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Institutional-related Related Factors Associated with the Management Outcome of Patients Triaged During 48 Hours of Interventions at Accident and Emergency Department, Kenyatta National Hospital

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Abstract

Objective: The study sought to evaluate institutional-related factors associated with the management outcome of patients triaged during 48 hours of interventions at the accident and emergency department, Kenyatta National Hospital. Methodology: The study was a cross-sectional study involving the triaged and coded patients flagged by scores using the Triage Early Warning Score (TEWS) whereby structured questionnaires were used as well as an observation checklist. The study site was accident and emergency department, Kenyatta National Hospital. The target population were all coded patients in the accident and emergency unit, a sample of 385 patients were used during this study, data collection was through structured questionnaires and checklist to assess the healthcare provider and institutional-related factors. A pilot study was done at Kakamega County Referral Hospital. Data analysis was done using Statistical Package for Social Sciences (SPSS) version 25, descriptive and inferential statistics were used to test the associated factors in relation to the outcomes. The odds ratio was used to test the strength between the provider and health facility factors associated with the management outcome of triaged and coded patients, and a one-way analysis of variance was used to the differences in mean scores in the institutional and provider factors. Data was presented in tables and bar graphs. Findings: The study results indicated that there was a positive and significant relationship between institutional-related factors and management outcomes of triaged patients. This is depicted by a Pearson correlation coefficient r=0.452 p-value =0.008< 0.05 which was significant at a 0.05 level of significance. This implies that improved institutional-related factors result in an increase in the management outcome of triaged patients. Conclusion and Recommendations: It's therefore important to note that institutional-related factors have an impact on the outcome of triaged and coded patients in the accident and emergency department, at Kenyatta National Hospital. Thus it's important for the institution to invest in human resource capacity, procurement of equipment and drugs to be used as well as improve on infrastructure.

Keywords: *Triaged Patients, Institutional Factors, Kenyatta National Hospital, Accident And Emergency Department*

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1.1 Background of the Study

Triage is the process of figuring out which patients (or disaster victims) need care first based on their condition, severity, outlook, and the resources that are available. The goals of triage are to prioritize treatment by determining which patients require rapid resuscitation, placing those patients in the proper patient care area, and beginning appropriate diagnostic and therapeutic

procedures (Bazyar, Farrokhi, & Khankeh, 2019).

Triage is a frequently inefficient part of health systems in developing countries because of low use. Inconsistent triage assignments can put patients in critical condition at risk due to insufficient triage training, "gestalt" decision-making, and a lack of formally defined triage protocols. Acceptable reliability and validity of various triage methods have been proven, suggesting that patient mortality may be reduced if triage is improved in resource-limited settings (Wangara *et al*., 2019).

The South African Triage Scale (SATS) has been shown to have strong reliability and validity in a number of investigations of similarly low-resourced settings and was established in resource-limited settings in South Africa (Wangara *et al*., 2019).

Patient injury in Kenya's prehospital setting is often the result of poor clinical decision-making, even though this is an avoidable situation. The emergency care and trauma systems at Kenyatta National Hospital (KNH) have implemented a mandated triage mechanism to help the accident and emergency nurse assess patients. The South African Triage Scale (SATS) system has been adopted by the largest referral hospital in the region. This approach helps to identify and prioritize patients who are at the highest risk for negative outcomes as soon as possible. TEWS is a component of the South African Triage Scale (SATS) that assigns ratings to patients based on physiological indicators that are out of whack (Mutahi, 2019). Based on their injuries and conditions, patients are assigned to one of five different colour groups throughout the triage process. Patients with a red triage status need to be brought to the resuscitation room immediately. The Western Cape Government's Paediatric Triage Working Group (PTWG) (2012) established an "orange" level for instances requiring "extremely urgent management," a "yellow" level for "urgent management," and a "green" level for "non-urgent" cases. Thanks to this system of coding, medical personnel may focus on saving the lives of those patients who are truly in peril. This is done with the local illness load and the hospital's resource availability, including manpower and equipment, in mind. Despite the fact that numerous proven hospital triage algorithms exist, each one is tailored to a certain set of patient requirements. However, when nurses prioritize the red-triaged patients over the orange-triaged patients, the orange-triaged patients' conditions may worsen to the point where they require emergency care. Adverse events can be avoided if the rapidly deteriorating patients are identified and treated in time.

