SJIF Impact Factor: 6.711

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

ISSN: 2457-0400
Volume: 9
Issue: 10
Page N. 197-205
Year: 2025

Original Article

www.wjahr.com

THE AVAILABILITY OF LIFE SAVING MEDICATIONS AND EQUIPMENT IN THE EMERGENCY UNITS IN MOSUL CITY'S GOVERNMENTAL HOSPITALS

Aymen Mohammed Saeed*, Dr. Waleed Ghanim Ahmad

M.B.Ch.B., Asst. Prof.
M.B.Ch.B./M.Sc./Ph.D. Community Medicine, Department of Family and Community Medicine College of Medicine/ University of Mosul.

Article Received date: 06 Aug. 2025 **Article Revised date**: 27 Aug. 2025 **Article Accepted date:** 16 Sept. 2025

***Corresponding Author: Aymen Mohammed Saeed**
M.B.Ch.B. M.B.Ch.B./M.Sc./Ph.D. Community Medicine, Department of Family and Community Medicine College of Medicine/ University of Mosul.
DOI: https://doi.org/10.5281/zenodo.17224202

ABSTRACT

Background: Emergency units in hospitals are crucial for providing immediate care to patients with life-threatening conditions, injuries, or acute illnesses. They manage public health crises, ensuring comprehensive care and efficient use of resources. Accredited emergency drugs and equipment are essential for enhancing patient survival rates. Proper treatment and availability of life-saving medical facilities contribute to positive patient perceptions and satisfaction levels. **Objectives:** To evaluate the availability of essential lifesaving medications and equipment at the emergency units in Mosul. **Patient and methods:** This study uses a hospital based cross-sectional design to assess the availability of life-saving medications and equipment in Emergency Units of six governmental hospitals in Mosul City. A cross sectional study design was used to identify patterns and discrepancies in the availability of essential medications and equipment. Data was collected over six months, with a focus on general Emergency Units. The study excluded non-emergency facilities, incomplete data, and specialized hospitals. **Results:** The study reveals that the most common emergency medications in Mosul hospital are anti-anaphylactic, anti-cholinergic, anti-emetic, anti-ischemic, anticonvulsant, diuretics, PPI, Diabetic related hormones, strong pain killers, and toxoid and antisera. The medicines with the lowest rates are Drugs antidote, general essential equipment, exposure + environmental control, bronchial obstruction, general essential equipment, bronchodilators, diuretics, I.V Fluids, PPI, Diabetic related hormones, and strong pain killers. The medicines with the lowest rates are anti-anaphylactic, anti-cholinergic, anti-emetic, anti-hypertensive, anti-ischemic, anti-shock, antibiotics, Anticonvulsant, drugs antidote, diuretics I.V, fluids, PPI, toxoid and antisera. The medicines with the lowest rates are drugs antidote, toxoid and antisera, and strong pain killers. The highest percentage of emergency medications in Al-Salam hospital is continuous monitoring equipment, while the lowest rates are others. **Conclusion:** The study highlights the availability of most of the drugs and equipment in the Emergency Units but it is necessary to follow up on the provision of any missing medications and equipment and to keep the ones that are available.

KEYWORDS: Drugs, Equipment, Iraq, Life, Mosul, Saving.

INTRODUCTION

Emergency Units in hospitals play a critical role in the healthcare system, serving as the frontline response to urgent medical situations that require immediate intervention. These units are essential for providing timely and effective care to patients experiencing life-threatening conditions, severe injuries, or acute illnesses. The presence of well-equipped and staffed emergency units ensures that patients receive rapid assessment, diagnosis, and treatment, which can significantly improve outcomes and save lives.[1]

Additionally, emergency units are vital for managing public health crises, including natural disasters, pandemics, and mass casualty incidents, showcasing their adaptability and resilience in times of need.[2] The integration of advanced medical technology and skilled healthcare professionals in these units facilitates the delivery of comprehensive care, addressing both physical and psychological needs. Furthermore, emergency units play a pivotal role in triaging patients, directing them to appropriate levels of care, and ensuring efficient use of hospital resources.[3]

