

Interdisciplinary Coordination and Communication in Emergency Room to Rescue Life

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Abstract

Introduction: Interdisciplinary communication and coordination in emergency room have an important role on patients safety and patients optimised care.

Objective: The aim of this study is to identify interdisciplinary communication and coordination in Emergency Room, in Bashaer hospital.

Method: Cross-sectional hospital-based study in 181 workers in emergency room in Bashaer hospital 2022 by using direct interview online self-administered Google form questionnaire.

Results: 83 (45.9%) of the total participants revealed that there's poor interdisciplinary communication within the Emergency room team and about 15 (8.3%), said there is no Interdisciplinary communication at all on their perceptions.

181 (100%) knowing about the importance of Interdisciplinary communication and said its strongly affect the patient safety.

181 (100%) confirmed about the presence of barriers that affect Interdisciplinary communication on different aspects.

The lack of formal training represented mainly by 144 (79.6%)

A Different opinion regarding coordination represented by 120 (51.6%) said the admission and discharge by units and 41 (32.3%) by emergency room team and only 20 (14.5%) according to hospital policy.

Conclusion: There's lack of interdisciplinary communication, coordination and formal training in addition to a lot of barriers to effectiveness of them within emergency room teams on Bashaer hospital.

Curriculum innovation regarding the coordination, interdisciplinary communication simulation and debriefing training need to be seriously thought and applied as early as possible.

Keywords: *Interdisciplinary Communication; Coordination; Patient Safety; Formal Training; Communication Barriers*

Introduction

Background

Emergency departments are pivotal in administration of acute disease and injuries and the introducer of health system arrival [1].

Interdisciplinary communication means copresent of knowledge and informations verbally or non verbally among the organs of distinct health careered to enhance best caring of patients.

This communication can be purposed or unpurposed.

In disoccupied, important academic Emergency department, effectiveness of interdisciplinary communication between different members of emergency team, physicians, nurses and other, play an important and major role in giving the best care of patients and vice versa [2]. And the satisfaction of job and the medical error occurrence depend on it [3,4].

The WHO has called for fulfillment of interdisciplinary training in the medical curricula [5].

In 2006, the 59th World Health Assembly responded to the human resources for health crisis by adopting resolution WHA59.23 which called for a rapid scaling-up of health workforce production through various strategies including the use of “innovative approaches to teaching in industrialized and developing countries”. Governments around the world are looking for innovative, system transforming solutions that will ensure the appropriate supply, mix and distribution of the health workforce. One of the most promising solutions can be found in inter professional collaboration [5].

Care coordination is a wide term that means Approved organization of patient care activities to facility the proper delivery of health care services [6].

Previous evaluations of emergency-based care coordination interventions have shown improved outpatient follow-up, reduced emergency use, and reduced avoidable hospitalizations [7,8].

Effective care coordination that can improve and drive outcomes and reduce use of services that otherwise would otherwise be avoided is becoming increasingly valuable and important in a value-based care environment [9].

In previous years about 5 studies, a multiple authors were studied the importance of the interdisciplinary or interprofessional communication and revealed that, successful interdisciplinary communication between staff is critical for safe and effective cooperative patient care and poor interdisciplinary cooperation is related with non effective patient care, a high prevalence of medical errors.

And low work satisfaction, Successful interdisciplinary cooperative working is highly dependent on effectiveness of interdisciplinary communication [1-4,10].

There is study revealed that, we can identified the barriers and enablers of interdisciplinary communication in form of four categories or aspects which are (clinical environment aspects, personal and interpersonal aspects and finally training theme) And the Residence doctors was revealed that, the communication can be learnt and gained primarily from tests, errors, or observations from other seniors or professionals but they preference a formal training in interdisciplinary communication [11].

And we aim in this study to identify the interdisciplinary communication and coordination in emergency room In Bashaer hospital and the barriers for them to prevent a lot of problems associated with poor interdisciplinary communication and coordination in form of effects on patients life mainly and acuity of care delivery in addition to avoidable of unnecessary hospitalizations costs.

Problem statement

Interdisciplinary communication and coordination is an important aspect in medical teams especially on emergency room, to help in rescue patients life and affects the effectiveness of health care delivery. To make appropriate interventions regarding the suitable ip communication and coordination that should be founding, we should study what's found on reality specifically.

