richards[78]	2018	South Africa	Too narrow - Patients needing resuscitation	Too broad - <12yo	8.6%
	Ambaye[91]	2016	Ethopia	Wrong timing – EU deaths	Too broad - <15yo	5.4%
	Chamberlain[82]	2015	Uganda	Wrong timing – 72 hr		4.1%
	Ndukwu[83]	2015	Nigeria	Wrong timing – EU deaths	Too broad - <18yo	6.8%
	Ezeonwu[92]	2014	Nigeria	Wrong timing - Inpatient deaths	Too broad - <15yo	2.2%
	Abhulimhen-Iyoha[93]	2012	Benin	Wrong timing – EU deaths	Too broad - <16yo	1.9%
	Muluneh[94]	2007	Ethiopia	Wrong timing – EU deaths	Too broad - <15yo	15.6%
	Ibeziako[95]	2002	Nigeria	Wrong timing – EU deaths	Too broad - All pediatric	5.1%
Mortality from asthma – 24 hour	Ibraheem[89]	2020	Nigeria	Wrong timing - Inpatient deaths		0.0%
	Ndukwu[83]	2015	Nigeria	Wrong timing – EU deaths		0.0%
	Okoromah[55]	2006	Nigeria	Wrong timing - Inpatient deaths		3.3%

Data Problem: Population too narrow
Data Problem: Variable differently defined
Data Problem: Timing incorrect
Data Problem: Population too broad

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Table 3 Documentation and Assessment Near Match Quality Indicators

AFEM-CC Quality Indicator	First Author	Year	Country	Data Difference 1	Data Difference 2	%	Multiple % (if applicable)
Recording of initial complete vital signs	Berends[58]	2021	South Africa	Variable definition - Individual NOT complete vitals			SpO_2 99%, RR 100%, HR 100%, BP 4%, Temp 98%
	Elbaih[69]	2021	Egypt	Variable definition - Individual NOT complete vitals			RR 4%, HR 23%, Temp 28%
	Mohammed[23]	2021	Egypt	Variable definition - Vital signs AND GCS		55%	
	Moretti[26]	2020	Rwanda	Variable definition - Individual NOT complete vitals			Temp 38%, SBP 38%, RR 39%, SpO_2 36%
	Motsumi[70]	2020	Botswana	Too narrow - Road traffic accidents	Variable definition - Individual NOT complete vitals		RR 100%, SpO_2 74%, HR 92% BP 89%, Temp 40%‡
	Mwandri[71]	2020	Tanzania	Variable definition - Individual NOT complete vitals			SpO_2 97%, RR 69%, HR 72%, BP 75%
	Sawe[27]	2020	Tanzania	Variable definition - Individual NOT complete vitals			Temp 25%, SBP 29%, RR18%, SpO_2 13%†
	Laytin[30]	2019	Ethiopia	Variable definition - Individual NOT complete vitals			SBP 77%, HR 86%
	Abdelwahab[34]	2017	Ethiopia	Variable definition - Individual NOT complete vitals			HR 98%, BP 93%, Temp 87%, RR 83%
	Chichom-Mefire[35]	2017	Cameroon	Variable definition - Two different data sources			BP: 13%, RR: 2%
	Soogun[40]	2017	South Africa	Variable definition - Individual NOT complete vitals			RR 99%, HR 99%, BP 99%, Temp 99%
	Chichom-Mefire[47]	2013	Cameroon	Variable definition - Individual NOT complete vitals			BP 13%, HR 7%, RR 2%
	Yusuf[60]	2013	Tanzania	Wrong timing - Any time in EU	Too narrow - Acute psychosis	88%	
Recording of demographics and chief complaint	Motsumi[70]	2020	Botswana	Variable definition - Not BOTH variables	Too narrow - Road traffic accidents		Demographics 96%, Injury mechanism 96%‡
	Mwandri[71]	2020	Tanzania	Variable definition - Not BOTH variables		86%	
	Sawe[27]	2020	Tanzania	Variable definition - Not BOTH variables			Name 99%, Age 82%, Gender 70%, Address 84%, Injury location 14% Injury mechanism 45%†
	Uwamahoro[29]	2020	Rwanda	Variable definition - Not BOTH variables		>99%	
	Gallaher[72]	2019	Malawi	Variable definition - Not BOTH variables			Demographics 100%, Injury mechanism 100%, Injury location 94%
	Laytin[30]	2019	Ethiopia	Variable definition - Not BOTH variables			Age 96%, Gender 99%, Injury mechanism 60%
	Zaidi[32]	2019	South Africa	Variable definition - Not BOTH variables			Gender 99%, Age 98%

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	Abdelwahab[34]	2017	Ethiopia	Variable definition - Not BOTH variables		95%	
	Chichom-Mefire[35]	2017	Cameroon	Variable definition - Not BOTH variables			Gender 99%, Age 98%, Injury mechanism 99%
	Seidenberg[46]	2014	Zambia	Variable definition - Not BOTH variables			Gender 100%, Age 94%, Injury mechanism 97%
	Mutasingwa[57]	2001	Tanzania	Variable definition - Not BOTH variables			Gender 100%, Age 96%, Injury mechanism 76%
Documentation of diagnosis	Motsumi[70]	2020	Botswana	Too narrow - Road traffic accidents		99%‡	
Documentation of disposition	Motsumi[70]	2020	Botswana	Too narrow - Road traffic accidents		100%‡	
Primary survey performed for all trauma patients	Mwandri[71]	2020	Tanzania	Variable definition - Each but not ALL variables			Airway and Breathing 33%, Circulation 0%, Disability 20%
	Motsumi[70]	2020	Botswana	Too narrow - Road traffic accidents		66%‡	
Initial assessment for all patients	Berends[58]	2021	South Africa	Too narrow - Sentinel conditions	Variable definition - Each but not ALL variables		Breathing 100%, SpO_2 99%, Pulse 100%, Cap refill 35%, Expose 34%

Data Problem: Timing incorrect

Data Problem: Variable improperly defined

Data Problem: Population too narrow

† pre- and post-intervention data available within study

‡ pre- and post-intervention data at two sites available within study

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The distribution of "near match" studies was less heavily skewed towards documentation and away from outcomes than the "exact match". Documentation and assessment quality indicators account for 41% (36 of 87) of all "near match" data points. Clinical care accounted for 24% (16 of 87) of data points and outcomes were 40% (35 of 87) data points.

Summary of "AFEM-CC quality indicators exact match" and "AFEM-CC quality indicators near match" evidence

Of the 18 "clinical care" quality indicators defined by AFEM-CC, 17% (3 of 18) had "exact match" and "near match" data identified, 11% (2 of 18) had "exact match" data only identified, 17% (3 of 18) had "near match" data only identified, and 56% (10 of 18) had no data identified. Of the ten "documentation and assessment" quality indicators defined by the AFEM-CC, 40% (4 of 10) had both "exact match" and "near match" data identified, 20% (2 of 10) had "exact match" data only identified, 20% (2 of 10) had "near match" data only identified, and 20% (2 of 10) had no data. Finally, of the five "clinical outcomes" quality indicators defined by AFEM-CC, 60% (3 of 5) had both "exact match" and "near match" data identified, 20% (1 of 5) had "exact match" only, and 20% (1 of 5) had no data identified. The full listing of identified quality indicators is presented as Appendix 1.

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DISCUSSION

Our methodological approach was comprehensive but required a very large number of searches. The searches of the medical literature required 128 individual searches of the medical literature (including PubMed, Cinhal, EMBASE and the African Journal of Emergency Medicine) and 442 individual searches of the grey literature (including Ministry of Health websites, WHO, Google, Google Scholar, Path). These 570 searches yielded 1,314 unique results and 314 of which warranted full-text review. This large volume of work only identified 146 total data points published to date in Africa that can be directly applied to the AFEM-CC-QI. Furthermore, only 59 of those data points met AFEM-CC-QI precisely enough to enable comparison between sites and studies. Producing this work has required a large investment in time but also internet connectivity and institutional access to medical libraries which represent structural barriers to replicating this sort of search in many low-income settings in Africa. Notably, these areas most directly benefit from obtaining and disseminating this data.

Our extensive review identified no literature focused on defining quality indicators applicable to low-income settings throughout Africa other than the Broccoli et al. AFEM-CC

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publication.[14] The paper by Maritz et al did discuss quality directly but did not focus on facility-level clinical indicators for low-resource setting due to South Africa's much higher level of emergency care and health system development.[18] Failing to find further applicable indicators despite rigorous search methods supports our *a priori* methodological decision to base our search strategy on the AFEM-CC process clinical and outcomes clinical quality indicators.

The authors believe that publication of this scoping review is an important first step in organizing and disseminating this widely scattered data in a format that is usable for clinicians, researchers, and policy makers to assist with subsequent development efforts. This data builds upon AFEM's efforts and can provide a starting point for benchmarking efforts and a common language for quality. The lack of existing focus on quality within emergency care research was highlighted by only 3 of the 39 studies included as "exact match" even mentioning quality in their stated research aims.

This lack of focus on the specific quality indicators also produced highly variable data, necessitating our creation of a "near match" category to attempt to include relevant research efforts more broadly. One of the goals of quality indicators is to provide references for comparing between sites and targeting quality improvement efforts. These aims are severely

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hampered by the lack of standardization in data measures and reporting. This problem was most clearly highlighted in the mortality outcomes data presented in Table 2. The abundance of mortality studies in the "near match" category suggests strong interest from researchers. This contrasts with the dearth of "exact match" mortality data and underlines how even subtle differences in age groups and/or outcome variables severely limits generalizability of data and comparison between studies. Moving towards standard definitions for inclusion criteria and outcomes will greatly increase the collective impact of this existing research interest. It is hoped that this scoping review can provide a reference point for efforts to standardize quality research and generate quality benchmarks in African emergency care.

As well as being variable, the data was highly asymmetrical. A disproportionate amount of the included studies were from a handful of countries and especially from urban academic centers. This highlights the challenge facing emergency care development in Africa where a huge knowledge gap exists about the emergency care needs of most countries and for rural populations across the continent. This gap brings into question the utility and applicability of the current evidence base for emergency care in many African settings.

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Finally, much of the data came from trauma registries. This creates asymmetry in the knowledge base as more is understood about the quality of emergency care for injuries than medical emergencies. However, these efforts are to be lauded as the registries appear to facilitate research efforts around quality indicators. Hopefully, these successes can encourage efforts to start or maintain emergency unit registries in Africa. But, the studies reporting on trauma registry data highlight the high level of training, clinician buy in, and time commitment needed to collect this data. To date trauma registry research efforts tended to focus disproportionately on documentation as compared to clinical care and outcomes. While documentation is an important facet of quality, its over-representation is likely tied to documentation variables being easily obtained from registry reviews. This in turn highlights the need for deliberate development of any emergency unit registries to include important data on diagnostics, treatments, and outcomes to support the breadth of quality research.

There are several limitations to this scoping review. Most fundamentally, the review was limited to English language documents. Additionally, there may be local data (e.g., conference presentation, quality improvement projects, regional meetings) that has been published but it is not available outside of local settings and would not be found by our search strategy.

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CONCLUSIONS

This review serves as a starting point for national and international African quality indicator benchmarking and system development efforts. Although our results indicate that a number of publications on African emergency care facility-based quality indicators exist, it is crucial that future publications reporting on emergency care in Africa be aware of – and consider conforming with – the AFEM-CC-QI in order to strengthen interfacility, regional, national, and international reporting on quality.

Ethic Approval: Not applicable, this study does not involve human participants.

Contributorship statement:
AP and BR planned the study. AP, PM, JN and BR analyzed the data. AP, PM, JN, CB, ECH and BR interpreted the data in the local context. AP, BR, PM drafted the manuscript. AP, PM, JN, CB, ECH and BR revised the manuscript. AP submitted the study. AP and BR are the guarantors of the overall content.

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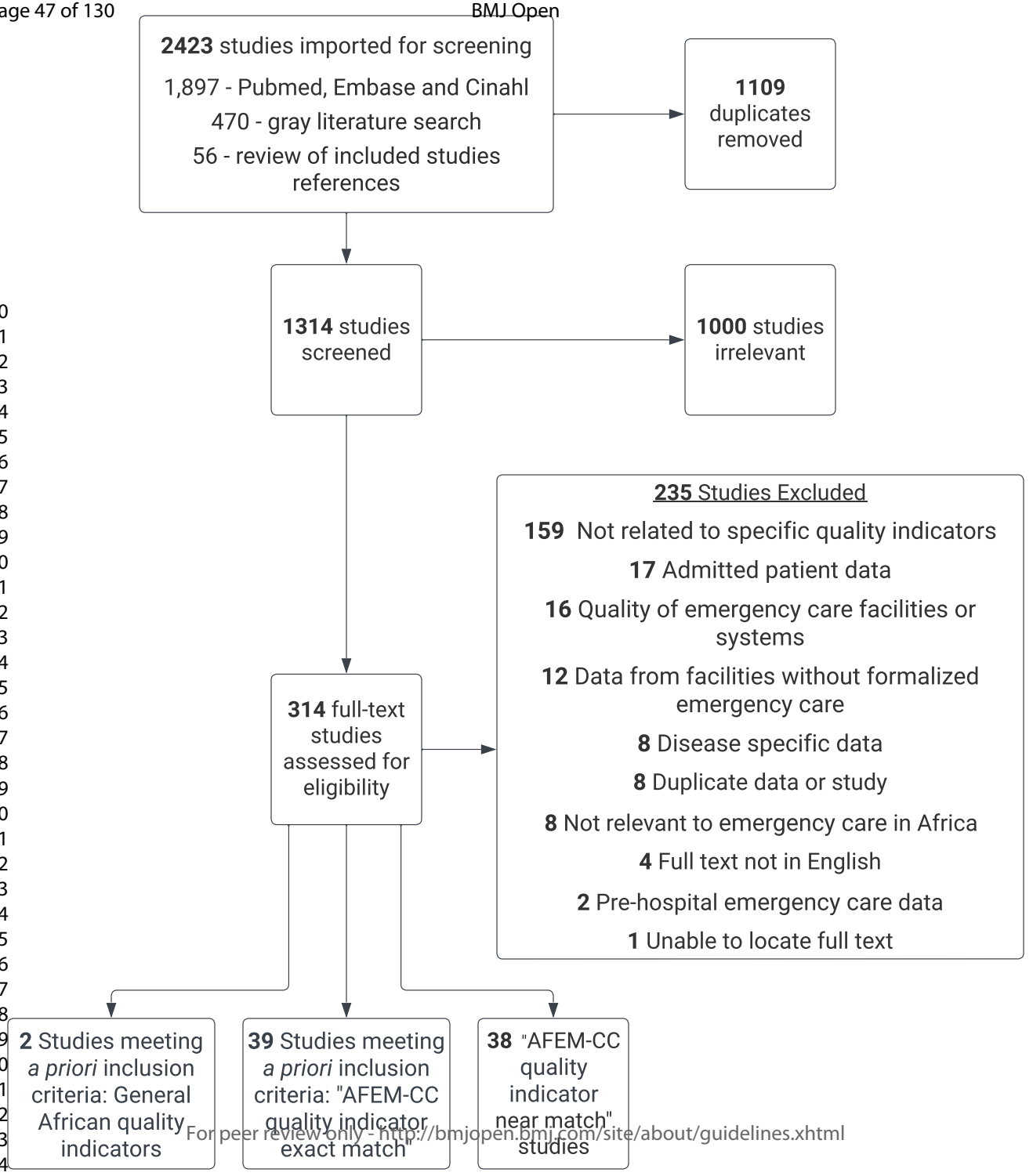
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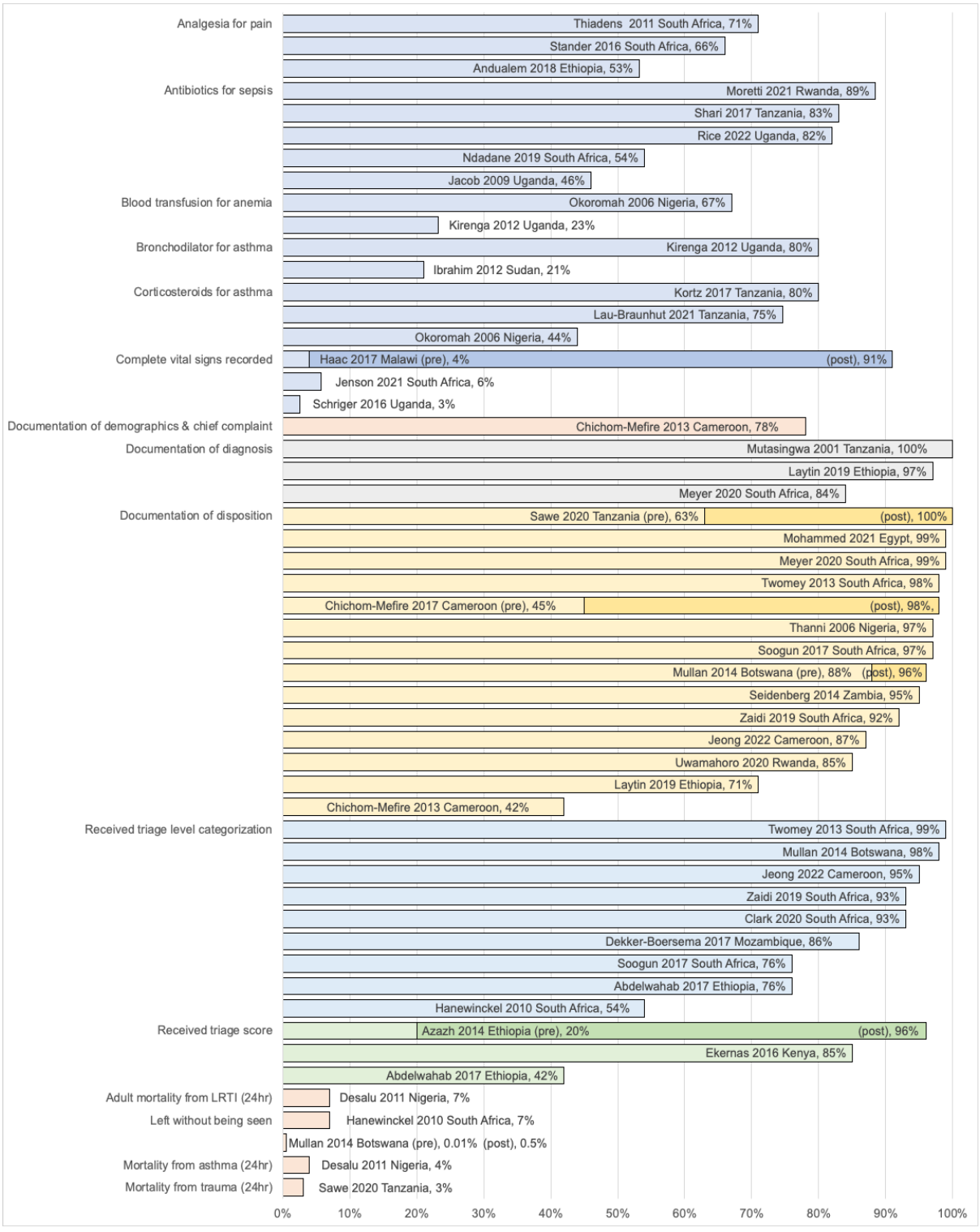
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Appendix 1: AFEM-CC Clinical Process and Outcomes Quality Indicators

Clinical Care Quality Indicators

Indicator	Definition	Exact match	Near match	No data
Antibiotics given for patients with sepsis	% of patients with diagnosis of sepsis given antibiotics during EU length of stay	✓	—	—
Blood transfusion of patients meeting transfusion criteria	% of patients meeting local transfusion criteria who receive blood transfusion	✓	—	—
Corticosteroid treatment given for asthma patients	% of patients with documentation of asthma who receive corticosteroid treatment	✓	✓	—
Bronchodilator treatment give for asthma patients	% of patients with documentation of asthma who receive bronchodilator treatment	✓	✓	—
Analgesia given to patients reporting pain	% of patients with documentation of pain who receive pain medications	✓	✓	—
Blood glucose checked in patients with change in mental status	% of patients with documented change in mental status who have blood glucose (BG) checked	—	✓	—
Supplemental oxygen given for hypoxic patients	% of patients with SaO2 <92% who had supplemental oxygen	—	✓	—
Long bone splinting for patients presenting with extremity fracture	% of patients with extremity fracture who are splinted	—	✓	—
Adult patients with shock given IV fluids	% of adult patients with SBP < 90 given intravenous fluids (IVF)	—	—	✓
FAST exam performed for blunt abdominal trauma	% of patients with chief complaint of blunt abdominal trauma who have documented results of Focused Assessment with Sonography in Trauma (FAST) exam	—	—	✓
Hypoglycemic patients given glucose	% of patients with blood glucose < 70 mg/dL given glucose	—	—	✓
Antibiotics given for pediatric pneumonia	% of patients < 5yoa with pneumonia given antibiotics during EU length of	—	—	✓

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	stay			
Antibiotics given for adults with pneumonia	% of adult patients with pneumonia given antibiotics during EU length of stay	—	—	✓
Action taken to control postpartum hemorrhage	% of patients with postpartum hemorrhage who receive medication to control bleeding	—	—	✓
Pregnancy test checked in women of reproductive age	% of female patients of reproductive age with pregnancy test checked	—	—	✓
Parental magnesium given to patients with eclampsia/preeclampsia	% of patients with diagnosis of eclampsia or preeclampsia receiving magnesium	—	—	✓
Action taken to control external hemorrhage	% of patients with active external bleeding who have physical maneuvers applied to control hemorrhage	—	—	✓
Tetanus vaccination updated for susceptible adult patients	% of patients age > 18 with open wound and documentation of tetanus vaccination given (or patient's reported recent vaccination)	—	—	✓

Documentation and Assessment Quality Indicators

Indicator	Definition	Exact match	Near match	No data
Recording of initial complete vital signs	% of patient encounters with recording of initial completed vital signs (VS)	✓	✓	—
Recording of demographics and chief complaint	% of charts with recording of chief complaint and demographics	✓	✓	—
Documentation of diagnosis	% of patients with documented diagnosis d. d.	✓	✓	—
Documentation of disposition	% of patients with documented disposition	✓	✓	—
Rate of triage	% of patients arriving to the EU receiving a triage score	✓	—	—
Triage level categorisation	% of patients by triage level	✓	—	—
Primary survey performed for all trauma patients	% of patients with chief complaint of trauma with documented primary survey	—	✓	—

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Initial assessment for all patients	% of patients receiving an initial assessment	—	✓	—
Documentation of reason for transfer	% of patients with documented reason for transfer	—	—	✓
Vital signs recorded every 15 min for highest acuity patients	% of patients with highest triage priority who have VS recorded every 15 min in the first hour of presentation	—	—	✓

Clinical Outcome Quality Indicators

Indicator	Definition	Exact match	Near match	No data
Mortality from trauma	% of patients with trauma-related chief complaint who die within 24hours of EU presentation	✓	✓	—
Mortality from lower respiratory tract infection (adult)	% of adult patients with diagnosis of LRTI who die within 24hours of EU presentation	✓	✓	—
Mortality from asthma	% of patients with diagnosis of asthma who die within 24hours of EU presentation	✓	✓	—
Left without being seen	% of patients registered in the EU who left without being seen by a provider	✓	—	—
Mortality from lower respiratory tract infection (child)	% of patients <5years with diagnosis of LRTI who die within 24hours of EU presentation	—	✓	—

From: Broccoli MC, Moresky R, Dixon J, Muya I, Taubman C, Wallis LA, Hynes EJ. Defining quality indicators for emergency care delivery: findings of an expert consensus process by emergency care practitioners in Africa. BMJ Global Health. 2018 Feb 1;3(1):e000479.

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
General Quality Indicator Papers														
Defining quality indicators for emergency care delivery: findings of an expert consensus process by emergency care practitioners in Africa	Broccoli	2018	NA	NA	"Determine context-appropriate quality indicators that will allow uniform and objective data collection to enhance emergency care delivery throughout Africa"	NA	NA	NA						
Identification of performance indicators for emergency centres in South Africa: results of a Delphi study	Maritz	2010	South Africa	NA	"Develop a broad-based consensus document detailing quality measures for use in SA Emergency Centres"	NA	NA	NA						
Antibiotics given for patients with sepsis: % of patients with diagnosis of sepsis given antibiotics during EU length of stay														
Emergency Care of Sepsis in Sub-Saharan Africa: Incidence, Mortality and Non-Physician Clinician Management of Sepsis in rural Uganda from 2010 to 2019	Rice	2021	Uganda	District Hospital, Karoli Lwanga Hospital, Rukungiri	"Contribute to understanding of larger trends in sepsis incidence over time in Uganda, the ability of non-physician clinician training programmes to impact emergency care quality, and the impact of sepsis management on mortality."	2010-2019	17,409	Adults (>=18yoa)	Patients with suspected infection		% of patients with suspected infection that received antibiotics in the ED	82%		
Severe sepsis in two Ugandan hospitals: a prospective observational study of management and outcomes in a predominantly HIV-1 infected population	Jacob	2009	Uganda	National and regional referral, Mulago Hospital, Kampala and Masaka Regional Referral Hospital, Masaka	"Report the management and outcomes of severely septic patients in two Ugandan hospitals. We describe their epidemiology, management, and clinical correlates for mortality"	2006	382	Adults (>18yoa)	Severe sepsis		% of patients with severe sepsis that "Received empiric antibiotics" in the EU	83%		
Clinical Presentation and Outcomes among Children with Sepsis Presenting to a Public Tertiary Hospital in Tanzania	Kortz	2017	Tanzania	National Referral, Muhimbili National Hospital (MNH), Dar es Salaam	"Characterize the clinical presentation, emergency interventions received, and outcomes among children with sepsis"	2016	405	Pediatrics (28 days-14yoa)	SIRS with a suspected infection		% of patients with SIRS and a suspected infection with "Antibiotics given" at any point while in the EU	54.10%		
The epidemiology of sepsis in a district hospital emergency centre in Durban, KwaZulu natal	Ndadane	2019	South Africa	District Hospital, Unknown name, Durban	"Describe the clinical profile and initial management of patients with sepsis syndrome in a South African district hospital EC"	2015-2016	52	Adults (>11yoa)	Sepsis; severe sepsis and septic shock		% of patients meeting sepsis criteria that "received antibiotics in the ED"	88.50%		
Pediatric sepsis interventions and in-hospital mortality in a resource limited emergency medicine department	Lau-Braunhut	2021	Tanzania	National Referral, Muhimbili National Hospital, Dar es Salaam	"Identify common emergency medicine department (EMD) sepsis interventions and explore potential predictors of mortality"	2016-2017	1804	Pediatrics (>28days-14yoa)	Sepsis (unclear how defined)		% of patients with "Sepsis" (unclear how defined) that received "antibiotics at any point in during ED care"	45.80%		
Blood transfusion of patients meeting transfusion criteria: % of patients meeting local transfusion criteria who receive blood transfusion														

Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Emergency blood transfusion practices among anaemic children presenting to an urban emergency department of a tertiary hospital in Tanzania	Shari	2017	Tanzania	National referral, Muhimbili National Hospital (MNH), Dar es Salaam	"Assess the burden of anaemia in the children arriving at the MNH-ED, evaluate the emergency blood transfusion practices at our hospital, and report the outcomes of children with anaemia"	2015	388	Pediatrics (<5yoa)	NA		% of patients meeting WHO transfusion guidelines that received transfusion	23.20%		
Transfusion, mortality and hemoglobin level: Associations among emergency department patients in Kigali, Rwanda	Moretti	2020	Rwanda	Tertiary, University Teaching Hospital of Kigali	"Evaluate the association of packed red blood cell (PRBC) transfusion with mortality outcomes across hemoglobin levels amongst emergency center (EC) patients"	2013-2016	1116	Adult medical patients (>15yoa)	NA		% of patients with hemoglobin <7.0 that recieved transfusion	67%		
Corticosteroid treatment given for asthma patients: % of patients with documentation of asthma who receive corticosteroid treatment														
The proportion of asthma and patterns of asthma medications prescriptions among adult patients in the chest, accident and emergency units of a tertiary health care facility in Uganda	Kirenga	2012	Uganda	National Referral Hospital, Mulago, Kampala Uganda	"Estimate the proportion of asthma patients in the Mulago chest clinic and the accident and emergency (A&E) department, and also establish the proportion of asthma patients that are treated according to GINA guidelines"	2009	416 (A&E patients only)	All ages	Asthma diagnosis		% of patients with EU diagnosis of asthma treated with oral steroids	44.40%		
Audit of acute asthma management at the Paediatric Emergency Department at Wad Madani Children's Hospital, Sudan	Ibrahim	2012	Sudan	Tertiary, Wad Madani Paediatrics' Teaching Hospital, Wad Madani, Gezira State	"Audit the acute wheeze/ asthma management in children admitted to the Emergency Department in relation to the published international guidelines... provide baseline data on acute asthma management"	2008	352	Pediatrics (1-16yoa)	Acute wheeze/ asthma		% of patients with EU diagnosis of asthma treated with systemic steroids (oral, IV or both)	74.60%		
Acute asthma in a children's emergency room: a clinical audit and management guideline proposal	Okoromah	2006	Nigeria	Tertiary University, Lagos Teaching Hospital, Lagos	"Clinical audit aimed at evaluating emergency management of acute asthma as well as proposing for use as management protocol; with the view of improving quality of care"	2000-2002	30	Pediatrics (<13yoa)	Asthma diagnostic labels		% of patients that received steroids in the EU	80%		
Bronchodilator treatment give for asthma patients: % of patients with documentation of asthma who receive bronchodilator treatment														
The proportion of asthma and patterns of asthma medications prescriptions among adult patients in the chest, accident and emergency units of a tertiary health care facility in Uganda	Kirenga	2012	Uganda	National Referral Hospital, Mulago, Kampala Uganda	"Estimate the proportion of asthma patients in the Mulago chest clinic and the accident and emergency (A&E) department, and also establish the proportion of asthma patients that are treated according to GINA guidelines"	2009	416 (A&E pts)	All ages	Asthma diagnosis		% of EU patients with diagnosis of asthma treated with bronchodilators	23.1		

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Acute asthma in a children's emergency room: a clinical audit and management guideline proposal	Okoromah	2006	Nigeria	Tertiary University, Lagos Teaching Hospital, Lagos	"Clinical audit aimed at evaluating emergency management of acute asthma as well as proposing for use as management protocol; with the view of improving quality of care"	2000-2002	30	Pediatrics (<13yoa)	Asthma diagnostic labels		% of patients with asthma diagnostic labels that received nebulized B2 agonist in the ED	80%		
Analgesia given to patients reporting pain: % of patients with documentation of pain who receive pain medications														
Evaluation of pain incidence and pain management in a South African paediatric trauma unit	Thiadens	2011	South Africa	Tertiary Hospital, Red Cross War Memorial Children's Hospital, Capetown	"Evaluate pain incidence and pain management in a South African paediatric trauma unit, and to compare the usefulness of 5 different assessment tools."	2008	165	Pediatric trauma (<13 yoa)	NA		% of patients reporting moderate to severe pain that received any pain medication in the ED	58%		
Assessment of Acute Pain Management and Associated Factors among Emergency Surgical Patients in Gondar University Specialized Hospital Emergency Department, Northwest Ethiopia, 2018: Institutional Based Cross-Sectional Study	Andualem	2018	Ethiopia	Regional Referral, Gonder University Specialized Hospital Emergency Department, Gondar town	"Determine pain management modalities and associated factors among emergency surgical patients in Gondar University Specialized Hospital Emergency Department"	2018	203	Adult surgical EU patients	NA		% of patients reporting pain (95.1% severe) that received any pain medication in the ED	66%		
Analysis of acute pain management in the emergency department of a large private hospital in Cape Town, South Africa	Stander	2016	South Africa	Tertiary, Panorama Mediclinic ED, Cape Town	"Analysis of pain management trends was performed in order to lead to a targeted intervention which would result in better care in the ED"	2015	100	Adults with pain as part of chief complaint	NA		% of patients with pain as part of chief complaint that received any pain medication in the ED	71%		
Recording of initial complete vital signs: % of patient encounters with recording of initial completed vital signs (VS)														
One in four die from acute infectious illness in an emergency department in Eastern Cape Province, South Africa	Jenson	2021	South Africa	Regional referral hospital, Mthatha in Eastern Cape Province	"To quantify and describe the incidence of and risk factors for mortality in a cohort of patients with undifferentiated acute infectious illnesses"	2017	310	Adult (>18yoa)	Acute infectious illness		% of patients with a "complete set of VS documented"	5.70%		
Task Shifting: The Use of Laypersons for Acquisition of Vital Signs Data for Clinical Decision Making in the Emergency Room Following Traumatic Injury	Haac	2017	Malawi	Tertiary care referral hospital, Kamuzu Central Hospital, Lilongwe	"Determine whether the training of lay people to take vital signs as trauma clerks is an effective and sustainable method to increase availability of vital signs in the initial evaluation of trauma patients"	2011-2014	18,546	Trauma patient (>18yoa)	NA	Preexisting trauma registry clerks were trained on VS collection during an initial 3-h training session including learning to collect manual blood pressure (BP), heart rate (HR) and respiratory rate (RR) and to calculate a Glasgow Coma Scale (GCS)	% of patients with full set of vital signs (temperature, respiratory rate, heart rate and blood pressure)		4.10%	91.40%

Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Evaluation of trauma patient presentations and outcomes at a ugandan regional referral hospital	Schriger	2016	Uganda	Regional referral center, Mbarara Regional Referral Hospital, Mbarara	"Prospectively characterize the demographics, mechanisms of injury, diagnoses, and outcomes among trauma patients presenting to Mbarara Regional Referral Hospital (MRRH) prior to planned trauma training interventions"	Unavailable	497	Trauma (unspecified age range)	NA	NA	% heart rate, blood pressure, respiratory rate and oxygen saturation	2.60%		
Recording of demographics and chief complaint: % of charts with recording of chief complaint and demographics														
Hospital-based injury data from level III institution in Cameroon: Retrospective analysis of the present registration system	Chichom-Mefire	2013	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	Assess "available administrative data from the emergency ward logs in a 200-bed regional hospital in Cameroon with respect to completeness and suitability to serve as an injury surveillance tool. The data available are also used to explore an overview of the epidemiological profile of injury in this institution"	2007-2008	1713	Adult (age >15 years) trauma patient	NA		% of patients with complete data recorded on "age, sex and mechanism"	78%		
Documentation of diagnosis: % of patients with documented diagnosis														
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin	2019	Ethiopia	Quaternary referral, Ikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia	"Identify early successes and challenges of the implementation of the African Federation for Emergency Medicine (AFEM) developed the AFEM Trauma Data Project (AFEM-TDP) and to develop strategies for site-specific protocol adaptation"		174 trauma registry forms, 13 interviews	Trauma (all ages?)	NA		% of patients with recorded ED diagnosis	97%		
What presents to a rural district emergency department: A case mix	Meyer	2020	South Africa	District Hospital, Zithulele hospital, Zithulele, Eastern Cape	"Assess the range of acute presentations as well as the types of procedures required by patients in a rural district hospital context"	2015	4002	NA	NA		% of patients with recorded ED diagnosis	84%		
Injury registration in a developing country. A study based on patients' records from four hospitals in Dar es Salaam, Tanzania	Mutasingwa	2001	Tanzania	4 largest tertiary hospitals Dar es Salam, 2 government and 2 private	"evaluate available hospital records for the purpose of describing the epidemiology of injuries among inpatients in four hospitals in Dar es Salaam, Tanzania."	1998	1089	Trauma (all ages)	NA		% of patients with recorded "Nature of injury (ex: fracture, laceration)"	99.60%		
Documentation of disposition: % of patients with documented disposition														

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Development and pilot implementation of a standardised trauma documentation form to inform a national trauma registry in a low-resource setting: lessons from Tanzania	Sawe	2020	Tanzania	5 regional referral hospitals in Tanzania (Morogoro, Arusha, Mwananyamala, Coastal and Tanga)	"Describe the development, structure, implementation and impact of a context appropriate standardised trauma form based on the adaptation of the WHO Data Set for Injury (DSI), for clinical documentation and use in a national trauma registry."	2018-2019	9,914, pre: 2891, pilot: 721, post: 6302	Trauma	NA	Created trauma for which is used for clinical documentation and data collection, conducted train the trainer and on-site training in documentation. 1 month pilot with interview on challenges to implementation	% of patients with disposition recorded (post - 7-months following implementation phase)		63%	100%
What presents to a rural district emergency department: A case mix	Meyer	2020	South Africa	District Hospital, Zithulele hospital, Zithulele, Eastern Cape	"Assess the range of acute presentations as well as the types of procedures required by patients in a rural district hospital context"	2015	4002	NA	NA		"Outcome recorded on ED disposition"	99%		
Evaluation of a modified South African Triage Score as a predictor of patient disposition at a tertiary hospital in Rwanda	Uwamahoro	2020	Rwanda	Tertiary, The University Teaching Hospital of Kigali (UTH-K), Kigali	"Evaluate the utility of the mSATS tool at UTH-K"	2015-2016	1438	All adults (>15 yoa), medical and trauma	NA		% of patients with disposition recorded	84.50%		
Epidemiology of injuries, outcomes, and hospital resource utilisation at a tertiary teaching hospital in Lusaka, Zambia	Seidenberg	2014	Zambia	Tertiary, University Teaching Hospital (UTH), Lusaka	"To develop a hospital-based trauma registry in an urban hospital in Lusaka, Zambia to assess patterns of injury, transport methods and duration, injury severity, outcomes and hospital resource utilisation."	2011-2012	3425	Trauma (all ages)	NA		% of patients with disposition recorded	95%		
Trauma at a Nigerian teaching hospital: pattern and documentation of presentation	Thanni	2006	Nigeria	Tertiary teaching hospital, Olabisi Onabanjo University Teaching Hospital, Sagamu	"Identify the characteristics of injuries and determining the efficiency of documentation of patients' records"	2003	1078	Trauma (all ages)	NA		% of patients with "outcomes of treatment" recorded	97%		
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin	2019	Ethiopia	Quaternary referral, Ikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia	"Identify early successes and challenges of the implementation of the African Federation for Emergency Medicine (AFEM) developed the AFEM Trauma Data Project (AFEM-TDP) and to develop strategies for site-specific protocol adaptation"		174 trauma registry forms, 13 interviews	Trauma (all ages?)	NA		% of patients with disposition recorded	71%		

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Completeness of medical records of trauma patients admitted to the emergency unit of a university hospital, upper egypt	Mohammed	2021	Egypt	Tertiary, Beni-Suef University Hospital, Upper Egypt	"Investigate the medical records of admitted trauma patients for the completeness of several pre-identified variables in order to evaluate the adequacy of the current medical record as a basis for the development of future trauma registries in hospitals in Upper Egypt."	2016	557	Trauma	NA	-	% of patients with "status at discharge" recorded	99%		
Hospital-based injury data from level III institution in Cameroon: Retrospective analysis of the present registration system	Chichom Mefire	2013	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	Assess "available administrative data from the emergency ward logs in a 200-bed regional hospital in Cameroon with respect to completeness and suitability to serve as an injury surveillance tool. The data available are also used to explore an overview of the epidemiological profile of injury in this institution"	2007-2008	1713	Adult (age >15 years) trauma patient	NA		% with "patient disposition (admission, transfer, discharge, death)" recorded	42%		
Vital signs for children at triage: a multicentre validation of the revised South African Triage Scale (SATS) for children	Twomey	2013	South Africa	6 ECs in the Western Cape, (2 regional hospitals, 2 central hospitals, and 1 community health centre)	"To validate a revised version of the paediatric South African Triage Scale (SATS) against admission as a reference standard and compare the sensitivity of triage using: (i) clinical discriminators; (ii) an age-appropriate physiological composite score; and (iii) a combination of both"	2011	2014	Pediatric (<13yoa)	NA		% of patients with disposition recorded	97.90%		
The burden of trauma at a district hospital in the Western Cape Province of South Africa	Zaidi	2019	South Africa	District hospital, Wesfleur Hospital, Western Cape Province	"Describe the burden of trauma at district hospitals by analysing trauma patients at a prototypical district hospital emergency centre."	2015	565	Trauma (all ages)	NA		% of patients with disposition recorded	91.50%		
Reduced overtriage and undertriage with a new triage system in an urban accident and emergency department in Botswana: a cohort study	Mullan	2014	Botswana	Tertiary Regional Referral, Princess Marina Hospital (PMH), Gaborone	"Compare the undertriage and overtriage rates in the PATS and pre-PATS study periods - local derived triage scale"	2010-2011	39,949	All ED patients (medical & trauma, all ages)	NA	"Creation and implementation of local "objective" triage scale - adapted the South African Triage Scale to create the PMH A&E Triage Scale (PATS)"	% of patients with "final disposition" recorded		88.00%	96%
An evaluation of the use of the South African Triage Scale in an urban district hospital in Durban, South Africa	Soogun	2017	South Africa	District hospital, Durban	"Evaluate the use of the SATS in a busy urban district hospital"	2016	346	NA	NA		% of patients with disposition recorded		97.10%	
Monitoring of characteristics of the patients visiting an emergency center in Cameroon through the development of hospital patient database	Jeong	2022	Cameroon	Tertiary/National, Centre des Urgences de Yaoundé, Yaoundé	"Describes the methods of CURY patient data collection and the characteristics of the patients visited CURY from January 2016 to June 2018"	2016-2018	18,875	NA	NA		% of patients with "result of ED visit" recorded	86.80%		

