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# Quality of Emergency Departments in Amman Evaluated by the Availability of Essential Emergency Equipment

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*SIT Study Abroad*

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**QUALITY OF EMERGENCY DEPARTMENTS IN AMMAN  
EVALUATED BY THE AVAILABILITY OF ESSENTIAL EMERGENCY  
EQUIPMENT**

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**SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR HEALTH AND COMMUNITY DEVELOPMENT  
S.I.T. STUDY ABROAD, SPRING 2014**

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**ABSTRACT**

The present study aims to determine the quality of emergency health care in Jordan by assessing the availability of essential emergency equipment in emergency departments in Amman. This study uses a cross-sectional questionnaire assessing the accessibility of equipment and medication in emergency departments, as well as eliciting the opinions of the participants regarding the future development of the emergency medical sector in Jordan. The questionnaires were distributed to the physician directors of every participating hospital emergency department in Amman, and completed by the physician director excepting two cases, one of which was completed by the head staff nurse, and the second of which was completed by a medical resident on emergency medicine rotation. Results suggested that although emergency departments in Jordan are generally well equipped, variability in departmental processes and physician opinion suggest that improvements could be made in the emergency health care sector that could improve patient outcomes, efficiency, and working conditions. Respondents most notably mentioned the need for specialized emergency physicians and a greater number of staff members. Many physicians felt that improvements in staff training would improve the delivery of emergency care. Problems with overcrowding of emergency departments and unnecessary use by low acuity patients often interferes with delivery of appropriate care to critical patients, and may drive up health care costs. Respondents discussed the need for the development of a formal trauma unit and priority triage screening for critical patients. Physicians also criticized the emergency medical technician (EMT) system, suggesting that better training of EMTs would improve outcomes and efficiency. In addition, coordination between Civil Defense ambulances and emergency rooms could be improved.

**Keywords:** Health Care Management, Public Health, Public and Social Welfare, Medicine and Surgery

## INTRODUCTION

Deaths due to emergencies such as poisonings, seizures, cardiac arrest, and motor vehicle accidents, among others, are a significant cause of mortality worldwide. The availability of a well-equipped emergency department is a necessary component in the medical sector of any country.

Emergency medical care has been employed in many different contexts throughout history. Napoleon's military was known to have a sector of infantrymen trained in what then was considered basic life support, to treat those wounded on the battlefield until they could be brought to the medical camps. In the early 1800's, ambulatory services were developed in London to transport victims of the cholera epidemic to hospitals, and only a few years later, Clara Barton, the founder of the American Red Cross, implemented a nurse ride-along to provide immediate care to soldiers in 'ambulances' on their way to receiving medical treatment (American Red Cross, 2014).

As medicine began progressing in the United States in the early 1800's, emergency cases were mostly assessed and treated by general practitioners as house calls. Now, the United States is fortunate to be able to boast one of the most efficient emergency health care systems in the world. When hospitals began evolving to handle more and more patients, emergency departments were built to receive visitors who required immediate care before admission to the hospital. Prior to the availability of specialized emergency physicians, emergency departments were typically operated by a rotating staff of physicians from other specialties, including surgery, family medicine, anesthesia, and dermatology. Emergency medicine was recognized as a specialty in the United States for the first time in 1979, and since then, residency and training programs, medical education, and the emergency sector have expanded greatly to provide quality care to critical cases (Zink, 2006).

The vast majority of developing countries lack an efficient system for delivering emergency medical services to those in need, as the costs of infrastructure and the necessary resources are high. In the country of Jordan, for example, emergency health care is a recently established sector

providing care to Jordan's population of 6.3 million. The development of an emergency medicine residency program took place in 2003, and has expanded to 4 residency programs with 50 resident positions in 2014, sponsored and run only by Ministry of Health agencies.

The Ministry of Health (MoH) is the major provider of health care services to Jordanian citizens. The Ministry operates 31 hospitals throughout the country and provides health care services to 69.6% of the population. The MoH's outreach goal is to provide access to primary health care for all Jordanian citizens, and does so through its insurance program (the Civil Insurance Program), in addition to providing full coverage for children less than six years of age (Khammash).