Cause the poor interdisciplinary communication and coordination is associated with ineffective patients care, can affect patients life, will increase the prevalence of medical errors, And in addition to lower job satisfaction and increasing the costs of the hospital in form of increasing unnecessary admissions or hospitalizations.

In 2019 there's study conducted by Tiwary, highlight the fact how poor communication leads to dangerously poor health outcome [12].

Medical error is estimated to be "the third most common cause of death in the US", and teamwork failures (e.g. failures in communication) account for up to 70 - 80 percent of serious medical errors [13-16].

There's call from conducted study, for improve of interdisciplinary communication and there's need for further study to understand the common effective barriers of interdisciplinary communication to inform clinical innovation [11].

They are relatively a few investigators who have studied this topic in Sudan and we need to know about it to prevent the risk and bring a base for appropriate curricula for development of health system services.

Research question

Does interdisciplinary communication in emergency room implemented in health delivery system of Bashaer hospital, Sudan?

Justification

Interdisciplinary communication and coordination have a lots of impacts on patients care and life, medical error occurrence, avoidable hospitalizations and even job satisfaction within the team, especially on emergency room, we should know more about what's happened on emergency room on this aspect to prepared very well for optimize plan on health system. And to make a solid basis for the appropriate interventions we must study them, and there is recommendations from WHO to prepare for Effective interdisciplinary communication in a manner of training the team.

So, it's very important to study this topic and identify defects and problems in order to safe patients life and effectiveness of health care delivery, minimize errors and public costs regarding effective IP coordination.

Objective of the Study

General objective

To identify interdisciplinary communication and coordination in emergency room, in Bashaer hospital.

Specific objectives

1. To assess perceptions and believes regarding interdisciplinary communication and coordination on emergency room teams.
2. To investigate how emergency room teams were trained for interdisciplinary collaborative practice.

3. To determine barriers of interdisciplinary communication and coordination based on experience and observation of emergency room teams
4. To explore about interdisciplinary coordination on emergency room teams.

Research Methodology

Study design

Observational descriptive hospital-based cross sectional study design.

Study context

Doctors with different level of education, and a variety of experiences including house officers, general practitioners, registrars and consultants and nurses working on variable emergency units on Bashaer University hospital.

Study area

Bashaer Teaching hospital, Khartoum state, Sudan.

Study duration

The study will be conducted between November 2022 to December 2022.

Study population

The study will be conducted among health workers on emergency room, including house officer, medical, registrars, nurses and consultants in the four major units (Medicine, Surgery, Pediatrics and Obstetrics and gynecology) working on Bashaer University hospital and accepted to share on this study.

Data collection methods

Data collection technique

The data for this study will be collected using direct interview by online self-administered google form questionnaire.

Questionnaire development

The questionnaire will be formulated from the questions on two related papers [11,40] some questions formulated by senior doctor working on emergency department at Alneelain University and the questionnaire contain four sections (informative data, perceptions and beliefs regarding interdisciplinary communication and coordination, interdisciplinary communications barriers and interdisciplinary coordination) and about 16 questions purely without the informative questions, the details at the annexes.

Inclusion criteria:

1. Health care workers on emergency rooms in Bashaer University hospital.
2. Above 20 years males and females accepted to share on this study.

Exclusion criteria:

1. Other medical personnel not working in emergency room in Bashaer University hospital (pharmacists, laboratory workers...etc.)
2. Faculty of medicine graduates who have not registered on Sudanese Medical council.
3. Medical Students.

List of variables

Background variables:

1. Age
2. Gender
3. Job
4. Years of experience
5. Level of education.

Independent variables:

1. Barriers of interdisciplinary communication (clinical environment, interpersonal relationships, personal factors, training)
2. Hospital policy and curriculum
3. Role of physicians and other health workers in emergency room
4. Availability of resource.

Dependent variables

1. Interdisciplinary communications
2. Interdisciplinary coordination
3. Patient safety
4. Good health care and outcomes.

Sampling technique

Simple random size technique.

Sample size

The sample was calculated using the standard equation:

Sample size $n = N \div (1 + N \cdot d)^2$

N = Total number of health workers

n = Sample size

d = Level of precision = 0.05

Estimated population 331. With a confidence level 5%.

Sample size equals =181 health worker on ER.

Ethical considerations

Ethical approval was obtained from international university of Africa by AMSA and a signed by the General medical director on Bashaer University hospital.

Verbal consent was obtained from study participants, with confidentiality in data kept and the inclusion and exclusion criteria that used.