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Key findings from a prospective trauma registry at a regional hospital in Southwest Cameroon	Chichom-Mefire	2017	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	"Aims to characterize trauma as seen at the emergency department (ED) of Limbe Regional Hospital (LRH) and assess the completeness of data obtained by a trauma registry"	2008-2013	5,617	Trauma (all ages)	NA	Implementation of trauma registry	% of patients with "outcome of ED treatment" recorded in administrative records (pre) and trauma records (post)		45.00%	98.60%
Rate of triage: % of patients arriving to the EU receiving a triage score														
A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab	2017	Ethiopia	Large teaching hospital, Ayder Comprehensive Specialized Hospital, Tigray Region, northern Ethiopia	"Evaluate the implementation of nurse-led emergency triage (SATS)"	2015	107	Adult (>18yoa)	NA		% of charts containing a triage form	42%		
Head injury is the leading cause of presentation and admission to a tertiary care center in kenya: A descriptive analysis of emergency department patients at kenyatta national hospital	Ekernas	2016	Kenya	Tertiary national referral center, Kenyatta National Hospital	"There is limited information regarding patients seen in the Accident and Emergency (A&E) department"	2014-2015	23,941	All patients registered in the A&E	NA		% of patients with triage logbook data available	85%		
Enhancing emergency medicine initiatives with a quality improvement program: lessons learned in the emergency department of Tikur Anbessa Hospital, Addis Ababa Ethiopia	Azazh	2014	Ethiopia	Tertiary care teaching hospital, Tikur Ambessa Specialized Hospital, Addis Ababa, Adult and pediatric EDs	"Describe the QI methodology, capacity building strategy, implementation approach and lessons learned"	2011	Unknown	Adults	NA	QI project to improve triage rate, ie clear specific intervention	% of patients with triage documented (QI project to improve triage rate)		20%	96%
Triage level categorisation: % of patients by triage level														
Vital signs for children at triage: a multicentre validation of the revised South African Triage Scale (SATS) for children	Twomey	2013	South Africa	6 ECs in the Western Cape, (2 regional hospitals, 2 central hospitals, and 1 community health centre)	"To validate a revised version of the paediatric South African Triage Scale (SATS) against admission as a reference standard and compare the sensitivity of triage using: (i) clinical discriminators; (ii) an age-appropriate physiological composite score; and (iii) a combination of both"	2011	2014	Pediatrics (<13yoa)	NA		% of patients with "triage acuity level" documented	99.40%		
Reduced overtriage and undertriage with a new triage system in an urban accident and emergency department in Botswana: a cohort study	Mullan	2014	Botswana	Tertiary Regional Referral, Princess Marina Hospital (PMH), Gaborone	"Compare the undertriage and overtriage rates in the PATS and pre-PATS study periods - local derived triage scale"	2010-2011	39,949	All ED patients (medical & trauma, all ages)	NA	"Creation and implementation of local "objective" triage scale - adapted the South African Triage Scale to create the PMH A&E Triage Scale (PATS)"	% of patients with "triage assignment"	98%		

Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab	2017	Ethiopia	Large teaching hospital, Ayder Comprehensive Specialized Hospital, Tigray Region, northern Ethiopia	"Evaluate the implementation of nurse-led emergency triage (SATS)"	2015	107	Adult (>18yoa)	NA		% of "triage sheets with a category calculated"	75.50%		
We need to target trauma : a prospective observational study in Eastern Cape Province, South Africa	Clark	2020	South Africa	Multiple hospitals, 2 large tertiary, 1 secondary	"To characterise the burden of disease across a diverse range of ECs in Eastern Cape Province, South Africa (SA)."	2016-2017	4271	Adult (>18yoa)	NA		% of patients with "STATS Acuity level" recorded	93.40%		
The burden of trauma at a district hospital in the Western Cape Province of South Africa	Zaidi	2019	South Africa	District hospital, Wesfleur Hospital, Western Cape Province	"Describe the burden of trauma at district hospitals by analysing trauma patients at a prototypical district hospital emergency centre."	2015	565	Trauma (all ages)	NA		% of patients "with STATs score" recorded	80.60%		
Saving children's lives with colours	Dekker-Boersema	2017	Mozambique	District hospital, Chiure District Hospital, Northern Mozambique	"Evaluate the implementation of a coloured triage system and ETAT on the paediatric mortality at a district hospital"	2014-2016	650	Pediatrics (<15yoa)	NA		% of patients "assigned a triage color"	86%	8.2% undertriage, 2.3% overtriage	
Emergency medicine in Paarl, South Africa: a cross-sectional descriptive study	Hanewinckel	2010	South Africa	Secondary hospital, Paarl Hospital, Paarl	"There is a paucity of data about emergency department (ED) patient demographics, epidemiology, consultation and admission criteria and other characteristics.... to provide this information, we performed a study in a rural hospital in Paarl, 60 km outside Cape Town."	2008	2134	All ED patients (medical & trauma, all ages)	NA		% of patients "with triage information/category available"	53.70%		
Monitoring of characteristics of the patients visiting an emergency center in Cameroon through the development of hospital patient database	Jeong	2022	Cameroon	Tertiary/National, Centre des Urgences de Yaoundé, Yaoundé	"Describes the methods of CURY patient data collection and the characteristics of the patients visited CURY from January 2016 to June 2018"	2016-2018	18,875	NA	NA		% of patients with "CTAS triage score" recorded	94.80%		
An evaluation of the use of the South African Triage Scale in an urban district hospital in Durban, South Africa	Soogun	2017	South Africa	District hospital, Durban	"Evaluate the use of the SATS in a busy urban district hospital"	2016	346	NA	NA		% of patients with "correctly recorded final triage"	75.70%		
Mortality from trauma: % of patients with trauma-related chief complaint who die within 24hours of EU presentation														
The burden of trauma in Tanzania: Analysis of prospective trauma registry data at regional hospitals in Tanzania	Sawe	2020	Tanzania	5 Regional Hospitals	"Characterize the burden of trauma seen at five regional hospital Emergency Units (EUs) in Tanzania using data from a new trauma registry"	2019	6,302	Trauma (all ages)	NA		24 hour mortality	3.30%		
Mortality from lower respiratory tract infection (adult): % of adult patients with diagnosis of LRTI who die within 24hours of EU presentation														

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Pattern of respiratory diseases seen among adults in an emergency room in a resource-poor nation health facility	Desalu	2011	Nigeria	Tertiary, Federal Medical Centre Ido-Ekiti, Southwestern Nigeria	"Determine the pattern of respiratory diseases seen among adults in an emergency room (ER) and their mortality within twenty-four hours in a health facility in Nigeria."	2004-2010	386	Adult (>18yoa)	Respiratory disease		24 hour mortality	7.1 %		
Mortality from asthma: % of patients with diagnosis of asthma who die within 24hours of EU presentation														
Pattern of respiratory diseases seen among adults in an emergency room in a resource-poor nation health facility	Desalu	2011	Nigeria	Tertiary, Federal Medical Centre Ido-Ekiti, Southwestern Nigeria	"Determine the pattern of respiratory diseases seen among adults in an emergency room (ER) and their mortality within twenty- four hours in a health facility in Nigeria."	2004-2010	386	Adult (>18yoa)	Respiratory disease		24 hour mortality	4.40%		
Left without being seen: % of patients registered in the EU who left without being seen by a provider														
Reduced overtriage and undertriage with a new triage system in an urban accident and emergency department in Botswana: a cohort study	Mullan	2014	Botswana	Tertiary Regional Referral, Princess Marina Hospital (PMH), Gaborone	"Compare the undertriage and overtriage rates in the PATS and pre-PATS study periods - local derived triage scale"	2010-2011	39,949	All ED patients (medical & trauma, all ages)	NA	"Creation and implementation of local "objective" triage scale adapted the South African Triage Scale to create the PMH A&E Triage Scale (PATS)."	% left without being seen		0.01%	0.50%
Emergency medicine in Paarl, South Africa: a cross-sectional descriptive study	Hanewinckel	2010	South Africa	Secondary hospital, Paarl Hospital, Paarl	"There is a paucity of data about emergency department (ED) patient demographics, epidemiology, consultation and admission criteria and other characteristics.... to provide this information, we performed a study in a rural hospital in Paarl, 60 km outside Cape Town."	2008	2134	All ED patients (medical & trauma, all ages)	NA		% "left without being seen by a doctor"	6.80%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Blood glucose checked in patients with change in mental status: % of patients with documented change in mental status who have blood glucose (BG) checked													
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatrics (<13yoa)		% of patients in whom glucose was checked (or dextrose administered if unable to check)	79.20%		
Medical evaluation abnormalities in acute psychotic patients seen at the emergency department of Muhimbili national hospital in Dar es Salaam, Tanzania	Yusuf	2013	Tanzania	National Referral, Muhimbili National Hospital, Dar es Salaam	"Investigated the yield of physical examination and laboratory testing among patients presenting with acute psychosis"	Unavailable	252	-	-	Glucose checked at any point during ED	82%		
Emergency centre investigation of first-onset seizures in adults in the Western Cape, South Africa	Smith	2013	South Africa	6 EDs two tertiary centres and four district hospitals, Western Cape Province, South Africa	"Review which investigations were performed on adults presenting with first-onset seizures"	2011	309	Adult (>13yoa)	-	Glucose checked at any point during ED"	91.20%		
Oxygen for patients with hypoxia - % of patients with SaO2 <92% who had supplemental oxygen given													
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatric (<13yoa)	-	% of patients "Give oxygen when indicated" for respiratory distress	100.00%		
Respiratory compromise in children presenting to an urban emergency department of a tertiary hospital in Tanzania: a descriptive cohort study.	Muhanuzi	2019	Tanzania	Muhimbili National Hospital is a tertiary hospital located in Dar es Salaam	"Describe the clinical epidemiology, management and outcomes of paediatric patients with respiratory compromise"	2017	165	Pediatric (1mth-18yoa)	-	% of patients with respiratory distress that receives oxygen	86.70%		
Hypoxaemia in hospitalised children in the emergency unit of a resource-poor setting	Kuti	2015	Nigeria	Ahmad Sani Yariman Bakura Specialist Hospital (ASYBSH), Gusau, Northwest Nigeria	"Determine the prevalence and determinants of hypoxaemia among children admitted to the emergency unit"	2017	202	Pediatric (1 mth-15 yoa)	-	% of patients with O2 <90% that received O2	96%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
The effect of airway management in traumatic brain injury at kilimanjaro christian medical center, Moshi, Tanzania	Kiwango	2014	Tanzania	District hospital, Kilimanjaro Christian Medical Center, Moshi	"Describe the current presentation and airway management practices in TBI patients to create a clinical practice guideline for a limited-resource setting to improve outcomes"	2013	371	-	-	% of patients with GCS <92% that received O2	36.40%		
Corticosteroid treatment given for asthma patients: % of patients with documentation of asthma who receive corticosteroid treatment													
Evaluating acute asthma management at Red Cross Children's Hospital, South Africa	Shirani	2018	South Africa	Tertiary, Red Cross Children's Hospital, Pediatric ED	"Reevaluate the presentation and management of children with Acute Severe Asthma at our facility"	2013	95	Pediatric (<13yoa)	-	% of patients that received systemic steroids immediately	83%		
Asthma and pneumonia among under-fives with acute respiratory symptoms in Uganda: Is asthma underdiagnosed?	Nantanda	2013	Uganda	National Referral Hospital, Mulago, Kampala Uganda, Pediatric ED	"Determine the magnitude of asthma and pneumonia among children less than five years of age with cough and/or difficulty breathing, based on stringent clinical criteria. We also describe the treatment for children with acute respiratory symptoms"	2012	614	Pediatric (<5 yoa)	-	% of patients identified as having "asthma syndrome" and "prescribed systemic steroids"	43.10%		
Bronchodilator treatment give for asthma patients: % of patients with documentation of asthma who receive bronchodilator treatment													
Evaluating acute asthma management at Red Cross Children's Hospital, South Africa	Shirani	2018	South Africa	Tertiary, Red Cross Children's Hospital, Pediatric ED	"Reevaluate the presentation and management of children with Acute Severe Asthma at our facility"	2013	95	Pediatric (<13yoa)	-	% of patients that received systemic steroids immediately	100%	100%	
Asthma and pneumonia among under-fives with acute respiratory symptoms in Uganda: Is asthma underdiagnosed?	Nantanda	2013	Uganda	National Referral Hospital, Mulago, Kampala Uganda, Pediatric ED	"Determine the magnitude of asthma and pneumonia among children less than five years of age with cough and/or difficulty breathing, based on stringent clinical criteria. We also describe the treatment for children with acute respiratory symptoms"	2012	614	Pediatric (<5 yoa)	-	% of patients identified as having "asthma syndrome" and "prescribed bronchodilators"	88%		
Analgesia given to patients reporting pain: % of patients with documentation of pain who receive pain medications													
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatric (<13yoa)	-	% of patients that "received any pain medication in the ED"	86%		
Severity of trauma pain and treatment modalities in children attending emergency care facility in a tertiary hospital-preliminary report	Oluwaniyi	2020	Nigeria	Tertiary, University College Hospital, Ibadan, Oyo State, South-West Nigeria	"Identifying the different causes of trauma pain in children presenting to the emergency department in this environment, assess this pain; using certain pain tools to determine the severity and identify the different treatment modalities applied in this environment, if any, and determine their effectiveness in lowering pain."	2016-2017	13	Pediatric (2-15 yoa)	-	% of patients that "received any pain medication in the ED"	92.30%		

Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Traumatic musculoskeletal outcomes pre- and post-development of a Rwandan emergency medicine training program	Mattson	2019	Rwanda	Tertiary, The University Teaching Hospital-Kigali, Kigali, Rwanda	"1) to understand the epidemiology of MSI fractures in Rwanda; and 2) to evaluate the progress of the country's first EM residency program in treating MSI-related injuries by assessing ED mortality rates, length of stay, and complication rates."	Pre: 2012-2013, Post: 2015-2016	691	-	Implementation of an Emergency Medicine Training Program	% of patients that "received analgesics"	52.20%		
Pain management among adult patients with fractures of long bones at Muhimbili Orthopaedic Institute in Dar es Salaam, Tanzania	Haonga	2011	Tanzania	Regional trauma center, ED in Muhimbili Orthopaedic Institute in Dar es Salaam	To assess pain management among adult patients with fractures of long bones at Muhimbili Orthopaedic Institute in Dar es Salaam, Tanzania	2008	250	Adults (18-60 yoa)		% of patients reporting severe pain that received any pain medication in the ED	53.00%		
Long bone splinting for patients presenting with extremity fracture - % of patients with extremity fracture who are splinted													
Pain management among adult patients with fractures of long bones at Muhimbili Orthopaedic Institute in Dar es Salaam, Tanzania	Haonga	2011	Tanzania	Regional trauma center, ED at Muhimbili Orthopaedic Institute, Dar es Salaam	"To assess pain management among adult patients with fractures of long bone"	2008	250	Adult (18-60yoa)		Splinted before or while in ED (before: 31.2%, in ED 68.8%)	100%		
Recording ofinitial complete vital signs: % of patient encounters with recordingof initialcompleted vital signs (VS)													
Completeness of medical records of trauma patients admitted to the emergency unit of a university hospital, upper egypt	Mohammed	2021	Egypt	Tertiary, Beni-Suef University Hospital, Upper Egypt	"Investigate the medical records of admitted trauma patients for the completeness of several pre-identified variables in order to evaluate the adequacy of the current medical record as a basis for the development of future trauma registries in hospitals in Upper Egypt."	2016	557	-	-	% of patients with "complete vital signs & GCS"	55%		
Assessment of the patients' outcomes after implementation of South African Triage Scale in emergency department, Egypt	Elbaih	2021	Egypt	Suez Canal University Hospital (SCHUH), Ismailia	"Assess the patients' outcomes after the implementation of SATS in ED at SCUH, in terms of the LOS and the mortality rates in ED"	Unavailable	345	-	Implementation of SATS	% of patients with "vital signs obtained in triage" (pre- & post-SATS)		RR 4.3%, HR 22.6%, Temp 27.8%	100%
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatric (<13yoa)	-	% of patients with vital signs documented	SpO2 - 99%, RR - 100%, HR - 100%, BP - 42%%, temp 98%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Development and pilot implementation of a standardised trauma documentation form to inform a national trauma registry in a low-resource setting: lessons from Tanzania	Sawe	2020	Tanzania	5 regional referral hospitals in Tanzania (Morogoro, Arusha, Mwananyamala, Coastal and Tanga)	"describe the development, structure, implementation and impact of a context appropriate standardised trauma form based on the adaptation of the WHO Data Set for Injury (DSI), for clinical documentation and use in a national trauma registry."	2018-2019	9,914, pre: 2891, pilot: 721, post: 6302	-	Created trauma form which is used for clinical documentation and data collection, conducted train the trainer and on-site training in documentation, 1 month pilot with interview on form and challenges to implementation	% of patients with vital signs documented. (Pre duplicate data with: "Trauma care and capture rate of variables of World Health Organisation data set for injury at regional hospitals in Tanzania: first steps to a national trauma registry, Post 7-month implementation phase)		HR: 24.5%, SBP: 18.7%, RR:18%, SpO2: 13.1%	HR: 95.8%, SBP: 97.1%, RR:99.7%, SpO2: 98.5%
Transfusion, mortality and hemoglobin level: Associations among emergency department patients in Kigali, Rwanda	Moretti	2020	Rwanda	University Teaching Hospital of Kigali	"Evaluate the association of packed red blood cell (PRBC) transfusion with mortality outcomes across hemoglobin levels amongst emergency center (EC) patients"	2013-2016	1116	Adult (>15yoa)	-	% of patients with vital signs documented	HR 38.3%, SBP 38.2%, RR 38.8%, SpO2 36.2%		
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	-	1. Describes step in design of the registry (review of currently available models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with vital signs "documented during primary survey"		SHL: RR 100%, SO2 73.8%, HR 92% BP 89%, Temp 40%; PMH RR 91%, SO2 92%, HR 97% BP 90%, Temp 39%	SHL: RR 93%, SO2 89%, HR 95% BP 91%, Temp 14%; ; PMH RR 96%, SO2 93%, HR 97% BP 90%, Temp 71%
Trauma burden, patient demographics and care-process in major hospitals in Tanzania: A needs assessment for improving healthcare resource management	Mwanri	2020	Tanzania	National and 2 regional referral hospitals all with EC	"Assess: the in-hospital trauma-burden, major injury processes of care; and the trauma death burden."	2018	480	-	-	% of patients with vital signs documented	SpO2 - 97%, RR - 69%, HR - 72%, BP - 75%,		
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin	2019	Ethiopia	Quaternary referral, Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia	"Identify early successes and challenges of the implementation of the African Federation for Emergency Medicine (AFEM) developed the AFEM Trauma Data Project (AFEM-TDP) and to develop strategies for site-specific protocol adaptation"		174 trauma registry forms, 13 interviews	-	-	% of patients with "vital signs recorded at the time of arrival"	SBP 77%, HR 86%		
Key findings from a prospective trauma registry at a regional hospital in Southwest Cameroon	Chichom-Mefire	2017	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	"Aims to characterize trauma as seen at the emergency department (ED) of Limbe Regional Hospital (LRH) and assess the completeness of data obtained by a trauma registry"	2008-2013	5,617	-	Implementation of a trauma registry	% of vital signs recorded in administrative records (pre) and trauma records (post)		BP: 13%, RR: 2%	BP: 71%, RR: 26%

Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
An evaluation of the use of the South African Triage Scale in an urban district hospital in Durban, South Africa	Soogun	2017	South Africa	District hospital, Durban	"Evaluate the use of the SATS in a busy urban district hospital"	2016	346	-	-	% of patients with recorded triage vital signs		RR 99.4% HR 99.1% BP 99.4 Temp 98.8	
A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab	2017	Ethiopia	Large teaching hospital, Ayder Comprehensive Specialized Hospital, Tigray Region, northern Ethiopia	"Evaluate the implementation of nurse-led emergency triage (SATS)"	2015	107	Adult (>18yoa)	-	% of patients with vital signs documented	HR 98%, BP 93%, Temp 87%, RR 83%		
Medical evaluation abnormalities in acute psychotic patients seen at the emergency department of Muhimbili national hospital in Dar es Salaam, Tanzania	Yusuf	2013	Tanzania	National Referral, Muhimbili National Hospital, Dar es Salaam	"Investigated the yield of physical examination and laboratory testing among patients presenting with acute psychosis"	Unavailable	252	-	-	% of patients with "complete vital signs at any point during EC"	88%		
Hospital-based injury data from level III institution in Cameroon: Retrospective analysis of the present registration system	Chichom Mefire	2013	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	Assess "available administrative data from the emergency ward logs in a 200-bed regional hospital in Cameroon with respect to completeness and suitability to serve as an injury surveillance tool. The data available are also used to explore an overview of the epidemiological profile of injury in this institution"	2007-2008	1713	Adult (>15 years)	-	% of patients with vital signs documented	BP 13%, HR 7%, RR 2%		
Recording of demographics and chief complaint: % of charts with recording of chief complaint and demographics													
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	-	1. Describes step in design of the registry (review of currently avaible models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with "documented demographics and registration information" & % of patients with "documented mode of injury"		Demographics 95.9%; mode of injury SLH 94.5% PMH 96.1%	Demographics 94.3%; mode of injury SLH 96.1% PMH 95.7%

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Development and pilot implementation of a standardised trauma documentation form to inform a national trauma registry in a low-resource setting: lessons from Tanzania	Sawe	2020	Tanzania	5 regional referral hospitals in Tanzania (Morogoro, Arusha, Mwananyamala, Coastal and Tanga)	"Describe the development, structure, implementation and impact of a context appropriate standardised trauma form based on the adaptation of the WHO Data Set for Injury (DSI), for clinical documentation and use in a national trauma registry."	2018-2019	9,914, pre: 2891, pilot: 721, post: 6302	-	Created trauma form which is used for clinical documentation and data collection, conducted train the trainer and on-site training in documentation, 1 month pilot with interview on form and challenges to implementation	% of patients with variables documented (post 3 months following implementation phase)		Name: 99.3%, Age:82%, Gender: 69.7%, Address: 83.8%, Geographic location of injury: 14.1% Mechanism of injury: 45%	Name:100%, Age: 97.3%, Gender: 99.3%, Address 95.4%, Geographic location of injury: 94.5% Mechanism of Injury: 95.5%
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin	2019	Ethiopia	Quaternary referral, Ikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia	"Identify early successes and challenges of the implementation of the African Federation for Emergency Medicine (AFEM) developed the AFEM Trauma Data Project (AFEM-TDP) and to develop strategies for site-specific protocol adaptation"		174 trauma registry forms, 13 interviews	-	-	% of patients with variables documented	age - 96%, sex 99%, injury mechanism 60%		
The Malawi trauma score: A model for predicting trauma-associated mortality in a resource-poor setting	Gallaher	2019	Malawi	Tertiary referral hospital, Kamuzu Central Hospital (KCH), Lilongwe, Malawi	"Sought to describe injury severity in an accurate and reproducible manner by developing a scoring system that would require only a history and physical exam, while also predicting trauma-associated mortality. This score would have potential as a foundation for rapid triage tools at regional and tertiary trauma centers throughout the region and allow for risk-stratification of our patient populations"	2011-2014	62,354	Adult	-	% of patients with variables documented	Demographics: 100%, Mechanism of injury: 99.8%, Location of injury: 93.7%		
Key findings from a prospective trauma registry at a regional hospital in Southwest Cameroon	Chichom-Mefire	2017	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	"Aims to characterize trauma as seen at the emergency department (ED) of Limbe Regional Hospital (LRH) and assess the completeness of data obtained by a trauma registry"	2008-2013	5,617	-	-	% of patients with variables documented	gender: 99.3%, age: 98%, mechanism: 99.3%		
Epidemiology of injuries, outcomes, and hospital resource utilisation at a tertiary teaching hospital in Lusaka, Zambia	Seidenberg	2014	Zambia	Tertiary, University Teaching Hospital (UTH), Lusaka	"To develop a hospital-based trauma registry in an urban hospital in Lusaka, Zambia to assess patterns of injury, transport methods and duration, injury severity, outcomes and hospital resource utilisation."	2011-2012	3425	-	-	% of patients with variables documented	sex: 99.7%, age: 94%, mechanism: 96.6%		
Injury registration in a developing country. A study based on patients' records from four hospitals in Dar es Salaam, Tanzania	Mutasingwa	2001	Tanzania	4 largest tertiary hospitals Dar es Salam, 2 government and 2 private	"evaluate available hospital records for the purpose of describing the epidemiology of injuries among inpatients in four hospitals in Dar es Salaam, Tanzania."	1998	1089	-	-	% of patients with variables documented	gender: 100%, age: 96.4%, mechanism: 76.2%		
Demographics Only													

Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
The burden of trauma at a district hospital in the Western Cape Province of South Africa	Zaidi	2019	South Afica	District hospital, Wesfleur Hospital, Western Cape Province	"Describe the burden of trauma at district hospitals by analysing trauma patients at a prototypical district hospital emergency centre."	2015	565	-	-	% of patients with variables documented	sex: 99.2%, age: 98.1%		
A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab	2017	Ethiopia	Large teaching hospital, Ayder Comprehensive Specialized Hospital, Tigray Region, northern Ethiopia	"Evaluate the implementation of nurse-led emergency triage (SATS)"	2015	107	Adult (>18yoa)	-	% of patients with documentation of demographics	95%		
Chief complaint/mode of injury only													
Trauma burden, patient demographics and care-process in major hospitals in Tanzania: A needs assessment for improving healthcare resource management	Mwandri	2020	Tanzania	National and 2 regional referral hospitals all with EC	"Assess: the in-hospital trauma-burden, major injury processes of care; and the trauma death burden."	2018	480	-	-	% documentation of mode of injury	86%		
Evaluation of a modified South African Triage Score as a predictor of patient disposition at a tertiary hospital in Rwanda	Uwamahoro	2020	Rwanda	Tertiary, The University Teaching Hospital of Kigali (UTH-K), Kigali	"Evaluate the utility of the mSATS tool at UTH-K"	2015-2016	1438	Adult (>15 yoa)	-	% documentation of mode of injury	>99%		
Documentation of diagnosis: % of patients with documented diagnosis													
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	Trauma	1. Describes step in design of the registry (review of currently available models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with recorded "Final diagnosis"		SLH 98.5% PMH 99.3%	SLH 99.3% PMH 96.4%
Documentation of disposition: % ofpatients with documenteddisposition													

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	Trauma	1. Describes step in design of the registry (review of currently available models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with disposition recorded		100%	100%
Primary survey performed for all trauma patients: % of patients with chief complaint of trauma with documented primary survey: No additional adjacent studies													
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	Trauma	1. Describes step in design of the registry (review of currently available models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with "primary survey documented"		66.50%	
Trauma burden, patient demographics and care-process in major hospitals in Tanzania: A needs assessment for improving healthcare resource management	Mwandri	2020	Tanzania	National and 2 regional referral all with EC	"Assess burden, patient demography, causes of injury, trauma mortality and the care-process"	2018	480	-	-	% documentation of components of primary survey	Airway and Breathing: 33%, Circulation: 60%, Disability: 20%		
Initial assessment for all patients - % of patients receiving an initial assessment: No additional adjacent studies													
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatric (<13yoa)	-	% documentation of components of initial assessment	Breathing: 100%, O2 Saturation: 98.7%, Pulse: 100%, Capillary refill: 35.3%, Exposure: 33.7%		
Mortality from trauma: % of patients with trauma-related chief complaint who die within 24 hours of EU presentation													
Mortality related to acute illness and injury in rural Uganda: Task shifting to improve outcomes	Chamberlain	2015	Uganda	Rural district hospital, Karoli Lwanga (Nyakibale) Hospital, Rukungiri District	"Describe the results of using midlevel providers as independent emergency practitioners in a rural area of a low- or middle- income country... evaluate the outcomes of patients who were treated primarily by ECPs rather than physicians."	2010-2012	10,105	-	-	72-hr mortality	1.20%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
Analysis of prospective trauma registry data in Francophone Africa: a pilot study from Cameroon	Juillard	2014	Cameroon	Tertiary, The Central Hospital of Yaoundé, Yaoundé	"Aims were: (1) to pilot a data collection system designed to describe patterns of injury and emergency clinical trauma care using a prospective data collection system; and (2) assess the pilot trauma registry performance respective to prior experience using administrative retrospective data from the same setting"	Unavailable	2,855	-	-	Death recorded as "disposition from ED"	1.02%		
Epidemiology of trauma deaths	Solagberu	2003	Nigeria	University, University of Ilorin Teaching Hospital, Ilorin	"Highlight the pattern and distribution of trauma deaths in a Nigerian teaching hospital in order to enhance trauma research, improve treatment strategies and prevent trauma deaths"	1999-2001	2913	-	-	"deaths in the ED"	4.40%		
Pattern and outcome of postneonatal pediatric emergencies in Nnamdi Azikiwe University Teaching Hospital, Nnewi, South East Nigeria	Ndukwu	2015	Nigeria	University, Nnamdi Azikiwe University Teaching Hospital, Nnewi	"Determine morbidity and mortality patterns, and identify factors influencing poor outcome of the disease in children seen in the emergency room"	2012-2014	1964	Pediatric (<18yoa)	-	"died in the ED"	5.10%		
Trauma registry in Tikur Anbessa Hospital, Addis Ababa, Ethiopia	Taye	2003	Ethiopia	University, Tikur Anbessa Hospital, Addis Ababa	"study the causes of injuries using a simplified hospital trauma registry initially developed in Uganda" based on the WHO minimum data set and adopted and refined by Injury Prevention Initiative For Africa (IPIFA). This is used to initiate hospital based trauma registry"	1999	3822	-	-	ED mortality	0.52%		
Understanding patterns of injury in Kenya: Analysis of a trauma registry data from a National Referral Hospital	Botchey	2017	Kenya	National Referral, Kenyatta National Hospital,	"Develop and implement a prospective trauma registry at the largest trauma hospital in Kenya, the Kenyatta National Hospital, and to understand the nature of injuries presenting to the hospital, their treatment and care, and their outcomes"	2014-2015	8701	-	-	ED mortality	0.90%		
Injury factors associated with discharge status from emergency room at two major trauma hospitals in The Gambia, Africa	Sanyang	2017	The Gambia	2 National referral hospitals, Edward Francis Small Teaching Hospital, Serrekunda General Hospital	"Identified predictors of discharge status and disability at discharge among patients who seek emergency room treatment"	2014	1961	-	-	ED mortality	0.90%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Evaluation of trauma patients admitted to the emergency department of in Mogadishu Training and Research Hospital, Somalia: Cross Sectional study of 1106 patients	Demirel	2019	Somalia	Mogadishu Somalia Turkish Training and Research Hospital	"Aimed to retrospectively classify trauma patients referred to the emergency department of Mogadishu Somalia Turkish Training and Research Hospital (MSTERH) from a demographic and epidemiological perspective, identify the needs and deficiencies of our emergency department and improve the service quality in our hospital while contributing to the literature"	2017-2018	1106	-	-	ED mortality	1.30%		
The burden of trauma at a district hospital in the Western Cape Province of South Africa	Zaidi	2019	South Africa	District hospital, Wesfleur Hospital, Western Cape Province	"Describe the burden of trauma at district hospitals by analysing trauma patients at a prototypical district hospital emergency centre."	2015	565	-	-	ED mortality	0.50%		
Trauma at a Nigerian teaching hospital: pattern and documentation of presentation	Thanni	2006	Nigeria	Tertiary teaching hospital, Olabisi Onabanjo University Teaching Hospital, Sagamu	"Identify the characteristics of injuries and determining the efficiency of documentation of patients' records"	2003	1078	-	-	ED mortality	2%		
The burden of road traffic injuries in an emergency department in Addis Ababa, Ethiopia	Getachew	2016	Ethiopia	Tertiary referral, Zewditu Memorial Hospital (ZMH), Addis Ababa	"Document the proportion, trend, characteristics and outcomes of road traffic injury (RTI) related ED admissions (>15 years) between 2014 and 2015."	2014-2015	522	Adult (>15yoa)	-	ED mortality	1%		
Epidemiology of injuries, outcomes, and hospital resource utilisation at a tertiary teaching hospital in Lusaka, Zambia	Seidenberg	2014	Zambia	Tertiary, University Teaching Hospital (UTH), Lusaka, Zambia	"To develop a hospital-based trauma registry in an urban hospital in Lusaka, Zambia to assess patterns of injury, transport methods and duration, injury severity, outcomes and hospital resource utilisation."	2011-2012	3425	-	-	In-patient mortality	3%		
Potential benefits of triage for the trauma patient in a Kenyan emergency department	Lampi	2018	Kenya	Referral, Moi Teaching and Referral Hospital (MTRH) in Eldoret	"Investigate how a lack of formal triage system impacts timely intervention and mortality in a sub-Saharan referral hospital"		700	Adult (>14yo)	-	In-patient mortality	1.80%		

Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Retrospective review of the patient cases at a major trauma center in Nairobi, Kenya and implications for emergency care development	Saleeby	2019	Kenya	Tertiary referral, Kenyatta National Hospital (KNH). KNH is the largest public tertiary referral centre in Kenya, Nairobi	"Provide a comprehensive description of the emergency centre at Kenya's largest public tertiary care hospital."		23,941	-	-	In-hospital mortality	6.60%		
The burden of trauma presenting to the government referral hospital in Freetown, Sierra Leone: An observational study	Bundu	2019	Sierra Leone	Tertiary referral centre, Connaught Hospital, Freetown	"Assess the volume of trauma presenting to the national referral hospital in order to focus resources, direct training and lobby for improved preventive measures"	2016	340	-	-	In-patient mortality (Pediatric only, adult data not available)	23%		
The Malawi trauma score: A model for predicting trauma-associated mortality in a resource-poor setting	Gallaher	2019	Malawi	Tertiary referral hospital, Kamuzu Central Hospital (KCH), Lilongwe, Malawi	"Sought to describe injury severity in an accurate and reproducible manner by developing a scoring system that would require only a history and physical exam, while also predicting trauma-associated mortality. This score would have potential as a foundation for rapid triage tools at regional and tertiary trauma centers throughout the region and allow for risk-stratification of our patient populations"	2011-2014	62,354	Adult	-	In-patient mortality	2%		
Patterns and outcomes of paediatric trauma at a tertiary teaching hospital in Kenya	Ndung'u	2019	Kenya	Tertiary, Aga Khan University Hospital, Nairobi	"Establish the profile and outcomes of admitted paediatric trauma cases at the Aga Khan University Hospital, Nairobi"	2016	218	Pediatric (<15yoa)	-	In-patient mortality	2%		
Epidemiology of injuries presenting to the national hospital in Kampala, Uganda: implications for research and policy	Hsia	2010	Uganda	National Referral, Mulago, Kampala	"To estimate the epidemiology of the injury seen in patients presenting to the government hospital in Kampala, the capital city of Uganda."	2004-2005	3,750	-	-	In-patient mortality	2%		
Demographics and predictors of mortality in children undergoing resuscitation at Khayelitsha Hospital, Western Cape, South Africa.	Richards	2018	South Africa	Public hospital, Khayelitsha Hospital (KH), Khayelitsha	"Describe characteristics of children under the age of 12 who required resuscitation upon presentation to KH, determine predictors of mortality, and compare paediatric volume to specialist physician presence in the unit."	2014-2015	317	Pediatric (<12yoa)	-	In-hospital mortality (patients requiring "resuscitation" only)	6.25%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
Evaluation of trauma patient presentations and outcomes at a ugandan regional referral hospital	Schriger	2016	Uganda	Regional referral center, Mbarara Regional Referral Hospital, Mbarara	"Prospectively characterize the demographics, mechanisms of injury, diagnoses, and outcomes among trauma patients presenting to Mbarara Regional Referral Hospital (MRRH) prior to planned trauma training interventions"	Unknown	497	-	-	In-hospital mortality	7.00%		
Mortality from lower respiratory tract infection (adult): % of adult patients with diagnosis of LRTI who die within 24 hours of EU presentation													
Medical mortality in the Accident and Emergency Unit of the University of Port Harcourt Teaching Hospital	Onwuchekwa	2008	Nigeria	Univerisity, University of Port Harcourt Teaching Hospital	"Highlight the causes of mortality, age and sex distribution of the deaths and the duration of admission before death among medical cases in the accident and emergency unit"	2005	5304	Adult (>16yoa)	-	72 hour mortality	1.30%		
Mortality related to acute illness and injury in rural Uganda: Task shifting to improve outcomes	Chamberlain	2015	Uganda	Rural district hospital, Karoli Lwanga (Nyakibale) Hospital, Rukungiri District	"Describe the results of using midlevel providers as independent emergency practitioners in a rural area of a low- or middle- income country... evaluate the outcomes of patients who were treated primarily by ECPs rather than physicians."	2010-2012	10,105	-	-	72 hour mortality	3.30%		
Mortality from lower respiratory tract infection (child): % of patients <5years with diagnosis of LRTI who die within 24hours of EU presentation													
Under 5 year of age only													
Mortality related to acute illness and injury in rural Uganda: Task shifting to improve outcomes	Chamberlain	2015	Uganda	Rural district hospital, Karoli Lwanga (Nyakibale) Hospital, Rukungiri District	"Describe the results of using midlevel providers as independent emergency practitioners in a rural area of a low- or middle- income country... evaluate the outcomes of patients who were treated primarily by ECPs rather than physicians."	2010-2012	10,105	-	-	72-hr mortality (U5)	4.10%		
Morbidity and mortality pattern of childhood illnesses seen at the children emergency unit of federal medical center, Asaba, Nigeria	Ezeonwu	2014	Nigeria	Tertiary hospital, Federal Medical Center in Asaba	"Determine the pattern of morbidity and mortality of children seen at the children emergency room of a tertiary hospital"	2007-2011	3890	Pediatric (<15yoa)	-	In-patient mortality (U5)	2.20%		
Majority under 5 year of age													
Pattern of admissions to the pediatric emergency unit of Tikur Anbessa Hospital in Addis Ababa, Ethiopia (2012-2013 G.C)	Ambaye	2016	Ethopia	University, Tikur Anbessa Hospital, Addis Ababa	"Describe the disease pattern of patients admitted in the pediatric emergency unit at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia and identify the main causes of admissions and deaths"	2012-2013	1,796	Pediatric (<15 yoa)	-	"died in the ED" (Pediatrics <15 yoa, 74% U5)	5.40%		

