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<td>Adewole (2012)</td>
<td>1. Geographic barriers</td>
<td>1. Rural population has less access, traffic impedes access</td>
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<td>Ahmed (2019)</td>
<td>1. Percent of slums that have 1 EU per 50,000 population</td>
<td>1. 12%</td>
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<td>2. 1 burn unit per 50,000 population</td>
<td>2. 0%</td>
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<td>3. Percent of population that lives within 60 minutes of EU</td>
<td>3. 63%</td>
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<td>4. Within 60 minutes of burn unit</td>
<td>4. 32%</td>
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<td>Ali (2006)</td>
<td>1. Average response time to accident</td>
<td>1. 10 min</td>
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<td>1. Resource issues</td>
<td>1. LMICs have less resources for trauma care</td>
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<td>Amparo (2018)</td>
<td>1. Awareness of where to go for care</td>
<td>1. 7.4%</td>
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<td>2. Sought treatment for wounds</td>
<td>2. 44.9%</td>
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<td>Reasons for not seeking care</td>
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<td>1. Cost</td>
<td>1. 22.7%</td>
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<td>3. Sought traditional/alternative care</td>
<td>3. 5.6%</td>
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<td>1. Dispatchers lack training</td>
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<td>2. Staffing issues</td>
<td>2. Shortages of physicians and EMS providers</td>
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<td>3. Hospital system issues</td>
<td>3. Errors in triage, lack of child care for other children in the household and restrictive hours of clinic operations, multiple transfers</td>
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<td>4. Pre-hospital system issues</td>
<td>4. Lack of transportation, Lack of telephone access and no universal emergency number.</td>
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<td>5. Communication issues</td>
<td>5. Difficulty getting through on phone lines, miscommunication regarding the acuity of the patient, misunderstanding of geography and distance</td>
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<td>6. Barriers to reaching care</td>
<td>6. Community understanding of how to navigate the health system and emergency conditions</td>
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<tr>
<td>7</td>
<td>Anyumba (2019)</td>
<td>1. Drive time from University of Venda Clinic to scene of accident</td>
<td>1. 5-7 minutes</td>
<td></td>
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<td></td>
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<td>2. Drive time Tshilidzini Hospital to scene of accident</td>
<td>2. 8-10 minutes</td>
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<td>3. Drive time from Donald Frazer hospital to scene of accident</td>
<td>3. 30-45 minutes</td>
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<td>8</td>
<td>Aries (2007)</td>
<td>1. Reason that patients do not seek hospital care</td>
<td>1. Lack of specialized fracture treatment</td>
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<td></td>
<td></td>
<td>2. Barrier to prehospital care</td>
<td>2. Lack of resuscitation equipment</td>
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<td></td>
<td></td>
<td>3. Cost of treatment by a bonesetter</td>
<td>3. Average 13 € (range 0–60 €)</td>
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<td></td>
<td>5. Barrier to seeking care</td>
<td>5. Opinion that bonesetters have more expertise.</td>
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<td></td>
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<td>6. Demographics associated with seeking hospital care</td>
<td>6. Patients with compound fractures are more likely to be treated in a hospital.</td>
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<tr>
<td>9</td>
<td>Bachani (2017)</td>
<td>1. Training issues</td>
<td>1. Lack of training of pre-hospital and in-hospital providers</td>
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<tr>
<td></td>
<td></td>
<td>2. Resource issues</td>
<td>2. Lack of basic hospital equipment</td>
<td></td>
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<td></td>
<td></td>
<td>3. Pre-hospital system issues</td>
<td>3. There was no functioning emergency number or coordinated response system.</td>
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<td></td>
<td></td>
<td>2. Geographic issues</td>
<td>2. Access to facilities is limited by mountainous terrain.</td>
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<td></td>
<td>3. Secondary financial strain</td>
<td>3. Not having adequate child care, the inability to miss work, or being too ill to walk.</td>
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<td></td>
<td>4. Pre-hospital system issues</td>
<td>4. Lack of a universal EMS access code.</td>
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<tr>
<td>11</td>
<td>Bhopal (2013)</td>
<td>1. Barriers to seeking care</td>
<td>1. Poor roads, rainy season inaccessibility, no mobile phone coverage, patient must buy petrol and pay driver, Awareness of ambulance service</td>
<td></td>
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</tbody>
</table>
1. Pre-hospital system issues
2. Drivers willing to respond, maintenance issues

1. Mean transport times from the scene to the hospital for interurban incidents compared to city areas
1. 17.1 vs. 6.3 minutes

1. Characteristics that made it easier for patients to access care
2. Barrier to care
3. Training issues
4. Transportation issues
5. Health system issues
6. Financial issues
7. Pre-hospital system issues
8. Communication issues
9. Staffing issues
10. Resource issues
11. Barrier to reaching care
12. Transportation issues
13. Staffing issues
14. Training issues
15. Systems issues that generate delays
16. Barriers to seeking care