Triaged and coded patients at KNH's emergency room have not been the subject of a published study, as far as I am aware. Because there is a dearth of research in this field, the purpose of this study is to identify the variables that contribute to the successful care of triaged and coded patients at the emergency department of KNH. Based on the results of this research, a decision support system will be developed for the treatment of patients who have been triaged as "orange" and who are at risk of deterioration while receiving treatment. The literature produced by this study will be useful to other scholars, and the results will contribute to scientific knowledge about the factors related to the management outcome of triaged and coded patients.

1.3 Problem Statement

Overcrowding in emergency rooms as a result of a rise in the number of people using these facilities over the past few decades is a problem all around the world. Approximately 12% of the worldwide disease burden is attributable to trauma, making it an extremely time-sensitive condition. Low- and middle-income countries are disproportionately hit by the health and economic consequences of trauma. Over six million people worldwide lose their lives every year as a direct result of catastrophic injuries. Injury causes up to 16% of all disabilities worldwide, with a death

incidence that is two to three times higher in low- and middle-income countries (9–12% vs. 5.5%). According to a study of low and middle-income nations, the annual cost of injury-related direct medical expenses was 15% of GDP per capita. The rates of injury and death from injuries are increasing, despite improvements in trauma care and the growth of preventative initiatives. This issue is exacerbated in underdeveloped nations when only emergency services provide access to the healthcare system. Overcrowding has been demonstrated to negatively affect the healthcare system as a whole, as evidenced by higher expenses, lower efficiency and quality of care, and more adverse events and deaths (Julian B., *et al*, 2015).

All-cause mortality during hospitalization was the most common definition of in-hospital mortality, making it the most commonly utilized mortality outcome measure across the majority of research. Several research evaluated mortality within a set time frame, ranging from immediate post-incident to large follow-up durations beyond 3 months (Brorson C *et al*, 2011). Studies of TBI and SCI frequently concentrated on neurologically focused outcomes as their primary endpoint, with mortality as a secondary outcome.

A study conducted at KNH found that patients with a score of 6 had an increased risk for unfavourable outcomes like death, cardiac arrest, or unscheduled admission to the intensive care unit. Six hundred and thirty-four cases were reviewed in a study published in 2006 using the modified early warning score (MEWS), and researchers found that seventeen percent of the population had triggered the call-out algorithm for review. Five percent of these individuals required unexpected admission to a critical care unit (ICU) (Gardner-Thorpe, Love, Wrightson, Walsh, & Keeling, 2006).

According to the TEWS, there were instances of under-triage for patients with scores of 7 and of over-triage for patients with scores >7 (Mutahi, 2019). Similar results were obtained in the United States using the MEWS, where patients admitted to the ICU scored higher than those admitted to the normal wards. Mean, maximum, and median scores were all shown to be greater in the deceased compared to the living (Liu *et al*., 2020).

There is a need for further investigation into the institutional factors influencing the outcome of triaged and coded patients at KNH, and this investigation should include both trauma and medical emergencies, as suggested by a study on the utility of triage scores conducted there (Mutahi, 2019). This confirms the World Health Organization's earlier claims that emergency treatment in poor and middle-income nations is an understudied subject. The causes are many, but they boil down to a lack of institutionalized emergency triage procedures, a dearth of trained researchers, and a bias toward treating trauma patients in hospitals. These middle-income low-resource countries are conducting research that may help close significant knowledge gaps.

1.4 Study Objective

To evaluate the institutional-related factors associated with the management outcome of patients triaged during 48 hours of interventions at the accident and emergency department, Kenyatta National Hospital.