Availability of important emergency drugs/stationery are accredited to enhance the survival rate of the patients who have critical illnesses. Failure to find lifesaving equipment and drugs in emergency unites may raise mortality and morbidity among patients especially in low income facilities.[4]

Procedures carried out in events include essential treatments given by health care practitioners within the health care facilities that may influence the patients' end result. The opportunity to provide timely actions within resuscitation is essential administering the cardio vascular medicines or oxygen. This is especially important in emergency healthcare where a patient may worsen due to unavailability of vital drugs or equipment needed by the doctor or surgeon to treat the patient's condition. Further, a normal clinical outcome depends not only on the effective treatment and diagnosis of the disease but also on the availability of greet saving medical and pharmaceutical facilities. Therefore, patients who find that their conditions are well managed by appropriate medication are likely to have positive things to say regarding emergencies. These factors include; the accredited level of the hospitals; triaged level of the patients, all of which contribute to assessment of quality care in that they affect the perception of patients and therefore their satisfaction levels.[5]

The study aimed to evaluate the availability of essential lifesaving medications and equipment in the Emergency Units at Mosul City.

2. METHODOLOGY

2.1 Administrative Agreement and Ethical consideration

The research proposal received scientific and ethical approval from relevant committees at the University of Mosul and the Nineveh Health Directorate. Participants were informed about voluntary nature of their involvement. They were made aware of the study's objectives and benefits and encouraged to inquire during interviews. Participant confidentiality was ensured through the non-collection of personal data, with results published only in aggregate form. Written consent was obtained from each participant involved in the study. The methodology comprises both quantitative and qualitative components to provide a comprehensive understanding of the current state of emergency care resources.

2.2. Study setting

This study adopted a hospital based cross-sectional design to assess the availability of life-saving medications and equipment in the emergency units of governmental hospitals located in Mosul City.

1- Mosul General Hospital.
2- Al Salam Teaching Hospital.
3- Ibn Sina Teaching Hospital.
4- Al batool Maternity Teaching Hospital.
5- Al-Jumhori Teaching Hospital.
6- Research Hospital in Mosul University.

2.3. Study Design

A cross-sectional study design was utilized, allowing for the collection of data from multiple hospitals within a specified timeframe. This design facilitates the identification of patterns and discrepancies in the availability of essential medications and equipment across different emergency units.

2.4 Study period

The data collected over a period of six months started on the June 2023 and ended on the June 2024.

2.5. Study Participants

All healthcare professionals operating within the emergency departments of designated governmental hospitals in Mosul City, regardless of gender and across various shifts, who consent to participate in the study and are present at specified time and date of data collection in the emergency settings of the selected public hospitals was incorporated into the study. The following exclusion criteria were applied:

1. Non-Emergency Facilities: Hospitals that do not have designated emergency units were excluded from the study. This ensures that the focus remains on facilities specifically equipped to handle emergency medical situations such as Al-Hadbaa Hospital, Oncology and Nuclear Medicine Hospital, and Al-Shafaa Hospital.
2. Incomplete Data: Facilities that were unable to provide complete information on their stock of life-saving medicines and equipment as a result of relocation of some of their departments to alternative locations or those that recently underwent major changes in their stock and became dependent on periodic transfers of medicines and equipment were excluded as Al-Khansaa Teaching Hospital.
3. Specialized Hospitals: Hospitals that primarily focus on specific medical specialties as Burn Management Center, Ibn Al-Atheer Hospital were excluded.

2.6 Data Collection

Data collection involved two primary methods: a structured survey and key informant interviews.