Although a plethora of statistics concerning the accessibility of primary health care in Jordan exists, very limited information regarding access or quality of emergency health care services in Jordan is available for analysis or review. The purpose of this study was to determine the availability of essential emergency department equipment and medication in a sample of emergency departments, as well as an informal assessment of conditions and opportunities for improvement in Amman. This serves as a primary step to identifying the strengths and challenges present in emergency departments in Jordan, which can help to raise awareness about what changes can be made to the current state of the emergency health care sector in order to address inequities and improve patient outcomes. The study also aims to open a general discussion in the medical community about the development of emergency medicine as an indispensable specialty in the Jordanian health care sector.

The Jordan Medical Council (JMC) is the only association in Jordan that is responsible for the accreditation of medical training programs in the country. Until 1982, subspecialty training programs were not endorsed by the JMC, and only in 1989 did the JMC accredit a training program available for family physicians that wished to work in the emergency medical sector. In 2003, emergency medicine was recognized as an independent subspecialty by the JMC, and residency programs were developed to train emergency medical specialists.



The Ministry of Health has taken steps towards the development of the emergency health sector and published a set of service standards for general hospitals that includes recommended equipment and medication for the operation of an emergency department (Ministry of Health Technical Working Group). However, there are no existing entities responsible to hold hospitals accountable to abiding by Ministry guidelines. The foundation of the Health Care Accreditation Council (HCAC) in 2007 introduced an initiative to hospitals for providing quality care by awarding accreditation to hospitals that meet certain criteria specific to relevant departments. As of now, seventeen hospitals have been awarded HCAC accreditation.

In order to identify the strengths and opportunities that exist in the current emergency health care system, the researcher wrote a questionnaire that assembled information from the Ministry of Health service standards guidelines and the World Health Organization's generic Essential Emergency Equipment List (World Health Organization, 2012). The questionnaire assessed the availability of equipment and medications present in emergency departments in Amman, as well as the opinions of participating physicians regarding factors that would improve working conditions, patient outcomes, and future developments. The researcher aimed to distribute the questionnaire to all hospitals in Amman with an attached and active emergency department.

A list of all hospitals in Amman was generated. Subsequently, six hospitals were excluded from this list for the following reasons: Three hospitals that had closed due to lack of business, two hospitals that follow a policy which includes refusal to participate in studies, and one military hospital that required full authorization from the Royal Medical Services. Due to the time constraints that this would introduce to the study, it was decided to exclude this hospital. The questionnaire was ultimately distributed to 35 hospitals. Delimitations included focusing the research on hospitals in Amman for the sake of ensuring access, completion, and collection of distributed questionnaires.

## LITERATURE REVIEW

An article written by Thomas Kirsch, MD et al. discusses the importance of collaboration between countries with developing emergency health care systems and those with developed and fully functional emergency health care systems. “Rather than *repeatedly* ‘reinventing the wheel’ with the start of each new emergency care system,” writes Kirsch, “the preexisting knowledge base of emergency medicine can be shared with [countries with a nonexistent or weakly developed emergency health care system]”. As this study’s intention is to analyze the strengths and challenges of the EM sector in Jordan, the suggestions made by Kirsch’s paper may be useful for addressing any weaknesses found to exist in the sector (Zink, 2006).

In 1978 the World Health Organization hosted an event in which the international health community determined that a model emphasizing public health and primary health care as a vector for the provision of health care services would be the most efficient and cost effective way to distribute care to a population. Like most countries in the world, Jordan has encountered difficulties in re-shifting the focus of health care to promote primary care, including poor resources, inadequate educational preparation, and the high incentives for pursuing secondary or tertiary medicine as a profession. Kirsch provides a list of qualities that would be crucial for the development of emergency medicine as a specialty in any location, which include: 1) physicians interested in establishing EM as a specialty, 2) Governmental support, 3) Support from other physicians and hospital personnel, and 4) Infrastructural components including facilities capable of providing care, training programs for both physicians and non-physicians, and efficient transport and communication systems for emergency services. By implementing Kirsch’s recommendations in conjunction with the findings of this research, the investigator hopes that advancements will be made in the effort to provide quality emergency health services to Jordanians nationwide.