1.5 Scope of the study

This is a cross-sectional study that tries to evaluate the factors associated with the management outcome of triaged and coded patients at accident and emergency departments, KNH. The study took a period of three months and involved the collection of data from triaged and coded patients using a structured questionnaire and a checklist to analyze the institutional and provider-related factors. The study was only done at KNH, accident and emergency department due to limited resources and time.

Literature Review

Patients in dire need of rapid medical attention may first get health care at an emergency room. Death or permanent impairment may arise from failure to provide timely, appropriate care to such patients (Sunyoto *et al*., 2014). Implementing an effective emergency triage tool is one way to relieve pressure on already overworked emergency services by ensuring that patients receive the most appropriate amount and quality of care according to their clinical status and needs. Among these is the South African Triage Scale (SATS). To improve the efficacy of the emergency department, this was made for use by non-specialist (nursing) staff to identify patients at increased risk of mortality (Rosedale, Burton, Davies, & Wood, 2011). It has been linked to beneficial outcomes like shorter wait times, shorter lengths of stay, and lower mortality rates in the institutions where it has been assessed, including both urban and rural facilities in South Africa, where it was established, and elsewhere (Sunyoto *et al*., 2014).

There are three parts to the SATS: the TEWS paperwork, the discriminator list, and the senior healthcare professional's final judgment. Patients are given ratings based on their vital signs. Both the subject's movement and awareness are factored into the total score. At the conclusion of the process, the scores are tallied and recorded as a whole. The discriminator list consists of conditions that place a patient in the appropriate category (emergency (red), very urgent (orange), or urgent (yellow)) regardless of the TEWS.

The SATS's third component gives control of the system to a seasoned healthcare leader.
The red code indicates an emergency and requires immediate attention, the orange code requires up to 10 minutes, the yellow code requires up to 60 minutes, and the green code requires up to 240 minutes. Of those individuals, 166 (48%) were seen in the optimal amount of time (Soogun, Naidoo, & Naidoo, 2017).

The South African Triage Scale (SATS) comprises the Triage and Early Warning Score (TEWS), which is comprised of measurements of mobility, respiration rate, heart rate, systolic blood pressure, temperature, degree of awareness, and presence of injury. The other two parts of the SATS are a set of clinical differentiators and the expert verdict of a licensed medical doctor. Therefore, the SATS takes into account physical signs and symptoms in addition to injury and mobility status. Outside of South Africa, Médecins Sans Frontières has introduced the triage scale in Ghana and other locations. Although the SATS has proven beneficial in trauma contexts, it has not yet been compared to other trauma scoring systems when it comes to injuries caused by firearms (Aspelund, Patel, Kurland, McCaul, & van Hoving, 2019).

2.2 Institutional-related factors

2.3.1 Human resources

In the present study, personnel variables were found to play a role in the triage decision-making process. Participants in the study ranked experience, the ability to learn, and expertise as the three most important personal attributes that influenced their judgment during times of crisis. The present study's results corroborate what is known from other sources about the significance of experience and training in making triage decisions. One of the most effective criteria in triage decision-making among nurses is their level of experience, as shown by a study by Anderson *et al*. of Sweden (Anderson *et al*., 2006). It has been found in the American study by Hicks *et al*. that increased experience leads to more reliable decision-making in a triage setting (Hicks FD *et al*, 2003). Cone and Murray's research in the United States found that experience and expertise are the most influential criteria in triage nurses' decision-making (Cone *et al*,2002). Researchers have found that nurses' intuitive knowledge and keen perception are more important to their triage decision-making than their actual clinical experiences (Goransson k, 2006). Overall, this study's results are

comparable with those of past research efforts that have emphasized the importance of triage decision-making experience, expertise, insight, and acuity.

2.3.2 Workload

It was found in this study that unit crowding, the potential of patient injury, and the personnel's work volume were the most important non-personnel factors influencing triage decisions in emergency rooms. These findings were corroborated by a study conducted in Australia by Fry and Burr (Fry M *et al*,2001). In the same way, the results of other studies have shown that inter-unit factors like the number of patients in a unit, the physical structure of the environment, and non-personnel factors affect how triage decisions are made.