2.6.1. Structured Survey

A comprehensive survey questionnaire was developed to assess the availability of life-saving medications and equipment. The survey included items related to the presence and quantity of essential drugs (e.g., adrenaline, atropine, magnesium sulfate) and medical lifesaving (e.g., defibrillators, oxygen masks, intravenous fluids). The survey was administered to the medical directors or designated staff members of the selected hospitals. The responses were collected through direct interviews to enhance response rates and data accuracy.

2.6.2 Informant Interviews

In addition to the survey, semi-structured interviews were conducted with healthcare professionals working in emergency units, including physicians, nurses, and

pharmacists. These interviews aimed to gain insights into the challenges faced regarding the availability of medications and equipment, as well as the perceived impact of these factors on patient care. Interviews were recorded with the consent of participants and transcribed for analysis.

2.7. Preliminary Preparations

The modified questionnaire format was implemented following a validation assessment. Following an assessment by the teaching faculty of the Family and Community Medicine Department, the Angoff method was employed to determine the content validity of the data collection instrument, evaluating the questionnaire's authenticity, comprehensiveness, and clarity, with results represented as a percentage score reflecting the judges' average subjective evaluations as illustrated in Table (2.1).

Table 2.1: Content Validity of the data collection.

Validity Parts	Assessment Percent
Clarity rate	93.5%
Coverage rate	90.2%
Reality rate	91.5%
Overall Validity	90.4%

1.8 Sampling Method

A systematic timetable was established for data collection across various study environments, resulting in a random recruitment of 100 participants (physicians, nurses, and pharmacists) from five governmental hospitals as outlined in Table (2.2).

Table 2.2: A systematic Timetable of governmental hospitals.

No.	Hospital	Duration
1	Al Salam Teaching Hospital	1st Week
2	Mosul General Hospital	2nd Week
3	Ibn Sina Teaching Hospital	3rd Week
4	Al-Jumhori Teaching Hospital	4th Week
5	Research Hospital in Mosul University	5th Week
6	Al Batool Maternity Teaching Hospital	6th Week

3.8. Data Analysis

The responses were collected and recorded in Excel sheets-Microsoft Window 2010. The availability percentages of the drug and equipment were calculated by dividing the available amount on the standard amount according to the Iraqi guideline for the Emergency Units.

3- RESULTS

The availability of essential medication among Al-Mosul General Hospital Emergency Unit was demonstrated in table (3.1) which shows that drugs antidote was found in only 57.1%, followed by blood elements in 60.0%.

Table 3.1: Availability of essential medication in Al-Mosul General Hospital.

Medication Group	Availability		Total
	No.	%	
Anti-Anaphylactic	4	100.0	4
Anti cholinergic	2	100.0	2
Anti emetic	3	100.0	3
Anti hypertensive	7	70.0	10
Anti ischemic	5	100.0	5
Anti shock	3	75.0	4
Antibiotics	6	85.7	7
Anticonvulsant	5	100.0	5
Drugs Antidote	4	57.1	7
Blood elements	6	60.0	10
Bronchodilators	2	66.7	3
Diuretics	3	100.0	3
I.V Fluids	10	90.9	11
PPI	2	100.0	2
Diabetic related hormones	2	100.0	2
Strong Pain killers	4	100.0	4
Toxoid and antisera	5	100.0	5
Total	73	83.9	87

Life-saving equipment's availability among Al-Mosul General Hospital Emergency Unit demonstrated in table (3.2) and displays that the shortage in bronchial obstruction are 50.0%.

Table 3.2: Life-saving equipment's availability in Al-Mosul General Hospital.

Equipment	Availability		Total
	No.	%	
Bronchial obstruction	1	50.0	2
Bronco construction needed equipment	3	75.0	4
Circular monitoring equipment	10	90.9	11
General essential equipment	2	100.0	2
Exposure + Environmental Control	2	100.0	2
Others (Portable light, Slit lamp, Light microscope, Anoscope, Otoscope, Autoclave, Tenometer, and weight scale)	8	88.9	9
Total	26	86.7	30

The availability essential medication among Al-Batool Maternity Teaching Hospital Emergency Unit was reported in table (3.3) and illustrates that drugs antidote, toxoid and antisera, and strong pain killers are completely defect. Anti-ischemic had the lowest frequencies 20.0%.