1. When patients were dressed well, had a good attitude, showed patience, had personal financial resources or insurance or personally knew a healthcare provider
2. Many providers were unfriendly towards patients or unmotivated to provide care. Participants were also concerned about corruption.
3. Healthcare providers lack training in the basics of emergency care.
4. Difficulty obtaining transportation, long distances required for travel.
5. Lack of emergency care after business hours, required paperwork before emergency care is provided and poor medical records systems, lack of triage
7. Officers take patients to the police station before taking them to the hospital, creating delays.
8. Unavailable emergency phone lines
9. Lack of healthcare provider
10. Lack of resources and critical medications at facilities
11. Lack of accessible healthcare facilities
12. No functional emergency phone number
13. Lack of necessary equipment
14. No standard national protocols for mass casualty incidents, no triage
15. Staff shortages
16. Lack of specific training in emergency care
17. The distance to travel to reach a facility
18. The time it takes for transportation to arrive, lack of fuel for vehicles and poor road conditions
19. Money was a barrier when trying to obtain transportation
20. Certain patients are required to be seen at the police station prior to receiving healthcare, which creates delays. Transferring patients to a higher-level facility with no care or stabilisation at the lower-level facility or during transport. Patients and families are responsible for arranging their transportation to the higher-level facility.
21. Lack of community knowledge about medical emergencies and emergency care. Participants felt that facility staff had bad attitudes, and thought they should be quicker to provide emergency care.

1. Percent of Level 2 and 3 Trauma facilities that:
2. had a specific approach to a trauma patient
3. refer trauma immediately
4. provide first aid and then refer trauma patients
5. are poorly equipped to handle broken bones
6. had suture and wound care supplies
7. had gloves
8. had oxygen
9. had splinting/casting supplies
10. had blood for transfusion
11. refer patients with a possible heart attack
12. refer patients with a possible heart attack immediately
13. treat symptoms and then refer patients with a possible heart attack
14. check vitals and then refer patients with a possible heart attack
15. had sublingual nitroglycerine

Percent of Level 2 and 3 Trauma facilities that:
1. 0%
2. 87%
3. 13%
4. 70%
5. 87%
6. 90%
7. 23%
8. 10%
9. 0%
10. 100%
11. 60%
12. 27%
13. 13%
14. 3%
<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>15.</td>
<td>are ill prepared to handle possible diabetic ketoacidosis (DKA) and must refer all cases</td>
<td>15. 93%</td>
</tr>
<tr>
<td>16.</td>
<td>had a glucometer</td>
<td>16. 20%</td>
</tr>
<tr>
<td>17.</td>
<td>had insulin</td>
<td>17. 17%</td>
</tr>
<tr>
<td>18.</td>
<td>refer cases of potential sepsis immediately</td>
<td>18. 50%</td>
</tr>
<tr>
<td>19.</td>
<td>provide treatment for cases of potential sepsis without referral</td>
<td>19. 37%</td>
</tr>
<tr>
<td>20.</td>
<td>did not know an approach to sepsis</td>
<td>20. 13%</td>
</tr>
<tr>
<td>21.</td>
<td>had antibiotics</td>
<td>21. 80%</td>
</tr>
<tr>
<td>22.</td>
<td>had an organised approach to trauma</td>
<td>22. 30%</td>
</tr>
<tr>
<td>23.</td>
<td>are notified in advance of patients arriving to the hospital</td>
<td>23. 13%</td>
</tr>
<tr>
<td></td>
<td>Percent of Level 4 and 5 facilities that:</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>had gloves</td>
<td>24. 97%</td>
</tr>
<tr>
<td>25.</td>
<td>had suture and wound care materials</td>
<td>25. 93%</td>
</tr>
<tr>
<td>26.</td>
<td>had oxygen</td>
<td>26. 83%</td>
</tr>
<tr>
<td>27.</td>
<td>did not have access to a trained provider who can administer general or Regional anaesthesia</td>
<td>27. 57%</td>
</tr>
<tr>
<td>28.</td>
<td>had morphine</td>
<td>28. 50%</td>
</tr>
<tr>
<td>29.</td>
<td>had a functioning ECG machine</td>
<td>29. 20%</td>
</tr>
<tr>
<td>30.</td>
<td>had nitroglycerine</td>
<td>30. 20%</td>
</tr>
<tr>
<td>31.</td>
<td>had a defibrillator</td>
<td>31. 13%</td>
</tr>
<tr>
<td>32.</td>
<td>are well prepared to manage DKA</td>
<td>32. 33%</td>
</tr>
<tr>
<td>33.</td>
<td>had a glucometer</td>
<td>33. 93%</td>
</tr>
<tr>
<td>34.</td>
<td>had insulin</td>
<td>34. 80%</td>
</tr>
<tr>
<td>35.</td>
<td>provided some treatment for sepsis</td>
<td>35. 97%</td>
</tr>
<tr>
<td>36.</td>
<td>had standardised clinical care guidelines</td>
<td>36. 0%</td>
</tr>
<tr>
<td>37.</td>
<td>do not have a standardised approach to trauma</td>
<td>37. 70%</td>
</tr>
<tr>
<td>38.</td>
<td>had nitroglycerine and a functioning ECG machine</td>
<td>38. 20%</td>
</tr>
<tr>
<td>39.</td>
<td>had a defibrillator</td>
<td>39. 13%</td>
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<tr>
<td></td>
<td>Number of Level 5 facilities that:</td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>had chest tubes and X-ray capability</td>
<td>40. 100%</td>
</tr>
<tr>
<td>41.</td>
<td>had splinting and casting supplies</td>
<td>41. 80%</td>
</tr>
<tr>
<td>42.</td>
<td>had blood available for transfusion</td>
<td>42. 100%</td>
</tr>
<tr>
<td>43.</td>
<td>gave oxygen to patients with suspected AMI</td>
<td>43. 100%</td>
</tr>
<tr>
<td>44.</td>
<td>gave aspirin to patients with suspected AMI</td>
<td>44. 60%</td>
</tr>
<tr>
<td>45.</td>
<td>gave morphine to patients with suspected AMI</td>
<td>45. 40%</td>
</tr>
<tr>
<td>46.</td>
<td>gave epinephrine to patients with suspected AMI</td>
<td>46. 20%</td>
</tr>
<tr>
<td>47.</td>
<td>had vasopressor agents</td>
<td>47. 100%</td>
</tr>
<tr>
<td>48.</td>
<td>had antibiotics</td>
<td>48. 100%</td>
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<td></td>
<td>Number of Level 4 facilities that:</td>
<td></td>
</tr>
<tr>
<td>49.</td>
<td>had chest tubes</td>
<td>49. 12%</td>
</tr>
<tr>
<td>50.</td>
<td>had X-ray capability</td>
<td>50. 48%</td>
</tr>
<tr>
<td>51.</td>
<td>had blood available for transfusion</td>
<td>51. 64%</td>
</tr>
<tr>
<td>52.</td>
<td>refer someone presenting with a possible acute myocardial infarction immediately</td>
<td>52. 80%</td>
</tr>
<tr>
<td>53.</td>
<td>stabilize and then refer someone presenting with a possible acute myocardial infarction</td>
<td>53. 44%</td>
</tr>
<tr>
<td>54.</td>
<td>provides diagnostic and treatment services without referral to someone presenting with a possible AMI</td>
<td>54. 30%</td>
</tr>
<tr>
<td>55.</td>
<td>had vasopressor agents</td>
<td>55. 44%</td>
</tr>
<tr>
<td>56.</td>
<td>had antibiotics</td>
<td>56. 92%</td>
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<td>Percent of Level 4 facilities that had:</td>
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<tr>
<td>40.</td>
<td>had chest tubes and X-ray capability</td>
<td>40. 100%</td>
</tr>
<tr>
<td>41.</td>
<td>had splinting and casting supplies</td>
<td>41. 80%</td>
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<td>had blood available for transfusion</td>
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<td>43.</td>
<td>gave oxygen to patients with suspected AMI</td>
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<td>47.</td>
<td>had vasopressor agents</td>
<td>47. 100%</td>
</tr>
<tr>
<td>48.</td>
<td>had antibiotics</td>
<td>48. 100%</td>
</tr>
</tbody>
</table>
Chunga (2019)  
1. Access to a pre-hospital service in HIC  
   Percent of respondents that reported  
   Percent of respondents that reported  
   1. 4%  
2. Access to a pre-hospital service in LMIC  
   21%  
3. Access to a national emergency number in HIC  
   4%  
4. Access to a national emergency number in LMIC  
   21%  