2.3.3 Equipment

The condition of equipment has a role in triage determination (Della Stritto R, 2005). Even though the same types of studies were done in other countries, it is important to keep in mind that triage decision-making and assigning triage priorities to patients should only be based on the clinical needs of the patients and that work volume and ED crowding should not affect triage decision-making (Considine *et al*, 2001). Crowding makes it difficult for staff to provide adequate care for all trauma patients, and a lack of resources increases the likelihood that patients will receive substandard treatment and inadequate follow-up, which negatively impacts triage results.

Research Methodology

3.2 Research Design

The study was a cross-sectional study involving the management outcomes of triaged and coded patients flagged by scores using the Triage Early Warning Score (TEWS).

3.3 Study Area

The research was carried out at KNH. KNH is the largest public hospital in East and Central Africa with 1800 tertiary care beds. There are a total of 50 patient rooms, with 10 specialized for surgery patients. KNH has two emergency departments, one of which is dedicated to pediatric medical emergencies and the other to both trauma and medical emergencies; it also has three critical care units, twenty outpatient clinics, twenty-four operating rooms, and a pediatric filtration clinic. KNH's customer base extends across the country and into East Africa. In 2016 and 2017, KNH's emergency room treated between 31,978 and 61,840 patients, admitted between 20,267 and 21,731 patients and treated an average of about 4,000 patients per month.

The A&E has a triage area run by a SATS-trained nurse and a medical officer as team leader, as well as resuscitation rooms A and B (RRA, RRB), two trauma theatres (1 & 2), acute rooms number 9, and specialized review rooms for surgical, obstetrical, and medical patients. Four separate consultation rooms are also available for use in non-emergency situations. At the triage desk, the SATS and TEWS are used to classify all patients, except pediatric medical emergencies and maternity patients, who present to A&E at KNH.

3.4 Target Population

Patients who were properly coded and triaged upon arrival at the KNH emergency room for the study were used. The research team at KNH's A&E contacted patients who satisfied the inclusion criteria and followed them while they were in A&E or the adult wards (which includes a trauma theatre, resuscitation rooms (acute medical and surgical holding sections), and specialist review rooms for surgical patients).

Staff at the KNH A&E were well-versed in the SATS/TEWS charts and used them to triage every patient who came in. Patients who met the inclusion criteria were triaged and then observed for 48 hours. Patients were tracked based on the interventions they received, the intervals between those interventions, and the final triage and coding status of the patient.

3.5 Sampling Procedure

To obtain the requisite sample from the target demographic, a systematic sampling technique was adopted, which involves selecting respondents on different days of the week over two months. After adding 10% to get the total up to 395, the total was divided by the total number of days in the two months, which was 56, yielding a sample size goal of 7. The average number of patients triaged and coded per month is 3,900, so we split that figure by 28 (representing four weeks) to obtain 139, and then we divided that number by 48 (representing the maximum amount of time allowed for reviewing the outcome), which resulted in 3. After triaging 395 patients, the researcher randomly picked 395 more patients to be coded by putting the numbers 1-3 on pieces of paper, folding them, and selecting a number at random. The researcher also completed a daily checklist for a total of two months.

3.6 Inclusion and Exclusion Criteria

3.6.1 Inclusion Criteria

a) All triaged and coded patients presenting at the accident and emergency department.

b) Consenting to triaged and coded patients

3.6.2 Exclusion Criteria

a) Any triaged and coded patient who was referred to other facilities on arrival thus unable to continue with follow-up.

b) Patients brought in death or certified as death upon arrival to accident and emergency.

3.7 Sample Size Determination

"Sample size was calculated using the Fishers formula;

$$n = \frac{Z^2 P(1-P)}{d^2}$$

Where n= desired sample size (if the population is greater than 10,000).