Fully understanding and being able to coordinate all aspects of the emergency health sector is essential to managing an efficient health-emergency response system. A publication from the Asian Disaster Preparedness Centre compares and contrasts the first-responder methods of the United States and the European countries, and suggests a framework for the organization of emergency medical services (EMS).

The American EMS system aims to stabilize the patient until they can be brought to a hospital setting for “definitive” emergency care. The European system, sometimes termed the “Franco-German model”, on the other hand, provides as much care to the patient at the scene of the incident as possible, with the goal of providing enough immediate care to admit the patient to an inpatient setting once they reach the hospital. This allows physicians at the hospital to provide more targeted care upon patient arrival. Regardless of the system used, the publication discusses the importance of coordinating EMS activity with hospital activity. Since Jordan’s emergency sector offers pre-hospital care from both private and public sources without a regulatory body, the topic should be explored in detail to ensure that all EMS systems are easily accessible and capable of providing the highest quality pre-hospital care.

Little published information is available on the quality, efficiency, or accessibility of Emergency Medicine (EM) in Jordan. Like Jordan, most of Middle Eastern countries have newly developing EM education and provision programs, as in Lebanon, whose medical certification board began recognizing EM as a specialty as recently as 1993. A paper written by Jamil D. Bayram discusses the current state and projections for the future of EDs in Lebanon, beginning with the fact that as of 2005, only 14 physicians in Lebanon were registered as EM specialists - general practitioners with either experience or interest in providing emergency care provide most emergency interventions in Lebanon. Even so, the medical community and patients do not generally acknowledge EM as a legitimate and independent specialty.

Bayram suggests that part of the reason that emergency medicine has not been developed is the lack of physicians in Lebanon willing to enter the profession, as they are generally undertrained and underpaid. Part of this dilemma is caused by the structure of the insurance system that sees emergency procedures as equivalent to clinical procedures performed by general practitioners, and reimburses them equally. No list of medical interventions approved for emergency physicians exists, which causes difficulties when determining patient coverage and further emphasizes issues regarding physician compensation. As for training, general practitioners are given the option to complete a two-year training certificate in any emergency-related field. Most physicians leave Lebanon to countries such as the U.K., U.S.A., and France to receive said training. Nevertheless, a survey conducted in Bayram's study indicates that most emergency physicians in Lebanon rely on specialists to stabilize and intervene on critical patients, as they are not adequately trained to do so.

As for the development of EM in Lebanon, Bayram's commentary discusses the many attempts that have been made to improve emergency health care provision in Lebanon, including monetary and equipment donations and educational material and resources. Most have gone unappreciated, and if utilized at all, have been invested in the pre-hospital system, leaving Emergency Departments (EDs) and the EM specialty underdeveloped.

An analysis of the utilization of EDs in Kuwait concluded that emergency physicians classified only 61% of cases seen in the emergency department as urgent, and only 2% of visits were considered life threatening (Shah, 1996). A similar study from a Jordanian hospital in 2000 classified 91.2% of ED visits as non-urgent or trivial (Abdallat, 2000). The study goes on to suggest that geographical, social, and psychological factors may play a role in the patient's decision to attend the ED for medical care. Many additional articles have discussed the severity of the unnecessary use of emergency departments by patients who are seeking the services of a primary care physician, which increases treatment costs and delays care for more urgent cases. A short article by Wafa Halasa, the senior consultant of family medicine for the Jordanian Ministry of

Health, reports on a hospital in Jordan that was able to implement a program in which family physicians and family medicine residents were made available in the ED to handle any non-urgent cases that arrive (Halasa, 2013). By doing so, the emergency department was able to reduce patient and hospital costs created by unnecessary procedures, referrals, and admissions.