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Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
Analysis of admissions to the pediatric emergency ward of Tikur Anbessa Hospital in Addis Ababa, Ethiopia	Muluneh	2007	Ethopia	University, Tikur Anbessa Hospital, Addis Ababa	"Analyze the characteristics of patients admitted under pediatric emergency ward of Tikur Anbessa Hospital and identify important causes of admissions and deaths."	2002-2003	1,459	Pediatric (unclear age range)	-	"died in the ED" (Pediatrics, 76% U5)	15.60%		
Bacteremic Community-Acquired Pneumonia in Ethiopian Children: Etiology, Antibiotic Resistance, Risk Factors, and Clinical Outcome	Negash	2019	Ethiopia	2 large hospitals (Tikur Anbessa Specialized Hospital (TASH) and the Yekatit 12 Hospital), Addis Ababa	"Determine the magnitude, etiology, and risk factors of bacteremic CAP in Ethiopian children and the role of S. pneumoniae in causing bacteremic pneumococcal CAP in children 5 years after the introduction of PCV10 in Ethiopia"	2016-2017	549	Pediatric (<15yoa)	-	In-patient mortality (Pediatrics, <5yo, 97.4% of patients U5)	2.37%		
Pediatrics all ages													
Morbidity and mortality of childhood illnesses at the emergency paediatric unit of the University of Benin Teaching Hospital, Benin City	Abhulimhen-Iyoha	2012	Benin	University, University of Benin Teaching Hospital, Benin City	"Describethe pattern of morbidity and mortalityas seen at the Emergency Paediatric Unit of the University of BeninTeaching Hospital, Benin City"	2009-2010	10,044	Pediatric (>29days - <16yr)	-	ED disposition of "died" (Pediatrics, <16yoa)	1.90%		
Pattern and Outcome of Admissions in the Children's Emergency Room of the University of Nigeria Teaching Hospital, Enugu	Ibeziako	2002	Nigeria	Tertiary, University of Nigeria Teaching Hospital (UNTH) Enugu, Enugu	?	1992-1996	10,267	-	-	ED disposition of "died" (unclear age range)	5.10%		
Pattern and outcome of postneonatal pediatric emergencies in Nnamdi Azikiwe University Teaching Hospital, Nnewi, South East Nigeria	Ndukwu	2015	Nigeria	University, Nnamdi Azikiwe University Teaching Hospital, Nnewi.	"Determine morbidity and mortality patterns, and identify factors influencing poor outcome of the disease in children seen in the emergency room"	2012-2014	1964	Pediatric (unclear age range)	-	"Died in the ED" (<18 yoa)	6.80%		
Burden and spectrum of paediatric respiratory diseases at a referral hospital in North-Central Nigeria - A five year review	Ibraheem	2020	Nigeria	University, University of Ilorin Teaching Hospital, Ilorin, Nigeria	"Identify the burden, spectrum and outcome of respiratory diseases in hospitalized children at University of Ilorin Teaching Hospital, North-Central Nigeria"	2013-2017	1,939	-	-	In-hospital mortality (Pediatric, unclear age range)	8.30%		
Demographics and predictors of mortality in children undergoing resuscitation at Khayelitsha Hospital, Western Cape, South Africa	Richards	2018	South Africa	Public hospital, Khayelitsha Hospital (KH), Khayelitsha	"Describe characteristics of children under the age of 12 who required resuscitation upon presentation to KH, determine predictors of mortality, and compare paediatric volume to specialist physician presence in the unit."	2014-2015	317	Pediatric (<12yoa)	-	In-hospital mortality (Pediatrics, <12yo, only patients requiring resuscitation)	8.60%		

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Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Statement	QI	QI pre-intervention	QI post-intervention
Mortality from asthma: % of patients with diagnosis of asthma who die within 24hours of EU presentation													
Pattern and outcome of postneonatal pediatric emergencies in Nnamdi Azikiwe University Teaching Hospital, Nnewi, South East Nigeria	Ndukwu	2015	Nigeria	University, Nnamdi Azikiwe University Teaching Hospital, Nnewi	"Determine morbidity and mortality patterns, and identify factors influencing poor outcome of the disease in children seen in the emergency room"	2012-2014	1964	Pediatric (<18yoa)	-	"Died in the E	0.00%		
Acute asthma in a children's emergency room: a clinical audit and management guideline proposal	Okoromah	2006	Nigeria	Tertiary University, Lagos Teaching Hospital, Lagos	"Clinical audit aimed at evaluating emergency management of acute asthma as well as proposing for use as management protocol; with the view of improving quality of care"	2000-2002	30	Pediatric (<13yoa)	-	"Outcome of admission - (Pediatrics	3%		
Burden and spectrum of paediatric respiratory diseases at a referral hospital in North-Central Nigeria - A five year review	Ibraheem	2020	Nigeria	University, University of Ilorin Teaching Hospital, Ilorin, Nigeria	"Identify the burden, spectrum and outcome of respiratory diseases in hospitalized children at University of Ilorin Teaching Hospital, North-Central Nigeria"	2013-2017	1,939	-	-	In-hospital mortali	0.00%		

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Appendix 4: Database Search Strategy

***Emergency Care* terms:**

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("emergency department*"[tw] OR "emergency ward*"[tw] OR "emergency room*"[tw] OR "emergency cent*"[tw] OR "emergency unit*"[tw] OR "Casualty department*"[tw] OR "Casualty ward*"[tw] OR "Casualty room*"[tw] OR "Casualty unit*"[tw] OR "accident ward*" [tw] OR "accident department*"[tw] OR "accident room*"[tw] OR "accident cent*"[tw] OR "accident unit*" [tw] OR "accident and emergency" [tw] OR "Trauma cent*"[tw] OR "Trauma unit"[tw] OR "Trauma department*"[tw] OR "Trauma room"[tw] OR "Trauma ward"[tw] OR "emergency medicine" [tw] OR ("Emergency Care"[tw] NOT (“obstetr*”[tw] OR “pregnan*”[tw])))

EMBASE

('emergency department*':ti,ab,kw OR 'emergency center*':ti,ab,kw OR 'emergency ward*':ti,ab,kw OR 'emergency room':ti,ab,kw OR 'emergency centre':ti,ab,kw OR 'emergency unit':ti,ab,kw OR 'casualty department':ti,ab,kw OR 'casualty ward':ti,ab,kw OR 'casualty room':ti,ab,kw OR 'casualty unit':ti,ab,kw OR 'casualty center*':ti,ab,kw OR 'casualty centre*':ti,ab,kw OR 'accident ward*':ti,ab,kw OR 'accident department*':ti,ab,kw OR 'accident room*':ti,ab,kw OR 'accident cent*':ti,ab,kw OR 'accident unit*':ti,ab,kw OR 'accident and emergency':ti,ab,kw OR 'trauma center*':ti,ab,kw OR 'trauma centre*':ti,ab,kw OR 'trauma unit*':ti,ab,kw OR 'trauma department*':ti,ab,kw OR 'trauma room*':ti,ab,kw OR 'trauma ward*':ti,ab,kw OR 'emergency medicine':ti,ab,kw OR 'emergency care':ti,ab,kw NOT (‘obstetr*’:ti,ab,kw OR ‘pregnan*’:ti,ab,kw)))

CINAHL

("emergency department*" OR "emergency ward*" OR "emergency room*" OR "emergency cent*" OR "emergency unit*" OR "Casualty department*" OR "Casualty ward*" OR "Casualty room*" OR "Casualty unit*" OR "accident ward*" OR "accident department*" OR "accident room*" OR "accident cent*" OR "accident unit*" OR "accident and emergency" OR "Trauma cent*" OR "Trauma unit" OR "Trauma department*" OR "Trauma room" OR "Trauma ward" OR "emergency medicine" OR ("Emergency Care" NOT (“obstetr*” OR “pregnan*”))))

***Africa* terms:**

Pubmed

("africa"[tw] OR "africa" [mesh] OR "algeria"[tw] OR "angola"[tw] OR "benin"[tw] OR "botswana"[tw] OR "burkina faso"[tw] OR "burkina fasso"[tw] OR "burkina"[tw] OR "burundi"[tw] OR "cameroon"[tw] OR "cameroons"[tw] OR "cameron"[tw] OR "cape verde"[tw] OR "cabo verde"[tw] OR "central african republic"[tw] OR "chad"[tw] OR "comoros"[tw] OR "comoro islands"[tw] OR "comores"[tw] OR "democratic republic of the congo"[tw] OR "republic of the congo"[tw] OR "congo"[tw] OR "egypt"[tw] OR "equatorial guinea"[tw] OR "mayotte"[tw] OR "congo"[tw] OR "zaire"[tw] OR "cote d'ivoire"[tw] OR "ivory coast"[tw] OR "djibouti"[tw] OR "french somaliland"[tw] OR "eswatini"[tw] OR "eritrea"[tw] OR "ethiopia"[tw] OR "gabon"[tw] OR "gabonese republic"[tw] OR "gambia"[tw] OR "ghana"[tw] OR "guinea"[tw] OR "guinea-bissau"[tw] OR "guinea bissau"[tw] OR "kenya"[tw] OR "lesotho"[tw] OR "basutoland"[tw] OR "liberia"[tw] OR "libya"[tw] OR "madagascar"[tw] OR "malawi"[tw] OR "nyasaland"[tw] OR "mauritania"[tw] OR "mali"[tw] OR "mauritius"[tw] OR "morrocco"[tw] OR "mozambique"[tw] OR "namibia"[tw] OR "niger"[tw] OR "nigeria"[tw] OR "rwanda"[tw] OR "ruanda"[tw] OR "sao tome"[tw] OR "senegal"[tw] OR "seychelles"[tw] OR "sierra leone"[tw] OR "somalia"[tw] OR "south africa"[tw] OR "sudan"[tw] OR "swaziland"[tw] OR "tanzania"[tw] OR "togo"[tw] OR "tunisia"[tw] OR "uganda"[tw] OR "zambia"[tw] OR "zimbabwe"[tw] OR "rhodesia"[tw])

For peer review only

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EMBASE

('africa':ti,ab,kw OR 'africa'/exp OR 'algeria':ti,ab,kw OR 'angola':ti,ab,kw OR 'benin':ti,ab,kw OR 'botswana':ti,ab,kw OR 'burkina faso':ti,ab,kw OR 'burkina fasso':ti,ab,kw OR 'burkina':ti,ab,kw OR 'burundi':ti,ab,kw OR 'cameroon':ti,ab,kw OR 'cameroons':ti,ab,kw OR 'cameron':ti,ab,kw OR 'cape verde':ti,ab,kw OR 'cabo verde':ti,ab,kw OR 'central african republic':ti,ab,kw OR 'chad':ti,ab,kw OR 'comoros':ti,ab,kw OR 'comoro islands':ti,ab,kw OR 'comores':ti,ab,kw OR 'democratic republic of the congo':ti,ab,kw OR 'republic of the congo':ti,ab,kw OR 'egypt':ti,ab,kw OR 'equatorial guinea':ti,ab,kw OR 'mayotte':ti,ab,kw OR 'congo':ti,ab,kw OR 'zaire':ti,ab,kw OR 'cote d ivoire':ti,ab,kw OR 'ivory coast':ti,ab,kw OR 'djibouti':ti,ab,kw OR 'french somaliland':ti,ab,kw OR 'eswatini':ti,ab,kw OR 'eritrea':ti,ab,kw OR 'ethiopia':ti,ab,kw OR 'gabon':ti,ab,kw OR 'gabonese republic':ti,ab,kw OR 'gambia':ti,ab,kw OR 'ghana':ti,ab,kw OR 'guinea':ti,ab,kw OR 'guinea-bissau':ti,ab,kw OR 'guinea bissau':ti,ab,kw OR 'kenya':ti,ab,kw OR 'lesotho':ti,ab,kw OR 'basutoland':ti,ab,kw OR 'liberia':ti,ab,kw OR 'libya':ti,ab,kw OR 'madagascar':ti,ab,kw OR 'malawi':ti,ab,kw OR 'nyasaland':ti,ab,kw OR 'mauritania':ti,ab,kw OR 'mali':ti,ab,kw OR 'mauritius':ti,ab,kw OR 'morrocco':ti,ab,kw OR 'mozambique':ti,ab,kw OR 'namibia':ti,ab,kw OR 'niger':ti,ab,kw OR 'nigeria':ti,ab,kw OR 'rwanda':ti,ab,kw OR 'ruanda':ti,ab,kw OR 'sao tome':ti,ab,kw OR 'senegal':ti,ab,kw OR 'seychelles':ti,ab,kw OR 'sierra leone':ti,ab,kw OR 'somalia':ti,ab,kw OR 'south africa':ti,ab,kw OR 'sudan':ti,ab,kw OR 'swaziland':ti,ab,kw OR 'tanzania':ti,ab,kw OR 'togo':ti,ab,kw OR 'tunisia':ti,ab,kw OR 'uganda':ti,ab,kw OR 'zambia':ti,ab,kw OR 'zimbabwe':ti,ab,kw OR 'rhodesia':ti,ab,kw)

CINAHL

("africa" OR "algeria" OR "angola" OR "benin" OR "botswana" OR "burkina faso" OR "burkina fasso" OR "burkina" OR "burundi" OR "cameroon" OR "cameroons" OR "cameron" OR "cape verde" OR "cabo verde" OR "central african republic" OR "chad" OR "comoros" OR "comoro islands" OR "comores" OR "democratic republic of the congo" OR "republic of the congo" OR "congo" OR "egypt" OR "equatorial guinea" OR "mayotte" OR "congo" OR "zaire" OR "cote d'ivoire" OR "ivory coast" OR "djibouti" OR "french somaliland" OR "eswatini" OR "eritrea" OR "ethiopia" OR "gabon" OR "gabonese republic" OR "gambia" OR "ghana" OR "guinea" OR "guinea-bissau" OR "guinea bissau" OR "kenya" OR "lesotho" OR "basutoland" OR "liberia" OR "libya" OR "madagascar" OR "malawi" OR "nyasaland" OR "mauritania" OR "mali" OR "mauritius" OR "morrocco" OR "mozambique" OR "namibia" OR "niger" OR "nigeria" OR "rwanda" OR "ruanda" OR "sao tome" OR "senegal" OR "seychelles" OR "sierra leone" OR "somalia" OR "south africa" OR "sudan" OR "swaziland" OR "tanzania" OR "togo" OR "tunisia" OR "uganda" OR "zambia" OR "zimbabwe" OR "rhodesia")

***Quality* terms:**

PubMed - 22

("quality indicator*" [tw] OR "performance indicator*" [tw] OR "quality measure*" OR (quality [ti] AND (perform* [ti] OR measure* [ti] OR indicator* [ti])) OR "quality indicators, health care" [mesh])

EMBASE - 60

('quality indicator*':ti,ab,kw OR 'performance indicator*':ti,ab,kw OR 'quality measure*':ti,ab,kw OR (quality:ti,kw AND (performance:ti,kw OR measure*:ti,kw OR indicator*:ti,kw OR 'health care quality'/exp)))

CINAHL - 102

("quality indicator*" OR "performance indicator*" OR "quality measure*" OR (quality AND (perform* OR measure* OR indicator*)) OR (MH "Clinical Indicators"))

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***AFEM Process Clinical Quality Indicators* Terms:**

1. **Blood glucose checked in patient with change in mental status**

   Pubmed 8
   (("Glucose" [tw] OR "Glucose" [MeSH] OR "Blood Glucose" [MeSH] OR "Hypoglycemia" [MeSH] OR "Hypoglycemia" [tw]) **AND** ("Mental Status" [tw] OR "Coma" [tw] OR "Coma" [MeSH]))

   EMBASE 15
   (('glucose':ti,ab,kw OR 'glucose blood level'/exp OR 'hypoglycemia'/exp OR 'hypoglycemi*':ti,ab,kw) **AND** ('mental status':ti,ab,kw OR 'coma':ti,ab,kw OR 'coma'/exp))

   CINAHL -10
   (("Glucose" OR "Blood Glucose" OR "Hypoglycemia" OR (MH "Blood Glucose" OR MH ""Hypoglycemia") **AND** ("Mental Status" OR "Coma") OR (MH "Mental Status" OR MH "Coma))

2. **Antibiotics given for paediatric pneumonia (under < 5 years of age)**

   Pubmed 17
   ((pneumonia* [tw] OR "Pneumonia"[Mesh]) **AND** ("Anti-Bacterial Agents"[Mesh] OR "Anti-Bacterial Agents" [Pharmacological Action] OR antibiotic*) **AND** (infan* [tw] OR newborn* [tw] OR "new-born" [tw] OR "newborns" [tw] OR perinat* [tw] OR neonat* [tw] OR baby [tw] OR baby* [tw] OR babies [tw] OR toddler* [tw] OR minors [tw] OR child [tw] OR child* [tw] OR children* [tw] OR schoolchild* [tw] OR "school child" [tw] OR "school children" [tw] OR pediatric* [tw] OR paediatric* [tw] OR "Nursery school" [tw] OR kindergar* [tw] OR "primary school" [tw] OR "primary schools" [tw] OR "elementary school" [tw] OR [tw] OR "infant" [mesh] OR "Child"[mesh] OR "Pediatrics" [mesh] OR))

   EMBASE 27
   ('pneumonia':ti,ab,kw OR 'pneumonia'/exp) **AND** ('antiinfective agent'/exp OR 'anti-bacterial agents':ti,ab,kw OR 'antibiotic':ti,ab,kw) **AND** ('infant*':ti,ab,kw OR 'newborn*':ti,ab,kw OR 'new-born*':ti,ab,kw OR 'new born*':ti,ab,kw OR 'neonate*':ti,ab,kw OR 'baby':ti,ab,kw OR 'babies':ti,ab,kw OR 'toddler*':ti,ab,kw OR 'child':ti,ab,kw OR 'children':ti,ab,kw OR paediatric:ti,ab,kw OR 'child'/exp OR 'pediatrics':ti,ab,kw OR 'pediatrics'/exp)

   CINAHL - 1

   ((pneumonia* OR MH "Pneumonia") **AND** (MH "antibiotics" OR antibiotic* OR MH "Antiinfective Agents") **AND** (infan* [tw] OR newborn* [tw] OR "new-born" [tw] OR "newborns" [tw] OR perinat* [tw] OR neonat* [tw] OR baby [tw] OR baby* [tw] OR babies [tw] OR toddler* [tw] OR minors [tw] OR child [tw] OR child* [tw] OR children* [tw] OR schoolchild* [tw] OR "school child" [tw] OR "school children" [tw] OR pediatric* [tw] OR paediatric* [tw] OR "Nursery school" [tw] OR kindergar* [tw] OR "primary school" [tw] OR "primary schools" [tw] OR "elementary school" [tw] OR MH "Pediatric Care" OR MH infant OR MH child)))

3. **Bronchodilator treatment given for asthma patients**
   Pubmed - 8
   (("Bronchodilator Agents"[Mesh] OR "Bronchodilator Agents" [Pharmacological Action] OR bronchodilator* [tw]) **AND** (asthma [tw] OR "asthma" [mesh]))

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EMBASE - 19
(("Bronchodilator Agent*":ti,ab,kw OR "bronchodilator*":ti,ab,kw OR 'bronchodilating agent'/exp) **AND** ("asthma*":ti,ab,kw OR 'asthma'/exp OR 'asthmatic state'/exp))

CINAHL - 1
(("Bronchodilator Agents" OR MH "Bronchodilator Agents" OR OR bronchodilator*) **AND** (asthma OR MH "asthma" OR MH "Status Asthmaticus"))

4. **Recording of initial complete vital signs**

Pubmed - 5
('Vital Signs' [mesh] OR 'vital sign*' [tw] OR 'blood pressure*' [tw] OR 'blood pressure'[Mesh] OR 'body temperature*' [tw] OR 'body temperature' [Mesh] OR 'heart rate*' [tw] OR 'heart rate' [mesh] OR 'pulse' [tw] OR 'respiratory rate' [tw] OR 'respiratory rate' [mesh]) AND ('complete' [tw] OR 'full*' [tw] OR 'all' [tw])

EMBASE - 52
('vital sign*':ti,ab,kw OR 'vital sign'/exp) AND ('complete':ti,ab,kw OR 'full*':ti,ab,kw OR 'all':ti,ab,kw)

CINAHL -11
(MH 'Vital Signs' OR 'vital sign*') AND ('complet*' OR 'full*' OR 'all')

5. **Documentation of diagnosis**

Pubmed - 17
((documentation [tw] OR charting [ti] OR record* [ti] OR "documentation" [mesh]) AND (diagno* [tw]))

EMBASE - 76
(('documentation':ti,ab,kw OR 'chart*':ti,ab,kw OR 'record*':ti,ab,kw) AND ('diagno*':ti,ab,kw OR ' diagnosis'/exp))

CINAHL -25
((documentat* OR chart* OR record* OR MH "documentation" OR MH "charting" OR MH "medical records") AND (diagno* OR MH "Diagnosis"))

6. **Antibiotics given for adults with pneumonia**

Pubmed - 6
((pneumonia* [tw] OR "Pneumonia"[Mesh]) **AND** ("Anti-Bacterial Agents"[Mesh] OR "Anti-Bacterial Agents" [Pharmacological Action] OR antibiotic*) **AND** ("adult" [mesh]))

EMBASE - 30
('pneumonia':ti,ab,kw OR 'pneumonia'/exp) AND ('antiinfective agent'/exp OR 'anti-bacterial agent*':ti,ab,kw OR 'antibiotic*':ti,ab,kw) **AND** ("adult*":ti,ab,kw OR 'adult'/exp)

CINAHL - 4
((pneumonia* OR MH "Pneumonia") **AND** (MH "antibiotics" OR antibiotic* OR MH "Antiinfective Agents"))

7. **Adult patients with shock given IV fluids**

Pubmed - 26

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(("Shock"[tw] OR "Shock"[MeSH Terms] OR ("Hypotension"[tw] OR "Hypotension"[MeSH Terms]) **AND** ("Intravenous fluids"[tw] OR "IV fluid*"[tw] OR "Resuscitation"[tw] OR "Resuscitation"[MeSH Terms]))

EMBASE - 43
(('Shock':ti,ab,kw OR 'shock'/exp OR 'Hypotension':ti,ab,kw OR 'hypotension'/exp) **AND** ('Intravenous fluid':ti,ab,kw OR 'IV fluid':ti,ab,kw OR 'infusion fluid'/exp OR 'Resuscitation':ti,ab,kw OR 'resuscitation'/exp))

CINAHL - 7
(("Shock" OR MH "Shock" OR MH "Hypotension" OR "Hypotension") **AND** ("Intravenous fluids" OR "IV fluid*" OR MH “fluid resuscitation”))

8. **Action taken to control postpartum haemorrhage**
Pubmed - 2
("postpartum haemorrhage" [tw] OR "postpartum hemorrhage" [tw] OR "Postpartum Hemorrhage"[Mesh] OR "postpartum bleed*"[tw])

EMBASE - 7
("postpartum haemorrhage":ti,ab,kw OR "postpartum hemorrhage":ti,ab,kw OR 'postpartum hemorrhage'/exp OR "postpartum bleed*":ti,ab,kw)

CINAHL - 2
("postpartum haemorrhage" OR "postpartum hemorrhage" OR MH "Postpartum Hemorrhage"[Mesh] OR "postpartum bleed*")

9. **Hypoglycaemic patients given glucose**
Pubmed - 37
("Hypoglycem*"[tw] OR ”Hypoglycemia"[MeSH Terms] OR "low blood glucose"[tw] OR "Blood Glucose"[MeSH Terms]) AND ("Glucose"[tw] OR "Glucose"[MeSH Terms])

EMBASE - 27
((‘Hypoglycemia’:ti,ab,kw OR ‘Hypoglycemic’:ti,ab,kw OR 'hypoglycemia'/exp OR ‘low blood glucose’:ti,ab,kw OR 'glucose blood level'/exp OR (‘Glucose’:ti,ab,kw AND ‘low’:ti,ab,kw)) AND (‘Glucose’:ti,ab,kw))

CINAHL - 15
((("Glucose" OR "Blood Glucose" OR "Hypoglycemia" OR MH "Blood Glucose" OR MH ""Hypoglycemia" OR (‘Glucose’ AND ‘low’)) AND (glucose OR MH “Glucose”))

10. **Recording of demographics and chief complaint**
Pubmed - 16
((documentation [tw] OR charting [ti] OR "documentation" [mesh]) **AND** ("demographic*" [tw] OR “demography" [mesh] OR "chief complaint*" [tw] OR "presenting complaint*" [tw] OR "reason for encounter" [tw] OR "presenting problem*" [tw] OR "reason for present*" [tw]))

EMBASE - 6
((documentation:ti,ab,kw OR charting:ti,ab,kw) **AND** (demographic:ti,ab,kw OR 'demography'/exp OR 'chief complaint*':ti,ab,kw OR 'presenting complaint*':ti,ab,kw OR 'reason* for encounter':ti,ab,kw OR 'presenting problem*':ti,ab,kw OR 'reason for present*':ti,ab,kw))

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CINAHL - 20
((documentat* OR chart* OR record* OR MH "documentation" OR MH “charting” OR MH “medical records”) AND ("demographic*" OR MH “demography" OR "chief complaint*" OR "presenting complaint*" OR "reason for encounter" OR "presenting problem*" OR "reason for present*"))

11. **Pregnancy test checked in women of reproductive age**
Pubmed - 3
("Pregnancy Test*"[tw] OR "Pregnancy Tests"[MeSH Terms])

EMBASE - 9
('pregnancy test*':ti,ab,kw OR 'pregnancy test'/exp)

CINAHL - 2
("Pregnancy Test*" OR MH "Pregnancy Tests")

12. **Supplemental oxygen given for hypoxic patients**
Pubmed - 19
("Hypoxi*"[tw] OR ”Hypoxia"[MeSH Terms]) **AND** ("Oxygen"[tw] OR ”Oxygen"[MeSH Terms])

EMBASE - 32
("Hypox*":ti,ab,kw OR 'hypoxia'/exp) **AND** ("Oxygen":ti,ab,kw OR 'oxygen'/exp)

CINAHL -7
(("Hypoxi*" OR MH “Anoxia") **AND** ("Oxygen" OR MH ”Oxygen" OR MH “oxygen therapy”))

13. **Long bone splinting for patients presenting with extremity fracture**
Pubmed - 32
(("Splint*"[tw] OR "Splints"[MeSH Terms] "Cast*"[tw] OR "Reduc*"[tw]) **AND** ("Fracture"[tw] OR "Fractures, Bone"[MeSH Terms] OR "Bone and Bones"[MeSH Terms]))

EMBASE - 24
(("Splint":ti,ab,kw OR "Splints":ti,ab,kw OR 'splint'/exp OR "Splinting":ti,ab,kw OR "Splinted":ti,ab,kw OR "Cast":ti,ab,kw OR "Casts":ti,ab,kw OR "Casting":ti,ab,kw OR 'cast'/exp OR "Reduction":ti,ab,kw OR 'fracture reduction'/exp) **AND** ("Fracture":ti,ab,kw OR 'fracture'/exp))

CINAHL -27
(("Splint*" OR MH "Splints" OR "Cast*" OR MH “casts” OR "Reduc*") **AND** ("Fracture" OR MH "Fractures”))

14. **Parental magnesium given to patients with eclampsia/preeclampsia**
Pubmed - 5
(eclampsia [tw] OR preeclampsia [tw] OR "Pre-Eclampsia"[Mesh] OR "Hypertension, Pregnancy-Induced"[Mesh] OR "Eclampsia"[Mesh]) **AND** (magnesium [tw] OR 'magnesium'[Mesh])

EMBASE - 7
((eclampsia:ti,ab,kw OR preeclampsia:ti,ab,kw OR 'preeclampsia'/exp OR 'maternal hypertension'/exp OR 'eclampsia'/exp OR 'eclampsia and preeclampsia'/exp) **AND** (magnesium:ti,ab,kw OR 'magnesium'/exp))

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CINAHL -0
(eclampsia OR preeclampsia OR MH "Pre-Eclampsia" OR MH"Hypertension, Pregnancy-Induced" OR MH "Eclampsia") **AND** (magnesium OR MH 'magnesium' OR MH “Magnesium sulfate” OR MH “Magnesium Compounds”)

15. Action taken to control external haemorrhage

Pubmed - 41
(((trauma*[tw] **AND** (bleed* [tw] OR hemorrhage [tw] OR “hemorrhage”[mesh])) OR (external* [tw] **AND** (control* [tw] OR stop*[tw] OR manage[tw] OR bandag*[tw] OR tourniq*[tw] OR staunch*[tw] OR “direct pressure”[tw] OR “applied pressure”[tw] OR “apply pressure”[tw]))

EMBASE - 18
(((trauma*:ti,ab,kw **AND** ('bleeding'/exp OR bleed*:ti,ab,kw OR hemorrhag*:ti,ab,kw) **)** OR **(**external:ti,ab,kw **AND** (bleed*:ti,ab,kw OR hemorrhag*:ti,ab,kw) **)**) AND **(**control*:ti,ab,kw OR stop*:ti,ab,kw OR manage:ti,ab,kw OR bandag*:ti,ab,kw OR tourniq*:ti,ab,kw OR staunch*:ti,ab,kw OR ‘direct pressure’:ti,ab,kw OR ‘applied pressure’:ti,ab,kw OR ‘apply pressure’:ti,ab,kw**))**

CINAHL - 36
((((“trauma*” OR MH “trauma”) **AND** (bleed* OR hemorrhage OR MH “hemorrhage”)) OR (“bleed*” AND “external*”) **AND** (control* OR stop OR manage OR bandag* OR tourniq* OR staunch* OR “direct pressure” OR “applied pressure” OR “apply pressure”))

16. Blood transfusion given to patients meeting transfusion criteria

Pubmed - 21
("Anemia"[tw] OR ”Anemia"[MeSH Terms]) AND ("Blood Transfusion"[tw] OR "Blood Transfusion"[MeSH Terms] OR Transfus*[tw])

EMBASE - 51
('anemia':ti,ab,kw OR 'anemia'/exp) AND (transfus*:ti,ab,kw OR 'blood transfusion'/exp)

CINAHL -0
("Anemia"[tw] OR MH ”Anemia") AND ("Blood Transfusion*" OR MH "Blood Transfusion" OR Transfus*)

17. Antibiotics given for patients with sepsis

Pubmed - 111

(("Antibiotics"[tw] OR 'anti-bacterial agents'[Mesh]) AND ("septic"[tw] OR 'septic shock'[Mesh]) OR ("Sepsis"[tw] OR 'sepsis'[Mesh]))

EMBASE - 65
('antibiotics':ti,ab,kw OR 'antibiotic agent'/exp) AND ('septic’:ti,ab,kw OR 'septic shock'/exp OR 'sepsis':ti,ab,kw OR 'sepsis'/exp)

CINAHL -2

((MH “antibiotics” OR antibiotic* OR MH “Antiinfective Agents”) AND ("septic" OR “sepsis” OR 'septic shock' OR MH “sepsis” OR “shock, septic”))

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18. Corticosteroid treatment given for asthma patients

Pubmed - 12

("Adrenal Cortex Hormones"[Mesh] OR steroid* [tw] OR corticosteroid* [tw]) AND (asthma* [tw] OR "asthma" [mesh])

EMBASE - 37

(('steroid'/exp OR steroid*:ti,ab,kw OR 'corticosteroid'/exp OR corticosteroid*:ti,ab,kw) AND (asthma*:ti,ab,kw OR 'asthma'/exp))

CINAHL -2

(MH "Adrenal Cortex Hormones" OR steroid* OR corticosteroid*) AND (asthma* OR MH "asthma")

19. Analgesia given to patients reporting pain

Pubmed - 24

((pain* [tw] OR pain [mesh]) AND (analgesics [tw] OR analgesia* [tw] OR "Analgesics"[Mesh] OR "Analgesics" [Pharmacological Action]))

EMBASE - 31

((pain:ti,ab,kw OR 'pain'/exp) AND (analges*:ti,ab,kw OR "Pain Medication":ti,ab,kw))

CINAHL -27

((pain* OR MH "pain") AND (analgesic* OR MH "Analgesics" OR MH "Pain Management"))

20. Documentation of disposition

PubMed - 17

(document* [tw] OR charting [tw] OR record* [tw]) AND (disposition [tw])

EMBASE - 29

(document*:ti,ab,kw OR charting:ti,ab,kw OR record*:ti,ab,kw) AND (disposition:ti,ab,kw)

CINAHL -27

((documentat* OR chart* OR record* OR MH "documentation" OR MH "charting" OR MH "medical records") AND (disposition)

21. Primary survey performed for all trauma patients

PubMed - 10

('Primary survey'[tw] OR 'initial assessment'[tw] OR 'initial evaluation'[tw] OR 'initial exam'[tw]) AND ('trauma'[tw] OR 'injury'[tw])

EMBASE - 21

('Primary surv*':ti,ab,kw OR 'initial assessment*':ti,ab,kw OR 'assessment'/exp OR 'initial evaluation*':ti,ab,kw OR 'initial exam':ti,ab,kw) AND ('trauma*':ti,ab,kw OR 'injur*':ti,ab,kw OR 'injury'/exp)

CINAHL -7

('Primary survey' OR 'initial assessment' OR 'initial evaluation' OR 'initial exam') AND ('trauma' OR MH "trauma" OR 'injury')

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22. Tetanus vaccination updated for susceptible adult patients

PubMed - 18
('tetanus'/exp OR "Tetanus"[Mesh] OR tetanus [tw])

EMBASE - 44
('tetanus'/exp OR 'tetanus toxoid'/exp OR 'tetanus antibody'/exp OR 'tetanus':ti,ab,kw)

CINAHL -3
("Tetanus" OR “tetanus vaccine” OR MH “Tetanus Toxoid”)

23. Documentation of reason for transfer

Pubmed - 25
(document* [tw] OR recording* [tw] OR "documentation" [mesh]) AND (transfer* [tw] OR (refer [tw] OR (referral [tw] NOT “referral hospital” [tw])))

EMBASE - 24
(document*:ti,ab,kw OR charting:ti,ab,kw OR 'medical documentation'/exp) **AND** (transfer:ti,ab,kw OR 'transfer'/exp OR 'patient referral'/exp)

CINAHL - 0
((documentat* OR chart* OR record* OR MH "documentation" OR MH “charting” OR MH “medical records”) AND (transfer* OR MH “transfer, intrahospital” OR (referral NOT “referral hospital”)))

24. Initial assessment for all patients

Pubmed - 17
('initial assessment'[tw] OR 'initial evaluation'[tw] OR 'initial exam'[tw] OR ‘primary survey’[tw])

EMBASE - 30
('Primary survey':ti,ab,kw OR 'initial assessment':ti,ab,kw OR 'assessment'/exp OR 'initial evaluation':ti,ab,kw OR 'initial exam':ti,ab,kw)

CINAHL - 10
('Primary survey' OR 'initial assessment' OR 'initial evaluation' OR 'initial exam')

25. FAST exam performed for blunt abdominal trauma

Pubmed - 15
(fast [tw] OR “focused assessment with sonography” [tw]) AND ("trauma*" [tw] OR "abdominal injuries" [mesh] OR (injur*[tw]))

EMBASE - 16
(fast:ti,ab,kw OR 'focused assessment with sonography':ti,ab,kw OR 'focused assessment with sonography for trauma'/exp) AND ("trauma*":ti,ab,kw OR 'abdominal injury'/exp OR (injur*:ti,ab,kw))

CINAHL - 11
((fast OR “focused assessment with sonography”) AND ("trauma*" OR MH “Trauma” OR MH "abdominal injuries OR injur*))

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26. Rate of triage

Pubmed - 75

((triag* [tw] OR "triage" [mesh]) AND (rate[tw] OR percentage[tw] OR ratio[tw] OR proportion[tw] or frequency [tw] or complete [tw]))

EMBASE - 91

(triage:ti,ab,kw AND (rate:ti,ab,kw OR percentage:ti,ab,kw OR ratio:ti,ab,kw OR proportion:ti,ab,kw OR frequency:ti,ab,kw OR complete:ti,ab,kw))

CINAHL - 19

((triag* OR MH "triage") AND (rate OR percentage OR ratio OR proportion or frequency or complete))

27. Triage level categorisation

Pubmed - 112

((triag* [tw] OR "triage" [mesh]) AND (categor*[tw] OR class*[tw] OR group*[tw] OR level[tw]))

EMBASE - 127

(triage:ti,ab,kw **AND** (categor*:ti,ab,kw OR class*:ti,ab,kw OR group*:ti,ab,kw OR level:ti,ab,kw))

CINAHL -13

((triag* [tw] OR MH "triage") AND (categor* OR class* OR group* OR level))

28. Vital signs recorded every 15 min for highest acuity patients

Pubmed - 18

(('Vital Signs' [mesh] OR 'vital signs' [tw] OR 'blood pressure ' [tw] OR 'blood pressure '[Mesh] OR 'body temperature' [tw] OR 'body temperature' [Mesh]OR 'heart rate' [tw] OR 'heart rate' [mesh] OR 'respiratory rate' [tw] OR 'respiratory rate' [mesh]) AND ('frequency' [tw] OR 'repeat'[tw] OR "fifteen min*"[tw] OR "15 min*"[tw] OR 'multiple' [tw]))

EMBASE - 19

(('vital signs':ti,ab,kw OR 'vital sign'/exp) AND ('frequency':ti,ab,kw OR 'repeat':ti,ab,kw OR 'fifteen min*':ti,ab,kw OR '15 min*':ti,ab,kw OR 'multiple':ti,ab,kw))

CINAHL - 0

(MH 'Vital Signs' OR 'vital sign*') AND ('frequency' OR 'repeat' OR "fifteen min*" OR "15 min*" OR 'multiple'))

Outcomes clinical quality indicators

1. **Mortality from trauma: % of patients with trauma-related chief complaint who die within 24 hours of EU presentation**

Pubmed - 21

(('Hospital Mortality' [mesh] OR 'mortality rate' [tw] OR 'death' [tw] OR 'fatality' [tw]) **AND** ("trauma*"[tw] OR "injur*"[tw]) AND ("patient*"[tw]) AND ("one*day" [tw] OR "24*h*" [tw])

EMBASE -8

(('mortality rate':ti,ab,kw OR 'mortality'/exp OR 'fatality':ti,ab,kw OR death:ti,ab,kw) **AND** ('trauma':ti,ab,kw OR 'injur*':ti,ab,kw OR 'injury'/exp) AND 'patient*':ti,ab,kw AND ('one*day*':ti,ab,kw OR '24*h*':ti,ab,kw)**)**

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CINAHL - 13
((MH 'Hospital Mortality' OR MH 'mortality rate' OR 'death' OR 'fatality') **AND** ("trauma*" OR MH "trauma" OR "injur*") **AND** ("one*day" OR "24*hour*")

2. **Mortality from lower respiratory tract infection (adult)**
3. **Mortality from lower respiratory tract infection (child)**

Pubmed - 39
("Hospital Mortality" [mesh] OR "mortality rate" [tw] OR 'death' [tw] OR 'fatality' [tw]) AND ("lower respiratory tract infection*"[tw] OR "Pneumonia"[tw] OR "Pneumonia"[mesh])

EMBASE- 52
'patient*':ti,ab,kw AND ('mortality rate':ti,ab,kw OR 'mortality'/exp OR 'fatality':ti,ab,kw OR death:ti,ab,kw) AND ("lower respiratory tract infection":ti,ab,kw OR "Pneumonia":ti,ab,kw)

CINAHL - 12
((MH 'Hospital Mortality' OR MH 'mortality rate' OR 'death' OR 'fatality') **AND** ("lower respiratory tract infection*" OR "Pneumonia" OR MH "Pneumonia")

4. **Mortality from asthma**

Pubmed - 12
("Hospital Mortality" [mesh] OR "mortality rate*" [tw]) AND ("asthma"[tw] OR "asthma"[mesh])

EMBASE- 9
patient:ti,ab,kw AND ('mortality':ti,ab,kw OR 'mortality'/exp) AND ("asthma":ti,ab,kw OR 'asthma'/exp)

CINAHL - 0
((MH 'Hospital Mortality' OR MH 'mortality rate' OR 'death' OR 'fatality') **AND** ("asthma" OR MH "asthma")

5. **Left without being seen:**

Pubmed - 0
("Left without being seen" [tw] OR "LWBS" [tw])

EMBASE- 0
('Left without being seen':ti,ab,kw OR 'LWBS':ti,ab,kw)

CINAHL - 0
("Left without being seen" [tw] OR "LWBS" [tw])

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Appendix 5: Non-Database Search Strategies

National Ministry of Health Websites

Country	Website Reachable?	In English?	Website Link	Emergency Medical (EM) Services?	EM Department Link	Relevant Documents Identified
Algeria	No		http://www.sante.gov.dz/			
Angola	No		https://minsa.gov.ao/ao/			
Benin	Yes	No (French)	https://sante.gouv.bj/			
Botswana	Yes	Yes	https://www.moh.gov.bw/	Yes	https://www.moh.gov.bw/emergency_services.html	
Burkina Faso	Yes	No (French)	https://www.sante.gov.bf/accueil			
Burundi	Yes	No (French)	http://minisante.bi/			
Cabo Verde	Yes	No (Spanish)	http://www.minsaude.gov.cv/			
Cameroon	Yes	No (French)	https://www.minsante.cm/site/?q=en			
Central African Republic	No					
Chad	No		http://www.sante-tchad.org/			
Comoros	No					
Congo	Yes	No (French)	https://sante.gouv.cg/?module=posts&action=all&idtp=46			
Cote d'Ivoire	Yes	No (French)	https://www.sante.gouv.ci/			
Djibouti	Yes	No (French)	https://sante.gouv.dj/			
Democratic Republic of Congo	Yes	No (French)	https://www.minisanterdc.cd/			
Egypt	No		www.mohp.gov.eg			