Z=Standard normal deviation at the required confidence interval. In this case, it was 1.96

P=the % of the proportion in the target population estimated to have characteristics being measured since its unknown 50% is used

q = (1-p)

Hence q = (1-0.5)

d = the level of statistical significance is 0.05 =95% ci

Hence n = (1.96)2 * (0.5) (0.5)/ (0.05)2

= 3.8416*(0.25)/ (0.0025)

= 0.9604/ 0.0025 = 385

n = 385"

3.8 Data Collection Procedure

The research assistants were trained in data collection, how to identify the respondents and also filled the questionnaires accurately. Two research assistants were recruited during the whole process. Piloting of the research instruments was done at Kakamega County referral hospital as they were using the triage process similar to KNH 10% of the total sample was used to test the reliability of the research instrument.

The first step in the triage procedure is to ask the patient, their family, or a legal guardian why they are at the emergency room. The triage practitioner has already begun quickly screening the patient for any Emergency clinical indications as this question is being asked and answered. For children, medical personnel followed the ABC-c-c-DO (airway, breathing, circulation, coma, convulsions, dehydration, other) algorithm. The patient was given a Red priority level and rushed to the resuscitation area if critical clinical indications were detected.

If no critical symptoms were observed during the examination, look for Very Urgent (orange) or Urgent (yellow) indicators instead. Vitals were taken, TEWS was computed, essential further investigations were checked, and the patient's triage priority was revised regardless of their presence. At triage, a TEWS is not required if the patient is exhibiting any emergency indications. As soon as possible, the patient must be transferred to the resuscitation bay. Finally, the clinical nurse practitioner or senior doctor can override the final triage priority assigned.

3.9 Development of Research Instruments

The research instruments to be used were structured and serialized questionnaires which were used to capture the demographic data of

the respondents as well as the variables identified, this was filled by the research assistants after getting consent from the respondents. A checklist was also used in order to identify the institutional and provider variables, The checklist included identifying whether there were enough oxygen points on the particular day of data collection, and the adequacy of monitoring equipment such as a sphygmomanometer, pulse oximeter as well and thermometer. On drugs, the checklist was filled to indicate whether the emergency drugs were available. On space within the triage area, the assessment is done through observation to check if their triage area has enough space, adequate stretchers, a monitoring area as well and the resuscitation rooms. On human resource availability, the checklist was filled to check on the number of clinical staff available on duty, porters, laboratory as well and radiology staff. The research assistant filled the criterion by indicating yes or no in the spaces provided and then wrote comments on the findings to support the statistics obtained or not observed.

3.9.1 Validity of the Instruments

The validity of an instrument was determined by the extent to which the study instruments accurately measured what was intended according to the research questions and hypothesis. An additional survey, the pilot tests, was used to establish the questionnaire's validity in this study by assessing the reliability of a given variable's relationship to one or more external criteria based on empirical constructions.

The research instruments were checked for completeness to ensure that all data was captured and that all the required parts were complete. The questionnaires and checklist were coded for easy follow-up and also follow-up so that no questionnaire was left out.

3.9.2 Reliability of the instruments

Reliability is the extent to which a research instrument consistently has the same results if it's used in the same situation on repeated occasions. After the pilot study, the researcher will perform a reliability test on the questionnaires administered. Here the researcher administered the questionnaires at the beginning of the month when the sample for the pilot study was done at Kakamega County Hospital and then noted the responses from the respondents and countercheck against the responses yielded at the same questionnaires at the end of the pilot study. A regression analysis was done to identify the reliability of the instrument used.

3.10 Data Analysis

Professionally trained research assistants who followed up with patients for 48 hours filled out the surveys.

When all of the surveys were returned, the information was loaded into IBM SPSS version 25.0 and evaluated. There was a test for correlation between socioeconomic status and triage outcome using bivariate analysis. Continuous data were used to build and illustrate normal distributions and interquartile ranges. The studied data was classified, and then frequencies and percentages were computed and reported. Logistic regression and chi-square tests were used to examine the relationship between the triage early warning score and patient outcomes within 48 hours. To determine patient-related factors associated with the result, we used descriptive statistics, cross-tabulations, and chi-square tests of independence. Logistic regression was used to obtain the odds ratio and the degree of correlation for objectives two and three, which evaluate the institutional and provider-related characteristics linked with the outcome.