Comery (2020)  
1. Lack of symptom awareness  
2. Cost of transport to EC  
3. EC Facility access to radiology  
4. EC facility access to laboratory  
5. Cost of EC  
6. Cost of Medications  
7. Lack of staff  
8. Qual  
9. Qual  
10. Qual  
11. Qual  
12. Qual  
13. Qual  
14. Qual  
15. Qual  
16. Qual  
17. Qual  
18. Qual  

Coyle (2015)  
1. adult triage training  
   Percent of hospitals with  
   Percent of hospitals with  
   1. 43%  
2. pediatric triage training  
   57%  
3. formal training in adult critical care  
   86%  
4. in-house acute care courses for continuing education  
   14%  
5. a dedicated EC nurse  
   71%  
6. out-of-hours clinician cover  
   71%  
7. intravenous (IV) gentamicin  
   100%  
8. IV penicillin and quinine  
   86%  
9. Oral rehydration solution and IV fluids  
   100%  
10. insulin  
   29%  
11. equipment required to carry out IV procedures  
   100%  
12. oxygen concentrators or cylinders available in the EC  
   43%  
13. with light unsuitable for clinical examination  
   57%  
14. a system in place to identify ward patients whose clinical condition was deteriorating  
   29%  
15. guidelines for paediatric critical care  
   71%  
16. guidelines for adult critical care  
   57%  
17. Emergency care guidelines for children  
   57%  
18. Emergency care guidelines for adults  
   43%  
19. Paediatric triage guidelines  
   43%  
20. adult triage guidelines  
   29%  
21. guidelines for oxygen therapy  
   29%  
22. facilities to check haemoglobin and blood glucose  
   100%  
23. ability to measure renal function  
   71%  
24. radiography  
   57%  
25. had a system in place for delaying registration and payment until after the receipt of emergency treatment for critically unwell adults  
   29%  
26. had a system in place for delaying registration and payment until after the receipt of emergency treatment for critically unwell children  
   43%  

Percent of public facilities with  
1. adult triage training  
   0%  
2. pediatric triage training  
   2%  
Percent of private facilities with  
1. resuscitation facilities for adults  
   100%  
2. all of the six infrastructure indicators  
   100%
<table>
<thead>
<tr>
<th>Indicator Type</th>
<th>Percent/Number</th>
</tr>
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<tbody>
<tr>
<td>All 23 indicator drugs and all 34 equipment indicators</td>
<td>100%</td>
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<tr>
<td>Infrastructure indicators</td>
<td>1</td>
</tr>
<tr>
<td>Drug indicators</td>
<td>16/21</td>
</tr>
<tr>
<td>Equipment indicators</td>
<td>21/34</td>
</tr>
<tr>
<td>Percent of district hospital with access to x-ray facilities</td>
<td>0</td>
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<tr>
<td>Emergency blood transfusion</td>
<td>0</td>
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</tbody>
</table>