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Equatorial Guinea	Yes	Yes	https://guineasalud.org/?lang=en	Yes		
Eritrea	No					
Eswatini (Swaziland)	Yes	Yes	http://www.gov.sz/index.php/ministries-departments/ministry-of-health	Yes	http://www.gov.sz/index.php/services-sp-905296425/101-health/services/564-emergency-and-ambulance-services	
Ethiopia	Yes	Yes	https://www.moh.gov.et/site/	Yes		4
Gabon	No		http://www.sante.gouv.ga/			
Gambia	Yes	Yes	https://www.moh.gov.gm/	Yes		
Ghana	Yes	Yes	https://www.moh.gov.gh/	Yes		1
Guinea	Yes	No (French)	https://sante.gov.gn/			
Guinea-Bissau	Yes	Yes	http://www.guinebissaurepublic.com/health-2/	Yes		
Kenya	Yes	Yes	https://www.health.go.ke/	Yes	https://www.emergencymedicinekenya.org/	1
Lesotho	Yes	Yes	http://health.gov.ls/	Yes		
Liberia	Yes	Yes	https://moh.gov.lr/	Yes		
Libya	Yes	No (Arabic)	https://www.health.gov.ly/			
Madagascar	Yes	No (Malagasy)	http://www.sante.gov.mg/ministere-sante-publique/			
Malawi	Yes	Yes	http://www.health.gov.mw/	Yes		1
Mali	Yes	No (French)	http://www.sante.gov.ml/			

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Mauritania	No		https://www.sante.gov.mr/			
Mauritius	Yes	Yes	https://health.govmu.org/Pages/default.aspx	Yes		
Morocco	Yes	No (French)	https://www.sante.gov.ma/Pages/Accueil.aspx			
Mozambique	Yes	No (Portuguese)	https://www.misau.gov.mz/			
Namibia	Yes	Yes	https://mhss.gov.na/	Yes		
Niger	No		http://niger-gouv.org/ministeres.html			
Nigeria	Yes	Yes	https://www.health.gov.ng/	Yes		
Rwanda	Yes	Yes	https://www.moh.gov.rw/	Yes	https://www.moh.gov.rw/programs/emergency-medical-services-division	1
Sao Tome and Principe	Yes	No (Portuguese)	http://ms.gov.st/			
Senegal	Yes	No (French)	https://www.sante.gouv.sn/			
Seychelles	Yes	Yes	http://www.health.gov.sc/	Yes		1
Sierra Leone	Yes	Yes	https://mohs.gov.sl/	Yes	https://mohs.gov.sl/national-emergency-medical-services/	1
Somalia	Yes	Yes	https://moh.nomadilab.org/	Yes		
South Africa	Yes	Yes	https://www.health.gov.za/	Yes		
South Sudan	Yes	Yes	https://moh.gov.ss/	?		
Sudan	Yes	No (Arabic)	http://www.fmoh.gov.sd/			
Tanzania	Yes	Yes & No (partly Swahili)	https://www.moh.go.tz/en/	Yes		

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Togo	Yes	No (French)	https://sante.gouv.tg/			
Tunisia	Yes	No (French)	http://www.santetunisie.rns.tn/en/			
Uganda	Yes	Yes	https://www.health.go.ug/	Yes	https://www.health.go.ug/programs/ministry-departments/office-of-the-director-of-curative-services/department-of-emergency-medical-services/	
Zambia	Yes	Yes	https://www.moh.gov.zm/	Yes		
Zimbabwe	Yes	Yes	http://www.mohcc.gov.zw/	Yes	http://www.zim.gov.zw/index.php/en/my-government/government-ministries/about-zimbabwe/466-emergency-services	

World Health Organization Website and WHO IRIS Database

WHO		
Search Term/Pathway	**Results Page**	**Relevant Documents Identified**
health topics > emergency care > related links	https://www.who.int/health-topics/emergency-care#tab=tab_1	1
health topics > emergency care > publications	https://www.who.int/health-topics/emergency-care#tab=tab_1	
WHO IRIS		
Search Term/Pathway	**Results Page**	

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"africa and quality and emergencies" (advanced filters for title to include emergencies AND quality)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergencies&filtertype_2=title&filter_relational_operator_2=contains&filter_2=Quality&submit_apply_filter=&query=africa+and+quality+and+emergencies	2
CLINICAL QUALITY INDICATORS		
"africa and glucose and mental status and emergency"		
subject: Emergencies	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+glucose+and+mental+status+and+emergency&submit=&filtertype_0=subject&filter_relational_operator_0=contains&filter_0=Emergencies&rpp=10	
subject: Emergency Medical Services	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=emergency+medical+services&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Medicine	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medicine&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Nursing	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Nursing&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Responders	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Responders&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Service	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Service, Hospital	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	

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subject: Emergency Services, Psychiatric	null	
subject: Disaster Medicine	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Disaster+Medicine&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
africa and antibiotics and pneumonia and pediatrics		
subject: Emergencies	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=/&group_by=none&page=1&filtertype_0=subject&filter_relational_operator_0=contains&filter_0=Emergencies	
subject: Emergency Medical Services	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Emergency Medicine	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Emergency Nursing	null	
subject: Emergency Service	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Emergency Service, Hospital	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric	null	
subject: Emergency Treatment	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Treatment&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Disaster Medicine	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Disaster+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	

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"africa and bronchodilator and asthma"		
subject: Emergencies	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergencies&submit_apply_filter=&query=africa+and+bronchodilator+and+asthma	
subject: Emergency Medical Services	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+bronchodilator+and+asthma	
subject: Emergency Medicine	null	
subject: Emergency Nursing	null	
subject: Emergency Service	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service&submit_apply_filter=&query=africa+and+bronchodilator+and+asthma	
subject: Emergency Service, Hospital	null	
subject: Emergency Services, Psychiatric	null	
subject: Emergency Treatment	null	
subject: Disaster Medicine	null	
"africa and complete vital signs"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+complete+vital+signs&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	

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subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+complete+vital+signs&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
"africa and diagnosis and documentation or charting"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergencies&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+diagnosis+and+documentation+or+charting&submit=&filtertype_0=subject&filtertype_1=iso&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=English&filter_0=Medical+Services&rpp=10	

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subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medicine&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Nursing&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+diagnosis+and+documentation+or+charting&submit=&filtertype_0=subject&filtertype_1=iso&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=English&filter_0=Emergency+Service&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service%2C+Hospital&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Treatment&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Disaster+Medicine&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
africa and antibiotics and pneumonia and adult		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergencies&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia	

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subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+antibiotics+and+adult+and+pneumonia&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
africa and shock and intravenous fluids		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	1

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subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+shock+and+intravenous+fluids&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
"africa and postpartum bleed"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+postpartum+bleed&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English	2

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subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+postpartum+bleed&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+postpartum+bleed&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+postpartum+bleed&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	null	
"africa and glucose"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+glucose&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+glucose&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+glucose&rpp=10	

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subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+glucose&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+glucose&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+glucose&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+glucose&rpp=10	
"africa and demographics and chief complaint"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+demographics+and+chief+complaint&scope=%2F&rpp=10	2
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+demographics+and+chief+complaint&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	

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subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+demographics+and+chief+complaint&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+demographics+and+chief+complaint&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	null	
"africa and pregnancy test"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+pregnancy+test&group_by=none&page=1&filtertype_0=subject&filtertype_1=iso&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=English&filter_0=Emergencies	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medical+Services&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+pregnancy+test&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medicine&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+pregnancy+test&rpp=10	
subject: Emergency Nursing (language: English)	null	

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subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+pregnancy+test&group_by=none&page=1&filtertype_0=subject&filtertype_1=iso&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=English&filter_0=Emergency+Service	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service%2C+Hospital&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+pregnancy+test&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+pregnancy+test&scope=%2F&rpp=10	
"africa and hypoxia and oxygen"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+hypoxia+and+oxygen&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+hypoxia+and+oxygen&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+hypoxia+and+oxygen&rpp=10	

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subject: Emergency Service, Hospital (language: English)	null	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+hypoxia+and+oxygen&rpp=10	
subject: Disaster Medicine (language: English)	null	
"africa and splint and fracture"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	

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subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+splint+and+fracture&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and eclampsia and magnesium"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+eclampsia+and+magnesium&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+eclampsia+and+magnesium&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+eclampsia+and+magnesium&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+eclampsia+and+magnesium&scope=%2F&rpp=10	

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subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	null	
"africa and trauma and bleeding"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+trauma+and+bleed	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+trauma+and+bleed&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	

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subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
"africa and anemia and blood transfusion"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+anemia+and+blood+transfusion&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+anemia+and+blood+transfusion&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+anemia+and+blood+transfusion&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	null	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	

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subject: Disaster Medicine (language: English)	null	
"africa and antibiotics and sepsis"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	

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subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
"africa and steroid and asthma"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+steroid+and+asthma&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+steroid+and+asthma&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+steroid+and+asthma&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	null	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	null	
"africa and pain and analgesia"		

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subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	1
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
"africa and documentation and disposition"		

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subject: Emergencies (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+documentation+and+disposition&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+documentation+and+disposition&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+documentation+and+disposition&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+documentation+and+disposition&scope=%2F&rpp=10	1
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+documentation+and+disposition&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	null	
"africa and primary survey and trauma"		

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subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+primary+survey+and+trauma&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+primary+survey+and+trauma&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+primary+survey+and+trauma&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+primary+survey+and+trauma&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+primary+survey+and+trauma&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+primary+survey+and+trauma&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+primary+survey+and+trauma&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	

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"africa and tetanus"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+tetanus&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+tetanus&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	

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"africa and documentation and transfer"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+documentation+and+transfer	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+documentation+and+transfer&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+documentation+and+transfer&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+documentation+and+transfer&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+documentation+and+transfer&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+documentation+and+transfer&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	

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subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+documentation+and+transfer&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+documentation+and+transfer&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and initial exam"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+initial+exam&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	

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subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	null	
"africa and focused assessment with sonography and abdomen"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+focused+assessment+with+sonography+and+abdomen&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+focused+assessment+with+sonography+and+abdomen&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+focused+assessment+with+sonography+and+abdomen&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	null	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	

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subject: Disaster Medicine (language: English)	null	
"africa and triage and rate"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	1
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	

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subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
"africa and triage and category"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+triage+and+category&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+triage+and+category&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+triage+and+category&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+triage+and+category&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+triage+and+category&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+triage+and+category&scope=%2F&rpp=10	

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subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+triage+and+category&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and vital signs and critically ill"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	

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subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+vital+signs+and+critically+ill&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Treatment&filter_0=English&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
OUTCOMES		
"africa and mortality and trauma"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	1
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	

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subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+mortality+and+trauma&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and adult and lower respiratory tract infection and mortality"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English&rpp=10	1
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	

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subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+adult+and+lower+respiratory+tract+infection&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Treatment&filter_0=English&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
"africa and child and lower respiratory tract infection and mortality"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	2
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	

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subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and mortality and asthma"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+mortality+and+asthma&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English&rpp=10	

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subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	

Google and Google Scholar

Reviewed pages 1-2 of each search result

SEARCH TERMS all searches: "africa and emergency care and..."	Articles Saved to Zotero?	Link #1	Link #2
GENERAL			
glucose and mental status and emergency	yes		
antibiotics and pneumonia and pediatrics	yes	https://www.cidrap.umn.edu/news-perspective/2020/07/antibiotic-use-duration-questioned-kids-pneumonia-low-resource-areas	https://data.unicef.org/topic/child-health/pneumonia/
bronchodilator and asthma	yes		
complete vital signs	yes		

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diagnosis and documentation or charting	yes		
antibiotics and pneumonia and adult	yes		
shock and intravenous fluids	yes	https://www.imperial.ac.uk/news/99489/african-trial-questions-emergency-treatment-children/	
postpartum hemorrhage or bleed	yes		
glucose or hypoglycemia	yes		
demographics and chief complaint	yes		
pregnancy test	yes		
hypoxia and oxygen	yes		
splint and fracture	yes		
magnesium and eclampsia or preeclampsia	yes		
trauma and bleeding or hemorrhage	yes		
anemia and blood transfusion	yes		
antibiotics and sepsis	yes		
corticosteroid and asthma	yes		
pain and analgesia	yes		
documentation and disposition	yes		
primary survey and trauma	yes		
tetanus	yes		
documentation and transfer	yes		
initial exam or assessment	yes		
focused assessment with sonography and abdomen	yes		
triage and rate	yes		
triage and category	yes		
vital signs and critically	yes		

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ill			
OUTCOMES			
"africa and mortality and trauma"	yes	https://baylor-ir.tdl.org/bitstream/handle/2104/10551/Final%20Thesis%20Document%20Archived.pdf?sequence=1	
"africa and adult and lower respiratory tract infection and mortality"	yes		
"africa and child and lower respiratory tract infection and mortality"	yes		
"africa and mortality and asthma"	yes		

African Journal of Emergency Medicine

SEARCH TERMS All searches: Africa and emergency care and..."	Articles Saved to Zotero?
GENERAL	
glucose and mental status	yes (2)
antibiotics and pneumonia and pediatrics	yes (1)
bronchodilator and asthma	--
complete vital signs	yes (4)
diagnosis and documentation or charting	yes (6)
antibiotics and pneumonia and adult	yes (2)
shock and intravenous fluids	yes (1)
postpartum hemorrhage or bleed	yes (1)
glucose or hypoglycemia	--
demographics and chief complaint	yes (7)
pregnancy test	--
hypoxia and oxygen	--
splint and fracture	yes (4)
magnesium and eclampsia	--
trauma and bleeding or hemorrhage	yes (1)
anemia and blood transfusion	--
antibiotics and sepsis	--
corticosteroid and asthma	--

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pain and analgesia	--
documentation and disposition	yes (9)
primary survey and trauma	yes (1)
tetanus	yes (1)
documentation and transfer	--
initial exam or assessment	yes (1)
focused assessment with sonography and abdomen	yes (1)
triage and rate	yes (8)
triage and category	yes (9)
vital signs and critically ill	--
OUTCOMES	
mortality and trauma	yes (11)
adult and lower respiratory tract infection and mortality	--
child and lower respiratory tract infection and mortality	--
mortality and asthma	yes (2)

PATH Database

	Link to Search Results	# of Results	Articles Saved to Zotero?
GENERAL			
glucose and mental status	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20glucose%20and%20mental%20status&sort=date&to_month=2&to_year=2022	5	none
antibiotics and pneumonia and pediatrics	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20antibiotics%20and%20pneumonia%20and%20pediatrics&sort=date&to_month=2&to_year=2022	26	none
bronchodilator and asthma	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20bronchodilator%20and%20asthma&sort=date&to_month=2&to_year=2022	2	yes
complete vital signs	https://www.path.org/resources/?from_month=1&from_year=1989&page=9&query=africa%20and%20emergency%20care%20and%20complete%20vital%20signs&sort=date&to_month=2&to_year=2022	85	none

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diagnosis and documentation or charting	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20diagnosis%20and%20documentation%20or%20charting&sort=date&to_month=2&to_year=2022	55	none
antibiotics and pneumonia and adult	https://www.path.org/resources/?from_month=1&from_year=1989&page=3&query=africa%20and%20emergency%20care%20and%20antibiotics%20and%20pneumonia%20and%20adult&sort=date&to_month=2&to_year=2022	38	none
shock and intravenous fluids	https://www.path.org/resources/?from_month=1&from_year=1989&page=3&query=africa%20and%20emergency%20care%20and%20shock%20and%20intravenous%20fluids&sort=date&to_month=2&to_year=2022	11	none
postpartum hemorrhage or bleed	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20postpartum%20hemorrhage%20or%20bleed&sort=date&to_month=2&to_year=2022	26	none
glucose or hypoglycemia	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20glucose%20or%20hypoglycemia&sort=date&to_month=2&to_year=2022	1	none
demographics and chief complaint	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20demographics%20and%20chief%20complaint&sort=date&to_month=2&to_year=2022	13	none
pregnancy test	https://www.path.org/resources/?from_month=1&from_year=1989&page=40&query=africa%20and%20emergency%20care%20and%20pregnancy%20test&sort=date&to_month=2&to_year=2022	198	none
hypoxia and oxygen	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20hypoxia%20and%20oxygen&sort=date&to_month=2&to_year=2022	3	none
splint and fracture	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20splint%20and%20fracture&sort=date&to_month=2&to_year=2022	1	none
magnesium and eclampsia	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20magnesium%20and%20eclampsia&sort=date&to_month=2&to_year=2022	10	none
trauma and bleeding or hemorrhage	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20trauma%20and%20bleeding%20or%20hemorrhage&sort=date&to_month=2&to_year=2022	3	none

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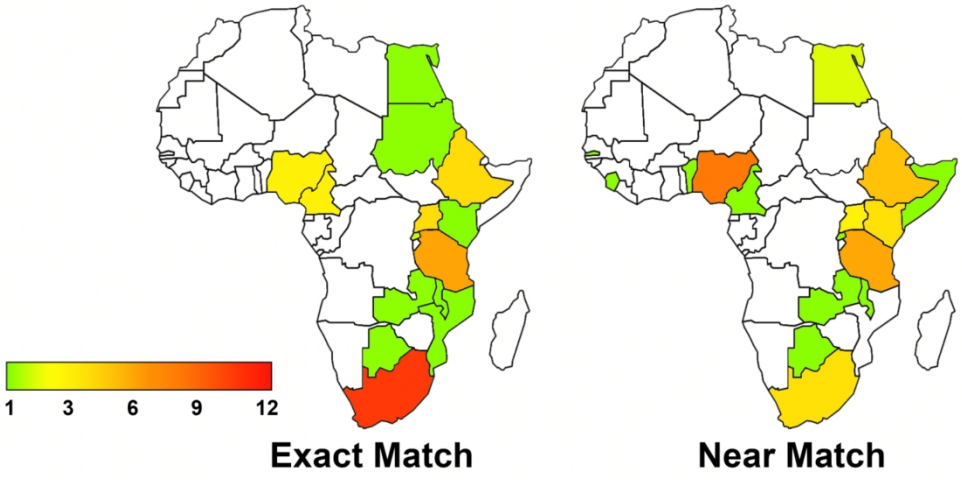
anemia and blood transfusion	https://www.path.org/resources/?from_month=1&from_year=1989&page=2&query=africa%20and%20emergency%20care%20and%20anemia%20and%20blood%20transfusion&sort=date&to_month=2&to_year=2022	8	none
antibiotics and sepsis	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20antibiotics%20and%20sepsis&sort=date&to_month=2&to_year=2022	11	none
corticosteroid and asthma	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20corticosteroid%20and%20asthma&sort=date&to_month=2&to_year=2022	0	none
pain and analgesia	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20pain%20and%20analgesia&sort=date&to_month=2&to_year=2022	3	none
documentation and disposition	https://www.path.org/resources/?from_month=1&from_year=1989&page=6&query=africa%20and%20emergency%20care%20and%20documentation%20and%20disposition&sort=date&to_month=2&to_year=2022	26	none
primary survey and trauma	https://www.path.org/resources/?from_month=1&from_year=1989&page=4&query=africa%20and%20emergency%20care%20and%20documentation%20and%20primary%20survey%20and%20trauma&sort=date&to_month=2&to_year=2022	18	none
tetanus	https://www.path.org/resources/?from_month=1&from_year=1989&page=10&query=africa%20and%20emergency%20care%20and%20documentation%20and%20tetanus&sort=date&to_month=2&to_year=2022	48	none
documentation and transfer	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20documentation%20and%20transfer&sort=date&to_month=2&to_year=2022	167	none
initial exam or assessment	https://www.path.org/resources/?from_month=1&from_year=1989&page=2&query=africa%20and%20emergency%20care%20and%20initial%20exam%20or%20assessment&sort=date&to_month=2&to_year=2022	46	none
focused assessment with sonography and abdomen	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20focused%20assessment%20with%20sonography%20and%20abdomen&sort=date&to_month=2&to_year=2022	0	none
triage and rate	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20triage%20and%20rate&sort=date&to_month=2&to_year=2022	24	none

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triage and category	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20triage%20and%20category&sort=date&to_month=2&to_year=2022	13	none
vital signs and critically ill	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20vital%20signs%20and%20critically%20ill&sort=date&to_month=2&to_year=2022	65	none
OUTCOMES			
mortality and trauma	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20mortality%20and%20trauma&sort=date&to_month=2&to_year=2022	19	none
adult and lower respiratory tract infection and mortality	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20adult%20and%20lower%20respiratory%20tract%20infection%20and%20mortality&sort=date&to_month=2&to_year=2022	10	none
child and lower respiratory tract infection and mortality	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20child%20and%20lower%20respiratory%20tract%20infection%20and%20mortality&sort=date&to_month=2&to_year=2022	12	none
mortality and asthma	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20mortality%20and%20asthma&sort=date&to_month=2&to_year=2022	9	none

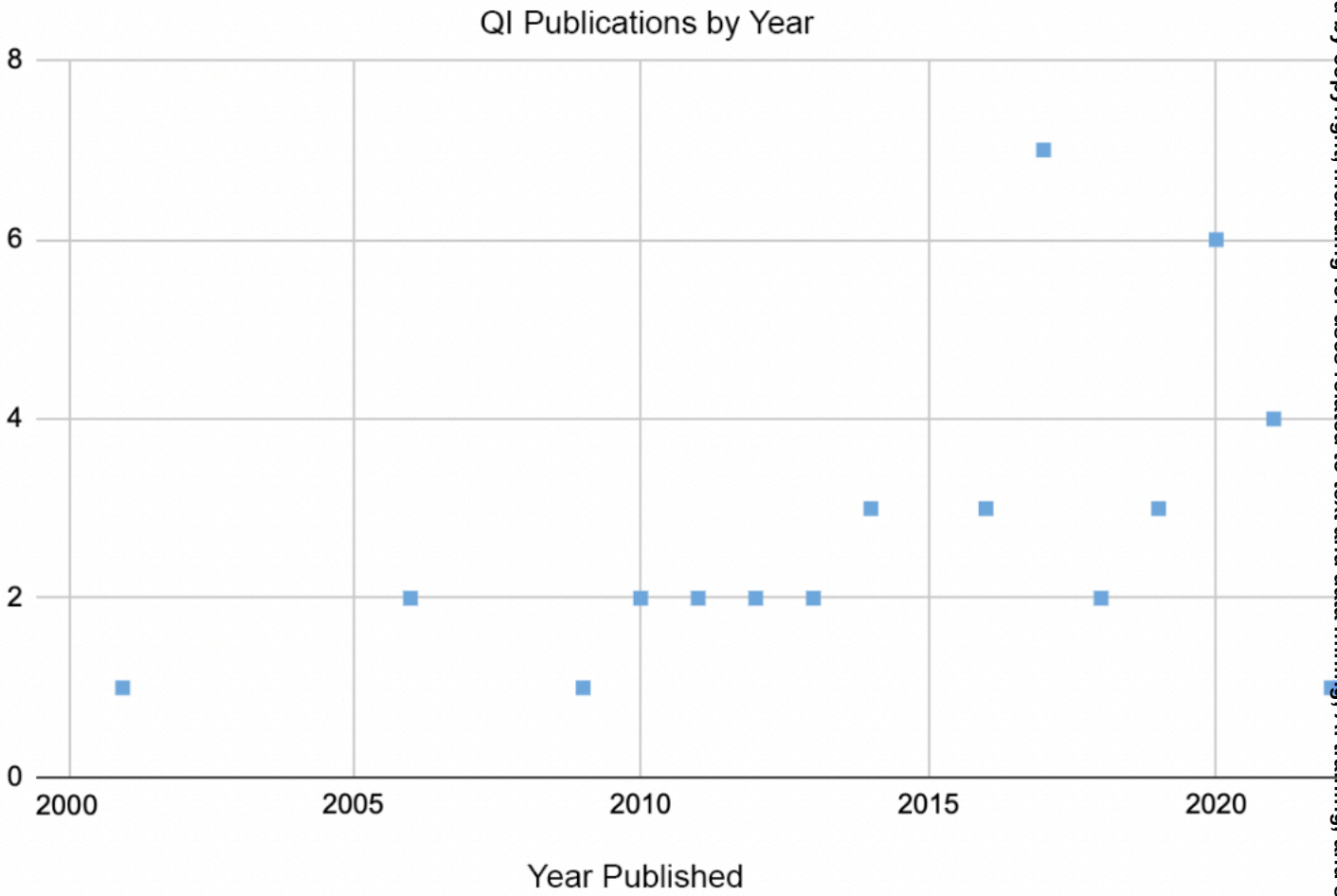
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PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Required BMJ format
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	page 4-5
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	page 5
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	page 5 and 10
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Methods
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	page 8 / appendix 4 & 5
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	page 9
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	page 10
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	page 9/ appendix 1, 2, 3
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	page 9/ appendix 1, 2, 3
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	page 9
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	page 10
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	page 9
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	NA
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	page 9/ appendix 1, 2, 3
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	page 10
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	page 10
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	NA
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	NA
Certainty assessment	15	~~Describe~~ any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	NA

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PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	page 10/prisma figure
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	page 10/prisma figure
Study characteristics	17	Cite each included study and present its characteristics.	Table 1 and 2
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	NA
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Figure 3
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Figiure 3
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	page 21-30
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Table 2 a-c
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	NA
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	NA
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	NA
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	page 30 - 32
	23b	Discuss any limitations of the evidence included in the review.	page 33
	23c	Discuss any limitations of the review processes used.	page 33
	23d	Discuss implications of the results for practice, policy, and future research.	page 30 - 32
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	page 9
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	page 9
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	page 9
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	page 33
Competing interests	26	Declare any competing interests of review authors.	page 33
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	page 33

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

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Clinical emergency care quality indicators in Africa: a scoping review and data summary

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1 Health systems evaluation

2 Public Health

3

4

5

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ABSTRACT

Objectives

Emergency care services are rapidly expanding in Africa; however, development must focus on quality. The African Federation of Emergency Medicine consensus conference (AFEM-CC) based quality indicators were published in 2018. This study sought to increase knowledge of quality through identifying all publications from Africa containing data relevant to the AFEM-CC process clinical and/or outcomes quality indicators.

Design

We conducted searches for quality in African emergency care and for each of 28 AFEM-CC process clinical and five outcome clinical quality indicators individually in the medical and gray literature.

Data sources

PubMed (1964 – Jan 2, 2022), Embase (1947 – Jan 2, 2022), and CINAHL (1982 – Jan 3, 2022) and various forms of gray literature were queried.

Eligibility criteria

Studies published in English, addressing the African emergency care population as a whole or large subsegment of this population (ex: trauma, pediatrics), and matching AFEM-CC process quality indicator parameters exactly were included. Studies with similar, but not exact match, data were collected separately as 'AFEM-CC quality indicators near match'.

Data extraction and synthesis

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Document screening was done in duplicate by two authors, using Covidence, and conflicts were adjudicated by a third. Simple descriptive statistics were calculated.

Results

1314 documents were reviewed, 314 in full text. 41 studies met a priori criteria and were included, yielding 59 unique quality indicator data points. Documentation and assessment quality indicators accounted for 64% of data points identified, clinical care for 25% and outcomes 10%. An additional 53 'AFEM-CC quality indicators near match' publications were identified (38 new publications and 15 previously identified studies that contained additional 'near match' data), yielding 87 data points.

Conclusions

Data relevant to African emergency care facility-based quality indicators is highly limited. Future publications on emergency care in Africa should be aware of, and conform with, AFEM-CC quality indicators to strengthen understanding of quality.

STRENGTHS AND LIMITATION OF THIS STUDY

- Each of the 28 AFEM-CC process clinical and five outcome clinical quality indicators were individually searched in the medical and gray literature to maximize identification of relevant data points outside of quality specific publications.
- 570 exhaustive searches of the medical and gray literature showed zero studies explicitly presenting data as emergency care quality metrics but yielded 59 data points meeting

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AFEM-CC quality indicators precisely enough to enable comparison between sites and studies.

- Despite the exhaustive search strategy, no data matching the AFCEM-CC quality indicators was found for 55% (18/33) of the indicators, likely representing limitations of existing data rather than limitations of the search methods.
- Publications were limited to those available in English due both to the enormous number of individual searches (570 performed in total) required for a single language, as well as limitations in language capacity of the author team.
- Extensive searches of the gray literature (WHO databases, Ministry of Health and NGO websites, Google and Google Scholar) were undertaken; however, these searches likely still have limited ability to identify unpublished data available at the facility or regional level.

INTRODUCTION

Emergency care can address much of the excess morbidity and mortality from acute illness and injury in Africa.[1–3] However, to achieve this impact emergency care services must be both timely and high-quality. Emergency care services (including prehospital, facility-based and interfacility networks) are rapidly developing in Africa.[4,5] While health outcomes are improving in Africa, it is widely recognized that health development in the Sustainable Development Goals era must

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focus on improving care quality rather than just access.[6] Measuring quality of emergency care delivery, however, has not been a significant focus for emergency care researchers or policymakers in Africa to date.

In 2013, the International Federation for Emergency Medicine issued a consensus statement suggesting a framework for the delivery of safe and high-quality emergency care globally.[7] In response, the African Federation of Emergency Medicine (AFEM) held an consensus conference of experts in 2018. The conference produced a series of consensus-based emergency care quality indicators specific to the African context, with interventions and measures obtainable in most African emergency care settings.[8] These quality indicators, referred to here as the AFEM Consensus Conference Quality Indicators (AFEM-CC-QI), consisted of outcomes, processes, and structural measures. The consensus methods used were similar to other published efforts to define quality indicators for emergency medicine.[9–11]

The only review of emergency care quality in low- and middle-income countries (LMIC) to date was a 2015 ecological review that described the regional distribution and types of indicators.[12] It acknowledged the lack of established clinical quality indicators for emergency care in LMICs to date. This review did not define the indicators found nor provide or summarize

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the quality data identified. Neither this review nor others to date have focused specifically on Africa.

We undertook the following review with the presupposition that the AFEM-CC-QI provided the most logical starting point for a common language of emergency care quality for Africa. We had two objectives for this scoping review. First, to execute a rigorous review of the medical and gray literature looking for quality indicators for emergency care that have been proposed and/or put into practice in Africa. Second, to execute an exhaustive review of the medical and grey literature looking at all published clinical data from African facility-based emergency care settings that contains data relevant to the measures the AFEM consensus conference identified as quality indicators, even if that data was not published explicitly referring to quality. It is our hope that by collating and presenting this data in an accessible form, we can provide a starting point for future research, development, and benchmarking efforts for emergency care quality for health facilities in Africa.

METHODS

This scoping review was developed using the PRISMA scoping review guidelines.[13] It aims to identify and compile all documents:

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1. Pertaining to quality indicators for facility-based emergency care in Africa

2. Containing specific data on the AFEM-CC process clinical and/or outcomes quality indicators, even if they do not explicitly report on quality of emergency care or quality indicators

A scoping review was chosen to map the spectrum of applicable documents. Due to the diversity of potentially relevant documents a broad search was undertaken to maximize inclusivity. Electronic searches were performed across multiple databases and African emergency care journals. The WHO database, national ministries of health websites, NGO databases/websites were queried, Google and Google Scholar were utilized to assist in identifying pertinent grey literature.

A study protocol was established and documented *a priori*, however was not formally published. Any deviations from the pre-established protocol are specifically noted. The study was reported according to the PRISMA scoping review guidelines.[13]

Eligibility criteria

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All publicly available studies and documents relevant to quality indicators for facility-based emergency care in Africa and the AFEM-CC process clinical and outcomes quality indicators were included, with no limitation based on year of publication, if:

1. The data was collected in Africa.
2. The text was published in English.
3. The emergency care population as a whole or large subsegment of this population (ex: trauma, pediatrics) was studied.

For inclusion, studies containing AFEM-CC process clinical and outcomes quality indicator data had to comply with the exact parameters as stated in *Defining quality indicators for emergency care delivery: findings of an expert consensus process by emergency care practitioners in Africa* by Broccoli et al.[14] and outlined in Appendix 1. These studies are compiled in Appendix 2. All studies with data that were similar but not an exact match for the AFEM-CC-QI definitions were collected separately as 'AFEM-CC quality indicators near match' studies, Appendix 3. Documents on emergency care quality not relating to quality indicators, prehospital emergency care, inpatient (wards, ICU, theater, labor and delivery, etc.) and disease specific study populations were excluded; see Figure 1 for a full list of exclusion criteria.

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AFEM-CC produced structure quality indicators (both intra-facility and health systems) and time-based process indicators alongside the process clinical and outcome clinical quality indicators that this review centers on. An *a priori* decision was made to focus the review on clinical care; structure quality indicators were not reviewed. While the time-based process indicators, focusing on timeliness of assessment or treatment provided at an EC facility, apply to clinical care these were excluded as they are largely unattainable due to the limitations of documentation in most low resource African emergency care settings.

Information sources and searches

A medical librarian at Stanford University was engaged to assist in identifying relevant databases and creating the search strategy. PubMed (1964-present), Embase (1947-present) and CINAHL (1982-present) were selected based on providing international, medical, allied health and conference publications. Databases searches were executed in January 2022, covering the exact date ranges: PubMed (1964 – Jan 2, 2022), Embase (1947 – Jan 2, 2022), CINAHL (1982 – Jan 3, 2022).

First an overarching search for facility-based emergency care quality literature was performed on each database and source of grey literature utilized. This search included

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Emergency Care AND Africa AND Quality terms and database specific controlled language. As an example, the PubMed *Quality* terms utilized were: ("quality indicator*" [tw] OR "performance indicator*" [tw] OR "quality measure*" OR (quality [ti] AND (perform* [ti] OR measure* [ti] OR indicator* [ti])) OR "quality indicators, health care" [mesh]). See Appendix 4 for full search terms.

Second, each of the 28 AFEM-CC process clinical and five outcome clinical quality indicators were queried individually with *Emergency Care AND Africa AND Process Clinical or Outcomes Clinical Quality Indicator* keywords and database specific controlled language. These searches did not contain quality terms as they sought to obtain AFEM-CC process clinical and outcomes quality indicator data from any source, even those not explicitly related to emergency care quality. This yielded a total of 33 independent searches (28 searches for process clinical quality indicators and five for clinical outcomes quality indicators) in each database and source of grey literature. Note, the adult and pediatric morality from lower respiratory tract infection outcomes quality indicators were combined due to overlapping search terms. See Appendix 4 for full documentation of the database search strategy and yield of each search.

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A second tier of similar — general quality and AFEM-CC process clinical and outcomes clinical quality indicators specific — searches was performed by hand between Jan 4, 2022 and Feb 13, 2022 to query the gray literature. The African Journal of Emergency Medicine was searched directly for relevant publications published prior to PubMed indexing. Sources of grey literature were queried: the WHO website and IRIS database (including separate searches of IRIS Subjects: Emergencies, EMS, EM, Emergency Nursing, Emergency Responders, Emergency Service, Emergency Service-Hospital, Emergency Services-Psychiatric, Disaster Medicine), national ministries of health websites, Google, Google Scholar, and the public health NGO PATH's database of publications, presentations and resources. References from included publications were reviewed and any additional relevant documents included. See Appendix 5 for details of these searches.

Policy and clinical experts working in African emergency care development, identified through published works on emergency care quality and quality indicators, were contacted. They provided insights into unidentified published, grey literature and unpublished documents.

Study selection

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All identified documents were imported into Covidence.[15] Title and abstract screening was performed independently and in duplicate by AP and PM. Full texts were then screened for eligibility and relevance by AP and PM in the same manner. Exclusions were based on criteria determined *a priori*. Conflicts were adjudicated by BR. During the full text review, 'AFEM-CC quality indicators near match' publications — documents with data points relevant to but not an exact match for the AFEM process clinical and outcome clinical indicators — were identified as potentially useful. The decision was made to exclude these studies as per the *a priori* protocol, but to extract and compile the data.

The data differences that defined studies as 'near match' instead of 'exact match' fell into three categories: differences in exclusion or inclusion criteria for populations (too narrow or too broad), differences in variable definition, or differences in the timing of interventions or follow-up. For 'clinical care' and 'documentation and assessment' near match quality indicators most differences were due to population and/or variable definitions, while for 'clinical outcomes' most differences were due to the timing of mortality follow-up data.

Data charting

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AP extracted data from included 'AFEM-CC quality indicators exact match' (Appendix 2) and separately from the 'AFEM-CC quality indicators near match' (Appendix 3) documents using a data extraction form in Microsoft Excel[16] spreadsheet that was developed *a priori* by the authors. AFEM-CC process clinical and outcomes quality indicators data points were extracted, either singularly or pre/post in studies describing an intervention. Additionally, information on the publication, location and type of emergency care facility, study objective, years of data collection, number of participants, subpopulation included, and any intervention studied were noted. Extracted data was reviewed for quality and completeness by PM and BR. Any discrepancies were adjudicated through consensus.

Data analysis

Data was categorized by AFEM-CC process clinical and outcomes quality indicators as defined in Appendix 1. Variations between groups and within groups were analyzed by quality indicator, country, date of publication, emergency care facility type (university, referral hospital, etc.), subpopulation and trauma registry derived data. Descriptive statistics were utilized, and figures produced with Microsoft Excel[16] and Adobe Photoshop[17].

Patient and public involvement

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None.

RESULTS

Selection of sources of evidence

A total of 1314 unique documents were included in the review. After title and abstract screening 1000 of these studies were deemed irrelevant. This left 314 studies for full text review. Of these, 41 studies met the *a priori* inclusion criteria with data on quality indicators in Africa in general or 'AFEM-CC quality indicators exact match' data. Another 53 studies (38 new studies and 15 previously identified studies that contained additional quality indicator data) identified during the search process had data which closely aligned with the AFEM-CC-QI but did not exactly match case or variable definitions. These variations in case and variable definitions made the data too heterogeneous to include and compared directly with the AFEM-CC quality indicators. However, because this corpus of studies contained important data and was similar in size to the group of studies exactly matching AFEM-CC-QI definitions, the *a posteriori* decision was made during the review process to organize and report these studies separately as 'AFEM-CC quality indicators near match' data. Figure 1 provides the detailed flowchart for the selection of sources of evidence.

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Characteristics of evidence

Geographic distribution of evidence

The 41 included studies represent data from only 26% (14 of 54) of African countries, with no relevant publications identified from the other 74% (40 of 54) countries. Just four countries produced 61% (25 of 41) of included studies: South Africa (27%, 11 of 41), Tanzania (15%, 6 of 41), Ethiopia (10%, 4 of 41) and Uganda (10%, 4 of 41). Regionally, 37% (15 of 41) of studies were produced in Southern Africa, 42% (17 of 41) in East Africa, 7% (3 of 41) in West Africa, 7% (3 of 41) in Central Africa, and 5% (2 of 41) in North Africa. Appendix 6 graphically depicts the distribution of included quality indicator studies by country.

Temporal distribution of evidence

The earliest study was published in 2001. A significant uptrend in publication of relevant studies was seen over time, with 67% of included studies published in the last seven years (2015-2022). Appendix 7 graphically depicts the temporal distribution of included studies.

Characteristics of the general African quality indicator evidence

Two studies were identified that focused explicitly on facility-based emergency care quality indicators for Africa.[14,18] One was the manuscript by Broccoli et al. which published the AFEM-

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CC process clinical and outcomes quality indicators used in this review.[14] The other study by Maritz et al. contained quality indicators developed specifically for emergency care in South Africa, and focused on indicators relating to time, process, structure, training, equipment and availability.[18] This manuscript contained a number of quality indicators overlapping with the AFEM-CC quality indicators, but did not contain any additional clinical care or outcome quality indicators that would supplement the AFEM-CC quality indicators in this review. Neither of these studies contained patient-level data points data for process clinical and/or outcomes quality indicators to be included in this review.

Characteristics of the 'AFEM-CC quality indicators exact match' evidence

In total, 39 studies were seen to contain 'AFEM-CC quality indicators exact match' data for process clinical and/or outcomes quality indicators.[19–57] Only 8% (3 of 39) of these studies explicitly mentioned quality in the stated research objectives. The 39 studies contained patient-level data across 15 distinct quality domains: five clinical care domains, six assessment and documentation domains, four outcomes. Because some studies contained data pertaining to more than one quality indicator, 59 total quality data points were identified. Five of the 39 studies had pre- and post-intervention data accounting for 13 total data points. Table 1 contains summary

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data for all included studies, while more detailed information on each study is available in Appendix 2.