Data analysis

The collected data was analyzed as descriptive data using Excel program and SPSS (updated version).

Result

Background information

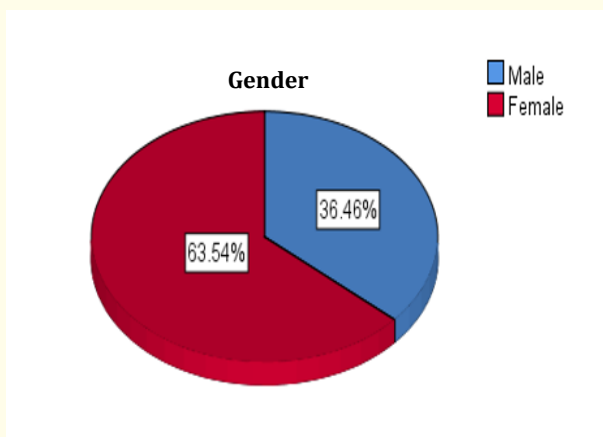


Figure 1: Illustrated the gender of participants in emergency room, Bashaer hospital 2022.

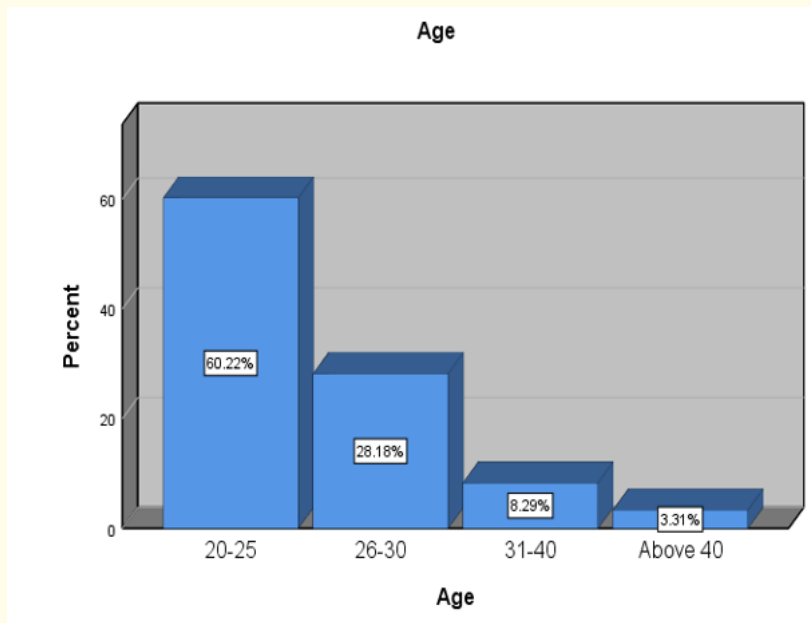


Figure 2: Illustrated the age of participants on emergency room, Bashaer hospital 2022.

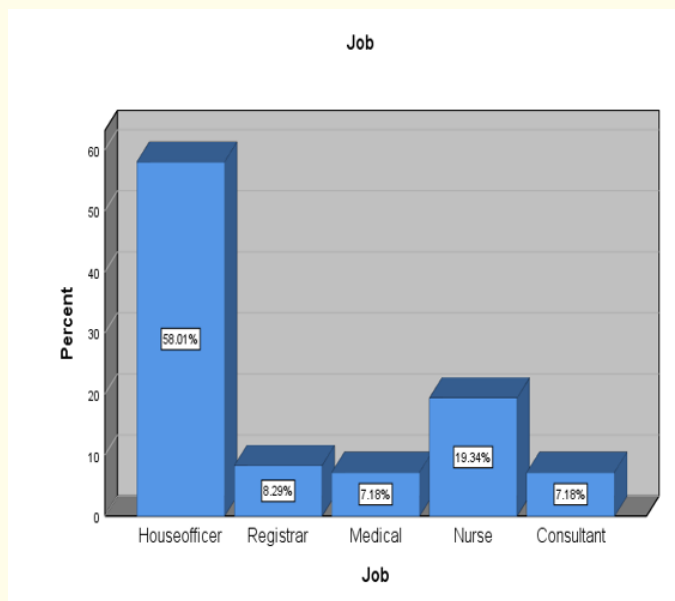


Figure 3: Illustrate the job of the participants in emergency room, Bashaer hospital 2022.