### De Wulf (2017)

1. **Financial barriers**
   - The inability to pay for transportation or medications, laboratory investigations, and radiography
2. **Health system issues**
   - Limited bed capacity

### De Wulf (2015)

#### Percent of hospitals with
1. Emergency care area beds
   - 67%
2. Supervisory level physicians consistently available during the entire 24 hours
   - 67%
3. With potable water
   - 0%
4. A list of emergency equipment
   - 67%
5. Emergency equipment was available intermittently
   - 100%
6. No formal training of staff for the use of this equipment
   - 100%
7. Surgical services and dental care
   - 67%
8. Critical care or ophthalmological services
   - 0%
9. A protocol for the transfer of patients requiring a higher level of care
   - 33%
10. Electricity
    - 20%
11. A list of emergency equipment
    - 0%
12. Basic equipment to manage obstetrical emergencies or imminent deliveries
    - 0%
13. Pulse oximetry and glucometers
    - 20%
14. Stethoscopes
    - 60%
15. HIV care
    - 0%
16. Cholera and tuberculosis care
    - 60%
17. A protocol for the transfer of patients requiring a higher level of care
    - 80%
18. Respiratory isolation area
    - 0%
19. Maintenance of records for patients seen in the acute care setting
    - 100%
20. Existence of an additional staffing resource list to be used in event of disaster or emergency situations
    - 13%
21. Access to an ambulance for interfacility transport
    - 13%
22. Use of a protocol or phones for the transfer of patient
    - 0%

### El Tayeb (2015)

1. **Demographics likely to use formal services**
   - Males were almost twice as likely as females
2. **Financial barriers**
   - Affordability of the formal health service
3. **Geographic barriers**
4. **Referral issues**
   - Patients were referred to the closest hospital, regardless of whether that facility had the capability to handle the case.
<table>
<thead>
<tr>
<th>Page</th>
<th>Reference</th>
<th>Sections</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Elbashir (2014)</td>
<td>1. Training issues</td>
<td>1. No standardized training for EMS providers, dispatchers, or ambulance crew.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Average emergency response time</td>
<td>2. 45 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Geographic barriers</td>
<td>3. Few citizens reside where services exist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Pre-hospital issues</td>
<td>4. Single emergency response number is not well publicized</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Financial barriers</td>
<td>5. ambulances are paid either by cash on a fee for service basis or via an insurance option</td>
</tr>
<tr>
<td>23</td>
<td>Emerick (2013)</td>
<td>1. Percent of individuals who perceived their condition as severe and sought health care in the formal system</td>
<td>1. 57.4%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Percent of individuals who perceived their condition as non-severe and sought health care in the formal system</td>
<td>2. 36.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Demographics associated with increased seeking of formal health care</td>
<td>3. Geographic location less than 30 minutes from a health facility, household head having a secondary school education, patient age under 15, and having health insurance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Percent of individuals who received medicines free of charge</td>
<td>4. 26.1% in Guatemala, 29.1% in Honduras, and 34.2% in Nicaragua</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Financial barriers</td>
<td>5. “Do not have money” was the most frequent reason for not seeking care in Nicaragua and Honduras</td>
</tr>
<tr>
<td>24</td>
<td>Hashtarkhani (2020)</td>
<td>1. Calculated accessibility by 2SFCA method</td>
<td>1. Peripheral areas in Mashhad city have low access to EMS. Actual accessibility in the city center is low compared with potential accessibility.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Barriers to seeking care</td>
<td>2. Concerns over personal safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Percent of people reporting wait times at facilities as a barrier to seeking care</td>
<td>3. 23.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Percent of people reporting financial barriers</td>
<td>4. 5.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Pre-hospital issues</td>
<td>5. EMS delays</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of hospitals</td>
<td>Percent of hospitals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. not equipped with basic building resources</td>
<td>1. 78% in Tanzania</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. had equipment and staff who could competently utilize the equipment at their facility</td>
<td>2. 41% in Tanzania to 61% in Kenya</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. had adequate monitoring of medication inventory</td>
<td>3. 14% in health centres and 18% in hospitals in Tanzania</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. with adequate infection control materials</td>
<td>4. 0% in Tanzania</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. with capacity to provide 24-hour emergency care</td>
<td>5. Fewer than half</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. with basic infrastructure components such as water and electricity</td>
<td>6. less than 65%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of clinics</td>
<td>Percent of clinics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. 7% to 35% of facilities.</td>
<td>1. 7% to 35% of facilities.</td>
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<tr>
<td></td>
<td></td>
<td>Fee associated with</td>
<td>Fee associated with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. hospital ambulance</td>
<td>1. KHR25 000 ($6.25)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Ambulance referrals to the provincial hospital</td>
<td>2. KHR45 000 ($11.3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. transport by tuk-tuk</td>
<td>3. KHR30 000 ($7.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. overall fee associated with transport</td>
<td>4. KHR137 697 ($34.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Pre-hospital system issues</td>
<td>5. General population did not have the contact number of the ambulance services.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Percent of people transported to health facility using their own means of transport</td>
<td>6. 32%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Percent of individuals who report the health system was too far</td>
<td>7. 9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Training issues</td>
<td>8. Few health district staff received training in emergency medicine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Percent of health centre staff members who were insufficiently qualified to successfully deal with the condition</td>
<td>9. 59%</td>
</tr>
<tr>
<td>28</td>
<td>Khan (2003)</td>
<td>1. Training issues</td>
<td>1. Neither the ambulance driver nor the nurse has any formal training or certification in advanced life support.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Equipment issues</td>
<td>2. Ambulances lack advanced cardiac life support equipment</td>
</tr>
</tbody>
</table>
3. Health system issues
4. Pre-hospital issues