Table 3.1: Objectives, Data Collection, Source of Data and Analysis Plan.

Study objective	Data to be collected	Source of data	Data analysis plan
Institutional related factors	No. of equipment, supplies and number of staff and triage area.	Observation Checklist	Logistical regression and odds ratios

3.11 Data Storage

Soft copies of acquired data were saved in a computer with password-protected folders, while hard copies were maintained in a locked cabinet.

3.12 Ethical Consideration

Prior to starting data collecting, the Ethics and Research Committee of Masinde Muliro University and KNH-UON ERC were consulted. Data collection preceded the submission of an application for permission to NACOSTI. The administration at KNH was also consulted for permission to conduct the research in the hospital's emergency room, inpatient wards, intensive care unit, and high-dependency unit. Written consent was obtained from each participant after they had been assured of their privacy and the confidentiality of their information, had been informed of the study's goals, and had the opportunity to ask questions.

Results and Discussion

4.1 Response Rate

Three hundred seventy-two of the 385 questionnaires sent out to the study's representative sample were filled out and returned. Accordingly, 372 were properly filled, and these individuals served as the participants for the analysis, yielding a response rate of 96.62 percent.

Table 1: Questionnaire Return Rate (Baseline Assessment)

	Frequency	Percent
Returned	372	96.62
Not Returned	13	3.38
Total	385	100.0

Source: (Researcher, 2022)

According to the results, the high response rate can be linked to the researcher's strategic use of several different methods. For instance, the research team sought out research assistants who genuinely cared about contributing to the study. The researcher conducted the interviews, while the research assistants were taught to find and interview participants, as well as administer and collect the surveys.

4.3 Institutional Related Factors Associated with the Management Outcome of Triaged Patients within 48 Hours of Care at Accident and Emergency Department, Kenyatta National Hospital

Table 2: Descriptive on Institutional Related Factors

	RESPONSE	FREQUENCY	PERCENT	MEAN	SD
Are there adequate oxygen points?	YES	372	100	1.00	0.000
	NO	0.0	0.0		
Are observation and monitoring equipment adequate? BP machine, pulse oximeter, thermometer.	YES	363	97.6	1.02	0.154
	NO	9	2.4		
Are there adequate resuscitation drugs?	YES	345	92.7	1.07	0.260
	NO	27	7.3		
Is the triage area adequate?	YES	281	75.5	1.24	0.430
	NO	91	24.5		
Are there enough stretchers to receive patients?	YES	299	80.4	1.20	0.398
	NO	73	19.6		

Is the monitoring area crowded?	YES	245	65.9	1.34	0.475
	NO	127	34.1		
Are the consultation rooms adequate?	YES	282	75.8	1.24	0.429
	NO	90	24.2		
Are there adequate resuscitation rooms?	YES	198	53.2	1.41	0.492
	NO	174	46.8		
Is the nurse-patient ratio adequate?	YES	165	44.4	1.47	0.500
	NO	207	55.6		
Is the doctor–patient ratio appropriate?	YES	165	44.4	1.56	0.497
	NO	207	55.6		
Are the laboratory staff adequate?	YES	198	53.2	1.47	0.500
	NO	174	46.8		
Are there enough porters in the unit?	YES	263	70.7	1.29	0.456
	NO	109	29.3		
Is the radiology staff ratio adequate?	YES	273	73.4	1.27	0.443
	NO	99	26.6		

Source: (Researcher, 2022)

To determine the association between institutional-related factors and the management outcome of triaged patients', a correlation analysis of the study variables was done and the summary of the correlation was as shown in Table 4.3.