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Table 1. AFEM-CC quality indicator exact match studies

Quality Indicators: Data								
Clinical Care								
Title	**Author**	**Year**	Antibiotics for sepsis	Blood transfusion for [illegible]	[illegible] for asthma	Bronchodilator for asthma	Analgesia for pain	
Emergency Care of Sepsis in Sub-Saharan Africa: Incidence, Mortality and Non-Physician Clinician Management of Sepsis in rural Uganda from 2010 to 2019	Rice[20]	2022	82%					
Pediatric sepsis interventions and in-hospital mortality in a resource limited emergency medicine department	Lau-Braunhut[22]	2021	46%					
Transfusion, mortality and hemoglobin level: Associations among emergency department patients in Kigali, Rwanda	Moretti[26]	2020		67%				
The epidemiology of sepsis in a district hospital emergency centre in Durban, KwaZulu natal	Ndadane[31]	2019	89%					
Assessment of Acute Pain Management and Associated Factors among Emergency Surgical Patients in Gondar University Specialized Hospital Emergency Department, Northwest Ethiopia, 2018: Institutional Based Cross-Sectional Study	Andualem[33]	2018					66%	
Clinical Presentation and Outcomes among Children with Sepsis Presenting to a Public Tertiary Hospital in Tanzania.	Kortz[38]	2017	54%					
Emergency blood transfusion practices among anaemic children presenting to an urban emergency department of a tertiary hospital in Tanzania.	Shari[39]	2017		23%				
Analysis of acute pain management in the emergency department of a large private hospital in Cape Town, South Africa	Stander[43]	2016					71%	
Audit of acute asthma management at the Paediatric Emergency Department at Wad Madani Children's Hospital, Sudan.	Ibrahim[49]	2012			7%			
The proportion of asthma and patterns of asthma medications prescriptions among adult patients in the chest, accident and emergency units of a tertiary health care facility in Uganda	Kirenga[50]	2012			4%	21%		
Evaluation of pain incidence and pain management in a South African paediatric trauma unit.	Thiadens[52]	2011					58%	
Severe sepsis in two Ugandan hospitals: a prospective observational study of management and outcomes in a predominantly HIV-1 infected population	Jacob[54]	2009	83%					
Acute asthma in a children's emergency room: a clinical audit and management guideline proposal.	Okoromah[55]	2006			8%	80%		
Assessment and Documentation								
Title	**Author**	**Year**	Complete vital signs recorded	Documentation of demographics and chief complaint	[illegible]	Documentation of diagnosis	Received triage score	Received triage level categorization
Monitoring of characteristics of the patients visiting an emergency center in Cameroon through the development of hospital patient database	Jeong[19]	2022			8%			95%
One in four die from acute infectious illness in an emergency department in Eastern Cape Province, South Africa	Jenson[21]	2021	6%					
Completeness of medical records of trauma patients admitted to the emergency unit of a university hospital, upper Egypt	Mohammed[23]	2021			9%			

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We need to target trauma: a prospective observational study in Eastern Cape Province, South Africa	Clark[24]	2020						93%
What presents to a rural district emergency department: A case mix.	Meyer[25]	2020			95%	84%		
Development and pilot implementation of a standardised trauma documentation form to inform a national trauma registry in a low-resource setting: lessons from Tanzania.	Sawe[27]	2020			6% 10%			
Evaluation of a modified South African Triage Score as a predictor of patient disposition at a tertiary hospital in Rwanda.	Uwamahoro[29]	2020			8%			
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin[30]	2019			7%	97%		
The burden of trauma at a district hospital in the Western Cape Province of South Africa.	Zaidi[32]	2019			9%			93%
A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab[34]	2017					42%	76%
Key findings from a prospective trauma registry at a regional hospital in Southwest Cameroon	Chichom-Mefire[35]	2017			4% 9%			
Saving children's lives with colours	Dekker-Boersema[36]	2017						86%
Task Shifting: The Use of Laypersons for Acquisition of Vital Signs Data for Clinical Decision Making in the Emergency Room Following Traumatic Injury	Haac[37]	2017	4% 91%					
An evaluation of the use of the South African Triage Scale in an urban district hospital in Durban, South Africa	Soogun[40]	2017			9%			76%
Head injury is the leading cause of presentation and admission to a tertiary care center in Kenya: A descriptive analysis of emergency department patients at Kenyatta national hospital	Ekernas[41]	2016					85%	
Evaluation of trauma patient presentations and outcomes at a Ugandan regional referral hospital	Schriger[42]	2016	3%					
Enhancing emergency medicine initiatives with a quality improvement program: lessons learned in the emergency department of Tikur Anbessa Hospital, Addis Ababa Ethiopia.	Azazh[44]	2014					20% 96%	
Reduced overtriage and undertriage with a new triage system in an urban accident and emergency department in Botswana: a cohort study	Mullan[45]	2014			86% 9%			98%
Epidemiology of injuries, outcomes, and hospital resource utilisation at a tertiary teaching hospital in Lusaka, Zambia	Seidenberg[46]	2014			9%			
Hospital-based injury data from level III institution in Cameroon: Retrospective analysis of the present registration system	Chichom-Mefire[47]	2013		78%	4%			
Vital signs for children at triage: a multicentre validation of the revised South African Triage Scale (SATS) for children.	Twomey[48]	2013			9%			99%
Emergency medicine in Paarl, South Africa: a cross-sectional descriptive study	Hanewinckel[53]	2010						54%
Trauma at a Nigerian teaching hospital: pattern and documentation of presentation.	Thanni[56]	2006			9%			
Injury registration in a developing country. A study based on patients' records from four hospitals in Dar es Salaam, Tanzania	Mutasingwa[57]	2001				100%		

Outcomes

Title	Author	Year	Trauma mortality (24 hr)	LRTI Mortality (24 hr)	Mortality (ED)	Left without being seen		
The burden of trauma in Tanzania: Analysis of prospective trauma registry data at regional hospitals in Tanzania.	Sawe[28]	2020	3%					
Reduced overtriage and undertriage with a new triage system in an urban accident and emergency department in Botswana: a cohort study	Mullan[45]	2014				0.01% 0.05%		
Pattern of respiratory diseases seen among adults in an emergency room in a resource-poor nation health facility	Desalu[51]	2011		7%	4%			
Emergency medicine in Paarl, South Africa: a cross-sectional descriptive study	Hanewinckel[53]	2010				7%		

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Distribution of data by emergency care setting

Overall, 59% (23 of 39 studies) providing 'AFEM-CC quality indicators exact match' data were conducted at national, quaternary or tertiary care facilities. 21% (8 of 39) of studies contain data from regional hospitals and 15% (6 of 39) from district level facilities. Two studies were multicenter, with facilities of differing designations. Furthermore, 38% (15 of 39) studies identified the facility where data was collected as a teaching or university hospital. These details are again provided on a study-by-study basis in Appendix 2.

Results of individual sources of 'AFEM-CC quality indicators exact match' evidence

The AFEM-CC-QI were grouped into three categories: clinical care, documentation and assessment, and clinical outcomes. The full listing of indicators and their definitions is presented as Appendix 1. Overall, 59 quality indicator data points were identified and are displayed in Figure 2.

Documentation and assessment quality indicators account for 64% (38 of 59) of all data points identified in the scoping review with a single quality indicator (Documentation of disposition) yielding 29% (17 of 59) of all data compiled. Clinical care accounted for 25% (15 of 59) of data points and outcomes were only 10% (6 of 59) data points.

Results of individual sources of 'AFEM-CC quality indicators near match' evidence

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The 53 studies containing 'AFEM-CC quality indicators near match' evidence were split between two groups of publications. The first group included 38 publications which were identified as containing only 'AFEM-CC quality indicators near match' data.[58–95] The second group included 15 publications which were cited above as containing 'AFEM-CC quality indicators exact match' data, but which contained additional 'AFEM-CC quality indicators near match' data.[23,26,27,29,30,32,34,35,40,42,46,47,55–57] This brings the total number of publications containing 'AFEM-CC quality indicators near match' data to 53 and the total number of data points identified within those publications to 87. Tables 2 and 3 contains summary 'AFEM-CC quality indicators near match' data, while further detail about each included publication is provided in Appendix 3.

Results of individual sources of 'AFEM-CC quality indicators near match' evidence

The 53 studies containing 'AFEM-CC quality indicators near match' evidence were split between two groups of publications. The first group included 38 publications which were identified as containing only 'AFEM-CC quality indicators near match' data.[58–95] The second group included 15 publications which were cited above as containing 'AFEM-CC quality indicators exact match' data, but which contained additional 'AFEM-CC quality indicators near

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match' data.[23,26,27,29,30,32,34,35,40,42,46,47,55–57] This brings the total number of publications containing 'AFEM-CC quality indicators near match' data to 53 and the total number of data points identified within those publications to 87. Tables 2 and 3 contains summary 'AFEM-CC quality indicators near match' data, while further detail about each included publication is provided in Appendix 3.

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Table 2. Clinical care and outcomes near match quality indicators

AFEM-CC Quality Indicator	First Author	Year	Country	Data Difference 1	Data Difference 2	%
Clinical Care Near Match Quality Indicators						
Blood glucose checked in patients with change in mental status: % of patients with documented change in mental status who have blood glucose checked	Berends[58]	2021	South Africa	Too narrow - First time seizures		91%
	Smith[59]	2013	South Africa	Too narrow - Sentinel conditions		79%
	Yusuf[60]	2013	Tanzania	Too narrow - Acute psychosis		82%
Oxygen for patients with hypoxia - % of patients with SaO2 <92% who had supplemental oxygen given	Berends[58]	2021	South Africa	Too narrow - Sentinel conditions	Variable definition - O_2 for respiratory distress	100%
	Muhanuzi[61]	2019	Tanzania	Variable definition - O_2 for respiratory distress		87%
	Kuti[62]	2015	Nigeria	Variable definition - O_2<90%		96%
	Kiwango[63]	2014	Tanzania	Too narrow - Traumatic brain injury		36%
Corticosteroid treatment given for asthma patients: % of patients with documentation of asthma who receive corticosteroid treatment	Shirani[64]	2018	South Africa	Too narrow - Triaged red		83%
	Nantanda[65]	2013	Uganda	Variable definition - Med prescribed NOT given		43%
Bronchodilator treatment given for asthma patients: % of patients with documentation of asthma who receive bronchodilator treatment	Shirani[64]	2018	South Africa	Too narrow - Triaged red		100%
	Nantanda[65]	2013	Uganda	Variable definition - Med prescribed NOT given		88%
Analgesia given to patients reporting pain: % of patients with documentation of pain who receive pain medications	Berends[58]	2021	South Africa	Too narrow - Sentinel conditions	Variable definition - pain meds given WITHOUT requiring pain complaint	86%
	Oluwaniyi[66]	2020	Nigeria	Too narrow - Trauma	Variable definition - pain meds given WITHOUT requiring pain complaint	92%
	Haonga[67]	2011	Tanzania	Too narrow - Fractures	Variable definition - pain meds given WITHOUT requiring pain complaint	53%
	Mattson[68]	2019	Rwanda	Too narrow - Fractures	Variable definition - pain meds given WITHOUT requiring pain complaint	52%
Long bone splinting for patients presenting w/ extremity fracture: % of patients w/ extremity fracture get splinted	Haonga[67]	2011	Tanzania	Variable definition - included patients splinted in EU and pre-hospital		>100%
Clinical Outcomes Near Match Quality Indicators						
Mortality from trauma - 24hour	Bundu[73]	2019	Sierra Leone	Wrong timing - Inpatient deaths		23.0%
	Demirel[74]	2019	Somalia	Wrong timing – EU deaths		1.3%
	Gallaher[72]	2019	Malawi	Wrong timing - Inpatient deaths		1.8%
	Ndung'u[75]	2019	Kenya	Wrong timing - Inpatient deaths		2.1%
	Saleeby[76]	2019	Kenya	Wrong timing - Inpatient deaths		6.6%
	Zaidi[32]	2019	South Africa	Wrong timing – EU deaths		0.5%

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	Lampi[77]	2018	Kenya	Wrong timing - Inpatient deaths		1.8%
	Richards[78]	2018	South Africa	Wrong timing - Inpatient deaths		6.3%
	Botchey[79]	2017	Kenya	Wrong timing – EU deaths		0.9%
	Sanyang[80]	2017	The Gambia	Wrong timing – EU deaths		0.9%
	Getachew[81]	2016	Ethiopia	Wrong timing – EU deaths		1.0%
	Schriger[42]	2016	Uganda	Wrong timing - Inpatient deaths		7.0%
	Chamberlain[82]	2015	Uganda	Wrong timing – 72 hr		1.2%
	Ndukwu[83]	2015	Nigeria	Wrong timing – EU deaths		5.1%
	Juillard[84]	2014	Cameroon	Wrong timing – EU deaths		1.0%
	Seidenberg[46]	2014	Zambia	Wrong timing - Inpatient deaths		3.0%
	Hsia[85]	2010	Uganda	Wrong timing - Inpatient deaths		2.0%
	Thanni[56]	2006	Nigeria	Wrong timing – EU deaths		2.1%
	Solagberu[86]	2003	Nigeria	Wrong timing – EU deaths		4.4%
	Taye[87]	2003	Ethiopia	Wrong timing – EU deaths		0.5%
Mortality from lower respiratory tract infection (adult)- 24 hour	Chamberlain[82]	2015	Uganda	Wrong timing – 72 hr		3.3%
	Onwuchekwa[88]	2008	Nigeria	Wrong timing – 72 hr		1.3%
Mortality from lower respiratory tract infection (child) – 24 hour	Ibraheem[89]	2020	Nigeria	Too broad - <18yo		8.3%
	Negash[90]	2019	Ethiopia	Wrong timing – EU deaths	Too broad - <15yo	2.4%
	Richards[78]	2018	South Africa	Too narrow - Patients needing resuscitation	Too broad - <12yo	8.6%
	Ambaye[91]	2016	Ethiopia	Wrong timing – EU deaths	Too broad - <15yo	5.4%
	Chamberlain[82]	2015	Uganda	Wrong timing – 72 hr		4.1%
	Ndukwu[83]	2015	Nigeria	Wrong timing – EU deaths	Too broad - <18yo	6.8%
	Ezeonwu[92]	2014	Nigeria	Wrong timing - Inpatient deaths	Too broad - <15yo	2.2%
	Abhulimhen-Iyoha[93]	2012	Benin	Wrong timing – EU deaths	Too broad - <16yo	1.9%
	Muluneh[94]	2007	Ethiopia	Wrong timing – EU deaths	Too broad - <15yo	15.6%
	Ibeziako[95]	2002	Nigeria	Wrong timing – EU deaths	Too broad - All pediatric	5.1%
Mortality from asthma – 24 hour	Ibraheem[89]	2020	Nigeria	Wrong timing - Inpatient deaths		0.0%
	Ndukwu[83]	2015	Nigeria	Wrong timing – EU deaths		0.0%
	Okoromah[55]	2006	Nigeria	Wrong timing - Inpatient deaths		3.3%

Data Problem: Population too narrow
Data Problem: Variable differently defined
Data Problem: Timing incorrect
Data Problem: Population too broad

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Table 3. Documentation and assessment near match quality indicators

AFEM-CC Quality Indicator	First Author	Year	Country	Data Difference 1	Data Difference 2	%	Multiple % (if applicable)
Recording of initial complete vital signs	Berends[58]	2021	South Africa	Variable definition - Individual NOT complete vitals			SpO_2 99%, RR 100%, HR 100%, BP 4%, Temp 98%
	Elbaih[69]	2021	Egypt	Variable definition - Individual NOT complete vitals			RR 4%, HR 23%, Temp 28%
	Mohammed[23]	2021	Egypt	Variable definition - Vital signs AND GCS		55%	
	Moretti[26]	2020	Rwanda	Variable definition - Individual NOT complete vitals			38%, SBP 38%, RR 39%, SpO_2 36%
	Motsumi[70]	2020	Botswana	Too narrow - Road traffic accidents	Variable definition - Individual NOT complete vitals		100%, SpO_2 74%, HR 92% BP 89%, mp 40%‡
	Mwandri[71]	2020	Tanzania	Variable definition - Individual NOT complete vitals			SpO_2 97%, RR 69%, HR 72%, BP 75%
	Sawe[27]	2020	Tanzania	Variable definition - Individual NOT complete vitals			25%, SBP 29%, RR18%, SpO_2 13%†
	Laytin[30]	2019	Ethiopia	Variable definition - Individual NOT complete vitals			BP 77%, HR 86%
	Abdelwahab[34]	2017	Ethiopia	Variable definition - Individual NOT complete vitals			98%, BP 93%, Temp 87%, RR 83%
	Chichom-Mefire[35]	2017	Cameroon	Variable definition - Two different data sources			: 13%, RR: 2%
	Soogun[40]	2017	South Africa	Variable definition - Individual NOT complete vitals			99%, HR 99%, BP 99%, Temp 99%
	Chichom-Mefire[47]	2013	Cameroon	Variable definition - Individual NOT complete vitals			13%, HR 7%, RR 2%
	Yusuf[60]	2013	Tanzania	Wrong timing - Any time in EU	Too narrow - Acute psychosis	88%	
Recording of demographics and chief complaint	Motsumi[70]	2020	Botswana	Variable definition - Not BOTH variables	Too narrow - Road traffic accidents		Demographics 96%, Injury mechanism 9%%‡
	Mwandri[71]	2020	Tanzania	Variable definition - Not BOTH variables		86%	
	Sawe[27]	2020	Tanzania	Variable definition - Not BOTH variables			Name 99%, Age 82%, Gender 70%, Address 84%, Injury location 14% Injury mechanism 45%†
	Uwamahoro[29]	2020	Rwanda	Variable definition - Not BOTH variables		>99%	
	Gallaher[72]	2019	Malawi	Variable definition - Not BOTH variables			Demographics 100%, Injury mechanism 100%, Injury location 94%
	Laytin[30]	2019	Ethiopia	Variable definition - Not BOTH variables			Age 96%, Gender 99%, Injury mechanism 60%
	Zaidi[32]	2019	South Africa	Variable definition - Not BOTH variables			Gender 99%, Age 98%

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	Abdelwahab[34]	2017	Ethiopia	Variable definition - Not BOTH variables		95%	
	Chichom-Mefire[35]	2017	Cameroon	Variable definition - Not BOTH variables			Gender 99%, Age 98%, Injury mechanism 99%
	Seidenberg[46]	2014	Zambia	Variable definition - Not BOTH variables			Gender 100%, Age 94%, Injury mechanism 97%
	Mutasingwa[57]	2001	Tanzania	Variable definition - Not BOTH variables			Gender 100%, Age 96%, Injury mechanism 76%
Documentation of diagnosis	Motsumi[70]	2020	Botswana	Too narrow - Road traffic accidents		99%‡	
Documentation of disposition	Motsumi[70]	2020	Botswana	Too narrow - Road traffic accidents		100%‡	
Primary survey performed for all trauma patients	Mwandri[71]	2020	Tanzania	Variable definition - Each but not ALL variables			Airway and Breathing 33%, Circulation 0%, Disability 20%
	Motsumi[70]	2020	Botswana	Too narrow - Road traffic accidents		66%‡	
Initial assessment for all patients	Berends[58]	2021	South Africa	Too narrow - Sentinel conditions	Variable definition - Each but not ALL variables		Breathing 100%, SpO_2 99%, Pulse 100%, Cap refill 35%, Expose 34%

Data Problem: Timing incorrect

Data Problem: Variable improperly defined

Data Problem: Population too narrow

† pre- and post-intervention data available within study

‡ pre- and post-intervention data at two sites available within study

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The distribution of 'near match' studies was less heavily skewed towards documentation and away from outcomes than the 'exact match'. Documentation and assessment quality indicators account for 41% (36 of 87) of all 'near match' data points. Clinical care accounted for 24% (16 of 87) of data points and outcomes were 40% (35 of 87) data points.

Summary of 'AFEM-CC quality indicators exact match' and 'AFEM-CC quality indicators near match' evidence

Of the 18 'clinical care' quality indicators defined by AFEM-CC, 17% (3 of 18) had 'exact match' and 'near match' data identified, 11% (2 of 18) had 'exact match' data only identified, 17% (3 of 18) had 'near match' data only identified, and 56% (10 of 18) had no data identified. Of the ten 'documentation and assessment' quality indicators defined by the AFEM-CC, 40% (4 of 10) had both 'exact match' and 'near match' data identified, 20% (2 of 10) had 'exact match' data only identified, 20% (2 of 10) had 'near match' data only identified, and 20% (2 of 10) had no data. Finally, of the five 'clinical outcomes' quality indicators defined by AFEM-CC, 60% (3 of 5) had both 'exact match' and 'near match' data identified, 20% (1 of 5) had 'exact match' only, and 20% (1 of 5) had no data identified. The full listing of identified quality indicators is presented as Appendix 1.

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DISCUSSION

The above scoping review demonstrates that limited data about emergency care quality in Africa does exist, but these data are rarely presented explicitly as quality metrics and exist in the absence of any organizing framework. This scoping review represents a first time this data has been organized in a single location and will hopefully provide synergy with AFEM efforts to establish a quality framework to support future quality improvement and research efforts.

Our methodological approach was comprehensive but required a very large number of searches. The searches of the medical literature required 128 individual searches of the medical literature (including PubMed, CINAHL, Embase and the African Journal of Emergency Medicine) and 442 individual searches of the grey literature (including Ministry of Health websites, WHO, Google, Google Scholar, Path). These 570 searches yielded 1,314 unique results and 314 of which warranted full-text review. This large volume of work only identified 146 total data points published to date in Africa that can be directly applied to the AFEM-CC-QI. Furthermore, only 59 of those data points met AFEM-CC-QI precisely enough to enable comparison between sites and studies. Producing this work has required a large investment in time but also internet connectivity and institutional access to medical libraries which represent

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structural barriers to replicating this sort of search in many low-income settings in Africa. Notably, these areas most directly benefit from obtaining and disseminating this data.

Our extensive review identified no literature focused on defining quality indicators applicable to low-income settings throughout Africa other than the Broccoli et al. AFEM-CC publication.[14] The paper by Maritz et al did discuss quality directly but did not focus on facility-level clinical indicators for low-resource setting due to South Africa's much higher level of emergency care and health system development.[18] Failing to find further applicable indicators despite rigorous search methods supports our *a priori* methodological decision to base our search strategy on the AFEM-CC process clinical and outcomes clinical quality indicators.

The authors believe that publication of this scoping review is an important first step in organizing and disseminating this widely scattered data in a format that is usable for clinicians, researchers, and policy makers to assist with subsequent development efforts. This data builds upon AFEM's efforts and can provide a starting point for benchmarking efforts and a common language for quality. The lack of existing focus on quality within emergency care research was highlighted by only 3 of the 39 studies included as 'exact match' even mentioning quality in their stated research aims.

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This lack of focus on the specific quality indicators also produced highly variable data, necessitating our creation of a 'near match' category to attempt to include relevant research efforts more broadly. One of the goals of quality indicators is to provide references for comparing between sites and targeting quality improvement efforts. These aims are severely hampered by the lack of standardization in data measures and reporting. This problem was most clearly highlighted in the mortality outcomes data presented in Table 2. The abundance of mortality studies in the 'near match' category suggests strong interest from researchers. This contrasts with the dearth of 'exact match' mortality data and underlines how even subtle differences in age groups and/or outcome variables severely limits generalizability of data and comparison between studies. Moving towards standard definitions for inclusion criteria and outcomes will greatly increase the collective impact of this existing research interest. It is hoped that this scoping review can provide a reference point for efforts to standardize quality research and generate quality benchmarks in African emergency care.

As well as being variable, the data was highly asymmetrical. A disproportionate number of the included studies were from a handful of countries and especially from urban academic centers. This highlights the challenge facing emergency care development in Africa where a

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huge knowledge gap exists about the emergency care needs of most countries and for rural populations across the continent. This gap brings into question the utility and applicability of the current evidence base for emergency care in many African settings.

Finally, much of the data came from trauma registries. This creates asymmetry in the knowledge base as more is understood about the quality of emergency care for injuries than medical emergencies. However, these efforts are to be lauded as the registries appear to facilitate research efforts around quality indicators. Hopefully, these successes can encourage efforts to start or maintain emergency unit registries in Africa. These studies reporting on trauma registry data highlight the high level of training, clinician buy in, and time commitment that have already been invested and we needed to collect, analyze, and disseminate this data. To date trauma registry research efforts tended to focus disproportionately on documentation as compared to clinical care and outcomes. While documentation is an important facet of quality, its over-representation is likely tied to documentation variables being easily obtained from registry reviews. This in turn highlights the need for deliberate development of any emergency unit registries to include important data on diagnostics, treatments, and outcomes to support the breadth of quality research.

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There are several limitations to this scoping review. Most fundamentally, the review was limited to English language documents. We acknowledge that English is an official language in only approximately half of African countries, but that the use of English as a medical and academic language, and publications in multiple languages may increase the availability of relevant publications in English to some extent. One reason for limiting our searches to English was that our exhaustive search strategy required 570 individual queries even for a single language. Multiplying these efforts with additional languages was beyond the capacity of this scoping review. Additionally, despite having two team members (PM and JN) who are Africans currently working in the United States, no one on the team was adequately fluent in other languages spoken in Africa to review literature in those languages. This study is unfunded and thus we could not procure professional translation services. We chose to focus instead on an extensive search of the English language literature. Additionally, there may be local data (e.g., conference presentation, quality improvement projects, regional meetings) that has been published but it is not available outside of local or regional settings and would not be found by our search strategy.

CONCLUSIONS

This review serves as a starting point for national and international African quality indicator benchmarking and system development efforts. Although our results indicate that a number of publications on African emergency care facility-based quality indicators exist, it is crucial that

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future publications reporting on emergency care in Africa be aware of – and consider conforming with – the AFEM-CC-QI in order to strengthen interfacility, regional, national, and international reporting on quality.

Ethic approval: Not applicable, this study does not involve human participants.

Contributors: AP and BR planned the study. AP, PM, JN and BR analyzed the data. AP, PM, JN, CB, ECH and BR interpreted the data in the local context. AP, BR, PM drafted the manuscript. AP, PM, JN, CB, ECH and BR revised the manuscript. AP submitted the study. AP and BR are the guarantors of the overall content.

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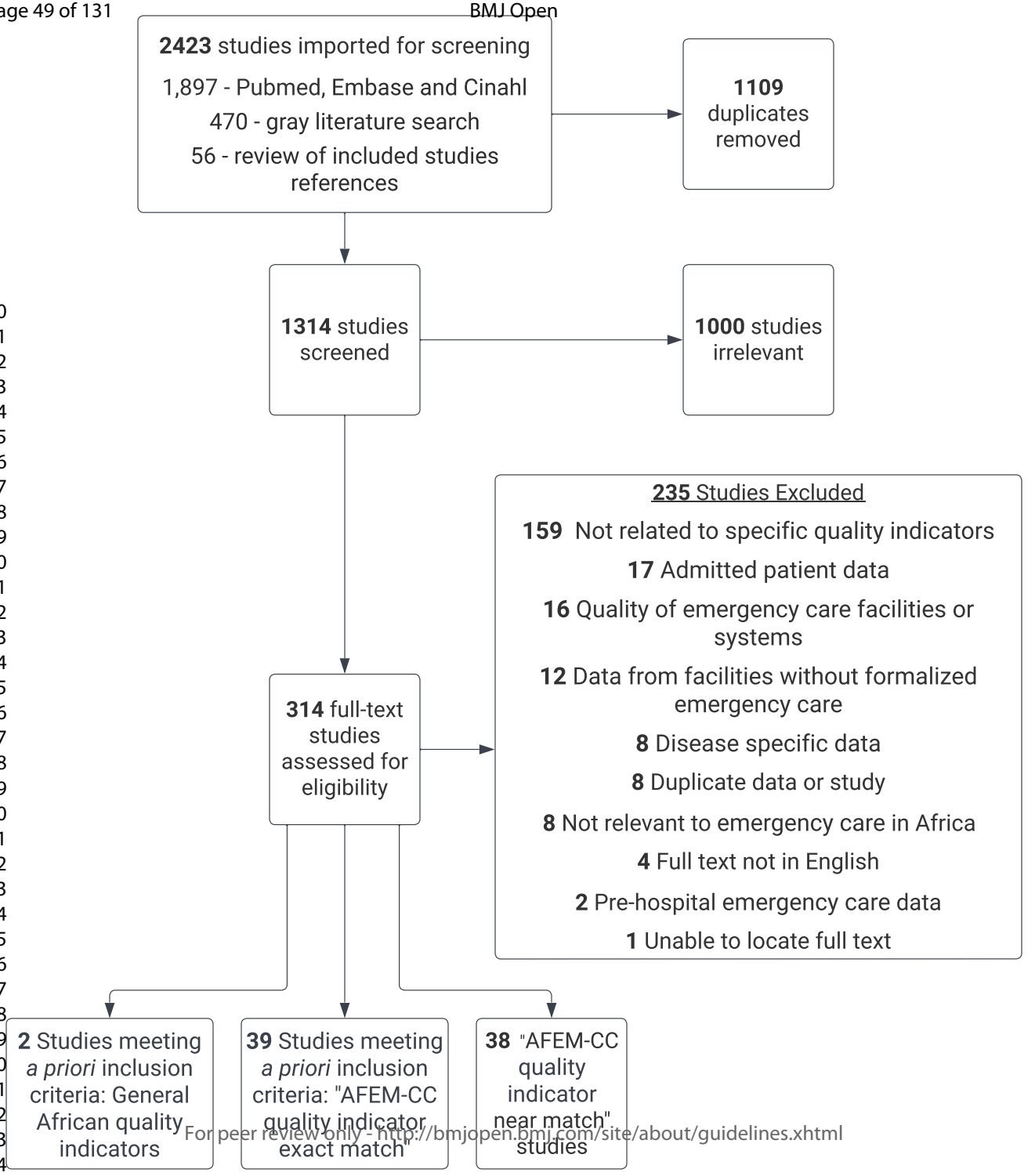
FIGURE TITLES

Figure 1. PRISMA diagram

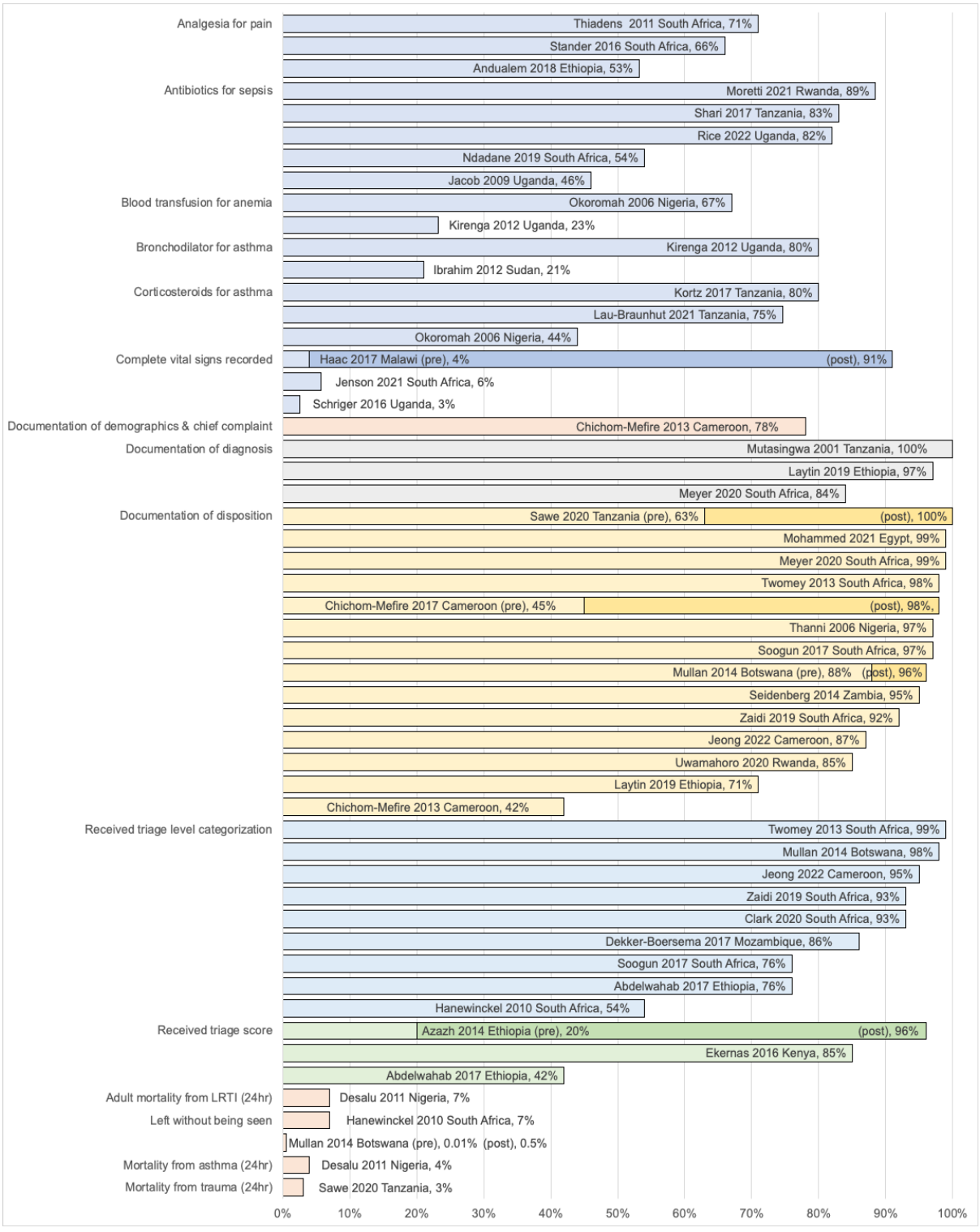
Figure 2. Quality indicator data published to date

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Appendix 1: AFEM-CC Clinical Process and Outcomes Quality Indicators

Clinical Care Quality Indicators

Indicator	Definition	Exact match	Near match	No data
Antibiotics given for patients with sepsis	% of patients with diagnosis of sepsis given antibiotics during EU length of stay	✓	—	—
Blood transfusion of patients meeting transfusion criteria	% of patients meeting local transfusion criteria who receive blood transfusion	✓	—	—
Corticosteroid treatment given for asthma patients	% of patients with documentation of asthma who receive corticosteroid treatment	✓	✓	—
Bronchodilator treatment give for asthma patients	% of patients with documentation of asthma who receive bronchodilator treatment	✓	✓	—
Analgesia given to patients reporting pain	% of patients with documentation of pain who receive pain medications	✓	✓	—
Blood glucose checked in patients with change in mental status	% of patients with documented change in mental status who have blood glucose (BG) checked	—	✓	—
Supplemental oxygen given for hypoxic patients	% of patients with SaO2 <92% who had supplemental oxygen	—	✓	—
Long bone splinting for patients presenting with extremity fracture	% of patients with extremity fracture who are splinted	—	✓	—
Adult patients with shock given IV fluids	% of adult patients with SBP < 90 given intravenous fluids (IVF)	—	—	✓
FAST exam performed for blunt abdominal trauma	% of patients with chief complaint of blunt abdominal trauma who have documented results of Focused Assessment with Sonography in Trauma (FAST) exam	—	—	✓
Hypoglycemic patients given glucose	% of patients with blood glucose < 70 mg/dL given glucose	—	—	✓
Antibiotics given for pediatric pneumonia	% of patients < 5yoa with pneumonia given antibiotics during EU length of	—	—	✓

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	stay			
Antibiotics given for adults with pneumonia	% of adult patients with pneumonia given antibiotics during EU length of stay	—	—	✓
Action taken to control postpartum hemorrhage	% of patients with postpartum hemorrhage who receive medication to control bleeding	—	—	✓
Pregnancy test checked in women of reproductive age	% of female patients of reproductive age with pregnancy test checked	—	—	✓
Parental magnesium given to patients with eclampsia/preeclampsia	% of patients with diagnosis of eclampsia or preeclampsia receiving magnesium	—	—	✓
Action taken to control external hemorrhage	% of patients with active external bleeding who have physical maneuvers applied to control hemorrhage	—	—	✓
Tetanus vaccination updated for susceptible adult patients	% of patients age > 18 with open wound and documentation of tetanus vaccination given (or patient's reported recent vaccination)	—	—	✓

Documentation and Assessment Quality Indicators

Indicator	Definition	Exact match	Near match	No data
Recording of initial complete vital signs	% of patient encounters with recording of initial completed vital signs (VS)	✓	✓	—
Recording of demographics and chief complaint	% of charts with recording of chief complaint and demographics	✓	✓	—
Documentation of diagnosis	% of patients with documented diagnosis d. d.	✓	✓	—
Documentation of disposition	% of patients with documented disposition	✓	✓	—
Rate of triage	% of patients arriving to the EU receiving a triage score	✓	—	—
Triage level categorisation	% of patients by triage level	✓	—	—
Primary survey performed for all trauma patients	% of patients with chief complaint of trauma with documented primary survey	—	✓	—

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Initial assessment for all patients	% of patients receiving an initial assessment	—	✓	—
Documentation of reason for transfer	% of patients with documented reason for transfer	—	—	✓
Vital signs recorded every 15 min for highest acuity patients	% of patients with highest triage priority who have VS recorded every 15 min in the first hour of presentation	—	—	✓

Clinical Outcome Quality Indicators

Indicator	Definition	Exact match	Near match	No data
Mortality from trauma	% of patients with trauma-related chief complaint who die within 24hours of EU presentation	✓	✓	—
Mortality from lower respiratory tract infection (adult)	% of adult patients with diagnosis of LRTI who die within 24hours of EU presentation	✓	✓	—
Mortality from asthma	% of patients with diagnosis of asthma who die within 24hours of EU presentation	✓	✓	—
Left without being seen	% of patients registered in the EU who left without being seen by a provider	✓	—	—
Mortality from lower respiratory tract infection (child)	% of patients <5years with diagnosis of LRTI who die within 24hours of EU presentation	—	✓	—

From: Broccoli MC, Moresky R, Dixon J, Muya I, Taubman C, Wallis LA, Hynes EJ. Defining quality indicators for emergency care delivery: findings of an expert consensus process by emergency care practitioners in Africa. BMJ Global Health. 2018 Feb 1;3(1):e000479.