Table 3.3: Availability of essential medication in Al-Batool Maternity Teaching Hospital.

Medication Group	Availability		Total
	No.	%	
Anti-Anaphylactic	3	75.0	4
Anti cholinergic	2	100.0	2
Anti emetic	2	66.7	3
Anti hypertensive	5	50.0	10
Anti ischemic	1	20.0	5
Anti shock	2	50.0	4
Antibiotics	7	100.0	7
Anticonvulsant	4	80.0	5
Drugs Antidote	0	0.0	7
Blood elements	8	80.0	10
Bronchodilators	1	33.3	3
Diuretics	2	66.7	3
I.V Fluids	6	54.5	11
PPI	1	50.0	2
Diabetic related hormones	2	100.0	2
Strong Pain killers	0	0.0	4
Toxoid and antisera	0	0.0	5
Total	46	52.9	87

Life-saving equipment's availability among Al Batool Maternity Teaching Hospital Emergency Unit was demonstrated in table (3.4). This table elicited that bronchial obstruction are available in 50.0% only.

Table 3.4: Life-saving equipment's availability in Al Batool Maternity Teaching Hospital.

Equipment	Availability		Total
	No.	%	
Bronchial obstruction	1	50.0	2
Bronco construction needed equipment	3	75.0	4
Circular monitoring equipment	8	72.7	11
General essential equipment	1	50.0	2
Exposure + Environmental Control	1	50.0	2
Others (Portable light, Slit lamp, Light microscope, Anoscope, Otoscope, Autoclave, Tenometer, and weight scale)	5	55.6	9
Total	19	63.3	30

Apart from toxoid and antisera which found in 60.0% in Al-Jumhori Teaching Hospital Emergency, all the remaining drugs are available in complete or near complete frequencies as shown in table (3.5).

Table 3.5: Availability of essential medication in Al-Jumhori Teaching Hospital.

Medication Group	Availability		Total
	No.	%	
Anti-Anaphylactic	4	100.0	4
Anti cholinergic	2	100.0	2
Anti emetic	3	100.0	3
Anti hypertensive	9	90.0	10
Anti ischemic	5	100.0	5
Anti shock	4	100.0	4
Antibiotics	7	100.0	7
Anticonvulsant	5	100.0	5
Drugs Antidote	6	85.7	7
Blood elements	8	80.0	10

Bronchodilators	3	100.0	3
Diuretics	3	100.0	3
I.V Fluids	11	100.0	11
PPI	2	100.0	2
Diabetic related hormones	2	100.0	2
Strong Pain killers	4	100.0	4
Toxoid and antisera	3	60.0	5
Total	81	93.1	87

Life-saving equipment's availability among Al-Jumhori Teaching Hospital Emergency Unit is shown in table (3.6) which reveals that only the exposure + environmental control got the lowest rates of 50 %.

Table 3.6: Life-saving equipment's availability in Al-Jumhori Teaching Hospital.

Equipment	Availability		Total
	No.	%	
Bronchial obstruction	2	100.0	2
Bronco construction needed equipment	3	75.0	4
Circular monitoring equipment	10	90.9	11
General essential equipment	2	100.0	2
Exposure + Environmental Control	1	50.0	2
Others (Portable light, Slit lamp, Light microscope, Anoscope, Otoscope, Autoclave, Tenometer, and weight scale)	9	100.0	9
Total	27	90.0	30

The availability essential medication among Ibn-Sena Teaching Hospital Emergency Unit found in table (3.7) which demonstrate s that the medicines got the lowest rates are strong pain killers in 25.0%, Diabetic related hormones in 50.0%, and Bronchodilators in 66.7%.