29 Khan (2010)
1. Mean time from occurrence of injury to arrival in the ER
   1. 4.7 h
2. Range of time from occurrence of injury to arrival in the ER
   2. Range 0.8–48 h
3. Patients who arrived in the ER after 1 hour of injury
   3. 675 (69%)
4. Patients who reached the ER within 1 hour of injury
   4. 303 (30.9%)

30 Kirsch (1995)
Percent of physicians who
1. had taken an Advanced Trauma Life Support course
2. had taken an Advanced Cardiac Life Support course or Advanced Pediatric Life Support training
Percent of physicians who believed they could adequately perform
3. intubation
4. tube thoracostomy
5. venous cutdown
6. tracheostomy

7. Staffing issues

8. Resource issues

9. Health system issues


31 Kumar (2009)
1. Pre-hospital system issues

32 Levine (2007)
1. Percent of patients that have access to motorized transport
   1. 20%
2. reported that their patients had to travel more than 10 km for surgical or obstetric services
   2. 62.5%
3. had access to blood smears for malaria
   3. Less than half
4. lacked access to any laboratory diagnostic equipment
   4. 44%
5. could offer blood transfusions
   5. 0%
6. felt comfortable diagnosing the 7 emergency conditions assessed
   6. 63%
7. felt comfortable diagnosing femur fracture or pneumonia
   7. 56%
8. felt comfortable diagnosing obstructed labor
   8. 75%
9. felt comfortable treating the 7 emergency conditions assessed
   9. 19%
10. felt comfortable treating obstructed labor
   10. 0%
11. felt comfortable treating gastroenteritis
   11. 64%

33 Luo (2020)
1. Standardized E-2SFCA access scores
   1. 75% of shequs having a value lower than 0.4 for single trip and 0.8 for the total trip.
2. Percent of shequs can be reached by an ambulance from the nearest EMS stations within 10 min
   2. Over 50% and again a patient can be transported from his/ her shequ to the nearest hospital within 9 min.

34 Macharia (2009)
1. Health facilities demanded cash deposits or letters of guarantee of payment before providing treatment to road traffic injury patients
   1. 14.6%
2. Cost of deposit before treatment
   2. US $6.7-667
3. Percent of health facilities that rated themselves as being well prepared to handle road traffic crash emergencies
   Percent of respondents that
   4. owed the hospitals more than of US $ 133.
   5. were in a position to pay the bills
   6. would approach relatives and friends for financial assistance
   7. were transported to hospital by unknown persons
   8. were transported to hospital by persons who were previously known to them
   9. received any form of first aid at the crash site
   10. received first aid from members of the public, other motorists or the less injured casualties

   3.40.8%
   4. 22.3%
   5. 19.7%
   6. 58.7%
   7. 19.7%
   8. 76.5%
   9. 16.0%
   10. 74.0%

35 Mahmood (2010) Percent of cases in which the ambulance response time was
   1. less than 10 minutes
   2. 15-20 minutes
   3. 30-45 minutes
   Percent of cases in which the time from the site to the hospital was
   4. 5 minutes
   5. 10-15 minutes
   6. 20-30 minutes

   1. 60%
   2. 30%
   3. 10%
   4. 32%
   5. 48%
   6. 20%

36 Mathew (2017) Percent of districts that
   1. had more than 80% of the population residing within half-an-hour travel distance of a PCI-capable hospital
   2. had more than 90% population having timely (within 1h) access to some mode of reperfusion therapy for STEMI, either thrombolysis and/or primary PCI
   Percent of the population
   3. residing within half-an-hour travel distance from a PCI-capable hospital
   4. had access to a thrombolysis-capable hospital within 1h travel time
   5. would have had to travel more than an hour to access a reperfusion-capable hospital

   1. 36%
   2. 57%
   3. 69.84%
   4. 21.87%
   5. 8.28%

37 Mock (1997) Percent of respondents reporting
   1. distance to treatment is too far
   2. preferences for other treatments
   3. Types of injuries more likely to receive formal medical care
   4. Use of formal medical services for persons aged less than 20 years
   5. Use of formal medical services for persons aged more than 20 years

   1. 8%
   2. 37%
   3. Head or torso injuries, transportation related injuries and assaults
   4. 54%
   5. 61%

38 Mock (2001) Percent of survey respondents reporting barriers to care:
   1. preference for other treatments
   2. financial
   3. health care utilization when health care was available in the user’s town
   4. health care utilization when health care was not available in the user’s town