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
General Quality Indicator Papers														
Defining quality indicators for emergency care delivery: findings of an expert consensus process by emergency care practitioners in Africa	Broccoli	2018	NA	NA	"Determine context-appropriate quality indicators that will allow uniform and objective data collection to enhance emergency care delivery throughout Africa"	NA	NA	NA						
Identification of performance indicators for emergency centres in South Africa: results of a Delphi study	Maritz	2010	South Africa	NA	"Develop a broad-based consensus document detailing quality measures for use in SA Emergency Centres"	NA	NA	NA						
Antibiotics given for patients with sepsis: % of patients with diagnosis of sepsis given antibiotics during EU length of stay														
Emergency Care of Sepsis in Sub-Saharan Africa: Incidence, Mortality and Non-Physician Clinician Management of Sepsis in rural Uganda from 2010 to 2019	Rice	2021	Uganda	District Hospital, Karoli Lwanga Hospital, Rukungiri	"Contribute to understanding of larger trends in sepsis incidence over time in Uganda, the ability of non-physician clinician training programmes to impact emergency care quality, and the impact of sepsis management on mortality."	2010-2019	17,409	Adults (>=18yoa)	Patients with suspected infection		% of patients with suspected infection that received antibiotics in the ED	82%		
Severe sepsis in two Ugandan hospitals: a prospective observational study of management and outcomes in a predominantly HIV-1 infected population	Jacob	2009	Uganda	National and regional referral, Mulago Hospital, Kampala and Masaka Regional Referral Hospital, Masaka	"Report the management and outcomes of severely septic patients in two Ugandan hospitals. We describe their epidemiology, management, and clinical correlates for mortality"	2006	382	Adults (>18yoa)	Severe sepsis		% of patients with severe sepsis that "Received empiric antibiotics" in the EU	83%		
Clinical Presentation and Outcomes among Children with Sepsis Presenting to a Public Tertiary Hospital in Tanzania	Kortz	2017	Tanzania	National Referral, Muhimbili National Hospital (MNH), Dar es Salaam	"Characterize the clinical presentation, emergency interventions received, and outcomes among children with sepsis"	2016	405	Pediatrics (28 days-14yoa)	SIRS with a suspected infection		% of patients with SIRS and a suspected infection with "Antibiotics given" at any point while in the EU	54.10%		
The epidemiology of sepsis in a district hospital emergency centre in Durban, KwaZulu natal	Ndadane	2019	South Africa	District Hospital, Unknown name, Durban	"Describe the clinical profile and initial management of patients with sepsis syndrome in a South African district hospital EC"	2015-2016	52	Adults (>11yoa)	Sepsis; severe sepsis and septic shock		% of patients meeting sepsis criteria that "received antibiotics in the ED"	88.50%		
Pediatric sepsis interventions and in-hospital mortality in a resource limited emergency medicine department	Lau-Braunhut	2021	Tanzania	National Referral, Muhimbili National Hospital, Dar es Salaam	"Identify common emergency medicine department (EMD) sepsis interventions and explore potential predictors of mortality"	2016-2017	1804	Pediatrics (>28days-14yoa)	Sepsis (unclear how defined)		% of patients with "Sepsis" (unclear how defined) that received "antibiotics at any point in during ED care"	45.80%		
Blood transfusion of patients meeting transfusion criteria: % of patients meeting local transfusion criteria who receive blood transfusion														

Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Emergency blood transfusion practices among anaemic children presenting to an urban emergency department of a tertiary hospital in Tanzania	Shari	2017	Tanzania	National referral, Muhimbili National Hospital (MNH), Dar es Salaam	"Assess the burden of anaemia in the children arriving at the MNH-ED, evaluate the emergency blood transfusion practices at our hospital, and report the outcomes of children with anaemia"	2015	388	Pediatrics (<5yoa)	NA		% of patients meeting WHO transfusion guidelines that received transfusion	23.20%		
Transfusion, mortality and hemoglobin level: Associations among emergency department patients in Kigali, Rwanda	Moretti	2020	Rwanda	Tertiary, University Teaching Hospital of Kigali	"Evaluate the association of packed red blood cell (PRBC) transfusion with mortality outcomes across hemoglobin levels amongst emergency center (EC) patients"	2013-2016	1116	Adult medical patients (>15yoa)	NA		% of patients with hemoglobin <7.0 that recieved transfusion	67%		
Corticosteroid treatment given for asthma patients: % of patients with documentation of asthma who receive corticosteroid treatment														
The proportion of asthma and patterns of asthma medications prescriptions among adult patients in the chest, accident and emergency units of a tertiary health care facility in Uganda	Kirenga	2012	Uganda	National Referral Hospital, Mulago, Kampala Uganda	"Estimate the proportion of asthma patients in the Mulago chest clinic and the accident and emergency (A&E) department, and also establish the proportion of asthma patients that are treated according to GINA guidelines"	2009	416 (A&E patients only)	All ages	Asthma diagnosis		% of patients with EU diagnosis of asthma treated with oral steroids	44.40%		
Audit of acute asthma management at the Paediatric Emergency Department at Wad Madani Children's Hospital, Sudan	Ibrahim	2012	Sudan	Tertiary, Wad Madani Paediatrics' Teaching Hospital, Wad Madani, Gezira State	"Audit the acute wheeze/ asthma management in children admitted to the Emergency Department in relation to the published international guidelines... provide baseline data on acute asthma management"	2008	352	Pediatrics (1-16yoa)	Acute wheeze/ asthma		% of patients with EU diagnosis of asthma treated with systemic steroids (oral, IV or both)	74.60%		
Acute asthma in a children's emergency room: a clinical audit and management guideline proposal	Okoromah	2006	Nigeria	Tertiary University, Lagos Teaching Hospital, Lagos	"Clinical audit aimed at evaluating emergency management of acute asthma as well as proposing for use as management protocol; with the view of improving quality of care"	2000-2002	30	Pediatrics (<13yoa)	Asthma diagnostic labels		% of patients that received steroids in the EU	80%		
Bronchodilator treatment give for asthma patients: % of patients with documentation of asthma who receive bronchodilator treatment														
The proportion of asthma and patterns of asthma medications prescriptions among adult patients in the chest, accident and emergency units of a tertiary health care facility in Uganda	Kirenga	2012	Uganda	National Referral Hospital, Mulago, Kampala Uganda	"Estimate the proportion of asthma patients in the Mulago chest clinic and the accident and emergency (A&E) department, and also establish the proportion of asthma patients that are treated according to GINA guidelines"	2009	416 (A&E pts)	All ages	Asthma diagnosis		% of EU patients with diagnosis of asthma treated with bronchodilators	23.1		

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Acute asthma in a children's emergency room: a clinical audit and management guideline proposal	Okoromah	2006	Nigeria	Tertiary University, Lagos Teaching Hospital, Lagos	"Clinical audit aimed at evaluating emergency management of acute asthma as well as proposing for use as management protocol; with the view of improving quality of care"	2000-2002	30	Pediatrics (<13yoa)	Asthma diagnostic labels		% of patients with asthma diagnostic labels that received nebulized B2 agonist in the ED	80%		
Analgesia given to patients reporting pain: % of patients with documentation of pain who receive pain medications														
Evaluation of pain incidence and pain management in a South African paediatric trauma unit	Thiadens	2011	South Africa	Tertiary Hospital, Red Cross War Memorial Children's Hospital, Capetown	"Evaluate pain incidence and pain management in a South African paediatric trauma unit, and to compare the usefulness of 5 different assessment tools."	2008	165	Pediatric trauma (<13 yoa)	NA		% of patients reporting moderate to severe pain that received any pain medication in the ED	58%		
Assessment of Acute Pain Management and Associated Factors among Emergency Surgical Patients in Gondar University Specialized Hospital Emergency Department, Northwest Ethiopia, 2018: Institutional Based Cross-Sectional Study	Andualem	2018	Ethiopia	Regional Referral, Gonder University Specialized Hospital Emergency Department, Gondar town	"Determine pain management modalities and associated factors among emergency surgical patients in Gondar University Specialized Hospital Emergency Department"	2018	203	Adult surgical EU patients	NA		% of patients reporting pain (95.1% severe) that received any pain medication in the ED	66%		
Analysis of acute pain management in the emergency department of a large private hospital in Cape Town, South Africa	Stander	2016	South Africa	Tertiary, Panorama Mediclinic ED, Cape Town	"Analysis of pain management trends was performed in order to lead to a targeted intervention which would result in better care in the ED"	2015	100	Adults with pain as part of chief complaint	NA		% of patients with pain as part of chief complaint that received any pain medication in the ED	71%		
Recording of initial complete vital signs: % of patient encounters with recording of initial completed vital signs (VS)														
One in four die from acute infectious illness in an emergency department in Eastern Cape Province, South Africa	Jenson	2021	South Africa	Regional referral hospital, Mthatha in Eastern Cape Province	"To quantify and describe the incidence of and risk factors for mortality in a cohort of patients with undifferentiated acute infectious illnesses"	2017	310	Adult (>18yoa)	Acute infectious illness		% of patients with a "complete set of VS documented"	5.70%		
Task Shifting: The Use of Laypersons for Acquisition of Vital Signs Data for Clinical Decision Making in the Emergency Room Following Traumatic Injury	Haac	2017	Malawi	Tertiary care referral hospital, Kamuzu Central Hospital, Lilongwe	"Determine whether the training of lay people to take vital signs as trauma clerks is an effective and sustainable method to increase availability of vital signs in the initial evaluation of trauma patients"	2011-2014	18,546	Trauma patient (>18yoa)	NA	Preexisting trauma registry clerks were trained on VS collection during an initial 3-h training session including learning to collect manual blood pressure (BP), heart rate (HR) and respiratory rate (RR) and to calculate a Glasgow Coma Scale (GCS)	% of patients with full set of vital signs (temperature, respiratory rate, heart rate and blood pressure)		4.10%	91.40%

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Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Evaluation of trauma patient presentations and outcomes at a ugandan regional referral hospital	Schriger	2016	Uganda	Regional referral center, Mbarara Regional Referral Hospital, Mbarara	"Prospectively characterize the demographics, mechanisms of injury, diagnoses, and outcomes among trauma patients presenting to Mbarara Regional Referral Hospital (MRRH) prior to planned trauma training interventions"	Unavailable	497	Trauma (unspecified age range)	NA	NA	% heart rate, blood pressure, respiratory rate and oxygen saturation	2.60%		
Recording of demographics and chief complaint: % of charts with recording of chief complaint and demographics														
Hospital-based injury data from level III institution in Cameroon: Retrospective analysis of the present registration system	Chichom-Mefire	2013	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	Assess "available administrative data from the emergency ward logs in a 200-bed regional hospital in Cameroon with respect to completeness and suitability to serve as an injury surveillance tool. The data available are also used to explore an overview of the epidemiological profile of injury in this institution"	2007-2008	1713	Adult (age >15 years) trauma patient	NA		% of patients with complete data recorded on "age, sex and mechanism"	78%		
Documentation of diagnosis: % of patients with documented diagnosis														
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin	2019	Ethiopia	Quaternary referral, Ikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia	"Identify early successes and challenges of the implementation of the African Federation for Emergency Medicine (AFEM) developed the AFEM Trauma Data Project (AFEM-TDP) and to develop strategies for site-specific protocol adaptation"		174 trauma registry forms, 13 interviews	Trauma (all ages?)	NA		% of patients with recorded ED diagnosis	97%		
What presents to a rural district emergency department: A case mix	Meyer	2020	South Africa	District Hospital, Zithulele hospital, Zithulele, Eastern Cape	"Assess the range of acute presentations as well as the types of procedures required by patients in a rural district hospital context"	2015	4002	NA	NA		% of patients with recorded ED diagnosis	84%		
Injury registration in a developing country. A study based on patients' records from four hospitals in Dar es Salaam, Tanzania	Mutasingwa	2001	Tanzania	4 largest tertiary hospitals Dar es Salam, 2 government and 2 private	"evaluate available hospital records for the purpose of describing the epidemiology of injuries among inpatients in four hospitals in Dar es Salaam, Tanzania."	1998	1089	Trauma (all ages)	NA		% of patients with recorded "Nature of injury (ex: fracture, laceration)"	99.60%		
Documentation of disposition: % of patients with documented disposition														

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Development and pilot implementation of a standardised trauma documentation form to inform a national trauma registry in a low-resource setting: lessons from Tanzania	Sawe	2020	Tanzania	5 regional referral hospitals in Tanzania (Morogoro, Arusha, Mwananyamala, Coastal and Tanga)	"Describe the development, structure, implementation and impact of a context appropriate standardised trauma form based on the adaptation of the WHO Data Set for Injury (DSI), for clinical documentation and use in a national trauma registry."	2018-2019	9,914, pre: 2891, pilot: 721, post: 6302	Trauma	NA	Created trauma form which is used for clinical documentation and data collection, conducted train the trainer and on-site training in documentation. 1 month pilot with interview on the challenges to implementation	% of patients with disposition recorded (post - 7-months following implementation phase)		63%	100%
What presents to a rural district emergency department: A case mix	Meyer	2020	South Africa	District Hospital, Zithulele hospital, Zithulele, Eastern Cape	"Assess the range of acute presentations as well as the types of procedures required by patients in a rural district hospital context"	2015	4002	NA	NA		"Outcome recorded on ED disposition"	99%		
Evaluation of a modified South African Triage Score as a predictor of patient disposition at a tertiary hospital in Rwanda	Uwamahoro	2020	Rwanda	Tertiary, The University Teaching Hospital of Kigali (UTH-K), Kigali	"Evaluate the utility of the mSATS tool at UTH-K"	2015-2016	1438	All adults (>15 yoa), medical and trauma	NA		% of patients with disposition recorded	84.50%		
Epidemiology of injuries, outcomes, and hospital resource utilisation at a tertiary teaching hospital in Lusaka, Zambia	Seidenberg	2014	Zambia	Tertiary, University Teaching Hospital (UTH), Lusaka	"To develop a hospital-based trauma registry in an urban hospital in Lusaka, Zambia to assess patterns of injury, transport methods and duration, injury severity, outcomes and hospital resource utilisation."	2011-2012	3425	Trauma (all ages)	NA		% of patients with disposition recorded	95%		
Trauma at a Nigerian teaching hospital: pattern and documentation of presentation	Thanni	2006	Nigeria	Tertiary teaching hospital, Olabisi Onabanjo University Teaching Hospital, Sagamu	"Identify the characteristics of injuries and determining the efficiency of documentation of patients' records"	2003	1078	Trauma (all ages)	NA		% of patients with "outcomes of treatment" recorded	97%		
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin	2019	Ethiopia	Quaternary referral, Ikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia	"Identify early successes and challenges of the implementation of the African Federation for Emergency Medicine (AFEM) developed the AFEM Trauma Data Project (AFEM-TDP) and to develop strategies for site-specific protocol adaptation"		174 trauma registry forms, 13 interviews	Trauma (all ages?)	NA		% of patients with disposition recorded	71%		

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Completeness of medical records of trauma patients admitted to the emergency unit of a university hospital, upper egypt	Mohammed	2021	Egypt	Tertiary, Beni-Suef University Hospital, Upper Egypt	"Investigate the medical records of admitted trauma patients for the completeness of several pre-identified variables in order to evaluate the adequacy of the current medical record as a basis for the development of future trauma registries in hospitals in Upper Egypt."	2016	557	Trauma	NA	-	% of patients with "status at discharge" recorded	99%		
Hospital-based injury data from level III institution in Cameroon: Retrospective analysis of the present registration system	Chichom Mefire	2013	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	Assess "available administrative data from the emergency ward logs in a 200-bed regional hospital in Cameroon with respect to completeness and suitability to serve as an injury surveillance tool. The data available are also used to explore an overview of the epidemiological profile of injury in this institution"	2007-2008	1713	Adult (age >15 years) trauma patient	NA		% with "patient disposition (admission, transfer, discharge, death)" recorded	42%		
Vital signs for children at triage: a multicentre validation of the revised South African Triage Scale (SATS) for children	Twomey	2013	South Africa	6 ECs in the Western Cape, (2 regional hospitals, 2 central hospitals, and 1 community health centre)	"To validate a revised version of the paediatric South African Triage Scale (SATS) against admission as a reference standard and compare the sensitivity of triage using: (i) clinical discriminators; (ii) an age-appropriate physiological composite score; and (iii) a combination of both"	2011	2014	Pediatric (<13yoa)	NA		% of patients with disposition recorded	97.90%		
The burden of trauma at a district hospital in the Western Cape Province of South Africa	Zaidi	2019	South Africa	District hospital, Wesfleur Hospital, Western Cape Province	"Describe the burden of trauma at district hospitals by analysing trauma patients at a prototypical district hospital emergency centre."	2015	565	Trauma (all ages)	NA		% of patients with disposition recorded	91.50%		
Reduced overtriage and undertriage with a new triage system in an urban accident and emergency department in Botswana: a cohort study	Mullan	2014	Botswana	Tertiary Regional Referral, Princess Marina Hospital (PMH), Gaborone	"Compare the undertriage and overtriage rates in the PATS and pre-PATS study periods - local derived triage scale"	2010-2011	39,949	All ED patients (medical & trauma, all ages)	NA	"Creation and implementation of local "objective" triage scale adapted the South African Triage Scale to create the PMH A&E Triage Scale (PATS)"	% of patients with "final disposition" recorded		88.00%	96%
An evaluation of the use of the South African Triage Scale in an urban district hospital in Durban, South Africa	Soogun	2017	South Africa	District hospital, Durban	"Evaluate the use of the SATS in a busy urban district hospital"	2016	346	NA	NA		% of patients with disposition recorded		97.10%	
Monitoring of characteristics of the patients visiting an emergency center in Cameroon through the development of hospital patient database	Jeong	2022	Cameroon	Tertiary/National, Centre des Urgences de Yaoundé, Yaoundé	"Describes the methods of CURY patient data collection and the characteristics of the patients visited CURY from January 2016 to June 2018"	2016-2018	18,875	NA	NA		% of patients with "result of ED visit" recorded	86.80%		

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Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Key findings from a prospective trauma registry at a regional hospital in Southwest Cameroon	Chichom-Mefire	2017	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	"Aims to characterize trauma as seen at the emergency department (ED) of Limbe Regional Hospital (LRH) and assess the completeness of data obtained by a trauma registry"	2008-2013	5,617	Trauma (all ages)	NA	Implementation of trauma registry	% of patients with "outcome of ED treatment" recorded in administrative records (pre) and trauma records (post)		45.00%	98.60%
Rate of triage: % of patients arriving to the EU receiving a triage score														
A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab	2017	Ethiopia	Large teaching hospital, Ayder Comprehensive Specialized Hospital, Tigray Region, northern Ethiopia	"Evaluate the implementation of nurse-led emergency triage (SATS)"	2015	107	Adult (>18yoa)	NA		% of charts containing a triage form	42%		
Head injury is the leading cause of presentation and admission to a tertiary care center in kenya: A descriptive analysis of emergency department patients at kenyatta national hospital	Ekernas	2016	Kenya	Tertiary national referral center, Kenyatta National Hospital	"There is limited information regarding patients seen in the Accident and Emergency (A&E) department"	2014-2015	23,941	All patients registered in the A&E	NA		% of patients with triage logbook data available	85%		
Enhancing emergency medicine initiatives with a quality improvement program: lessons learned in the emergency department of Tikur Anbessa Hospital, Addis Ababa Ethiopia	Azazh	2014	Ethiopia	Tertiary care teaching hospital, Tikur Ambessa Specialized Hospital, Addis Ababa, Adult and pediatric EDs	"Describe the QI methodology, capacity building strategy, implementation approach and lessons learned"	2011	Unknown	Adults	NA	QI project to improve triage rate, ie clear specific intervention	% of patients with triage documented (QI project to improve triage rate)		20%	96%
Triage level categorisation: % of patients by triage level														
Vital signs for children at triage: a multicentre validation of the revised South African Triage Scale (SATS) for children	Twomey	2013	South Africa	6 ECs in the Western Cape, (2 regional hospitals, 2 central hospitals, and 1 community health centre)	"To validate a revised version of the paediatric South African Triage Scale (SATS) against admission as a reference standard and compare the sensitivity of triage using: (i) clinical discriminators; (ii) an age-appropriate physiological composite score; and (iii) a combination of both"	2011	2014	Pediatrics (<13yoa)	NA		% of patients with "triage acuity level" documented	99.40%		
Reduced overtriage and undertriage with a new triage system in an urban accident and emergency department in Botswana: a cohort study	Mullan	2014	Botswana	Tertiary Regional Referral, Princess Marina Hospital (PMH), Gaborone	"Compare the undertriage and overtriage rates in the PATS and pre-PATS study periods - local derived triage scale"	2010-2011	39,949	All ED patients (medical & trauma, all ages)	NA	"Creation and implementation of local "objective" triage scale - adapted the South African Triage Scale to create the PMH A&E Triage Scale (PATS)"	% of patients with "triage assignment"	98%		

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Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab	2017	Ethiopia	Large teaching hospital, Ayder Comprehensive Specialized Hospital, Tigray Region, northern Ethiopia	"Evaluate the implementation of nurse-led emergency triage (SATS)"	2015	107	Adult (>18yoa)	NA		% of "triage sheets with a category calculated"	75.50%		
We need to target trauma : a prospective observational study in Eastern Cape Province, South Africa	Clark	2020	South Africa	Multiple hospitals, 2 large tertiary, 1 secondary	"To characterise the burden of disease across a diverse range of ECs in Eastern Cape Province, South Africa (SA)."	2016-2017	4271	Adult (>18yoa)	NA		% of patients with "STATS Acuity level" recorded	93.40%		
The burden of trauma at a district hospital in the Western Cape Province of South Africa	Zaidi	2019	South Africa	District hospital, Wesfleur Hospital, Western Cape Province	"Describe the burden of trauma at district hospitals by analysing trauma patients at a prototypical district hospital emergency centre."	2015	565	Trauma (all ages)	NA		% of patients "with STATs score" recorded	80.60%		
Saving children's lives with colours	Dekker-Boersema	2017	Mozambique	District hospital, Chiure District Hospital, Northern Mozambique	"Evaluate the implementation of a coloured triage system and ETAT on the paediatric mortality at a district hospital"	2014-2016	650	Pediatrics (<15yoa)	NA		% of patients "assigned a triage color"	86%	8.2% undertriage, 2.3% overtriage	
Emergency medicine in Paarl, South Africa: a cross-sectional descriptive study	Hanewinckel	2010	South Africa	Secondary hospital, Paarl Hospital, Paarl	"There is a paucity of data about emergency department (ED) patient demographics, epidemiology, consultation and admission criteria and other characteristics.... to provide this information, we performed a study in a rural hospital in Paarl, 60 km outside Cape Town."	2008	2134	All ED patients (medical & trauma, all ages)	NA		% of patients "with triage information/category available"	53.70%		
Monitoring of characteristics of the patients visiting an emergency center in Cameroon through the development of hospital patient database	Jeong	2022	Cameroon	Tertiary/National, Centre des Urgences de Yaoundé, Yaoundé	"Describes the methods of CURY patient data collection and the characteristics of the patients visited CURY from January 2016 to June 2018"	2016-2018	18,875	NA	NA		% of patients with "CTAS triage score" recorded	94.80%		
An evaluation of the use of the South African Triage Scale in an urban district hospital in Durban, South Africa	Soogun	2017	South Africa	District hospital, Durban	"Evaluate the use of the SATS in a busy urban district hospital"	2016	346	NA	NA		% of patients with "correctly recorded final triage"	75.70%		
Mortality from trauma: % of patients with trauma-related chief complaint who die within 24hours of EU presentation														
The burden of trauma in Tanzania: Analysis of prospective trauma registry data at regional hospitals in Tanzania	Sawe	2020	Tanzania	5 Regional Hospitals	"Characterize the burden of trauma seen at five regional hospital Emergency Units (EUs) in Tanzania using data from a new trauma registry"	2019	6,302	Trauma (all ages)	NA		24 hour mortality	3.30%		
Mortality from lower respiratory tract infection (adult): % of adult patients with diagnosis of LRTI who die within 24hours of EU presentation														

Appendix 2 - AFEM-CC Quality Indicator Specific Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Disease specific	Intervention	Qualifiers of QI Statistic	QI	QI pre-intervention	QI post-intervention
Pattern of respiratory diseases seen among adults in an emergency room in a resource-poor nation health facility	Desalu	2011	Nigeria	Tertiary, Federal Medical Centre Ido-Ekiti, Southwestern Nigeria	"Determine the pattern of respiratory diseases seen among adults in an emergency room (ER) and their mortality within twenty-four hours in a health facility in Nigeria."	2004-2010	386	Adult (>18yoa)	Respiratory disease		24 hour mortality	7.1 %		
Mortality from asthma: % of patients with diagnosis of asthma who die within 24hours of EU presentation														
Pattern of respiratory diseases seen among adults in an emergency room in a resource-poor nation health facility	Desalu	2011	Nigeria	Tertiary, Federal Medical Centre Ido-Ekiti, Southwestern Nigeria	"Determine the pattern of respiratory diseases seen among adults in an emergency room (ER) and their mortality within twenty- four hours in a health facility in Nigeria."	2004-2010	386	Adult (>18yoa)	Respiratory disease		24 hour mortality	4.40%		
Left without being seen: % of patients registered in the EU who left without being seen by a provider														
Reduced overtriage and undertriage with a new triage system in an urban accident and emergency department in Botswana: a cohort study	Mullan	2014	Botswana	Tertiary Regional Referral, Princess Marina Hospital (PMH), Gaborone	"Compare the undertriage and overtriage rates in the PATS and pre-PATS study periods - local derived triage scale"	2010-2011	39,949	All ED patients (medical & trauma, all ages)	NA	"Creation and implementation of a local "objective" triage scale - adapted the South African Triage Scale to create the PMH A&E Triage Scale (PATS)"	% left without being seen		0.01%	0.50%
Emergency medicine in Paarl, South Africa: a cross-sectional descriptive study	Hanewinckel	2010	South Africa	Secondary hospital, Paarl Hospital, Paarl	"There is a paucity of data about emergency department (ED) patient demographics, epidemiology, consultation and admission criteria and other characteristics.... to provide this information, we performed a study in a rural hospital in Paarl, 60 km outside Cape Town."	2008	2134	All ED patients (medical & trauma, all ages)	NA		% "left without being seen by a doctor"	6.80%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Blood glucose checked in patients with change in mental status: % of patients with documented change in mental status who have blood glucose (BG) checked													
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatrics (<13yoa)		% of patients in whom glucose was checked (or dextrose administered if unable to check)	79.20%		
Medical evaluation abnormalities in acute psychotic patients seen at the emergency department of Muhimbili national hospital in Dar es Salaam, Tanzania	Yusuf	2013	Tanzania	National Referral, Muhimbili National Hospital, Dar es Salaam	"Investigated the yield of physical examination and laboratory testing among patients presenting with acute psychosis"	Unavailable	252	-	-	Glucose checked at any point during ED	82%		
Emergency centre investigation of first-onset seizures in adults in the Western Cape, South Africa	Smith	2013	South Africa	6 EDs two tertiary centres and four district hospitals, Western Cape Province, South Africa	"Review which investigations were performed on adults presenting with first-onset seizures"	2011	309	Adult (>13yoa)	-	Glucose checked at any point during ED"	91.20%		
Oxygen for patients with hypoxia - % of patients with SaO2 <92% who had supplemental oxygen given													
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatric (<13yoa)	-	% of patients "Give oxygen when indicated" for respiratory distress	100.00%		
Respiratory compromise in children presenting to an urban emergency department of a tertiary hospital in Tanzania: a descriptive cohort study.	Muhanuzi	2019	Tanzania	Muhimbili National Hospital is a tertiary hospital located in Dar es Salaam	"Describe the clinical epidemiology, management and outcomes of paediatric patients with respiratory compromise"	2017	165	Pediatric (1mth-18yoa)	-	% of patients with respiratory distress that receives oxygen	86.70%		
Hypoxaemia in hospitalised children in the emergency unit of a resource-poor setting	Kuti	2015	Nigeria	Ahmad Sani Yariman Bakura Specialist Hospital (ASYBSH), Gusau, Northwest Nigeria	"Determine the prevalence and determinants of hypoxaemia among children admitted to the emergency unit"	2017	202	Pediatric (1 mth-15 yoa)	-	% of patients with O2 <90% that received O2	96%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
The effect of airway management in traumatic brain injury at kilimanjaro christian medical center, Moshi, Tanzania	Kiwango	2014	Tanzania	District hospital, Kilimanjaro Christian Medical Center, Moshi	"Describe the current presentation and airway management practices in TBI patients to create a clinical practice guideline for a limited-resource setting to improve outcomes"	2013	371	-	-	% of patients with GCS <92% that received O2	36.40%		
Corticosteroid treatment given for asthma patients: % of patients with documentation of asthma who receive corticosteroid treatment													
Evaluating acute asthma management at Red Cross Children's Hospital, South Africa	Shirani	2018	South Africa	Tertiary, Red Cross Children's Hospital, Pediatric ED	"Reevaluate the presentation and management of children with Acute Severe Asthma at our facility"	2013	95	Pediatric (<13yoa)	-	% of patients that received systemic steroids immediately	83%		
Asthma and pneumonia among under-fives with acute respiratory symptoms in Uganda: Is asthma underdiagnosed?	Nantanda	2013	Uganda	National Referral Hospital, Mulago, Kampala Uganda, Pediatric ED	"Determine the magnitude of asthma and pneumonia among children less than five years of age with cough and/or difficulty breathing, based on stringent clinical criteria. We also describe the treatment for children with acute respiratory symptoms"	2012	614	Pediatric (<5 yoa)	-	% of patients identified as having "asthma syndrome" and "prescribed systemic steroids"	43.10%		
Bronchodilator treatment give for asthma patients: % of patients with documentation of asthma who receive bronchodilator treatment													
Evaluating acute asthma management at Red Cross Children's Hospital, South Africa	Shirani	2018	South Africa	Tertiary, Red Cross Children's Hospital, Pediatric ED	"Reevaluate the presentation and management of children with Acute Severe Asthma at our facility"	2013	95	Pediatric (<13yoa)	-	% of patients that received systemic steroids immediately	100%	100%	
Asthma and pneumonia among under-fives with acute respiratory symptoms in Uganda: Is asthma underdiagnosed?	Nantanda	2013	Uganda	National Referral Hospital, Mulago, Kampala Uganda, Pediatric ED	"Determine the magnitude of asthma and pneumonia among children less than five years of age with cough and/or difficulty breathing, based on stringent clinical criteria. We also describe the treatment for children with acute respiratory symptoms"	2012	614	Pediatric (<5 yoa)	-	% of patients identified as having "asthma syndrome" and "prescribed bronchodilators"	88%		
Analgesia given to patients reporting pain: % of patients with documentation of pain who receive pain medications													
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatric (<13yoa)	-	% of patients that "received any pain medication in the ED"	86%		
Severity of trauma pain and treatment modalities in children attending emergency care facility in a tertiary hospital-preliminary report	Oluwaniyi	2020	Nigeria	Tertiary, University College Hospital, Ibadan, Oyo State, South-West Nigeria	"Identifying the different causes of trauma pain in children presenting to the emergency department in this environment, assess this pain; using certain pain tools to determine the severity and identify the different treatment modalities applied in this environment, if any, and determine their effectiveness in lowering pain."	2016-2017	13	Pediatric (2-15 yoa)	-	% of patients that "received any pain medication in the ED"	92.30%		

Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
Traumatic musculoskeletal outcomes pre- and post-development of a Rwandan emergency medicine training program	Mattson	2019	Rwanda	Tertiary, The University Teaching Hospital-Kigali, Kigali, Rwanda	"1) to understand the epidemiology of MSI fractures in Rwanda; and 2) to evaluate the progress of the country's first EM residency program in treating MSI-related injuries by assessing ED mortality rates, length of stay, and complication rates."	Pre: 2012-2013, Post: 2015-2016	691	-	Implementation of an Emergency Medicine Training Program	% of patients that "received analgesics"	52.20%		
Pain management among adult patients with fractures of long bones at Muhimbili Orthopaedic Institute in Dar es Salaam, Tanzania	Haonga	2011	Tanzania	Regional trauma center, ED in Muhimbili Orthopaedic Institute in Dar es Salaam	To assess pain management among adult patients with fractures of long bones at Muhimbili Orthopaedic Institute in Dar es Salaam, Tanzania	2008	250	Adults (18-60 yoa)		% of patients reporting severe pain that received any pain medication in the ED	53.00%		
Long bone splinting for patients presenting with extremity fracture - % of patients with extremity fracture who are splinted													
Pain management among adult patients with fractures of long bones at Muhimbili Orthopaedic Institute in Dar es Salaam, Tanzania	Haonga	2011	Tanzania	Regional trauma center, ED at Muhimbili Orthopaedic Institute, Dar es Salaam	"To assess pain management among adult patients with fractures of long bone"	2008	250	Adult (18-60yoa)		Splinted before or while in ED (before: 31.2%, in ED 68.8%)	100%		
Recording ofinitial complete vital signs: % of patient encounters with recordingof initialcompleted vital signs (VS)													
Completeness of medical records of trauma patients admitted to the emergency unit of a university hospital, upper egypt	Mohammed	2021	Egypt	Tertiary, Beni-Suef University Hospital, Upper Egypt	"Investigate the medical records of admitted trauma patients for the completeness of several pre-identified variables in order to evaluate the adequacy of the current medical record as a basis for the development of future trauma registries in hospitals in Upper Egypt."	2016	557	-	-	% of patients with "complete vital signs & GCS"	55%		
Assessment of the patients' outcomes after implementation of South African Triage Scale in emergency department, Egypt	Elbaih	2021	Egypt	Suez Canal University Hospital (SCHUH), Ismailia	"Assess the patients' outcomes after the implementation of SATS in ED at SCUH, in terms of the LOS and the mortality rates in ED"	Unavailable	345	-	Implementation of SATS	% of patients with "vital signs obtained in triage" (pre- & post-SATS)		RR 4.3%, HR 22.6%, Temp 27.8%	100%
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatric (<13yoa)	-	% of patients with vital signs documented	SpO2 - 99%, RR - 100%, HR - 100%, BP - 42%%, temp 98%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Development and pilot implementation of a standardised trauma documentation form to inform a national trauma registry in a low-resource setting: lessons from Tanzania	Sawe	2020	Tanzania	5 regional referral hospitals in Tanzania (Morogoro, Arusha, Mwananyamala, Coastal and Tanga)	"describe the development, structure, implementation and impact of a context appropriate standardised trauma form based on the adaptation of the WHO Data Set for Injury (DSI), for clinical documentation and use in a national trauma registry."	2018-2019	9,914, pre: 2891, pilot: 721, post: 6302	-	Created trauma form which is used for clinical documentation and data collection, conducted train the trainer and on-site training in documentation, 1 month pilot with interview on form and challenges to implementation	% of patients with vital signs documented. (Pre duplicate data with: "Trauma care and capture rate of variables of World Health Organisation data set for injury at regional hospitals in Tanzania: first steps to a national trauma registry, Post 7-month implementation phase)		HR: 24.5%, SBP: 18.7%, RR:18%, SpO2: 13.1%	HR: 95.8%, SBP: 97.1%, RR:99.7%, SpO2: 98.5%
Transfusion, mortality and hemoglobin level: Associations among emergency department patients in Kigali, Rwanda	Moretti	2020	Rwanda	University Teaching Hospital of Kigali	"Evaluate the association of packed red blood cell (PRBC) transfusion with mortality outcomes across hemoglobin levels amongst emergency center (EC) patients"	2013-2016	1116	Adult (>15yoa)	-	% of patients with vital signs documented	HR 38.3%, SBP 38.2%, RR 38.8%, SpO2 36.2%		
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	-	1. Describes step in design of the registry (review of currently available models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with vital signs "documented during primary survey"		SHL: RR 100%, SO2 73.8%, HR 92% BP 89%, Temp 40%; PMH RR 91%, SO2 92%, HR 97% BP 90%, Temp 39%	SHL: RR 93%, SO2 89%, HR 95% BP 91%, Temp 14%; ; PMH RR 96%, SO2 93%, HR 97% BP 90%, Temp 71%
Trauma burden, patient demographics and care-process in major hospitals in Tanzania: A needs assessment for improving healthcare resource management	Mwanri	2020	Tanzania	National and 2 regional referral hospitals all with EC	"Assess: the in-hospital trauma-burden, major injury processes of care; and the trauma death burden."	2018	480	-	-	% of patients with vital signs documented	SpO2 - 97%, RR - 69%, HR - 72%, BP - 75%,		
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin	2019	Ethiopia	Quaternary referral, Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia	"Identify early successes and challenges of the implementation of the African Federation for Emergency Medicine (AFEM) developed the AFEM Trauma Data Project (AFEM-TDP) and to develop strategies for site-specific protocol adaptation"		174 trauma registry forms, 13 interviews	-	-	% of patients with "vital signs recorded at the time of arrival"	SBP 77%, HR 86%		
Key findings from a prospective trauma registry at a regional hospital in Southwest Cameroon	Chichom-Mefire	2017	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	"Aims to characterize trauma as seen at the emergency department (ED) of Limbe Regional Hospital (LRH) and assess the completeness of data obtained by a trauma registry"	2008-2013	5,617	-	Implementation of a trauma registry	% of vital signs recorded in administrative records (pre) and trauma records (post)		BP: 13%, RR: 2%	BP: 71%, RR: 26%

Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
An evaluation of the use of the South African Triage Scale in an urban district hospital in Durban, South Africa	Soogun	2017	South Africa	District hospital, Durban	"Evaluate the use of the SATS in a busy urban district hospital"	2016	346	-	-	% of patients with recorded triage vital signs		RR 99.4% HR 99.1% BP 99.4 Temp 98.8	
A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab	2017	Ethiopia	Large teaching hospital, Ayder Comprehensive Specialized Hospital, Tigray Region, northern Ethiopia	"Evaluate the implementation of nurse-led emergency triage (SATS)"	2015	107	Adult (>18yoa)	-	% of patients with vital signs documented	HR 98%, BP 93%, Temp 87%, RR 83%		
Medical evaluation abnormalities in acute psychotic patients seen at the emergency department of Muhimbili national hospital in Dar es Salaam, Tanzania	Yusuf	2013	Tanzania	National Referral, Muhimbili National Hospital, Dar es Salaam	"Investigated the yield of physical examination and laboratory testing among patients presenting with acute psychosis"	Unavailable	252	-	-	% of patients with "complete vital signs at any point during EC"	88%		
Hospital-based injury data from level III institution in Cameroon: Retrospective analysis of the present registration system	Chichom Mefire	2013	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	Assess "available administrative data from the emergency ward logs in a 200-bed regional hospital in Cameroon with respect to completeness and suitability to serve as an injury surveillance tool. The data available are also used to explore an overview of the epidemiological profile of injury in this institution"	2007-2008	1713	Adult (>15 years)	-	% of patients with vital signs documented	BP 13%, HR 7%, RR 2%		
Recording of demographics and chief complaint: % of charts with recording of chief complaint and demographics													
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	-	1. Describes step in design of the registry (review of currently avaible models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with "documented demographics and registration information" & % of patients with "documented mode of injury"		Demographics 95.9%; mode of injury SLH 94.5% PMH 96.1%	Demographics 94.3%; mode of injury SLH 96.1% PMH 95.7%

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Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Development and pilot implementation of a standardised trauma documentation form to inform a national trauma registry in a low-resource setting: lessons from Tanzania	Sawe	2020	Tanzania	5 regional referral hospitals in Tanzania (Morogoro, Arusha, Mwananyamala, Coastal and Tanga)	"Describe the development, structure, implementation and impact of a context appropriate standardised trauma form based on the adaptation of the WHO Data Set for Injury (DSI), for clinical documentation and use in a national trauma registry."	2018-2019	9,914, pre: 2891, pilot: 721, post: 6302	-	Created trauma form which is used for clinical documentation and data collection, conducted train the trainer and on-site training in documentation, 1 month pilot with interview on form and challenges to implementation	% of patients with variables documented (post 3 months following implementation phase)		Name: 99.3%, Age:82%, Gender: 69.7%, Address: 83.8%, Geographic location of injury: 14.1% Mechanism of injury: 45%	Name:100%, Age: 97.3%, Gender: 99.3%, Address 95.4%, Geographic location of injury: 94.5% Mechanism of Injury: 95.5%
Mixed methods process evaluation of pilot implementation of the African Federation for Emergency Medicine trauma data project protocol in Ethiopia	Laytin	2019	Ethiopia	Quaternary referral, Ikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia	"Identify early successes and challenges of the implementation of the African Federation for Emergency Medicine (AFEM) developed the AFEM Trauma Data Project (AFEM-TDP) and to develop strategies for site-specific protocol adaptation"		174 trauma registry forms, 13 interviews	-	-	% of patients with variables documented	age - 96%, sex 99%, injury mechanism 60%		
The Malawi trauma score: A model for predicting trauma-associated mortality in a resource-poor setting	Gallaher	2019	Malawi	Tertiary referral hospital, Kamuzu Central Hospital (KCH), Lilongwe, Malawi	"Sought to describe injury severity in an accurate and reproducible manner by developing a scoring system that would require only a history and physical exam, while also predicting trauma-associated mortality. This score would have potential as a foundation for rapid triage tools at regional and tertiary trauma centers throughout the region and allow for risk-stratification of our patient populations"	2011-2014	62,354	Adult	-	% of patients with variables documented	Demographics: 100%, Mechanism of injury: 99.8%, Location of injury: 93.7%		
Key findings from a prospective trauma registry at a regional hospital in Southwest Cameroon	Chichom-Mefire	2017	Cameroon	Regional referral, Limbe Regional Hospital, Limbe	"Aims to characterize trauma as seen at the emergency department (ED) of Limbe Regional Hospital (LRH) and assess the completeness of data obtained by a trauma registry"	2008-2013	5,617	-	-	% of patients with variables documented	gender: 99.3%, age: 98%, mechanism: 99.3%		
Epidemiology of injuries, outcomes, and hospital resource utilisation at a tertiary teaching hospital in Lusaka, Zambia	Seidenberg	2014	Zambia	Tertiary, University Teaching Hospital (UTH), Lusaka	"To develop a hospital-based trauma registry in an urban hospital in Lusaka, Zambia to assess patterns of injury, transport methods and duration, injury severity, outcomes and hospital resource utilisation."	2011-2012	3425	-	-	% of patients with variables documented	sex: 99.7%, age: 94%, mechanism: 96.6%		
Injury registration in a developing country. A study based on patients' records from four hospitals in Dar es Salaam, Tanzania	Mutasingwa	2001	Tanzania	4 largest tertiary hospitals Dar es Salam, 2 government and 2 private	"evaluate available hospital records for the purpose of describing the epidemiology of injuries among inpatients in four hospitals in Dar es Salaam, Tanzania."	1998	1089	-	-	% of patients with variables documented	gender: 100%, age: 96.4%, mechanism: 76.2%		
Demographics Only													

Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
The burden of trauma at a district hospital in the Western Cape Province of South Africa	Zaidi	2019	South Afica	District hospital, Wesfleur Hospital, Western Cape Province	"Describe the burden of trauma at district hospitals by analysing trauma patients at a prototypical district hospital emergency centre."	2015	565	-	-	% of patients with variables documented	sex: 99.2%, age: 98.1%		
A quality improvement study of the emergency centre triage in a tertiary teaching hospital in northern Ethiopia	Abdelwahab	2017	Ethiopia	Large teaching hospital, Ayder Comprehensive Specialized Hospital, Tigray Region, northern Ethiopia	"Evaluate the implementation of nurse-led emergency triage (SATS)"	2015	107	Adult (>18yoa)	-	% of patients with documentation of demographics	95%		
Chief complaint/mode of injury only													
Trauma burden, patient demographics and care-process in major hospitals in Tanzania: A needs assessment for improving healthcare resource management	Mwandri	2020	Tanzania	National and 2 regional referral hospitals all with EC	"Assess: the in-hospital trauma-burden, major injury processes of care; and the trauma death burden."	2018	480	-	-	% documentation of mode of injury	86%		
Evaluation of a modified South African Triage Score as a predictor of patient disposition at a tertiary hospital in Rwanda	Uwamahoro	2020	Rwanda	Tertiary, The University Teaching Hospital of Kigali (UTH-K), Kigali	"Evaluate the utility of the mSATS tool at UTH-K"	2015-2016	1438	Adult (>15 yoa)	-	% documentation of mode of injury	>99%		
Documentation of diagnosis: % of patients with documented diagnosis													
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	Trauma	1. Describes step in design of the registry (review of currently available models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with recorded "Final diagnosis"		SLH 98.5% PMH 99.3%	SLH 99.3% PMH 96.4%
Documentation of disposition: % ofpatients with documenteddisposition													