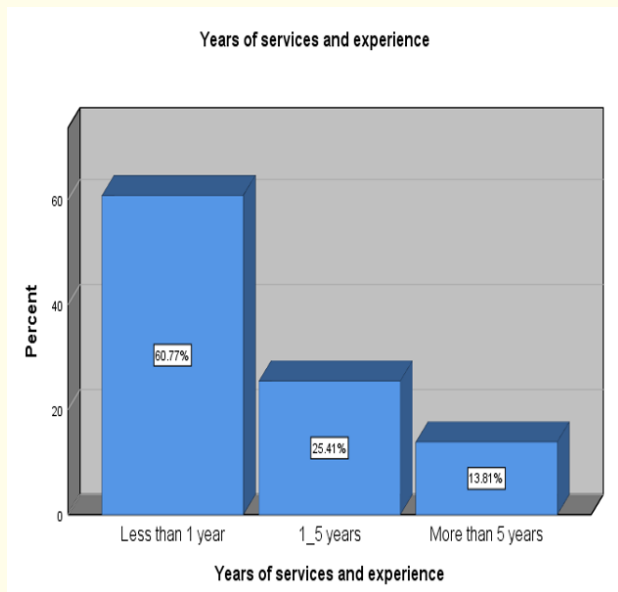


Figure 4: Illustrated the years of experience or services of participants on emergency room Bashaer hospital 2022.

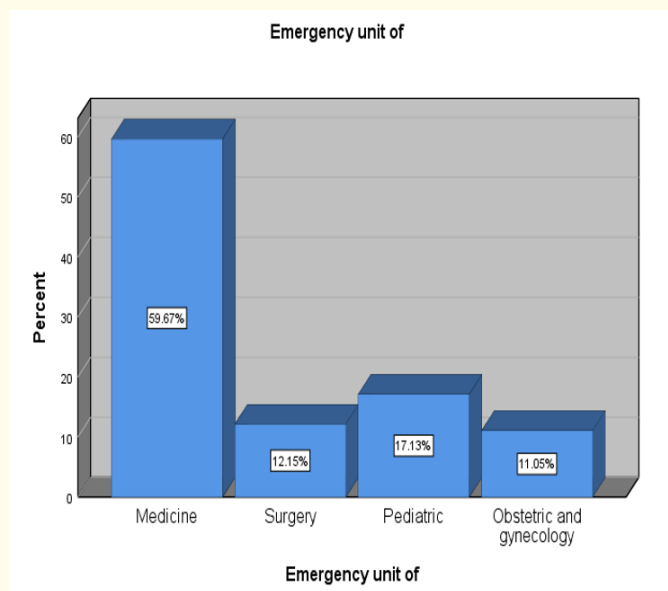


Figure 5: Illustrated the emergency unit of participant on Bashaer hospital 2022

Characteristic	NLR ≤ median, (n = 28)	NLR > median, (n = 28)	P value
Age, years, mean ± SD	57.89 ± 8.60	56.54 ± 9.12	0.571
Gender			
Male, n (%)	21 (75.00)	20 (71.40)	0.765
Female, n (%)	7 (25.00)	8 (28.60)	
Race			
Black, n (%)	22 (78.60)	14 (50.00)	0.043
Other, n (%)	6 (21.40)	14 (5.00)	
Nationality			
Angolan, n (%)	23 (82.10)	18 (64.30)	0.135
Other, n (%)	5 (17.90)	10 (35.70)	
SBP, mean ± SD	141.18 ± 17.51	143.14 ± 28.29	0.760
Dbp, mean ± SD	83.79 ± 10.75	86.75 ± 18.58	0.469
HR, mean ± SD	72.18 ± 14.20	77.46 ± 16.03	0.197
Risk Factors			
CAD familial history, n (%)	2 (7.10)	3 (10.70)	0.976
Smoking, n (%)	8 (28.60)	13 (46.40)	0.171
Hypertension, n (%)	23 (82.10)	17 (60.70)	0.079
Diabetes Mellitus, n (%)	7 (25.00)	7 (25.00)	1.00
Dyslipidemia, n (%)	12 (42.90)	8 (28.60)	0.269
Hematological Parameters			
Hemoglobin, mean ± SD	13.4 ± 1.6	13.5 ± 2.0	0.818
Platelets, 103/μL, mean ± SD	230.5 ± 87.7	254.3 ± 98.1	0.342
WBC, 103/μL, mean ± SD	6.3 ± 2.2	9.6 ± 4.1	0.001
Neutrophils, 103/μL, mean ± SD	2.9 ± 1.2	6.9 ± 3.9	< 0.001
Lymphocytes, 103/μL, mean ± SD	2.3 ± 0.6	1.8 ± 0.4	< 0.001
NLR, mean ± SD	1.3 ± 0.5	4.0 ± 2.6	< 0.001
Creatinine, mg/dL, mean ± SD	1.0 ± 0.4	1.2 ± 0.8	0.363

Table 1: General characteristics of sample according to the median of neutrophil-lymphocyte ratio.