Table 3: Correlation Analysis of Institutional Related Factors and Management Outcome of Triaged Patients'

		Institutional related factors	Management outcome of triaged patients'
Institutional Related Factors	Pearson Correlation	1	
	Sig. (1-tailed)		
Management Outcome of Triaged Patients'	Pearson Correlation	.452	1
	Sig. (1-tailed)	.008	

*. Correlation is significant at the 0.05 level (1-tailed).
Source: (Researcher, 2022)

Results shown in Table 4.4 suggested a favourable and statistically significant association between institutional-related characteristics and the management outcome of triaged patients. The r=0.452 p=0.008<0.05 Pearson correlation coefficient indicates this. This suggests that enhanced institutional-related characteristics lead to enhanced management outcomes for triaged patients.

Results and Discussion

The findings showed a favourable and statistically significant correlation between institutional characteristics and the outcome of patients' management after being triaged. The r=0.452 p=0.008<0.05 Pearson correlation coefficient indicates this. This suggests that enhanced institutional-related characteristics lead to enhanced management outcomes for triaged patients.

This matched the findings of a study that proved that tools play a role in triage decisions (Della Stritto R, 2005). Although personnel decisions in this area were based on evidence from international research, it is worth noting that another study found it crucial that triage decisions and patient

priority be made solely based on clinical need and that neither work volume nor ED crowding plays a role in this process (Considine *et al*, 2001). Crowding makes it impossible for the personnel to attend to all trauma cases effectively, few equipment will lead to compromised care as follow-up will be poor affecting the outcome of triage on the patient.

Research that found personnel considerations to be a significant influence in triage decision-making corroborates these findings. Participants in the study ranked experience, the ability to learn, and expertise as the three most important personal attributes that influenced their judgment during times of crisis. The present study's results corroborate what is known from other sources about the significance of experience and training in making triage decisions. One of the most effective criteria in triage decision-making among nurses is their level of experience, as shown by a study by Anderson *et al*. of Sweden (Anderson *et al*., 2006). It has been found in the American study by Hicks *et al*. that increased experience leads to more reliable decision-making in a triage setting (Hicks FD *et al*, 2003). Cone and Murray's research in the United States found that experience and expertise are the most influential criteria in triage nurses' decision-making (Cone *et al*,2002). Researchers have found that nurses' intuitive knowledge and keen perception are more important to their triage decision-making than their actual clinical experiences (Goransson k, 2006). Overall, the present study's results were consistent with those of other studies like it and emphasized the importance of experience, expertise, insight, and sharpness in triage decision-making.

Conclusions and Recommendations

6.1 Conclusions

The purpose of this research was to evaluate the management outcome of triaged and coded patients at the accident and emergency department, KNH.

On the third objective on institutional-related factors associated with the management outcome of triaged patients within 48 hours of care at the accident and emergency department, KNH, Statistical analysis revealed a statistically significant correlation between various institutional characteristics and the outcome of a patient's management following triage. The $r=0.452$ $p=0.008<0.05$ Pearson correlation coefficient shows this to be the case. This suggests that enhanced institutional-related characteristics lead to enhanced management outcomes for triaged patients. Inadequate staffing ratios were the major issue identified, the ratio of the doctors, nurses as well and laboratory staff were inadequate to meet the patient demands thus this had an impact on the patient's outcome, Most of the patients couldn't get faster reviews because of staff shortage as well as delays in diagnosis, the critical care unit was identified as having an effect on patient outcome because when its full then it will delay treatment and interventions. The theatre was an area that affected the outcome as there was a delay in getting services for some of the patients as it was busy. Also, most patients were sent for further examinations in most cases including radiology and laboratory and the inadequate staffing it will lead to crowding and delay in the interventions required.

6.2 Recommendations

The recommendations that have been identified as key to improving the patient management outcomes include;

- KNH and the Ministry of Health to ensure that adequate equipment e.g. oxygen points and monitors are available and stocking adequate drugs which are important in resuscitation and other management, There is a need to increase infrastructure and space to reduce overcrowding which may be a risk to the patients as well as staff
- To improve patients more skilled personnel need to be employed by KNH including, doctors, laboratory staff as well and nurses, The staff will also

require more training on skills in triaging and trauma management.

- ✧ Further research is to be done to determine the patient satisfaction levels as well as the staff training needs assessment.

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