   1. 20%
   2. 53%
   3. 59%
   4. 41%

39 Mock (2006) Percent of survey respondents reporting barriers to care:
   1. Training issues

   1. Lack of training for trauma care, including in-service training for doctors, lack of training to use equipment
2. Staffing issues
3. Resources issues
4. Health system issues
   1. Demographics associated with significant pre-hospital delay
   2. Barriers to seeking care
   3. Percent of hospitals with ECG availability
   4. Percent of outpatient facilities with ECG availability
   Percent of patients
   5. to whom a hospital was the nearest medical aid
   6. to whom a clinic was the nearest medical aid
   7. Percent of patients presented with more than 6 hours of prehospital delay

40 Mohan (2018)

Development of:
1. Tiers of Providers
2. Recruitment and Retention of providers
3. Continuing Education
4. Initial Education
5. Team Training
6. Equipment and Medication
7. Toll-free Number
8. Call processing and dispatch
9. Primary Transportation and Inter-facility Transfers
10. Communication
11. Community Integration
12. Healthcare System Integration
13. EMS Legislature, Rules and Regulation
14. Sustainable Resources
15. Public Knowledge
16. Quality Assurance and

Percent of survey respondents that believe that:
1. EMTs offer high-quality care
2. it is “better” to go by ambulance
3. taxis are faster than ambulances in Accra
4. government ambulances were free or affordable
5. private ambulances were too expensive
6. the existence of a public access medical emergency telephone number
7. the emergency number was a toll-free call
8. would be more likely to call
9. knew the government ambulance service
10. indicated it would take a government ambulance 15 minutes or less to arrive at the location
11. indicated it would take 60 minutes or more

Assessment of Emergency Medical Services in the Ashanti Region of Ghana.

Percent of survey respondents that:
1. believe EMTs offer high-quality care
2. believe it is “better” to go by ambulance
3. believe taxis are faster than ambulances in Accra
4. believe government ambulances were free or affordable
5. believe private ambulances were too expensive
6. knew the existence of a public access medical emergency telephone number
7. knew that the emergency number was a toll-free call
8. would be more likely to call
9. knew the emergency number if they knew the call was toll free
10. indicated it would take a government ambulance service
11. indicated it would take 15 minutes or less to arrive at the location
12. indicated it would take 60 minutes or more


Percent of systems that utilized:
Percent of systems that utilized:

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<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tier-one (layperson responders trained in first aid)</td>
<td>48%</td>
</tr>
<tr>
<td>2</td>
<td>Tier-two (professional or medically-trained)</td>
<td>96.0%</td>
</tr>
<tr>
<td>3</td>
<td>Basic emergency medical technicians (EMTs)</td>
<td>84%</td>
</tr>
<tr>
<td>4</td>
<td>Advanced providers more often</td>
<td>60%</td>
</tr>
<tr>
<td>5</td>
<td>Basic providers more often</td>
<td>84%</td>
</tr>
<tr>
<td>6</td>
<td>Prehospital nurses</td>
<td>28%</td>
</tr>
<tr>
<td>7</td>
<td>Used only advanced providers</td>
<td>4%</td>
</tr>
<tr>
<td>8</td>
<td>EMS physicians</td>
<td>40%</td>
</tr>
<tr>
<td>9</td>
<td>Quality assurance programs</td>
<td>44%</td>
</tr>
<tr>
<td>10</td>
<td>Research</td>
<td>12%</td>
</tr>
<tr>
<td>11</td>
<td>Basic Life Support - capable vehicles</td>
<td>84%</td>
</tr>
<tr>
<td>12</td>
<td>Advanced Life Support - capable vehicles</td>
<td>68%</td>
</tr>
<tr>
<td>13</td>
<td>Vehicles posted at ambulance stations</td>
<td>72%</td>
</tr>
<tr>
<td>14</td>
<td>Vehicles posted at health care facilities</td>
<td>56%</td>
</tr>
<tr>
<td>15</td>
<td>Motorcycle ambulances</td>
<td>12%</td>
</tr>
<tr>
<td>16</td>
<td>Fixed wing air transport</td>
<td>32%</td>
</tr>
<tr>
<td>17</td>
<td>Rotary wing (helicopter) ambulances</td>
<td>32%</td>
</tr>
<tr>
<td>18</td>
<td>Water-craft</td>
<td>12%</td>
</tr>
<tr>
<td>19</td>
<td>Total number of EMS systems identified</td>
<td>25</td>
</tr>
<tr>
<td>20</td>
<td>EMS systems existed in Africa</td>
<td>29.6%</td>
</tr>
<tr>
<td>21</td>
<td>EMS systems existed in West Africa</td>
<td>12.5%</td>
</tr>
<tr>
<td>22</td>
<td>No EMS systems existed</td>
<td>9.3%</td>
</tr>
<tr>
<td>23</td>
<td>The questionnaire was not returned</td>
<td>51.8%</td>
</tr>
<tr>
<td>24</td>
<td>Some form of regulations governing EMS or ambulance operations existed</td>
<td>100%</td>
</tr>
<tr>
<td>25</td>
<td>An established toll-free emergency telephone number existed</td>
<td>26%</td>
</tr>
</tbody>
</table>

### Median Direct Distances Between Injury Sites and the Trauma Centers

<table>
<thead>
<tr>
<th>Institution</th>
<th>Distance (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viet Duc Hospital</td>
<td>5.65 (3.19 - 8.64)</td>
</tr>
<tr>
<td>Bach Mai Hospital</td>
<td>5.31 (2.89 - 8.54)</td>
</tr>
<tr>
<td>Saint Paul Hospital</td>
<td>5.11 (3.11 - 8.72)</td>
</tr>
</tbody>
</table>

### Access to Emergency Care Services within 1 Hour

- In Urban Brazil, Colombia, and Maharashtra State, 100% access is available.
- In Kenya, Pakistan, Sri Lanka, and Vietnam, access is very low.