Note: CAD: Coronary Artery Disease; DBP: Diastolic Blood Pressure; DM: Diabetes Mellitus; HTN: Hypertension; HR: Heart Rate; NLR: Neutrophil-Lymphocyte Ratio; SBP: Systolic Blood Pressure; SD: Standard Deviation; WBC: White Blood Cells. Median = 2.02.

Characteristic	NLR ≤ median, (n = 28)	NLR > median, (n = 28)	P Value
Cardiac Catheterism			
Without lesions	12 (42.9)	7 (25.0)	0.162
With lesions	16 (57.1)	21 (75.0)	
Presence of obstructive CAD			
Yes	15 (53.6)	20 (71.4)	0.171
No	13 (46.4)	8 (28.6)	
CAD Severity			
No CAD	12 (42.9)	8 (28.6)	
One vessel	6 (21.4)	10 (35.7)	0.483
Two vessels	7 (25.0)	6 (21.4)	
Three vessels	3 (10.7)	4 (14.3)	
Gensini Score			
1 - 29	21 (75.0)	18 (64.3)	0.388
≥ 30	7 (25.0)	10 (35.7)	

Table 2: Presence and CAD severity according to the NLR sample median (2.02).

Note: CAD: Coronary Artery Disease; NLR: Neutrophil-Lymphocyte Ratio.

Group	Without CAD, n (%)	With CAD, n (%)	P value	Total, n (%)
NLR ≤ median	12 (42.9)	16 (57.1)		28 (100.0)
NLR > median	7 (25.0)	21 (75.0)	0.259	28 (100.0)
Chi-square Test (X^2) = 1.991				

Table 3: Association between inflammation and coronary artery disease presence coronary angiogram.

Note: CAD: Coronary Artery Disease; NLR: Neutrophil-Lymphocyte Ratio.

The tables above contain the main questions of our study, table (1 and 2) revealed the aspect of perceptions and believes regarding interdisciplinary communication and coordination in emergency room. In Bashaer hospital 2022 and we found the above percentage regarding this aspect, in addition the definition and knowing of the participants about the communication and Interdisciplinary communication and its affect to patient safety in addition to the role of each member of the team.

A lot of participant revealed about the role of physician, its a decision maker and some opinions said its responsible for team leadership while others seen physicians as just for diagnosis and management of patients briefly. While regarding the nurse role, there are different opinions. Some of them see the nurses as very important members on the team and have a right to share on decision-making. While others revealed that the nurses are just assistant and can't share on decision making, and the final group see nurses and doctors should work together as a team despite the hierarchy and the job, based on the experience and knowledge of the member only despite any other things.

On (Table 1-3) we found a lot of barriers to effective interdisciplinary communication in multiple forms or themes (personal factors, clinical environment factors, interpersonal factors and training theme) with different sub theme issue (e.g. fear and self confidence aspect on the personal factors) with a percentage and frequency as seen above.

And they revealed that a lot of these barriers were founded on emergency rooms and have affected the interdisciplinary communication. The main barriers that discussed by participant are on the aspect of clinical environment on the subtheme of work overload and time pressure mainly. in addition to mutual respect, the rapid change on the team, management skills, self confidence, feeling part of the team. In addition to the interpersonal relationships factors, there's a lot of sound on the aspect of training barrier, which reflect the lack of the formal training, training model straining sessions and debriefing, which confirmed the importance of implementing interdisciplinary communication simulation training and debriefing workshops and sessions for the emergency teams, before starting to work on a team in emergency department care.

In addition to the barriers, we found also on the aspect of coordination, a different opinion, on the aspects which responsible for admissions, discharge, clearance member and its time with a percentage as showed on the table which indicate the system or hospital system problem. As we observe the emergency room occupied by the units instead of emergency team and the units consist of junior doctors and nurses which were not prepared adequately to be an emergency team, to implement and deal with the interdisciplinary communication and collaboration. We confirmed this point as a large percentage reflected the answer about the preparation by on they aren't adequately prepared to work on a team in emergency department care. On the other hand there is a percentage of participants revealed the possibility of learning the skills of interdisciplinary communication from the senior and consultants, but they revealed also the importance of the formal training implementation.