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Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	Trauma	1. Describes step in design of the registry (review of currently available models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with disposition recorded		100%	100%
Primary survey performed for all trauma patients: % of patients with chief complaint of trauma with documented primary survey: No additional adjacent studies													
Developing a trauma registry in a middle-income country - Botswana	Motsumi	2020	Botswana	1 tertiary and 1 secondary hospital, Princess Marina Hospital and Scottish Livingstone Hospital, Garbrone	"Develop and pilot test a trauma registry prototype at a secondary and a tertiary level hospital"	2017-2018	414	Trauma	1. Describes step in design of the registry (review of currently available models, integration of currently available data collection ex police forms from scene local consultation) 2. Trauma data variables collected 3. data management	% of patients with "primary survey documented"		66.50%	
Trauma burden, patient demographics and care-process in major hospitals in Tanzania: A needs assessment for improving healthcare resource management	Mwandri	2020	Tanzania	National and 2 regional referral all with EC	"Assess burden, patient demography, causes of injury, trauma mortality and the care-process"	2018	480	-	-	% documentation of components of primary survey	Airway and Breathing: 33%, Circulation: 60%, Disability: 20%		
Initial assessment for all patients - % of patients receiving an initial assessment: No additional adjacent studies													
Assessment of documented adherence to critical actions in paediatric emergency care at a district-level public hospital in South Africa	Berends	2021	South Africa	District hospital, Khayelitsha Hospital in Cape Town, South Africa, Pediatric ED	"Describe the documented adherence to critical actions in paediatric emergency care"	2017-2019	388	Pediatric (<13yoa)	-	% documentation of components of initial assessment	Breathing: 100%, O2 Saturation: 98.7%, Pulse: 100%, Capillary refill: 35.3%, Exposure: 33.7%		
Mortality from trauma: % of patients with trauma-related chief complaint who die within 24 hours of EU presentation													
Mortality related to acute illness and injury in rural Uganda: Task shifting to improve outcomes	Chamberlain	2015	Uganda	Rural district hospital, Karoli Lwanga (Nyakibale) Hospital, Rukungiri District	"Describe the results of using midlevel providers as independent emergency practitioners in a rural area of a low- or middle- income country... evaluate the outcomes of patients who were treated primarily by ECPs rather than physicians."	2010-2012	10,105	-	-	72-hr mortality	1.20%		

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Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
Analysis of prospective trauma registry data in Francophone Africa: a pilot study from Cameroon	Juillard	2014	Cameroon	Tertiary, The Central Hospital of Yaoundé, Yaoundé	"Aims were: (1) to pilot a data collection system designed to describe patterns of injury and emergency clinical trauma care using a prospective data collection system; and (2) assess the pilot trauma registry performance respective to prior experience using administrative retrospective data from the same setting"	Unavailable	2,855	-	-	Death recorded as "disposition from ED"	1.02%		
Epidemiology of trauma deaths	Solagberu	2003	Nigeria	University, University of Ilorin Teaching Hospital, Ilorin	"Highlight the pattern and distribution of trauma deaths in a Nigerian teaching hospital in order to enhance trauma research, improve treatment strategies and prevent trauma deaths"	1999-2001	2913	-	-	"deaths in the ED"	4.40%		
Pattern and outcome of postneonatal pediatric emergencies in Nnamdi Azikiwe University Teaching Hospital, Nnewi, South East Nigeria	Ndukwu	2015	Nigeria	University, Nnamdi Azikiwe University Teaching Hospital, Nnewi	"Determine morbidity and mortality patterns, and identify factors influencing poor outcome of the disease in children seen in the emergency room"	2012-2014	1964	Pediatric (<18yoa)	-	"died in the ED"	5.10%		
Trauma registry in Tikur Anbessa Hospital, Addis Ababa, Ethiopia	Taye	2003	Ethiopia	University, Tikur Anbessa Hospital, Addis Ababa	"study the causes of injuries using a simplified hospital trauma registry initially developed in Uganda" based on the WHO minimum data set and adopted and refined by Injury Prevention Initiative For Africa (IPIFA). This is used to initiate hospital based trauma registry"	1999	3822	-	-	ED mortality	0.52%		
Understanding patterns of injury in Kenya: Analysis of a trauma registry data from a National Referral Hospital	Botchey	2017	Kenya	National Referral, Kenyatta National Hospital,	"Develop and implement a prospective trauma registry at the largest trauma hospital in Kenya, the Kenyatta National Hospital, and to understand the nature of injuries presenting to the hospital, their treatment and care, and their outcomes"	2014-2015	8701	-	-	ED mortality	0.90%		
Injury factors associated with discharge status from emergency room at two major trauma hospitals in The Gambia, Africa	Sanyang	2017	The Gambia	2 National referral hospitals, Edward Francis Small Teaching Hospital, Serrekunda General Hospital	"Identified predictors of discharge status and disability at discharge among patients who seek emergency room treatment"	2014	1961	-	-	ED mortality	0.90%		

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Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Evaluation of trauma patients admitted to the emergency department of in Mogadishu Training and Research Hospital, Somalia: Cross Sectional study of 1106 patients	Demirel	2019	Somalia	Mogadishu Somalia Turkish Training and Research Hospital	"Aimed to retrospectively classify trauma patients referred to the emergency department of Mogadishu Somalia Turkish Training and Research Hospital (MSTERH) from a demographic and epidemiological perspective, identify the needs and deficiencies of our emergency department and improve the service quality in our hospital while contributing to the literature"	2017-2018	1106	-	-	ED mortality	1.30%		
The burden of trauma at a district hospital in the Western Cape Province of South Africa	Zaidi	2019	South Africa	District hospital, Wesfleur Hospital, Western Cape Province	"Describe the burden of trauma at district hospitals by analysing trauma patients at a prototypical district hospital emergency centre."	2015	565	-	-	ED mortality	0.50%		
Trauma at a Nigerian teaching hospital: pattern and documentation of presentation	Thanni	2006	Nigeria	Tertiary teaching hospital, Olabisi Onabanjo University Teaching Hospital, Sagamu	"Identify the characteristics of injuries and determining the efficiency of documentation of patients' records"	2003	1078	-	-	ED mortality	2%		
The burden of road traffic injuries in an emergency department in Addis Ababa, Ethiopia	Getachew	2016	Ethiopia	Tertiary referral, Zewditu Memorial Hospital (ZMH), Addis Ababa	"Document the proportion, trend, characteristics and outcomes of road traffic injury (RTI) related ED admissions (>15 years) between 2014 and 2015."	2014-2015	522	Adult (>15yoa)	-	ED mortality	1%		
Epidemiology of injuries, outcomes, and hospital resource utilisation at a tertiary teaching hospital in Lusaka, Zambia	Seidenberg	2014	Zambia	Tertiary, University Teaching Hospital (UTH), Lusaka, Zambia	"To develop a hospital-based trauma registry in an urban hospital in Lusaka, Zambia to assess patterns of injury, transport methods and duration, injury severity, outcomes and hospital resource utilisation."	2011-2012	3425	-	-	In-patient mortality	3%		
Potential benefits of triage for the trauma patient in a Kenyan emergency department	Lampi	2018	Kenya	Referral, Moi Teaching and Referral Hospital (MTRH) in Eldoret	"Investigate how a lack of formal triage system impacts timely intervention and mortality in a sub-Saharan referral hospital"		700	Adult (>14yo)	-	In-patient mortality	1.80%		

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Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Study	QI	QI pre-intervention	QI post-intervention
Retrospective review of the patient cases at a major trauma center in Nairobi, Kenya and implications for emergency care development	Saleeby	2019	Kenya	Tertiary referral, Kenyatta National Hospital (KNH). KNH is the largest public tertiary referral centre in Kenya, Nairobi	"Provide a comprehensive description of the emergency centre at Kenya's largest public tertiary care hospital."		23,941	-	-	In-hospital mortality	6.60%		
The burden of trauma presenting to the government referral hospital in Freetown, Sierra Leone: An observational study	Bundu	2019	Sierra Leone	Tertiary referral centre, Connaught Hospital, Freetown	"Assess the volume of trauma presenting to the national referral hospital in order to focus resources, direct training and lobby for improved preventive measures"	2016	340	-	-	In-patient mortality (Pediatric only, adult data not available)	23%		
The Malawi trauma score: A model for predicting trauma-associated mortality in a resource-poor setting	Gallaher	2019	Malawi	Tertiary referral hospital, Kamuzu Central Hospital (KCH), Lilongwe, Malawi	"Sought to describe injury severity in an accurate and reproducible manner by developing a scoring system that would require only a history and physical exam, while also predicting trauma-associated mortality. This score would have potential as a foundation for rapid triage tools at regional and tertiary trauma centers throughout the region and allow for risk-stratification of our patient populations"	2011-2014	62,354	Adult	-	In-patient mortality	2%		
Patterns and outcomes of paediatric trauma at a tertiary teaching hospital in Kenya	Ndung'u	2019	Kenya	Tertiary, Aga Khan University Hospital, Nairobi	"Establish the profile and outcomes of admitted paediatric trauma cases at the Aga Khan University Hospital, Nairobi"	2016	218	Pediatric (<15yoa)	-	In-patient mortality	2%		
Epidemiology of injuries presenting to the national hospital in Kampala, Uganda: implications for research and policy	Hsia	2010	Uganda	National Referral, Mulago, Kampala	"To estimate the epidemiology of the injury seen in patients presenting to the government hospital in Kampala, the capital city of Uganda."	2004-2005	3,750	-	-	In-patient mortality	2%		
Demographics and predictors of mortality in children undergoing resuscitation at Khayelitsha Hospital, Western Cape, South Africa.	Richards	2018	South Africa	Public hospital, Khayelitsha Hospital (KH), Khayelitsha	"Describe characteristics of children under the age of 12 who required resuscitation upon presentation to KH, determine predictors of mortality, and compare paediatric volume to specialist physician presence in the unit."	2014-2015	317	Pediatric (<12yoa)	-	In-hospital mortality (patients requiring "resuscitation" only)	6.25%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Std	QI	QI pre-intervention	QI post-intervention
Evaluation of trauma patient presentations and outcomes at a ugandan regional referral hospital	Schriger	2016	Uganda	Regional referral center, Mbarara Regional Referral Hospital, Mbarara	"Prospectively characterize the demographics, mechanisms of injury, diagnoses, and outcomes among trauma patients presenting to Mbarara Regional Referral Hospital (MRRH) prior to planned trauma training interventions"	Unknown	497	-	-	In-hospital mortality	7.00%		
Mortality from lower respiratory tract infection (adult): % of adult patients with diagnosis of LRTI who die within 24 hours of EU presentation													
Medical mortality in the Accident and Emergency Unit of the University of Port Harcourt Teaching Hospital	Onwuchekwa	2008	Nigeria	Univerisity, University of Port Harcourt Teaching Hospital	"Highlight the causes of mortality, age and sex distribution of the deaths and the duration of admission before death among medical cases in the accident and emergency unit"	2005	5304	Adult (>16yoa)	-	72 hour mortality	1.30%		
Mortality related to acute illness and injury in rural Uganda: Task shifting to improve outcomes	Chamberlain	2015	Uganda	Rural district hospital, Karoli Lwanga (Nyakibale) Hospital, Rukungiri District	"Describe the results of using midlevel providers as independent emergency practitioners in a rural area of a low- or middle- income country... evaluate the outcomes of patients who were treated primarily by ECPs rather than physicians."	2010-2012	10,105	-	-	72 hour mortality	3.30%		
Mortality from lower respiratory tract infection (child): % of patients <5years with diagnosis of LRTI who die within 24hours of EU presentation													
Under 5 year of age only													
Mortality related to acute illness and injury in rural Uganda: Task shifting to improve outcomes	Chamberlain	2015	Uganda	Rural district hospital, Karoli Lwanga (Nyakibale) Hospital, Rukungiri District	"Describe the results of using midlevel providers as independent emergency practitioners in a rural area of a low- or middle- income country... evaluate the outcomes of patients who were treated primarily by ECPs rather than physicians."	2010-2012	10,105	-	-	72-hr mortality (U5)	4.10%		
Morbidity and mortality pattern of childhood illnesses seen at the children emergency unit of federal medical center, Asaba, Nigeria	Ezeonwu	2014	Nigeria	Tertiary hospital, Federal Medical Center in Asaba	"Determine the pattern of morbidity and mortality of children seen at the children emergency room of a tertiary hospital"	2007-2011	3890	Pediatric (<15yoa)	-	In-patient mortality (U5)	2.20%		
Majority under 5 year of age													
Pattern of admissions to the pediatric emergency unit of Tikur Anbessa Hospital in Addis Ababa, Ethiopia (2012-2013 G.C)	Ambaye	2016	Ethopia	University, Tikur Anbessa Hospital, Addis Ababa	"Describe the disease pattern of patients admitted in the pediatric emergency unit at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia and identify the main causes of admissions and deaths"	2012-2013	1,796	Pediatric (<15 yoa)	-	"died in the ED" (Pediatrics <15 yoa, 74% U5)	5.40%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Stat	QI	QI pre-intervention	QI post-intervention
Analysis of admissions to the pediatric emergency ward of Tikur Anbessa Hospital in Addis Ababa, Ethiopia	Muluneh	2007	Ethopia	University, Tikur Anbessa Hospital, Addis Ababa	"Analyze the characteristics of patients admitted under pediatric emergency ward of Tikur Anbessa Hospital and identify important causes of admissions and deaths."	2002-2003	1,459	Pediatric (unclear age range)	-	"died in the ED" (Pediatrics, 76% U5)	15.60%		
Bacteremic Community-Acquired Pneumonia in Ethiopian Children: Etiology, Antibiotic Resistance, Risk Factors, and Clinical Outcome	Negash	2019	Ethiopia	2 large hospitals (Tikur Anbessa Specialized Hospital (TASH) and the Yekatit 12 Hospital), Addis Ababa	"Determine the magnitude, etiology, and risk factors of bacteremic CAP in Ethiopian children and the role of S. pneumoniae in causing bacteremic pneumococcal CAP in children 5 years after the introduction of PCV10 in Ethiopia"	2016-2017	549	Pediatric (<15yoa)	-	In-patient mortality (Pediatrics, <5yo, 97.4% of patients U5)	2.37%		
Pediatrics all ages													
Morbidity and mortality of childhood illnesses at the emergency paediatric unit of the University of Benin Teaching Hospital, Benin City	Abhulimhen-Iyoha	2012	Benin	University, University of Benin Teaching Hospital, Benin City	"Describethe pattern of morbidity and mortalityas seen at the Emergency Paediatric Unit of the University of BeninTeaching Hospital, Benin City"	2009-2010	10,044	Pediatric (>29days - <16yr)	-	ED disposition of "died" (Pediatrics, <16yoa)	1.90%		
Pattern and Outcome of Admissions in the Children's Emergency Room of the University of Nigeria Teaching Hospital, Enugu	Ibeziako	2002	Nigeria	Tertiary, University of Nigeria Teaching Hospital (UNTH) Enugu, Enugu	?	1992-1996	10,267	-	-	ED disposition of "died" (unclear age range)	5.10%		
Pattern and outcome of postneonatal pediatric emergencies in Nnamdi Azikiwe University Teaching Hospital, Nnewi, South East Nigeria	Ndukwu	2015	Nigeria	University, Nnamdi Azikiwe University Teaching Hospital, Nnewi.	"Determine morbidity and mortality patterns, and identify factors influencing poor outcome of the disease in children seen in the emergency room"	2012-2014	1964	Pediatric (unclear age range)	-	"Died in the ED" (<18 yoa)	6.80%		
Burden and spectrum of paediatric respiratory diseases at a referral hospital in North-Central Nigeria - A five year review	Ibraheem	2020	Nigeria	University, University of Ilorin Teaching Hospital, Ilorin, Nigeria	"Identify the burden, spectrum and outcome of respiratory diseases in hospitalized children at University of Ilorin Teaching Hospital, North-Central Nigeria"	2013-2017	1,939	-	-	In-hospital mortality (Pediatric, unclear age range)	8.30%		
Demographics and predictors of mortality in children undergoing resuscitation at Khayelitsha Hospital, Western Cape, South Africa	Richards	2018	South Africa	Public hospital, Khayelitsha Hospital (KH), Khayelitsha	"Describe characteristics of children under the age of 12 who required resuscitation upon presentation to KH, determine predictors of mortality, and compare paediatric volume to specialist physician presence in the unit."	2014-2015	317	Pediatric (<12yoa)	-	In-hospital mortality (Pediatrics, <12yo, only patients requiring resuscitation)	8.60%		

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Appendix 3 - "AFEM-CC Quality Indicator Near Match" Data

Title	First Author	Year Published	Country	Location of EC	Study Objective	Year(s) of data collection	N	Sub-Population	Intervention	Qualifiers of QI Stat	QI	QI pre-intervention	QI post-intervention
Mortality from asthma: % of patients with diagnosis of asthma who die within 24hours of EU presentation													
Pattern and outcome of postneonatal pediatric emergencies in Nnamdi Azikiwe University Teaching Hospital, Nnewi, South East Nigeria	Ndukwu	2015	Nigeria	University, Nnamdi Azikiwe University Teaching Hospital, Nnewi	"Determine morbidity and mortality patterns, and identify factors influencing poor outcome of the disease in children seen in the emergency room"	2012-2014	1964	Pediatric (<18yoa)	-	"Died in the E	0.00%		
Acute asthma in a children's emergency room: a clinical audit and management guideline proposal	Okoromah	2006	Nigeria	Tertiary University, Lagos Teaching Hospital, Lagos	"Clinical audit aimed at evaluating emergency management of acute asthma as well as proposing for use as management protocol; with the view of improving quality of care"	2000-2002	30	Pediatric (<13yoa)	-	"Outcome of admission - (Pediatrics < 3%	3%		
Burden and spectrum of paediatric respiratory diseases at a referral hospital in North-Central Nigeria - A five year review	Ibraheem	2020	Nigeria	University, University of Ilorin Teaching Hospital, Ilorin, Nigeria	"Identify the burden, spectrum and outcome of respiratory diseases in hospitalized children at University of Ilorin Teaching Hospital, North-Central Nigeria"	2013-2017	1,939	-	-	In-hospital mortali	0.00%		

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Appendix 4: Database Search Strategy

***Emergency Care* terms:**

Pubmed

("emergency department*"[tw] OR "emergency ward*"[tw] OR "emergency room*"[tw] OR "emergency cent*"[tw] OR "emergency unit*"[tw] OR "Casualty department*"[tw] OR "Casualty ward*"[tw] OR "Casualty room*"[tw] OR "Casualty unit*"[tw] OR "accident ward*" [tw] OR "accident department*"[tw] OR "accident room*"[tw] OR "accident cent*"[tw] OR "accident unit*" [tw] OR "accident and emergency" [tw] OR "Trauma cent*"[tw] OR "Trauma unit"[tw] OR "Trauma department*"[tw] OR "Trauma room"[tw] OR "Trauma ward"[tw] OR "emergency medicine" [tw] OR ("Emergency Care"[tw] NOT (“obstetr*”[tw] OR “pregnan*”[tw])))

EMBASE

('emergency department*':ti,ab,kw OR 'emergency center*':ti,ab,kw OR 'emergency ward*':ti,ab,kw OR 'emergency room':ti,ab,kw OR 'emergency centre':ti,ab,kw OR 'emergency unit':ti,ab,kw OR 'casualty department':ti,ab,kw OR 'casualty ward':ti,ab,kw OR 'casualty room':ti,ab,kw OR 'casualty unit':ti,ab,kw OR 'casualty center*':ti,ab,kw OR 'casualty centre*':ti,ab,kw OR 'accident ward*':ti,ab,kw OR 'accident department*':ti,ab,kw OR 'accident room*':ti,ab,kw OR 'accident cent*':ti,ab,kw OR 'accident unit*':ti,ab,kw OR 'accident and emergency':ti,ab,kw OR 'trauma center*':ti,ab,kw OR 'trauma centre*':ti,ab,kw OR 'trauma unit*':ti,ab,kw OR 'trauma department*':ti,ab,kw OR 'trauma room*':ti,ab,kw OR 'trauma ward*':ti,ab,kw OR 'emergency medicine':ti,ab,kw OR 'emergency care':ti,ab,kw NOT (‘obstetr*’:ti,ab,kw OR ‘pregnan*’:ti,ab,kw)))

CINAHL

("emergency department*" OR "emergency ward*" OR "emergency room*" OR "emergency cent*" OR "emergency unit*" OR "Casualty department*" OR "Casualty ward*" OR "Casualty room*" OR "Casualty unit*" OR "accident ward*" OR "accident department*" OR "accident room*" OR "accident cent*" OR "accident unit*" OR "accident and emergency" OR "Trauma cent*" OR "Trauma unit" OR "Trauma department*" OR "Trauma room" OR "Trauma ward" OR "emergency medicine" OR ("Emergency Care" NOT (“obstetr*” OR “pregnan*”))))

***Africa* terms:**

Pubmed

("africa"[tw] OR "africa" [mesh] OR "algeria"[tw] OR "angola"[tw] OR "benin"[tw] OR "botswana"[tw] OR "burkina faso"[tw] OR "burkina fasso"[tw] OR "burkina"[tw] OR "burundi"[tw] OR "cameroon"[tw] OR "cameroons"[tw] OR "cameron"[tw] OR "cape verde"[tw] OR "cabo verde"[tw] OR "central african republic"[tw] OR "chad"[tw] OR "comoros"[tw] OR "comoro islands"[tw] OR "comores"[tw] OR "democratic republic of the congo"[tw] OR "republic of the congo"[tw] OR "congo"[tw] OR "egypt"[tw] OR "equatorial guinea"[tw] OR "mayotte"[tw] OR "congo"[tw] OR "zaire"[tw] OR "cote d'ivoire"[tw] OR "ivory coast"[tw] OR "djibouti"[tw] OR "french somaliland"[tw] OR "eswatini"[tw] OR "eritrea"[tw] OR "ethiopia"[tw] OR "gabon"[tw] OR "gabonese republic"[tw] OR "gambia"[tw] OR "ghana"[tw] OR "guinea"[tw] OR "guinea-bissau"[tw] OR "guinea bissau"[tw] OR "kenya"[tw] OR "lesotho"[tw] OR "basutoland"[tw] OR "liberia"[tw] OR "libya"[tw] OR "madagascar"[tw] OR "malawi"[tw] OR "nyasaland"[tw] OR "mauritania"[tw] OR "mali"[tw] OR "mauritius"[tw] OR "morrocco"[tw] OR "mozambique"[tw] OR "namibia"[tw] OR "niger"[tw] OR "nigeria"[tw] OR "rwanda"[tw] OR "ruanda"[tw] OR "sao tome"[tw] OR "senegal"[tw] OR "seychelles"[tw] OR "sierra leone"[tw] OR "somalia"[tw] OR "south africa"[tw] OR "sudan"[tw] OR "swaziland"[tw] OR "tanzania"[tw] OR "togo"[tw] OR "tunisia"[tw] OR "uganda"[tw] OR "zambia"[tw] OR "zimbabwe"[tw] OR "rhodesia"[tw])

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CINAHL

("africa" OR "algeria" OR "angola" OR "benin" OR "botswana" OR "burkina faso" OR "burkina fasso" OR "burkina" OR "burundi" OR "cameroon" OR "cameroons" OR "cameron" OR "cape verde" OR "cabo verde" OR "central african republic" OR "chad" OR "comoros" OR "comoro islands" OR "comores" OR "democratic republic of the congo" OR "republic of the congo" OR "congo" OR "egypt" OR "equatorial guinea" OR "mayotte" OR "congo" OR "zaire" OR "cote d'ivoire" OR "ivory coast" OR "djibouti" OR "french somaliland" OR "eswatini" OR "eritrea" OR "ethiopia" OR "gabon" OR "gabonese republic" OR "gambia" OR "ghana" OR "guinea" OR "guinea-bissau" OR "guinea bissau" OR "kenya" OR "lesotho" OR "basutoland" OR "liberia" OR "libya" OR "madagascar" OR "malawi" OR "nyasaland" OR "mauritania" OR "mali" OR "mauritius" OR "morrocco" OR "mozambique" OR "namibia" OR "niger" OR "nigeria" OR "rwanda" OR "ruanda" OR "sao tome" OR "senegal" OR "seychelles" OR "sierra leone" OR "somalia" OR "south africa" OR "sudan" OR "swaziland" OR "tanzania" OR "togo" OR "tunisia" OR "uganda" OR "zambia" OR "zimbabwe" OR "rhodesia")

***Quality* terms:**

PubMed - 22

("quality indicator*" [tw] OR "performance indicator*" [tw] OR "quality measure*" OR (quality [ti] AND (perform* [ti] OR measure* [ti] OR indicator* [ti])) OR "quality indicators, health care" [mesh])

EMBASE - 60

('quality indicator*':ti,ab,kw OR 'performance indicator*':ti,ab,kw OR 'quality measure*':ti,ab,kw OR (quality:ti,kw AND (performance:ti,kw OR measure*:ti,kw OR indicator*:ti,kw OR 'health care quality'/exp)))

CINAHL - 102

("quality indicator*" OR "performance indicator*" OR "quality measure*" OR (quality AND (perform* OR measure* OR indicator*)) OR (MH "Clinical Indicators"))

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***AFEM Process Clinical Quality Indicators* Terms:**

1. **Blood glucose checked in patient with change in mental status**

   Pubmed 8
   (("Glucose" [tw] OR "Glucose" [MeSH] OR "Blood Glucose" [MeSH] OR "Hypoglycemia" [MeSH] OR "Hypoglycemia" [tw]) **AND** ("Mental Status" [tw] OR "Coma" [tw] OR "Coma" [MeSH]))

   EMBASE 15
   (('glucose':ti,ab,kw OR 'glucose blood level'/exp OR 'hypoglycemia'/exp OR 'hypoglycemi*':ti,ab,kw) **AND** ('mental status':ti,ab,kw OR 'coma':ti,ab,kw OR 'coma'/exp))

   CINAHL -10
   (("Glucose" OR "Blood Glucose" OR "Hypoglycemia" OR (MH "Blood Glucose" OR MH ""Hypoglycemia") **AND** ("Mental Status" OR "Coma") OR (MH "Mental Status" OR MH "Coma))

2. **Antibiotics given for paediatric pneumonia (under < 5 years of age)**

   Pubmed 17
   ((pneumonia* [tw] OR "Pneumonia"[Mesh]) **AND** ("Anti-Bacterial Agents"[Mesh] OR "Anti-Bacterial Agents" [Pharmacological Action] OR antibiotic*) **AND** (infan* [tw] OR newborn* [tw] OR "new-born" [tw] OR "newborns" [tw] OR perinat* [tw] OR neonat* [tw] OR baby [tw] OR baby* [tw] OR babies [tw] OR toddler* [tw] OR minors [tw] OR child [tw] OR child* [tw] OR children* [tw] OR schoolchild* [tw] OR "school child" [tw] OR "school children" [tw] OR pediatric* [tw] OR paediatric* [tw] OR "Nursery school" [tw] OR kindergar* [tw] OR "primary school" [tw] OR "primary schools" [tw] OR "elementary school" [tw] OR [tw] OR "infant" [mesh] OR "Child"[mesh] OR "Pediatrics" [mesh] OR))

   EMBASE 27
   ('pneumonia':ti,ab,kw OR 'pneumonia'/exp) **AND** ('antiinfective agent'/exp OR 'anti-bacterial agents':ti,ab,kw OR 'antibiotic':ti,ab,kw) **AND** ('infant*':ti,ab,kw OR 'newborn*':ti,ab,kw OR 'new-born*':ti,ab,kw OR 'new born*':ti,ab,kw OR 'neonate*':ti,ab,kw OR 'baby':ti,ab,kw OR 'babies':ti,ab,kw OR 'toddler*':ti,ab,kw OR 'child':ti,ab,kw OR 'children':ti,ab,kw OR paediatric:ti,ab,kw OR 'child'/exp OR 'pediatrics':ti,ab,kw OR 'pediatrics'/exp)

   CINAHL - 1

   ((pneumonia* OR MH "Pneumonia") **AND** (MH "antibiotics" OR antibiotic* OR MH "Antiinfective Agents") **AND** (infan* [tw] OR newborn* [tw] OR "new-born" [tw] OR "newborns" [tw] OR perinat* [tw] OR neonat* [tw] OR baby [tw] OR baby* [tw] OR babies [tw] OR toddler* [tw] OR minors [tw] OR child [tw] OR child* [tw] OR children* [tw] OR schoolchild* [tw] OR "school child" [tw] OR "school children" [tw] OR pediatric* [tw] OR paediatric* [tw] OR "Nursery school" [tw] OR kindergar* [tw] OR "primary school" [tw] OR "primary schools" [tw] OR "elementary school" [tw] OR MH "Pediatric Care" OR MH infant OR MH child)))

3. **Bronchodilator treatment given for asthma patients**
   Pubmed - 8
   (("Bronchodilator Agents"[Mesh] OR "Bronchodilator Agents" [Pharmacological Action] OR bronchodilator* [tw]) **AND** (asthma [tw] OR "asthma" [mesh]))

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EMBASE - 19
(("Bronchodilator Agent*":ti,ab,kw OR "bronchodilator*":ti,ab,kw OR 'bronchodilating agent'/exp) **AND** ("asthma*":ti,ab,kw OR 'asthma'/exp OR 'asthmatic state'/exp))

CINAHL - 1
(("Bronchodilator Agents" OR MH "Bronchodilator Agents" OR OR bronchodilator*) **AND** (asthma OR MH "asthma" OR MH "Status Asthmaticus"))

4. **Recording of initial complete vital signs**

Pubmed - 5
('Vital Signs' [mesh] OR 'vital sign*' [tw] OR 'blood pressure*' [tw] OR 'blood pressure'[Mesh] OR 'body temperature*' [tw] OR 'body temperature' [Mesh] OR 'heart rate*' [tw] OR 'heart rate' [mesh] OR 'pulse' [tw] OR 'respiratory rate' [tw] OR 'respiratory rate' [mesh]) AND ('complete' [tw] OR 'full*' [tw] OR 'all' [tw])

EMBASE - 52
('vital sign*':ti,ab,kw OR 'vital sign'/exp) AND ('complete':ti,ab,kw OR 'full*':ti,ab,kw OR 'all':ti,ab,kw)

CINAHL -11
(MH 'Vital Signs' OR 'vital sign*') AND ('complet*' OR 'full*' OR 'all')

5. **Documentation of diagnosis**

Pubmed - 17
((documentation [tw] OR charting [ti] OR record* [ti] OR "documentation" [mesh]) AND (diagno* [tw]))

EMBASE - 76
(('documentation':ti,ab,kw OR 'chart*':ti,ab,kw OR 'record*':ti,ab,kw) AND ('diagno*':ti,ab,kw OR ' diagnosis'/exp))

CINAHL -25
((documentat* OR chart* OR record* OR MH "documentation" OR MH "charting" OR MH "medical records") AND (diagno* OR MH "Diagnosis"))

6. **Antibiotics given for adults with pneumonia**

Pubmed - 6
((pneumonia* [tw] OR "Pneumonia"[Mesh]) **AND** ("Anti-Bacterial Agents"[Mesh] OR "Anti-Bacterial Agents" [Pharmacological Action] OR antibiotic*) **AND** ("adult" [mesh]))

EMBASE - 30
('pneumonia':ti,ab,kw OR 'pneumonia'/exp) AND ('antiinfective agent'/exp OR 'anti-bacterial agent*':ti,ab,kw OR 'antibiotic*':ti,ab,kw) **AND** ("adult*":ti,ab,kw OR 'adult'/exp)

CINAHL - 4
((pneumonia* OR MH "Pneumonia") **AND** (MH "antibiotics" OR antibiotic* OR MH "Antiinfective Agents"))

7. **Adult patients with shock given IV fluids**

Pubmed - 26

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(("Shock"[tw] OR "Shock"[MeSH Terms] OR ("Hypotension"[tw] OR "Hypotension"[MeSH Terms]) **AND** ("Intravenous fluids"[tw] OR "IV fluid*"[tw] OR "Resuscitation"[tw] OR "Resuscitation"[MeSH Terms]))

EMBASE - 43
(('Shock':ti,ab,kw OR 'shock'/exp OR 'Hypotension':ti,ab,kw OR 'hypotension'/exp) **AND** ('Intravenous fluid':ti,ab,kw OR 'IV fluid':ti,ab,kw OR 'infusion fluid'/exp OR 'Resuscitation':ti,ab,kw OR 'resuscitation'/exp))

CINAHL - 7
(("Shock" OR MH "Shock" OR MH "Hypotension" OR "Hypotension") **AND** ("Intravenous fluids" OR "IV fluid*" OR MH “fluid resuscitation”))

8. **Action taken to control postpartum haemorrhage**
Pubmed - 2
("postpartum haemorrhage" [tw] OR "postpartum hemorrhage" [tw] OR "Postpartum Hemorrhage"[Mesh] OR "postpartum bleed*"[tw])

EMBASE - 7
("postpartum haemorrhage":ti,ab,kw OR "postpartum hemorrhage":ti,ab,kw OR 'postpartum hemorrhage'/exp OR "postpartum bleed*":ti,ab,kw)

CINAHL - 2
("postpartum haemorrhage" OR "postpartum hemorrhage" OR MH "Postpartum Hemorrhage"[Mesh] OR "postpartum bleed*")

9. **Hypoglycaemic patients given glucose**
Pubmed - 37
("Hypoglycem*"[tw] OR ”Hypoglycemia"[MeSH Terms] OR "low blood glucose"[tw] OR "Blood Glucose"[MeSH Terms]) AND ("Glucose"[tw] OR "Glucose"[MeSH Terms])

EMBASE - 27
((‘Hypoglycemia’:ti,ab,kw OR ‘Hypoglycemic’:ti,ab,kw OR 'hypoglycemia'/exp OR ‘low blood glucose’:ti,ab,kw OR 'glucose blood level'/exp OR (‘Glucose’:ti,ab,kw AND ‘low’:ti,ab,kw)) AND (‘Glucose’:ti,ab,kw))

CINAHL - 15
((("Glucose" OR "Blood Glucose" OR "Hypoglycemia" OR MH "Blood Glucose" OR MH ""Hypoglycemia" OR (‘Glucose’ AND ‘low’)) AND (glucose OR MH “Glucose”))

10. **Recording of demographics and chief complaint**
Pubmed - 16
((documentation [tw] OR charting [ti] OR "documentation" [mesh]) **AND** ("demographic*" [tw] OR “demography" [mesh] OR "chief complaint*" [tw] OR "presenting complaint*" [tw] OR "reason for encounter" [tw] OR "presenting problem*" [tw] OR "reason for present*" [tw]))

EMBASE - 6
((documentation:ti,ab,kw OR charting:ti,ab,kw) **AND** (demographic:ti,ab,kw OR 'demography'/exp OR 'chief complaint*':ti,ab,kw OR 'presenting complaint*':ti,ab,kw OR 'reason* for encounter':ti,ab,kw OR 'presenting problem*':ti,ab,kw OR 'reason for present*':ti,ab,kw))

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CINAHL - 20
((documentat* OR chart* OR record* OR MH "documentation" OR MH “charting” OR MH “medical records”) AND ("demographic*" OR MH “demography" OR "chief complaint*" OR "presenting complaint*" OR "reason for encounter" OR "presenting problem*" OR "reason for present*"))

11. **Pregnancy test checked in women of reproductive age**
Pubmed - 3
("Pregnancy Test*"[tw] OR "Pregnancy Tests"[MeSH Terms])

EMBASE - 9
('pregnancy test*':ti,ab,kw OR 'pregnancy test'/exp)

CINAHL - 2
("Pregnancy Test*" OR MH "Pregnancy Tests")

12. **Supplemental oxygen given for hypoxic patients**
Pubmed - 19
("Hypoxi*"[tw] OR ”Hypoxia"[MeSH Terms]) **AND** ("Oxygen"[tw] OR ”Oxygen"[MeSH Terms])

EMBASE - 32
("Hypox*":ti,ab,kw OR 'hypoxia'/exp) **AND** ("Oxygen":ti,ab,kw OR 'oxygen'/exp)

CINAHL -7
(("Hypoxi*" OR MH “Anoxia") **AND** ("Oxygen" OR MH ”Oxygen" OR MH “oxygen therapy”))

13. **Long bone splinting for patients presenting with extremity fracture**
Pubmed - 32
(("Splint*"[tw] OR "Splints"[MeSH Terms] "Cast*"[tw] OR "Reduc*"[tw]) **AND** ("Fracture"[tw] OR "Fractures, Bone"[MeSH Terms] OR "Bone and Bones"[MeSH Terms]))

EMBASE - 24
(("Splint":ti,ab,kw OR "Splints":ti,ab,kw OR 'splint'/exp OR "Splinting":ti,ab,kw OR "Splinted":ti,ab,kw OR "Cast":ti,ab,kw OR "Casts":ti,ab,kw OR "Casting":ti,ab,kw OR 'cast'/exp OR "Reduction":ti,ab,kw OR 'fracture reduction'/exp) **AND** ("Fracture":ti,ab,kw OR 'fracture'/exp))

CINAHL -27
(("Splint*" OR MH "Splints" OR "Cast*" OR MH “casts” OR "Reduc*") **AND** ("Fracture" OR MH "Fractures”))

14. **Parental magnesium given to patients with eclampsia/preeclampsia**
Pubmed - 5
(eclampsia [tw] OR preeclampsia [tw] OR "Pre-Eclampsia"[Mesh] OR "Hypertension, Pregnancy-Induced"[Mesh] OR "Eclampsia"[Mesh]) **AND** (magnesium [tw] OR 'magnesium'[Mesh])

EMBASE - 7
((eclampsia:ti,ab,kw OR preeclampsia:ti,ab,kw OR 'preeclampsia'/exp OR 'maternal hypertension'/exp OR 'eclampsia'/exp OR 'eclampsia and preeclampsia'/exp) **AND** (magnesium:ti,ab,kw OR 'magnesium'/exp))

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CINAHL -0
(eclampsia OR preeclampsia OR MH "Pre-Eclampsia" OR MH"Hypertension, Pregnancy-Induced" OR MH "Eclampsia") **AND** (magnesium OR MH 'magnesium' OR MH “Magnesium sulfate” OR MH “Magnesium Compounds”)

15. Action taken to control external haemorrhage

Pubmed - 41
(((trauma*[tw] **AND** (bleed* [tw] OR hemorrhage [tw] OR “hemorrhage”[mesh])) OR (external* [tw] **AND** (control* [tw] OR stop*[tw] OR manage[tw] OR bandag*[tw] OR tourniq*[tw] OR staunch*[tw] OR “direct pressure”[tw] OR “applied pressure”[tw] OR “apply pressure”[tw]))

EMBASE - 18
(((trauma*:ti,ab,kw **AND** ('bleeding'/exp OR bleed*:ti,ab,kw OR hemorrhag*:ti,ab,kw) **)** OR **(**external:ti,ab,kw **AND** (bleed*:ti,ab,kw OR hemorrhag*:ti,ab,kw) **)**) AND **(**control*:ti,ab,kw OR stop*:ti,ab,kw OR manage:ti,ab,kw OR bandag*:ti,ab,kw OR tourniq*:ti,ab,kw OR staunch*:ti,ab,kw OR ‘direct pressure’:ti,ab,kw OR ‘applied pressure’:ti,ab,kw OR ‘apply pressure’:ti,ab,kw**))**

CINAHL - 36
((((“trauma*” OR MH “trauma”) **AND** (bleed* OR hemorrhage OR MH “hemorrhage”)) OR (“bleed*” AND “external*”) **AND** (control* OR stop OR manage OR bandag* OR tourniq* OR staunch* OR “direct pressure” OR “applied pressure” OR “apply pressure”))

16. Blood transfusion given to patients meeting transfusion criteria

Pubmed - 21
("Anemia"[tw] OR ”Anemia"[MeSH Terms]) AND ("Blood Transfusion"[tw] OR "Blood Transfusion"[MeSH Terms] OR Transfus*[tw])