### Training Issues

- Lack of medicines: 1%
- Fare for transportation: 4%
- Varying levels of training of providers: 5%

### Resource Issues

- Percent of respondents who did not have the ability to pay for health services: 45%
1. Percent of people living within 2-hour travel time of the nearest public hospital
2. Percent of women of child bearing age living within 2-hour travel time of the nearest public hospital
3. Percent of people living more than 2-hour travel time of the nearest public hospital
4. Percent of women of child bearing age living more than 2-hour travel time of the nearest public hospital
5. Percent of the population within 2-hour travel time of a public hospital
6. Countries with less than 50% of the population within 2-hour travel time of a public emergency care hospital
7. Countries with more than 90% of their respective population living within 2-hour travel time of a hospital
8. Number of countries with more than 80% of the population within 2-hour travel time of a hospital

1. 71%
2. 71.8%
3. 29%
4. 28.2%
5. Less than 25% in South Sudan to more than 90% in Nigeria, Kenya, Cape Verde, Swaziland, South Africa, Burundi, Comoros, São Tomé and Príncipe, and Zanzibar.
6. South Sudan, Mauritania, Eritrea, Niger, Sudan, Madagascar, and Chad.
7. Nigeria, Kenya, and South Africa
8. 16

1. Percent with EC training
2. Purpose built EU with resus
3. EU overcrowding
4. EU specific equipment
5. Presence and use of triage
6. Use of EU guideline
7. Presence of System for access to EC and first aid from trained first responders
8. Presence of system to provide EC during transport between scene and facility, or between facilities
9. System to access EC from trained first responders and the scene and urgent transport to a health facility (overall system of pre-hospital care)

1. 5.4% report none
2. 4.1 report none
3. 17.8% report none
4. 18.4% report none or limited
5. 39.3% report none or limited
6. 11.6%
7. 13.9% report no system
8. 13.9% report no system
9. 19.0% report no system

1. Training issues
2. Health system issues
3. Resource issues
4. Quality issues

1. Training related to critical trauma and airway interventions, and neonatal care; issues with treating malnutrition or severe anaemia; inability to perform the following procedures: intraosseous access or venous cutdown, apply three-way dressings for sucking chest wounds or perform fasciotomies or escharotomies
2. Only one facility with a dedicated resuscitation area
3. Lack of medications, equipment, and tests, including: pulse oximetry, airway management, needle thoracostomy, chest tube, pelvic binders, ECG, ultrasound, thrombolytics, blood transfusion, defibrillation, cardioversion, pericardiocentesis, external cardiac pacing, procedural sedation, IV antibiotics, IV vasopressors, uterotonic drugs
4. Lack of: clinical protocols, protocols for communicating critical lab results for infection control, infection, triage

1. 31.4 km, 90 min
2. 52.81 km, 279 min
3. 54%
4. 14.2%
5. Median unnecessary distance clocked by referred cases to reach care
   5. 24.49 km

6. Median unnecessary distance clocked by direct cases to reach care
   6. 10.86 km

1. Training issues
   1. No ambulance driver had formal training in first aid or prehospital care

2. Percent of ambulance services that carry only a stretcher
   2. 71%

3. Cost of transport for non-air-conditioned ambulances
   3. Pakistani rupee (PR) 7–10 ($0.12–0.17) per mile

4. Cost of transport for air-conditioned ambulances
   4. PR 15–20 ($0.26–0.35) per mile

5. Percent of ambulance services that operate only during day hours
   5. 8%

Percent of patients that said

6. the streets in their area were too narrow for an ambulance
   6. 3%

7. they did not use ambulances due to high cost
   7. 8%

8. they preferred using taxis or cars due to easy access
   8. 38%

9. the patient was not sick enough to call an ambulance
   9. 26%

10. they used a taxi because the patient was too sick to wait for anything else
   10. 20%

11. patient was sick enough to come to the ED
   11. 45%

12. they did not come to the ED because of the slow response of the ambulance service
   12. 23%

13. they did not come to the ED because they did not know how to find one
   13. 11%

14. they would call an ambulance only if they are unable to walk
   14. 44%

15. they would call an ambulance only if they were very sick or near death
   15. 22%

16. they were not sure when to call an ambulance
   16. 21%

17. they knew of at least one ambulance service
   17. 57%

18. they knew of two ambulance services
   18. 21%

19. they did not know of any ambulance service
   19. 14%

20. knew the phone number of any ambulance service
   20. 0%

Percent of respondents that reported the primary reasons for not seeking health care were:

1. financial
   1. 37.2%

2. use of complementary medicine
   2. 22.2%

3. the that condition was not severe enough to visit hospital
   3. 8.7%

4. limited accessibility to hospital
   4. 5.7%

5. social and family disapproval
   5. 4.6%

6. Those who were more likely to experience unmet needs in the previous year
   6. People whose mean income was below moderate levels, those who lived far from a teaching hospital or close to a district hospital