Moreover, we found there is no clear hospital policy regarding the coordination within the hospital especially on the aspect of hospitalization and discharge and the decision is based on the registrar mainly and sometimes by the consultant's guidance.

Discussions

Our study founding a lot of barriers to the interdisciplinary or interprofessional communication and collaboration based on the observations of the Emergency department staff in form of themes and subthemes (clinical environment theme from the aspect of working overload, timing pressure, electronic order entry and rapid changing health care team and the personal factors which can be summarised on the fear, conflicts, uncontrolled personal emotions, self confidence and management skills, in addition to interpersonal relationships which have a role on effectiveness of IP communication within ER teams in form of hierarchy, unfamiliarity, feeling part of the team and mutual respect and finally on the aspect of training in form of lacking of formal training. These findings consistent with recent current study conducted by Bikkink and other 2018 At Massachusetts General and Brigham [11].

On the aspect of the importance of training within ER team, a lot of participant revealed that, they aren't adequately prepared to work on a team in emergency department in addition to that there is lack of formal training, formal feedback, debrief sessions and role model and there's need for further training and preparation and there's need for training sessions which are consistent with study revealed the importance of training to improve the quality of communication conducted by Aaranson 2018 [33] and also another study about the importance of implementing a training model by Hargestam and others [38].

On the aspect of communication and collaboration within teams we founded on a large number a lack of IP communication and even reached to a term of Poor IP communication within staff which consistent with study conducted by Lancaster G 2015 [39].

On the other hands there's no clear hospital policy regarding the coordination within the hospital on the aspect of admissions and discharge on addition to clearance and clearance hours, and we found the emergency room occupied by the units instead of emergency team so there's need for clear curriculum and coordination with optimise actions within the hospital especially within ER team to improve of patient care and we agree on the importance and benefits of implementing a clear coordination framework with an study conducted by Galarraga on Maryland's hospital 2021 [32].

And regarding coordination findings we consistent with result of study for nurses role in accomplishing inter professional coordination on the side of its better to defined nurse coordination role with clear authority and curriculum in addition to associated training study conducted by Wise S 2021 [35].

And we found also the unfamiliarity between the staff members have a role as barrier to reach the effective Interdisciplinary communication which agree with study conducted by Patterson PD 2015 [37].

And on the aspect of the presence of communication and Interdisciplinary communication specifically between the member of ER teams we found lacking and Poor communication between the members and the units which is also agree and consistent with the study conducted by Fairbanks RJ in 2007 about the emergency department communication links and patterns [40].

On the other hand, the aspect of coordination within emergency room as we found it is not clear and there is no fixed curriculum to organize it more efficiently. and we recommend to strengthening the emergency care system in local context as care coordination and organization which agrees and consistent with the result and recommendations of recent study conducted by De Freitas in 2020 which take the patient flow on emergency room as study on details regarding different themes and aspects.

Conclusion

Interdisciplinary communication and collaboration among physicians and nurses have effective role to rescue patients life on Emergency room and to optimise the patients care and we found a lot of barriers to the effectiveness of this communication.

There's no clear job description of the workers regarding their role as emergency room team and also there's lack of formal training and feedback which can affect the communication and then patients safety and care.

There's need for further study to examine interdisciplinary communication, preparations of the emergency room team and coordination within team to implement clear curricula regarding these issues for the benefits of the all aspects.

Recommendations

- Call for WHO for conducting interdisciplinary communication simulation training and debriefing sessions and workshops on universities in all medical fields before graduation.
- Call for ministry of health for implementation of clear curriculum regarding coordination and clear job description for every member of staff.
- Call for hospital managers to conduct formal training, training model in addition to interdisciplinary communication simulation and debriefing workshops and sessions for emergency room teams before starting to work on emergency room.
- Call for hospital managers to occupied emergency room by seniors and emergency medicine consultant and the units should be on the wards including house officer and junior workers.
- Call for doctors and researchers for addition researches on this area to identify the interdisciplinary barriers in more details to access to solutions and improve the health system in Sudan hospitals on this aspect and to conduct researches on other peripheral hospitals.

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