Table 3.7: Availability of essential medication in Ibn-Sena Teaching Hospital.

Medication Group	Availability		Total
	No.	%	
Anti-Anaphylactic	4	100.0	4
Anti cholinergic	2	100.0	2
Anti emetic	3	100.0	3
Anti hypertensive	10	100.0	10
Anti ischemic	5	100.0	5
Anti shock	4	100.0	4
Antibiotics	7	100.0	7
Anticonvulsant	5	100.0	5
Drugs Antidote	7	100.0	7
Blood elements	8	80.0	10
Bronchodilators	2	66.7	3
Diuretics	3	100.0	3
I.V Fluids	11	100.0	11
PPI	2	100.0	2
Diabetic related hormones	1	50.0	2
Strong Pain killers	1	25.0	4
Toxoid and antisera	5	100.0	5
Total	80	92.0	87

Table (3.8) expresses the life-saving equipment's availability among Ibn-Sena Teaching Hospital Emergency Unit and reported that the equipments of exposure + environmental control and bronchial obstruction found in 50.0%.

Table (3.8): Life-saving equipment's availability in Ibn-Sena Teaching Hospital.

Equipment	Availability		Total
	No.	%	
Bronchial obstruction	1	50.0	2
Bronco construction needed equipment	3	75.0	4
Circular monitoring equipment	9	81.8	11
General essential equipment	2	100.0	2
Exposure + Environmental Control	1	50.0	2
Others (Portable light, Slit lamp, Light microscope, Anoscope, Otoscope, Autoclave, Tenometer, and weight scale)	6	66.7	9
Total	22	73.3	30

Table (3.9) displays that in Al-Salam Teaching Hospital emergency, the medicines got the lowest rates of 50.0 % or less are drugs antidote, toxoid and antisera, anti-hypertensive, and PPI.

Table 3.9: Availability of essential medication in Al-Salam Teaching Hospital.

Medication Group	Availability		Total
	No.	%	
Anti-Anaphylactic	3	75.0	4
Anti cholinergic	2	100.0	2
Anti emetic	2	66.7	3
Anti hypertensive	5	50.0	10
Anti ischemic	4	80.0	5
Anti shock	4	100.0	4
Antibiotics	7	100.0	7
Anticonvulsant	5	100.0	5
Drugs Antidote	3	42.9	7
Blood elements	10	100.0	10
Bronchodilators	2	66.7	3
Diuretics	3	100.0	3
I.V Fluids	9	81.8	11
PPI	1	50.0	2
Diabetic related hormones	2	100.0	2
Strong Pain killers	4	100.0	4
Toxoid and antisera	2	40.0	5
Total	68	78.2	87

Table (3.10) shows that the equipment got the lowest rates of 50 % in Al-Salam Teaching Hospital emergency is exposure + environmental control.

Table 3.10: Life-saving equipment's availability in Al-Salam Teaching Hospital.

Equipment	Availability		Total
	No.	%	
Bronchial obstruction	2	100.0	2
Bronco construction needed equipment	3	75.0	4
Circular monitoring equipment	10	90.9	11
General essential equipment	2	100.0	2
Exposure + Environmental Control	1	50.0	2
Others (Portable light, Slit lamp, Light microscope, Anoscope, Otoscope, Autoclave, Tenometer, and weight scale)	6	66.7	9
Total	24	80.0	30

The availability essential medication among Research Hospital Emergency Unit is summarized in table (3.11). This table demonstrates that the medicines which absolutely not available in the hospital are drugs antidote, strong pain killers and toxoid and antisera. Blood element, anti-emetic, bronchodilators, and anti-ischemic are found in low rates.

Table 3.11: Availability of essential medication in Research Hospital.