EMBASE - 51
('anemia':ti,ab,kw OR 'anemia'/exp) AND (transfus*:ti,ab,kw OR 'blood transfusion'/exp)

CINAHL -0
("Anemia"[tw] OR MH ”Anemia") AND ("Blood Transfusion*" OR MH "Blood Transfusion" OR Transfus*)

17. Antibiotics given for patients with sepsis

Pubmed - 111

(("Antibiotics"[tw] OR 'anti-bacterial agents'[Mesh]) AND ("septic"[tw] OR 'septic shock'[Mesh]) OR ("Sepsis"[tw] OR 'sepsis'[Mesh]))

EMBASE - 65
('antibiotics':ti,ab,kw OR 'antibiotic agent'/exp) AND ('septic’:ti,ab,kw OR 'septic shock'/exp OR 'sepsis':ti,ab,kw OR 'sepsis'/exp)

CINAHL -2

((MH “antibiotics” OR antibiotic* OR MH “Antiinfective Agents”) AND ("septic" OR “sepsis” OR 'septic shock' OR MH “sepsis” OR “shock, septic”))

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18. Corticosteroid treatment given for asthma patients

Pubmed - 12

("Adrenal Cortex Hormones"[Mesh] OR steroid* [tw] OR corticosteroid* [tw]) AND (asthma* [tw] OR "asthma" [mesh])

EMBASE - 37

(('steroid'/exp OR steroid*:ti,ab,kw OR 'corticosteroid'/exp OR corticosteroid*:ti,ab,kw) AND (asthma*:ti,ab,kw OR 'asthma'/exp))

CINAHL -2

(MH "Adrenal Cortex Hormones" OR steroid* OR corticosteroid*) AND (asthma* OR MH "asthma")

19. Analgesia given to patients reporting pain

Pubmed - 24

((pain* [tw] OR pain [mesh]) AND (analgesics [tw] OR analgesia* [tw] OR "Analgesics"[Mesh] OR "Analgesics" [Pharmacological Action]))

EMBASE - 31

((pain:ti,ab,kw OR 'pain'/exp) AND (analges*:ti,ab,kw OR "Pain Medication":ti,ab,kw))

CINAHL -27

((pain* OR MH "pain") AND (analgesic* OR MH "Analgesics" OR MH "Pain Management"))

20. Documentation of disposition

PubMed - 17

(document* [tw] OR charting [tw] OR record* [tw]) AND (disposition [tw])

EMBASE - 29

(document*:ti,ab,kw OR charting:ti,ab,kw OR record*:ti,ab,kw) AND (disposition:ti,ab,kw)

CINAHL -27

((documentat* OR chart* OR record* OR MH "documentation" OR MH "charting" OR MH "medical records") AND (disposition)

21. Primary survey performed for all trauma patients

PubMed - 10

('Primary survey'[tw] OR 'initial assessment'[tw] OR 'initial evaluation'[tw] OR 'initial exam'[tw]) AND ('trauma'[tw] OR 'injury'[tw])

EMBASE - 21

('Primary surv*':ti,ab,kw OR 'initial assessment*':ti,ab,kw OR 'assessment'/exp OR 'initial evaluation*':ti,ab,kw OR 'initial exam':ti,ab,kw) AND ('trauma*':ti,ab,kw OR 'injur*':ti,ab,kw OR 'injury'/exp)

CINAHL -7

('Primary survey' OR 'initial assessment' OR 'initial evaluation' OR 'initial exam') AND ('trauma' OR MH "trauma" OR 'injury')

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22. Tetanus vaccination updated for susceptible adult patients

PubMed - 18
('tetanus'/exp OR "Tetanus"[Mesh] OR tetanus [tw])

EMBASE - 44
('tetanus'/exp OR 'tetanus toxoid'/exp OR 'tetanus antibody'/exp OR 'tetanus':ti,ab,kw)

CINAHL -3
("Tetanus" OR “tetanus vaccine” OR MH “Tetanus Toxoid”)

23. Documentation of reason for transfer

Pubmed - 25
(document* [tw] OR recording* [tw] OR "documentation" [mesh]) AND (transfer* [tw] OR (refer [tw] OR (referral [tw] NOT “referral hospital” [tw])))

EMBASE - 24
(document*:ti,ab,kw OR charting:ti,ab,kw OR 'medical documentation'/exp) **AND** (transfer:ti,ab,kw OR 'transfer'/exp OR 'patient referral'/exp)

CINAHL - 0
((documentat* OR chart* OR record* OR MH "documentation" OR MH “charting” OR MH “medical records”) AND (transfer* OR MH “transfer, intrahospital” OR (referral NOT “referral hospital”)))

24. Initial assessment for all patients

Pubmed - 17
('initial assessment'[tw] OR 'initial evaluation'[tw] OR 'initial exam'[tw] OR ‘primary survey’[tw])

EMBASE - 30
('Primary survey':ti,ab,kw OR 'initial assessment':ti,ab,kw OR 'assessment'/exp OR 'initial evaluation':ti,ab,kw OR 'initial exam':ti,ab,kw)

CINAHL - 10
('Primary survey' OR 'initial assessment' OR 'initial evaluation' OR 'initial exam')

25. FAST exam performed for blunt abdominal trauma

Pubmed - 15
(fast [tw] OR “focused assessment with sonography” [tw]) AND ("trauma*" [tw] OR "abdominal injuries" [mesh] OR (injur*[tw]))

EMBASE - 16
(fast:ti,ab,kw OR 'focused assessment with sonography':ti,ab,kw OR 'focused assessment with sonography for trauma'/exp) AND ("trauma*":ti,ab,kw OR 'abdominal injury'/exp OR (injur*:ti,ab,kw))

CINAHL - 11
((fast OR “focused assessment with sonography”) AND ("trauma*" OR MH “Trauma” OR MH "abdominal injuries OR injur*))

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26. Rate of triage

Pubmed - 75

((triag* [tw] OR "triage" [mesh]) AND (rate[tw] OR percentage[tw] OR ratio[tw] OR proportion[tw] or frequency [tw] or complete [tw]))

EMBASE - 91

(triage:ti,ab,kw AND (rate:ti,ab,kw OR percentage:ti,ab,kw OR ratio:ti,ab,kw OR proportion:ti,ab,kw OR frequency:ti,ab,kw OR complete:ti,ab,kw))

CINAHL - 19

((triag* OR MH "triage") AND (rate OR percentage OR ratio OR proportion or frequency or complete))

27. Triage level categorisation

Pubmed - 112

((triag* [tw] OR "triage" [mesh]) AND (categor*[tw] OR class*[tw] OR group*[tw] OR level[tw]))

EMBASE - 127

(triage:ti,ab,kw **AND** (categor*:ti,ab,kw OR class*:ti,ab,kw OR group*:ti,ab,kw OR level:ti,ab,kw))

CINAHL -13

((triag* [tw] OR MH "triage") AND (categor* OR class* OR group* OR level))

28. Vital signs recorded every 15 min for highest acuity patients

Pubmed - 18

(('Vital Signs' [mesh] OR 'vital signs' [tw] OR 'blood pressure ' [tw] OR 'blood pressure '[Mesh] OR 'body temperature' [tw] OR 'body temperature' [Mesh]OR 'heart rate' [tw] OR 'heart rate' [mesh] OR 'respiratory rate' [tw] OR 'respiratory rate' [mesh]) AND ('frequency' [tw] OR 'repeat'[tw] OR "fifteen min*"[tw] OR "15 min*"[tw] OR 'multiple' [tw]))

EMBASE - 19

(('vital signs':ti,ab,kw OR 'vital sign'/exp) AND ('frequency':ti,ab,kw OR 'repeat':ti,ab,kw OR 'fifteen min*':ti,ab,kw OR '15 min*':ti,ab,kw OR 'multiple':ti,ab,kw))

CINAHL - 0

(MH 'Vital Signs' OR 'vital sign*') AND ('frequency' OR 'repeat' OR "fifteen min*" OR "15 min*" OR 'multiple'))

Outcomes clinical quality indicators

1. **Mortality from trauma: % of patients with trauma-related chief complaint who die within 24 hours of EU presentation**

Pubmed - 21

(('Hospital Mortality' [mesh] OR 'mortality rate' [tw] OR 'death' [tw] OR 'fatality' [tw]) **AND** ("trauma*"[tw] OR "injur*"[tw]) AND ("patient*"[tw]) AND ("one*day" [tw] OR "24*h*" [tw])

EMBASE -8

(('mortality rate':ti,ab,kw OR 'mortality'/exp OR 'fatality':ti,ab,kw OR death:ti,ab,kw) **AND** ('trauma':ti,ab,kw OR 'injur*':ti,ab,kw OR 'injury'/exp) AND 'patient*':ti,ab,kw AND ('one*day*':ti,ab,kw OR '24*h*':ti,ab,kw)**)**

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CINAHL - 13
((MH 'Hospital Mortality' OR MH 'mortality rate' OR 'death' OR 'fatality') **AND** ("trauma*" OR MH "trauma" OR "injur*") **AND** ("one*day" OR "24*hour*")

2. **Mortality from lower respiratory tract infection (adult)**
3. **Mortality from lower respiratory tract infection (child)**

Pubmed - 39
("Hospital Mortality" [mesh] OR "mortality rate" [tw] OR 'death' [tw] OR 'fatality' [tw]) AND ("lower respiratory tract infection*"[tw] OR "Pneumonia"[tw] OR "Pneumonia"[mesh])

EMBASE- 52
'patient*':ti,ab,kw AND ('mortality rate':ti,ab,kw OR 'mortality'/exp OR 'fatality':ti,ab,kw OR death:ti,ab,kw) AND ("lower respiratory tract infection":ti,ab,kw OR "Pneumonia":ti,ab,kw)

CINAHL - 12
((MH 'Hospital Mortality' OR MH 'mortality rate' OR 'death' OR 'fatality') **AND** ("lower respiratory tract infection*" OR "Pneumonia" OR MH "Pneumonia")

4. **Mortality from asthma**

Pubmed - 12
("Hospital Mortality" [mesh] OR "mortality rate*" [tw]) AND ("asthma"[tw] OR "asthma"[mesh])

EMBASE- 9
patient:ti,ab,kw AND ('mortality':ti,ab,kw OR 'mortality'/exp) AND ("asthma":ti,ab,kw OR 'asthma'/exp)

CINAHL - 0
((MH 'Hospital Mortality' OR MH 'mortality rate' OR 'death' OR 'fatality') **AND** ("asthma" OR MH "asthma")

5. **Left without being seen:**

Pubmed - 0
("Left without being seen" [tw] OR "LWBS" [tw])

EMBASE- 0
('Left without being seen':ti,ab,kw OR 'LWBS':ti,ab,kw)

CINAHL - 0
("Left without being seen" [tw] OR "LWBS" [tw])

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Appendix 5: Non-Database Search Strategies

National Ministry of Health Websites

Country	Website Reachable?	In English?	Website Link	Emergency Medical (EM) Services?	EM Department Link	Relevant Documents Identified
Algeria	No		http://www.sante.gov.dz/			
Angola	No		https://minsa.gov.ao/ao/			
Benin	Yes	No (French)	https://sante.gouv.bj/			
Botswana	Yes	Yes	https://www.moh.gov.bw/	Yes	https://www.moh.gov.bw/emergency_services.html	
Burkina Faso	Yes	No (French)	https://www.sante.gov.bf/accueil			
Burundi	Yes	No (French)	http://minisante.bi/			
Cabo Verde	Yes	No (Spanish)	http://www.minsaude.gov.cv/			
Cameroon	Yes	No (French)	https://www.minsante.cm/site/?q=en			
Central African Republic	No					
Chad	No		http://www.sante-tchad.org/			
Comoros	No					
Congo	Yes	No (French)	https://sante.gouv.cg/?module=posts&action=all&idtp=46			
Cote d'Ivoire	Yes	No (French)	https://www.sante.gouv.ci/			
Djibouti	Yes	No (French)	https://sante.gouv.dj/			
Democratic Republic of Congo	Yes	No (French)	https://www.minisanterdc.cd/			
Egypt	No		www.mohp.gov.eg			

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Equatorial Guinea	Yes	Yes	https://guineasalud.org/?lang=en	Yes		
Eritrea	No					
Eswatini (Swaziland)	Yes	Yes	http://www.gov.sz/index.php/ministries-departments/ministry-of-health	Yes	http://www.gov.sz/index.php/services-sp-905296425/101-health/services/564-emergency-and-ambulance-services	
Ethiopia	Yes	Yes	https://www.moh.gov.et/site/	Yes		4
Gabon	No		http://www.sante.gouv.ga/			
Gambia	Yes	Yes	https://www.moh.gov.gm/	Yes		
Ghana	Yes	Yes	https://www.moh.gov.gh/	Yes		1
Guinea	Yes	No (French)	https://sante.gov.gn/			
Guinea-Bissau	Yes	Yes	http://www.guinebissaurepublic.com/health-2/	Yes		
Kenya	Yes	Yes	https://www.health.go.ke/	Yes	https://www.emergencymedicinekenya.org/	1
Lesotho	Yes	Yes	http://health.gov.ls/	Yes		
Liberia	Yes	Yes	https://moh.gov.lr/	Yes		
Libya	Yes	No (Arabic)	https://www.health.gov.ly/			
Madagascar	Yes	No (Malagasy)	http://www.sante.gov.mg/ministere-sante-publique/			
Malawi	Yes	Yes	http://www.health.gov.mw/	Yes		1
Mali	Yes	No (French)	http://www.sante.gov.ml/			

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Mauritania	No		https://www.sante.gov.mr/			
Mauritius	Yes	Yes	https://health.govmu.org/Pages/default.aspx	Yes		
Morocco	Yes	No (French)	https://www.sante.gov.ma/Pages/Accueil.aspx			
Mozambique	Yes	No (Portuguese)	https://www.misau.gov.mz/			
Namibia	Yes	Yes	https://mhss.gov.na/	Yes		
Niger	No		http://niger-gouv.org/ministeres.html			
Nigeria	Yes	Yes	https://www.health.gov.ng/	Yes		
Rwanda	Yes	Yes	https://www.moh.gov.rw/	Yes	https://www.moh.gov.rw/programs/emergency-medical-services-division	1
Sao Tome and Principe	Yes	No (Portuguese)	http://ms.gov.st/			
Senegal	Yes	No (French)	https://www.sante.gouv.sn/			
Seychelles	Yes	Yes	http://www.health.gov.sc/	Yes		1
Sierra Leone	Yes	Yes	https://mohs.gov.sl/	Yes	https://mohs.gov.sl/national-emergency-medical-services/	1
Somalia	Yes	Yes	https://moh.nomadilab.org/	Yes		
South Africa	Yes	Yes	https://www.health.gov.za/	Yes		
South Sudan	Yes	Yes	https://moh.gov.ss/	?		
Sudan	Yes	No (Arabic)	http://www.fmoh.gov.sd/			
Tanzania	Yes	Yes & No (partly Swahili)	https://www.moh.go.tz/en/	Yes		

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Togo	Yes	No (French)	https://sante.gouv.tg/			
Tunisia	Yes	No (French)	http://www.santetunisie.rns.tn/en/			
Uganda	Yes	Yes	https://www.health.go.ug/	Yes	https://www.health.go.ug/programs/ministry-departments/office-of-the-director-of-curative-services/department-of-emergency-medical-services/	
Zambia	Yes	Yes	https://www.moh.gov.zm/	Yes		
Zimbabwe	Yes	Yes	http://www.mohcc.gov.zw/	Yes	http://www.zim.gov.zw/index.php/en/my-government/government-ministries/about-zimbabwe/466-emergency-services	

World Health Organization Website and WHO IRIS Database

WHO		
Search Term/Pathway	**Results Page**	**Relevant Documents Identified**
health topics > emergency care > related links	https://www.who.int/health-topics/emergency-care#tab=tab_1	1
health topics > emergency care > publications	https://www.who.int/health-topics/emergency-care#tab=tab_1	
WHO IRIS		
Search Term/Pathway	**Results Page**	

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"africa and quality and emergencies" (advanced filters for title to include emergencies AND quality)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergencies&filtertype_2=title&filter_relational_operator_2=contains&filter_2=Quality&submit_apply_filter=&query=africa+and+quality+and+emergencies	2
CLINICAL QUALITY INDICATORS		
"africa and glucose and mental status and emergency"		
subject: Emergencies	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+glucose+and+mental+status+and+emergency&submit=&filtertype_0=subject&filter_relational_operator_0=contains&filter_0=Emergencies&rpp=10	
subject: Emergency Medical Services	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=emergency+medical+services&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Medicine	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medicine&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Nursing	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Nursing&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Responders	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Responders&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Service	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
subject: Emergency Service, Hospital	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	

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subject: Emergency Services, Psychiatric	null	
subject: Disaster Medicine	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Disaster+Medicine&submit_apply_filter=&query=africa+and+glucose+and+mental+status+and+emergency&scope=%2F&rpp=10	
africa and antibiotics and pneumonia and pediatrics		
subject: Emergencies	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=/&group_by=none&page=1&filtertype_0=subject&filter_relational_operator_0=contains&filter_0=Emergencies	
subject: Emergency Medical Services	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Emergency Medicine	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Emergency Nursing	null	
subject: Emergency Service	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Emergency Service, Hospital	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric	null	
subject: Emergency Treatment	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Treatment&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	
subject: Disaster Medicine	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Disaster+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+pneumonia+and+pediatrics&scope=%2F&rpp=10	

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"africa and bronchodilator and asthma"		
subject: Emergencies	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergencies&submit_apply_filter=&query=africa+and+bronchodilator+and+asthma	
subject: Emergency Medical Services	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+bronchodilator+and+asthma	
subject: Emergency Medicine	null	
subject: Emergency Nursing	null	
subject: Emergency Service	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service&submit_apply_filter=&query=africa+and+bronchodilator+and+asthma	
subject: Emergency Service, Hospital	null	
subject: Emergency Services, Psychiatric	null	
subject: Emergency Treatment	null	
subject: Disaster Medicine	null	
"africa and complete vital signs"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+complete+vital+signs&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	

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subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+complete+vital+signs&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+complete+vital+signs&scope=%2F&rpp=10	
"africa and diagnosis and documentation or charting"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergencies&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+diagnosis+and+documentation+or+charting&submit=&filtertype_0=subject&filtertype_1=iso&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=English&filter_0=Medical+Services&rpp=10	

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subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medicine&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Nursing&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+diagnosis+and+documentation+or+charting&submit=&filtertype_0=subject&filtertype_1=iso&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=English&filter_0=Emergency+Service&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service%2C+Hospital&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Treatment&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Disaster+Medicine&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+diagnosis+and+documentation+or+charting&scope=%2F&rpp=10	
africa and antibiotics and pneumonia and adult		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergencies&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia	

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subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+antibiotics+and+adult+and+pneumonia&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+adult+and+pneumonia&rpp=10	
africa and shock and intravenous fluids		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	1

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subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+shock+and+intravenous+fluids&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+shock+and+intravenous+fluids&rpp=10	
"africa and postpartum bleed"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+postpartum+bleed&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English	2

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subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+postpartum+bleed&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+postpartum+bleed&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+postpartum+bleed&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	null	
"africa and glucose"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+glucose&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+glucose&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+glucose&rpp=10	

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subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+glucose&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+glucose&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+glucose&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+glucose&rpp=10	
"africa and demographics and chief complaint"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+demographics+and+chief+complaint&scope=%2F&rpp=10	2
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+demographics+and+chief+complaint&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	

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subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+demographics+and+chief+complaint&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+demographics+and+chief+complaint&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	null	
"africa and pregnancy test"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+pregnancy+test&group_by=none&page=1&filtertype_0=subject&filtertype_1=iso&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=English&filter_0=Emergencies	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medical+Services&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+pregnancy+test&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Medicine&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+pregnancy+test&rpp=10	
subject: Emergency Nursing (language: English)	null	

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subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+pregnancy+test&group_by=none&page=1&filtertype_0=subject&filtertype_1=iso&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=English&filter_0=Emergency+Service	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=subject&filter_relational_operator_1=contains&filter_1=Emergency+Service%2C+Hospital&filtertype_2=iso&filter_relational_operator_2=contains&filter_2=English&submit_apply_filter=&query=africa+and+pregnancy+test&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+pregnancy+test&scope=%2F&rpp=10	
"africa and hypoxia and oxygen"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+hypoxia+and+oxygen&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+hypoxia+and+oxygen&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+hypoxia+and+oxygen&rpp=10	

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subject: Emergency Service, Hospital (language: English)	null	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+hypoxia+and+oxygen&rpp=10	
subject: Disaster Medicine (language: English)	null	
"africa and splint and fracture"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	

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subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+splint+and+fracture&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+splint+and+fracture&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and eclampsia and magnesium"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+eclampsia+and+magnesium&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+eclampsia+and+magnesium&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+eclampsia+and+magnesium&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+eclampsia+and+magnesium&scope=%2F&rpp=10	

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subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	null	
"africa and trauma and bleeding"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+trauma+and+bleed	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+trauma+and+bleed&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	

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subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+trauma+and+bleed&rpp=10	
"africa and anemia and blood transfusion"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+anemia+and+blood+transfusion&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+anemia+and+blood+transfusion&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+anemia+and+blood+transfusion&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	null	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	

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subject: Disaster Medicine (language: English)	null	
"africa and antibiotics and sepsis"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	

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subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+antibiotics+and+sepsis&scope=%2F&rpp=10	
"africa and steroid and asthma"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+steroid+and+asthma&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+steroid+and+asthma&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+steroid+and+asthma&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	null	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	null	
"africa and pain and analgesia"		

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subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	1
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+pain+and+analgesia&scope=%2F&rpp=10	
"africa and documentation and disposition"		

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subject: Emergencies (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+documentation+and+disposition&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+documentation+and+disposition&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+documentation+and+disposition&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+documentation+and+disposition&scope=%2F&rpp=10	1
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+documentation+and+disposition&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	null	
"africa and primary survey and trauma"		

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subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+primary+survey+and+trauma&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+primary+survey+and+trauma&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+primary+survey+and+trauma&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+primary+survey+and+trauma&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+primary+survey+and+trauma&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+primary+survey+and+trauma&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+primary+survey+and+trauma&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	

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"africa and tetanus"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+tetanus&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+tetanus&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+tetanus&scope=%2F&rpp=10	

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"africa and documentation and transfer"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+documentation+and+transfer	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+documentation+and+transfer&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+documentation+and+transfer&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+documentation+and+transfer&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+documentation+and+transfer&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+documentation+and+transfer&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	

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subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+documentation+and+transfer&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+documentation+and+transfer&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and initial exam"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+initial+exam&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	

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subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+initial+exam&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	null	
"africa and focused assessment with sonography and abdomen"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+focused+assessment+with+sonography+and+abdomen&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+focused+assessment+with+sonography+and+abdomen&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	null	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+focused+assessment+with+sonography+and+abdomen&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	null	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	null	

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subject: Disaster Medicine (language: English)	null	
"africa and triage and rate"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	1
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	

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subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+triage+and+rate&scope=%2F&rpp=10	
"africa and triage and category"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+triage+and+category&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+triage+and+category&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+triage+and+category&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+triage+and+category&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?rpp=10&etal=0&query=africa+and+triage+and+category&scope=/&group_by=none&page=1&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Service&filter_0=English	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+triage+and+category&scope=%2F&rpp=10	

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subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+triage+and+category&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and vital signs and critically ill"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Nursing&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	

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subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+vital+signs+and+critically+ill&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Treatment&filter_0=English&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+vital+signs+and+critically+ill&scope=%2F&rpp=10	
OUTCOMES		
"africa and mortality and trauma"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	1
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	

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subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+mortality+and+trauma&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+mortality+and+trauma&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and adult and lower respiratory tract infection and mortality"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergencies&filter_0=English&rpp=10	1
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	

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subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+adult+and+lower+respiratory+tract+infection&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Treatment&filter_0=English&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+adult+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
"africa and child and lower respiratory tract infection and mortality"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	2
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medicine&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Nursing (language: English)	null	

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subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+child+and+lower+respiratory+tract+infection+and+mortality&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Disaster+Medicine&filter_0=English&rpp=10	
"africa and mortality and asthma"		
subject: Emergencies (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergencies&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Emergency Medical Services (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Medical+Services&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Emergency Medicine (language: English)	https://apps.who.int/iris/discover?scope=%2F&query=africa+and+mortality+and+asthma&submit=&filtertype_0=iso&filtertype_1=subject&filter_relational_operator_1=contains&filter_relational_operator_0=contains&filter_1=Emergency+Medical+Services&filter_0=English&rpp=10	

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subject: Emergency Nursing (language: English)	null	
subject: Emergency Service (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Emergency Service, Hospital (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Service%2C+Hospital&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Emergency Services, Psychiatric (language: English)	null	
subject: Emergency Treatment (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Emergency+Treatment&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	
subject: Disaster Medicine (language: English)	https://apps.who.int/iris/discover?filtertype_1=iso&filter_relational_operator_1=contains&filter_1=English&filtertype_2=subject&filter_relational_operator_2=contains&filter_2=Disaster+Medicine&submit_apply_filter=&query=africa+and+mortality+and+asthma&scope=%2F&rpp=10	

Google and Google Scholar

Reviewed pages 1-2 of each search result

SEARCH TERMS all searches: "africa and emergency care and..."	Articles Saved to Zotero?	Link #1	Link #2
GENERAL			
glucose and mental status and emergency	yes		
antibiotics and pneumonia and pediatrics	yes	https://www.cidrap.umn.edu/news-perspective/2020/07/antibiotic-use-duration-questioned-kids-pneumonia-low-resource-areas	https://data.unicef.org/topic/child-health/pneumonia/
bronchodilator and asthma	yes		
complete vital signs	yes		

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diagnosis and documentation or charting	yes		
antibiotics and pneumonia and adult	yes		
shock and intravenous fluids	yes	https://www.imperial.ac.uk/news/99489/african-trial-questions-emergency-treatment-children/	
postpartum hemorrhage or bleed	yes		
glucose or hypoglycemia	yes		
demographics and chief complaint	yes		
pregnancy test	yes		
hypoxia and oxygen	yes		
splint and fracture	yes		
magnesium and eclampsia or preeclampsia	yes		
trauma and bleeding or hemorrhage	yes		
anemia and blood transfusion	yes		
antibiotics and sepsis	yes		
corticosteroid and asthma	yes		
pain and analgesia	yes		
documentation and disposition	yes		
primary survey and trauma	yes		
tetanus	yes		
documentation and transfer	yes		
initial exam or assessment	yes		
focused assessment with sonography and abdomen	yes		
triage and rate	yes		
triage and category	yes		
vital signs and critically	yes		

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ill			
OUTCOMES			
"africa and mortality and trauma"	yes	https://baylor-ir.tdl.org/bitstream/handle/2104/10551/Final%20Thesis%20Document%20Archived.pdf?sequence=1	
"africa and adult and lower respiratory tract infection and mortality"	yes		
"africa and child and lower respiratory tract infection and mortality"	yes		
"africa and mortality and asthma"	yes		

African Journal of Emergency Medicine

SEARCH TERMS All searches: Africa and emergency care and..."	Articles Saved to Zotero?
GENERAL	
glucose and mental status	yes (2)
antibiotics and pneumonia and pediatrics	yes (1)
bronchodilator and asthma	--
complete vital signs	yes (4)
diagnosis and documentation or charting	yes (6)
antibiotics and pneumonia and adult	yes (2)
shock and intravenous fluids	yes (1)
postpartum hemorrhage or bleed	yes (1)
glucose or hypoglycemia	--
demographics and chief complaint	yes (7)
pregnancy test	--
hypoxia and oxygen	--
splint and fracture	yes (4)
magnesium and eclampsia	--
trauma and bleeding or hemorrhage	yes (1)
anemia and blood transfusion	--
antibiotics and sepsis	--
corticosteroid and asthma	--

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pain and analgesia	--
documentation and disposition	yes (9)
primary survey and trauma	yes (1)
tetanus	yes (1)
documentation and transfer	--
initial exam or assessment	yes (1)
focused assessment with sonography and abdomen	yes (1)
triage and rate	yes (8)
triage and category	yes (9)
vital signs and critically ill	--
OUTCOMES	
mortality and trauma	yes (11)
adult and lower respiratory tract infection and mortality	--
child and lower respiratory tract infection and mortality	--
mortality and asthma	yes (2)

PATH Database

	Link to Search Results	# of Results	Articles Saved to Zotero?
GENERAL			
glucose and mental status	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20glucose%20and%20mental%20status&sort=date&to_month=2&to_year=2022	5	none
antibiotics and pneumonia and pediatrics	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20antibiotics%20and%20pneumonia%20and%20pediatrics&sort=date&to_month=2&to_year=2022	26	none
bronchodilator and asthma	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20bronchodilator%20and%20asthma&sort=date&to_month=2&to_year=2022	2	yes
complete vital signs	https://www.path.org/resources/?from_month=1&from_year=1989&page=9&query=africa%20and%20emergency%20care%20and%20complete%20vital%20signs&sort=date&to_month=2&to_year=2022	85	none

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diagnosis and documentation or charting	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20diagnosis%20and%20documentation%20or%20charting&sort=date&to_month=2&to_year=2022	55	none
antibiotics and pneumonia and adult	https://www.path.org/resources/?from_month=1&from_year=1989&page=3&query=africa%20and%20emergency%20care%20and%20antibiotics%20and%20pneumonia%20and%20adult&sort=date&to_month=2&to_year=2022	38	none
shock and intravenous fluids	https://www.path.org/resources/?from_month=1&from_year=1989&page=3&query=africa%20and%20emergency%20care%20and%20shock%20and%20intravenous%20fluids&sort=date&to_month=2&to_year=2022	11	none
postpartum hemorrhage or bleed	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20postpartum%20hemorrhage%20or%20bleed&sort=date&to_month=2&to_year=2022	26	none
glucose or hypoglycemia	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20glucose%20or%20hypoglycemia&sort=date&to_month=2&to_year=2022	1	none
demographics and chief complaint	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20demographics%20and%20chief%20complaint&sort=date&to_month=2&to_year=2022	13	none
pregnancy test	https://www.path.org/resources/?from_month=1&from_year=1989&page=40&query=africa%20and%20emergency%20care%20and%20pregnancy%20test&sort=date&to_month=2&to_year=2022	198	none
hypoxia and oxygen	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20hypoxia%20and%20oxygen&sort=date&to_month=2&to_year=2022	3	none
splint and fracture	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20splint%20and%20fracture&sort=date&to_month=2&to_year=2022	1	none
magnesium and eclampsia	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20magnesium%20and%20eclampsia&sort=date&to_month=2&to_year=2022	10	none
trauma and bleeding or hemorrhage	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20trauma%20and%20bleeding%20or%20hemorrhage&sort=date&to_month=2&to_year=2022	3	none

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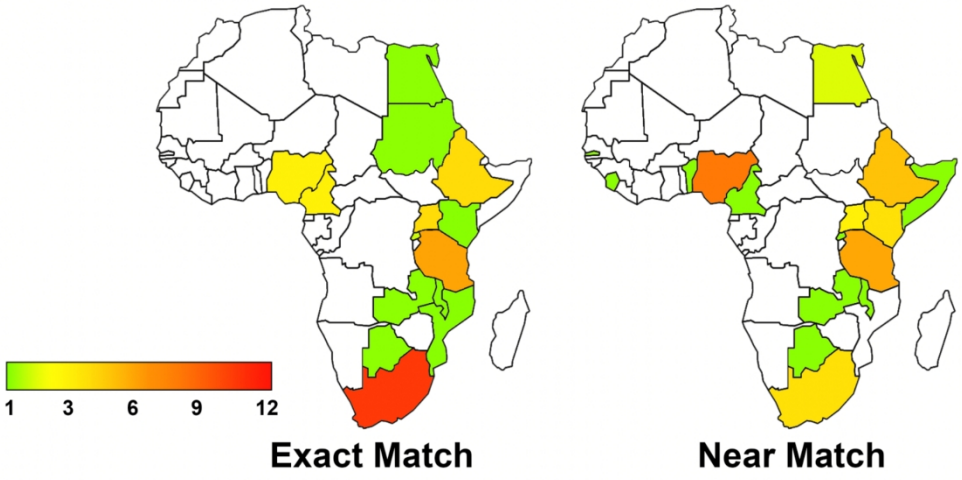
anemia and blood transfusion	https://www.path.org/resources/?from_month=1&from_year=1989&page=2&query=africa%20and%20emergency%20care%20and%20anemia%20and%20blood%20transfusion&sort=date&to_month=2&to_year=2022	8	none
antibiotics and sepsis	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20antibiotics%20and%20sepsis&sort=date&to_month=2&to_year=2022	11	none
corticosteroid and asthma	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20corticosteroid%20and%20asthma&sort=date&to_month=2&to_year=2022	0	none
pain and analgesia	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20pain%20and%20analgesia&sort=date&to_month=2&to_year=2022	3	none
documentation and disposition	https://www.path.org/resources/?from_month=1&from_year=1989&page=6&query=africa%20and%20emergency%20care%20and%20documentation%20and%20disposition&sort=date&to_month=2&to_year=2022	26	none
primary survey and trauma	https://www.path.org/resources/?from_month=1&from_year=1989&page=4&query=africa%20and%20emergency%20care%20and%20documentation%20and%20primary%20survey%20and%20trauma&sort=date&to_month=2&to_year=2022	18	none
tetanus	https://www.path.org/resources/?from_month=1&from_year=1989&page=10&query=africa%20and%20emergency%20care%20and%20documentation%20and%20tetanus&sort=date&to_month=2&to_year=2022	48	none
documentation and transfer	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20documentation%20and%20transfer&sort=date&to_month=2&to_year=2022	167	none
initial exam or assessment	https://www.path.org/resources/?from_month=1&from_year=1989&page=2&query=africa%20and%20emergency%20care%20and%20initial%20exam%20or%20assessment&sort=date&to_month=2&to_year=2022	46	none
focused assessment with sonography and abdomen	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20focused%20assessment%20with%20sonography%20and%20abdomen&sort=date&to_month=2&to_year=2022	0	none
triage and rate	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20triage%20and%20rate&sort=date&to_month=2&to_year=2022	24	none

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triage and category	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20triage%20and%20category&sort=date&to_month=2&to_year=2022	13	none
vital signs and critically ill	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20vital%20signs%20and%20critically%20ill&sort=date&to_month=2&to_year=2022	65	none
OUTCOMES			
mortality and trauma	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20mortality%20and%20trauma&sort=date&to_month=2&to_year=2022	19	none
adult and lower respiratory tract infection and mortality	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20adult%20and%20lower%20respiratory%20tract%20infection%20and%20mortality&sort=date&to_month=2&to_year=2022	10	none
child and lower respiratory tract infection and mortality	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20child%20and%20lower%20respiratory%20tract%20infection%20and%20mortality&sort=date&to_month=2&to_year=2022	12	none
mortality and asthma	https://www.path.org/resources/?from_month=1&from_year=1989&query=africa%20and%20emergency%20care%20and%20mortality%20and%20asthma&sort=date&to_month=2&to_year=2022	9	none

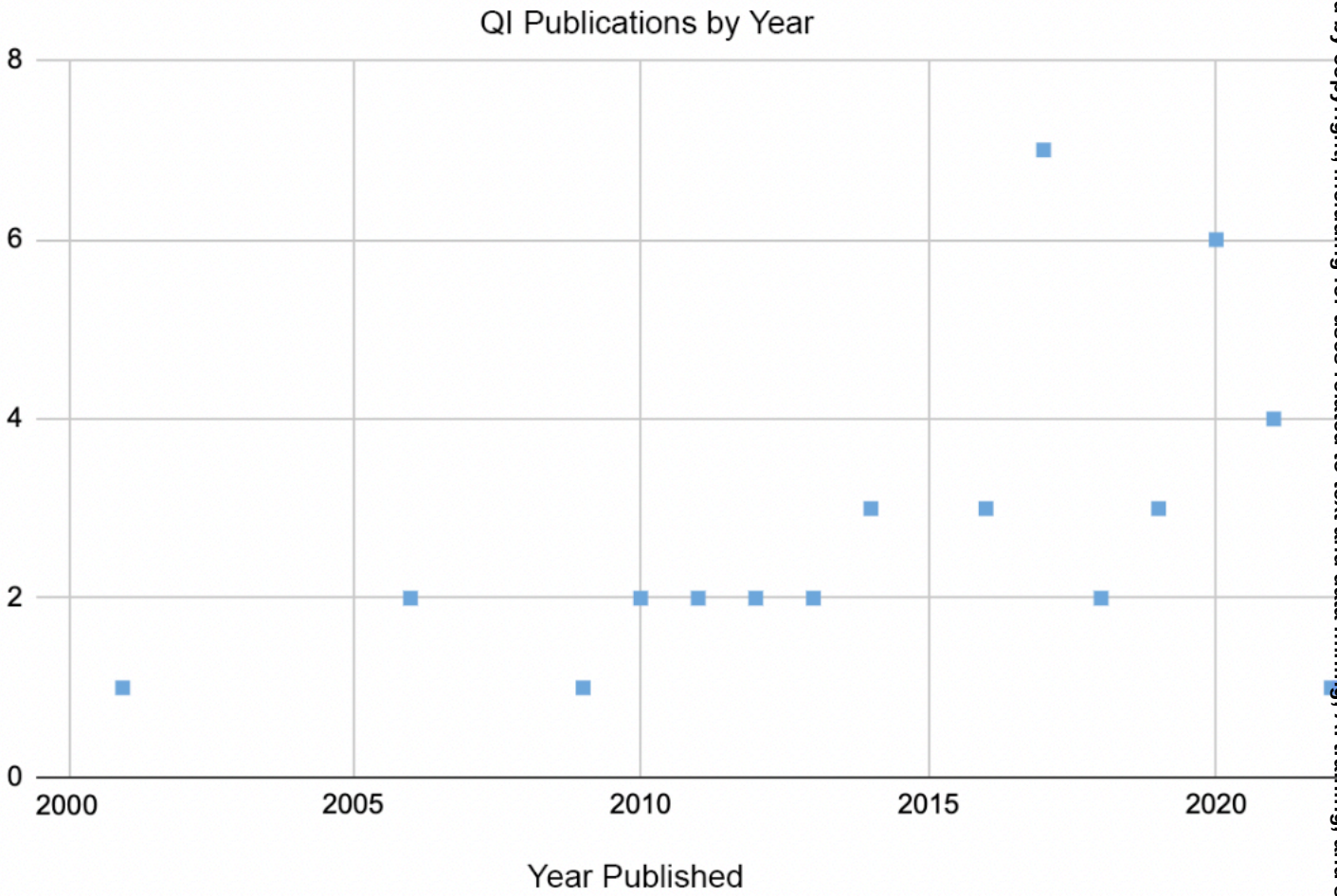
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Table. PRISMA-ScR Checklist

Section	Item	PRISMA-ScR Checklist Item	
Title	1	Identify the report as a scoping review.	page 1, line 1-2
Abstract			
Structured summary	2	Provide a structured summary that includes (as applicable) background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	page 2, line 1- page 3, line 13
Introduction			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	page 4 line 12 - page 5 line 1
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	page 5, line 11-21
Methods			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	page 6, lines 3-15
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	page 6, line 17 - page 7, line 12
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	page 7, line 18 - page 9, line 10
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	page 8, line 10-19 and appendix 4
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	page 9 line 12- page 10 line 2
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	page 10, lines 3 - 12
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	page 10, lines 3 - 12, appendix 1
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	NA
Summary measures	13	Not applicable for scoping reviews.	NA
Synthesis of results	14	Describe the methods of handling and summarizing the data that were charted.	page 10, lines 14-19
Risk of bias across studies	15	Not applicable for scoping reviews.	NA
Additional analyses	16	Not applicable for scoping reviews.	NA
Results			
Selection of sources of evidence	17	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	page 11, lines 1- 13, Figure 1
Characteristics of sources of evidence	18	For each source of evidence, present characteristics for which data were charted and provide the citations.	page 11, line 17 - page 16, line 7
Critical appraisal within sources of evidence	19	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	20	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	page 16, line 8 - page 22, line 4, table 1&2, appendix 2&3
Synthesis of results	21	Summarize and/or present the charting results as they relate to the review questions and objectives.	page 22, line 7 - 16
Risk of bias across studies	22	Not applicable for scoping reviews.	NA
Additional analyses	23	Not applicable for scoping reviews.	NA
Discussion			
Summary of evidence	24	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	page 22, line 20 - page 25, line 12
Limitations	25	Discuss the limitations of the scoping review process.	page 25,lines 13-22
Conclusions	26	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	page 26, lines 5-19
Funding	27	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	page 26, line 20

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.
* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.
† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).
‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.
§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy documents).

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