1. Paraná, Goiás, Minas Gerais, Bahia, Piauí, Rio Grande do Norte, Ceará e Pernambuco
   1. 1596

2. 74%

3. 824
1. Percentage of small hospitals that were in municipalities that had also high complexity centers
2. Percentage of municipalities were located within less than 60 km from the closest city with a high complexity center with an adult ICU
3. Number of people that were at least 120 km away from a high complexity center with an adult ICU
4. Percent of the population who were more than 120 km away from a health facility with a neonatal ICU

26% of small hospitals
63%
14 million
12%

1. Training issues
2. Equipment issues
Odds ratio of likelihood the following groups would receive prehospital care:
3. Road traffic accident victims
4. Arriving by government ambulance
5. Arriving by taxi
6. Being transferred from other medical facilities for “medico-legal reasons”

2.3
10.83
0.54
0.1

1. Resource issues
2. Acceptability issues
3. Health systems issues
4. Geographic barriers

Lack of laboratory testing
Conduct of health professional does not meet the expectations of the patients
Hours of operation and bed limitations
Geographic relationship to care

1. Mean of patient’s rights observed
130.3 (SD: 40.1)

1. Mean distance from the residence to the hospital
56.75 km ± 123 km.

2. Came late who were referred
63%

3. Present within 60 minutes of onset of symptoms
86.5%

4. Were first taken to another hospital mainly cardiac hospital and then referred here
60.6%

5. First opted for alternative medicines
12.7%

6. Thought stroke symptoms would resolve spontaneously
28%

7. Did not know a single symptom of stroke
32%

8. Knew at least one stroke symptom
10.9%

9. Hemiplegia was the most familiar stroke symptom
67%

10. Speech disturbance was the most familiar stroke symptom
61%

11. Median time from onset of symptoms and contact with general practitioner
30 minutes

1. Odds ratio associated with mortality risk within 30 days of first consultation for those acquainted with a medical doctor
0.55

2. Those whom were less likely to present a severely ill child
Mothers belonging to Muslim ethnic groups

1. Accessed EC in last 12 months
5%

2. Awareness of EC services
Very good: 67.7%

1. Pre-hospital issues
Lack of a single toll-free emergency number, knowledge of the emergency number, available community first responders, 24-hour EMS availability.

2. Acceptability issues
Acceptability of EMS to the community

1. Factors associated with increased likelihood of ambulance use
Amharic speaking, previous ambulance use
2. Odds ratio associated with the ambulance use and police as a patient companion: 1.53

3. Pre-hospital issues:
   1. Financial barriers
   2. Demographics associated with financial barriers

64 Suriyawongpaisal (2018)
   1. Financial barriers

65 Suriyawongpaisal (2016)
   1. Financial barriers

66 Tansley (2015)
   1. Percent of the population within 50 km of road travel distance to tertiary care
   2. Proportion of a region’s population within a 50-km service area of a Level C facility

67 Tansley (2016)
   1. Proportion of Ghana’s landmass that is serviceable within 60-minutes of an National Ambulance Service station (from 2004 to 2014)
   2. Proportion of the population within a 60-minute catchment area of a N/AS station (from 2004 to 2014)
   3. Population within a 30-minute catchment area of a N/AS station
   4. Ambulances per 100,000

Percent of facilities in Namibia found to be capable of providing care level:
   5. A
   6. B
   7. C
   8. X (unsuitable for providing emergency care)

Percent of facilities in Haiti found to be capable of providing care level:
   9. A
   10. B
   11. C
   12. X

68 Thomson (2005)
   1. Health system issue
   2. Training issue
   3. Staffing issue
   4. Resource issues
   5. Financial barriers
   6. Pre-hospital system issues

69 Treleaven (2017)
   1. Demographics that demonstrated worse outcomes

70 Vanderschuren (2015)
   1. Percent of fatalities that were outside of the Golden Hour
   2. Fatality rate within the service areas
   3. Fatality rate within the service gaps

71 Wen (2011)
   1. Financial barriers
   2. Percent of individuals who were prevented from receiving treatment due to lack of payment
   3. Pre-hospital system issues
   4. Geographic barriers
   5. Resource issues
6. Training issues

Wesson (2015)

1. Training issues
2. Resource issues
3. Geographic barriers
4. Pre-hospital issues
5. Transportation issues
6. Staffing issues
7. Financial issues
8. Respondents’ opinion on how to improve pre-hospital care
9. Factors affecting the decision to seek care

WHO (2015)

1. Availability of potable water
2. Availability of sanitation
3. Availability of hand hygiene (soap)

Zaidi (2013)

1. Median travel time to ER
2. Odds ratio associated with patients likely to seek immediate health care at a non-medical facility or administer self-treatment compared to visiting a medical facility

Zimmerman (2020)

Percent of patients who waited the following times to evaluated by a physician in the ED
1. 0.0 to 15.0 minutes
2. 15.1 to 30.0 minutes
3. more than 45.0 minutes
4. 30.1 to 45.0 minutes
5. Percent of patients who waited the 0.0 to 1.0 hours to receive lab tests
6. Percent of severe GCS patients who received lab tests within 1.0 hours of physician evaluation
7. Percent of mild GCS patients who received lab tests within 1.0 hours of physician evaluation
8. Percent of moderate GCS patients who received lab tests within 1.0 hours of physician evaluation

Percent of patients who waited the following times to evaluated by a physician in the ED
1. 69.2%
2. 19.0%
3. 7.8%
4. 4.1%
5. 48.4%
6. 56.1%
7. 52.0%
8. 53.0%