Medication Group	Availability		Total
	No.	%	
Anti-Anaphylactic	3	75.0	4
Anti cholinergic	2	100.0	2
Anti emetic	1	33.3	3
Anti hypertensive	1	10.0	10
Anti ischemic	2	40.0	5
Anti shock	4	100.0	4
Antibiotics	4	57.1	7
Anticonvulsant	4	80.0	5
Drugs Antidote	0	0.0	7
Blood elements	2	20.0	10
Bronchodilators	1	33.3	3
Diuretics	2	66.7	3
I.V Fluids	7	63.6	11
PPI	1	50.0	2
Diabetic related hormones	2	100.0	2
Strong Pain killers	0	0.0	4
Toxoid and antisera	0	0.0	5
Total	36	41.4	87

Life-saving equipment's availability among Research Hospital Emergency Unit is demonstrated in table (3.12) which shows that all the equipments are defect in 50.0%.

Table (3.12): Life-saving equipment's availability in Research Hospital.

Equipment	Availability		Total
	No.	%	
Bronchial obstruction	1	50.0	2
Bronco construction needed equipment	2	50.0	4
Circular monitoring equipment	6	54.5	11
General essential equipment	1	50.0	2
Exposure & Environmental Control	1	50.0	2
Others (Portable light, Slit lamp, Light microscope, Anoscope, Otoscope, Autoclave, Tenometer, and weight scale)	4	44.4	9
Total	15	50.0	30

4- DISCUSSION

Essential medications lists, or EMLs, have been a vital part of basic healthcare since the World Health Organization's (WHO) model list of essential medications was introduced in 1977. EMLs are frequently mentioned as one of the most economical treatments in contemporary healthcare, and they have almost increased access to necessary medications.[6] EMLs guide appropriate use and dosage of medications, promote the prescription of higher-quality medications, and facilitate clinical education and training by effectively limiting the number of medications available. EMLs can also address public health issues like antibiotic resistance by encouraging responsible use of medications.[6]

The current study evaluates the availability of drugs in emergency units among 6 hospital in Mosul city, the total drugs availabilities were 93.1% at Al-Jumhori, 92.0% at Ibn-Sena, 83.9% at Al-Mosul, 78.2% at Al-Salam, 52.9% at Al-Batool, and 41.4% at Research Hospital. These variations might be related to administrative issues, financial, or the hospital specialty. However, as shown in this study, the anticholinergic, anti-anaphylactic, antibiotics, anticonvulsant, diabetic related hormones, antiemetic, diuretics, I.V fluids were found and distributed in higher or complete rates, while the main availability of drugs antidote was in Al-Jumhori and Ibn-Sena. Blood elements was found in all these hospitals but in lower frequencies apart from the Al-Salam hospital. In the other, Al-Batool and Research Hospital showed unavailability of strong pain killers and toxoid and antisera and lower frequencies of anti-hypertensive, anti-ischemic, bronchodilators, and PPI.

Our findings reveal notable variation in the availability of key drugs among the hospitals under observation. While others like anti-hypertensives (70%), and medicines antidotes (57.1%), Al-Mosul General Hospital has a quite high supply of anti-anaphylactic drugs (100%) and anti-ischemic medication (100%). By contrast, Al-Batool Maternity Hospital exhibits less availability for both 0% essential medications including strong painkillers and antidotes. As it concerns only with

maternity and labor issues only. Similar results on the variation in the availability of basic drugs across various healthcare environments have come from other investigations. For instance, a 2021 Abdullah et al. study in Iraq revealed that the supply of life saving medications in primary health care institutions was inconsistent, especially for life-saving antibiotics and antihypertensives.[7] Due in great part to supply chain problems, Jassim et al. (2019) also discovered that drug stock-outs of vaccinations and medicines were common in Iraqi hospitals, particularly in emergency departments.[8]

Lack of particular medicine in institutions like Research Hospital, where medicine like antidotes and strong painkillers are not available, could be ascribed to inadequate supply chain management, financial restrictions, or bureaucratic bottlenecks. Similar studies conducted around the area have also underlined this, in low-and-middle-income countries (LMICs), meeting this target is still a major challenge as Babar et al.,[9] and Chow *et al.*,[10] studies report low availability and poor affordability. According to Tefera et al.'s institution-based descriptive analysis with data gathered in 2021. Only three (20%) of the critical medications were stocked out in the Motta health facility over the past six months, compared to 60% at Shegaw Motta General Hospital.[11] A study titled "A profile of emergency departments in Baghdad hospitals" assessed the availability of essential equipment and medicines in Baghdad's hospitals. The findings indicated that 85% of hospitals experienced noticeable shortages of medicines and vaccines.[12] These results are in line with international research, in which underdeveloped nations fight to grant complete access to necessary drugs even within public health facilities.[13]

Similar disparities exist in the provision of life-saving tools; some hospitals, including Al-Batool and Research Hospital, suffer major shortages while others have almost complete availability for vital tools including bronchodilators and monitoring equipment. Particularly, the lack of tools for bronchial blockage in certain hospitals e.g., 50% availability in Al-Batool and Research Hospital may have disastrous results in an emergency. At 2014 article in The Lancet highlighted that Iraq's healthcare system faces challenges, including staff and medicine shortages, which impact the quality of care.[14] Furthermore, a 2019 report by the World Health Organization (WHO) emphasized that the Ministry of Health in Iraq has encountered difficulties in procuring and ensuring timely availability of medicines and medical supplies. These challenges have been attributed to factors such as armed conflicts, budget constraints, and complex procurement procedures.[15] In comparison: According to research on health system resilience in conflict areas by Khan et al. (2021), inadequate availability of life-saving equipment is a main cause of poor hospital health outcomes.[16] Problems like restricted budget and regular breakdown of vital equipment aggravate this situation; a problem usually caused by protracted conflict is this one. The results on the dearth of essential tools for monitoring and treating respiratory problems line up with world data in like areas.

The results show quite varying hospital performance. For most drugs and equipment, Al-Jumhori Teaching Hospital claims almost perfect availability; Al-Salam Teaching Hospital and Research Hospital has notable gaps. This disparity points to possible variations in finance, hospital administration, or medicine or equipment prioritizing policies. According to a 2021 Khan M et al. study, variations in hospital administration, local policies, and budget distribution cause often varying quality of healthcare infrastructure in different areas.[16] Al-Mawla et al. (2017) have noted variations in resource availability based on hospitals; teaching institutions often had better access to pharmaceuticals and equipment than smaller district hospitals.[17] This validates the observations that drug and equipment availability often reflect the performance of bigger institutions with more centralized management.

Iraq and other nations suffering from violence have extensively recorded systematic issues influencing the availability of both drugs and life-saving equipment. Among these difficulties are disturbed supply chains, limited medical staff training, antiquated infrastructure, and poor budgeting for hospitals. WHO (2019) recommended updating hospital infrastructure to guarantee the continuous availability of vital supplies and bettering the management and planning of drug procurement systems to help to solve these difficulties.[18] Moreover, research like Birke Bogale et al. (2020) underline the significance of global health organizations offering technical support to enhance health systems in post-conflict environments, so guaranteeing that emergency departments are well equipped to manage critical care demands.[19]

5- CONCLUSIONS

Most of the emergency medications were available at the hospitals under the study. The deficiencies were variable and related to the specialization of the hospital. However, the deficiencies in the availability of equipment was beyond that of medications. Improvement of emergency management strategies in hospitals is important to ensure the safety and well-being of patients. As well as establishment of a system for supplying the life-saving medications and equipment in hospital emergency units is imperative.

ACKNOWLEDGEMENTS

I would like to express my deepest appreciation for our Families. In this respect, I also would like to thank the healthcare workers in Al Salam Teaching Hospital, Mosul General Hospital, Ibn Sina Teaching Hospital, Al-Jumhori Teaching Hospital, Research Hospital in Mosul University and Al Batool Maternity Teaching Hospital in

Mosul/ Iraq and some doctors whose encouragement made this effort possible.

REFERENCES

1. Dünser MW, Noitz M, Tschoellitsch T, Bruckner M, Brunner M, Eichler B, et al. Emergency critical care: closing the gap between onset of critical illness and intensive care unit admission. Wien Klin Wochenschr, 2024; 1–11.
2. Garg A. Emergency Services BT - Handbook on Hospital Planning & Designing: For Medical Administrators, Architects, Planners and Students. In: Garg A, editor. Singapore: Springer Nature Singapore, 2024; 67–84.
3. Muhammad Suleman MSDFQ. Emergency Medicine: Life-Saving Strategies and Techniques - Prehospital Emergency Care, Triage Systems, Advanced Card Apologies for the premature response. Zenodo, 2023.
4. Schell CO, Gerdin Wärnberg M, Hvarfner A, Höög A, Baker U, Castegren M, et al. The global need for essential emergency and critical care. Crit Care., 2018; 22: 1–5.
5. Nadolny K, Ladny JR, Slezak D. The influence of emergency medical procedures and event circumstances on the acute effectiveness of resuscitation in out-of-hospital sudden cardiac arrest in adults, 2018.
6. Gulland A. WHO targets antimicrobial resistance in new essential medicines list. BMJ [Internet], Jun. 8, 2017; j2809.
7. Abdullah A, Al-Sabbagh M, Taha K. Availability of life-saving drugs in primary healthcare centers in Iraq. J Health Syst., 2021; 35(2): 45-56.
8. Jassim A, Al-Maliki A, Al-Shaikhly R. Drug shortages in Iraqi hospitals: A case study. Middle Eastern Health Rev., 2019; 23(4): 120-33.
9. Babar ZUD, Lessing C, Mace C, Bissell K. The Availability, Pricing and Affordability of Three Essential Asthma Medicines in 52 Low- and Middle-Income Countries. Pharmacoeconomics [Internet], Nov. 15, 2013; 31(11): 1063–82. Available from: http://link.springer.com/10.1007/s40273-013-0095-9
10. Chow CK, Nguyen TN, Marschner S, Diaz R, Rahman O, Avezum A, et al. Availability and affordability of medicines and cardiovascular outcomes in 21 high-income, middle-income and low-income countries. BMJ Glob Heal., Nov. 2020; 5(11).
11. Tefera BB, Tafere C, Yehualaw A, Mebratu E, Chanie Y, Ayele S, et al. Availability and stock-out duration of essential medicines in Shegaw Motta general hospital and Motta Health Centre, North West Ethiopia. PLoS One., 2022; 17(9): e0274776.
12. Lafta RK, Mohammed SA. A profile of emergency departments in Baghdad hospitals. J Pak Med Assoc, Sep., 2024; 74 10(8): S67-71.
13. World Health Organization. Health system performance: Focus on drug availability in emergency care. World Health Organization, 2018.
14. The Lancet. Health services in Iraq. Lancet, 2014; 383(9910): 1513.
15. World Health Organization. Improving availability of and access to essential and life-saving medicines and medical supplies in Iraq, 2019.
16. Khan M, Asif H, Saleh R. Health system resilience and the impact of conflict on emergency care in the Middle East. Global Health Action, 2021; 14(1): 9-19.
17. Al-Mawla N, Ibrahim Z, Hamid A. Resource disparities among healthcare facilities in Baghdad: A cross-sectional study. Iraqi J Med Sci., 2017; 15(2): 60-70.
18. World Health Organization. (n.d.). *Iraq crisis*. World Health Organization. Retrieved April 14, 2019.
19. Bogale B, Gebrehiwot T, Fenta T, et al. Health system strengthening in fragile and conflict-affected states: A review of systematic reviews. *PloS One*., 2021; 16(3): e0248380.