The Ministry of Health has produced a publication titled “Emergency Department Service Standards for General Hospitals” with the goal of providing EDs a framework on which the development of their department should be based. In the introduction written by the Minister of Health during the publication of the manual, he states the goal of the issuance as being “[a reference material], that when used conscientiously, will enhance the role of our health care professionals in providing high quality services to Jordan’s patients.” The publication provides checklists of equipment and medication that should be available in emergency departments operating in Jordan, emergencies that should be treated in EDs, and non-emergency protocol. Although these standards exist, no organization exists to ensure that they are being implemented.

The Health Care Accreditation Council (HCAC) was founded in 2007 to provide an initiative for the growth and improvement of hospitals in Jordan. The HCAC accredits hospitals that meet certain internationally recognized standards regarding infrastructure, patient rights and ethics, medications, quality of care, and environmental health and safety. The HCAC publishes a booklet of these standards, which is used by hospitals as a self-assessment checklist when applying for accreditation. Hospitals are encouraged, but not required to undergo HCAC evaluation.

Each standard is presented as a recommendation and includes a ranking of “critical”, “core”, and “stretch”, which determine the extent to which each standard should be followed (Health Care Accreditation Council, 2013). “Critical” standards are those that “address laws and regulations or, if not met, may cause death or serious harm to patients, visitors, or staff”. “Core” standards are the standards that concern “systems [or] procedures that are important for patient care”, and “stretch”

standards are those that are considered “important, but not easy to implement due to time or resource constraints”.

Description	Standard
The emergency department services are organized under the direction of a qualified physician	EM.2
The emergency department is staffed with qualified personnel 24 hours a day.	EM.3
A registry of all individuals who are treated in the emergency department is maintained	EM.5
Essential emergency equipment is available and functioning	EM.8
Lifesaving drugs for emergency care are in the crash cart and available at all times	EM.9

Criteria for operating an accredited emergency department is provided, and is broken down into 14 sections, addressing areas such as emergency department location and patient access, staffing, and emergency response plans. Certain standards match up

**Figure 1** with the purpose of this study (see FIGURE 1), and this research project could potentially be used to refine and apply the accreditation standards for emergency departments.

## METHODOLOGY

The objective of this study was to determine the availability of essential emergency equipment and medication in emergency departments in Amman, as well as collect physician opinion as to what improvements would improve ED function and patient outcomes.

## STUDY PARTICIPANTS

A list of all of the hospitals in Amman was compiled, and then refined to include only hospitals in Amman that reported having emergency rooms, by eliminating specialty hospitals and then sending the list to the Health Care Accreditation Council for confirmation of accuracy. The end result was a list of 43 hospitals from the private, public, and military sectors. The researcher visited 39 of these hospitals, as four hospitals included on the list were not actually in Amman. Three of the hospitals were no longer in operation – upon inquiry, the hospitals closed because of lack of clientele. Finally, two military sector hospitals and one private hospital followed protocols that did

not permit accessibility to undergraduate research. The study was ultimately distributed to all 39 hospitals, and received a response rate excluding non-eligible hospitals of 60.5% (23). The questionnaire refusal rate was 31.6% (16). Questionnaires were distributed to the physician director of the emergency departments of these hospitals, except for at two departments, one of which had the survey completed by the head staff nurse, and the second of which was completed by a medical resident rotating in the emergency department.

#### **INSTRUMENTATION**

The study was executed using a cross-sectional survey that consisted of 30 yes/no/sometimes questions and three short-answer questions (see Appendix II). Since no strategy of accepted measurement of the quality of emergency services was known to exist, the researcher developed the yes/no/sometimes questions using the Jordanian Ministry of Health and World Health Organization guidelines for emergency department service standards as references, and directed the questions towards determining the availability of essential equipment and medication in the emergency department. The short-answer questions were designed with the aim of identifying the perceived strengths and weaknesses in the emergency department as well as potential future development in emergency health care.

Once the surveys were written, they were reviewed by the researcher's academic director, and resubmitted with recommendations. The surveys were edited, and then reviewed by the School of International Training in Jordan's International Review Board (IRB), and accepted without additional recommendations. Once the researcher received approval from the IRB, he began visiting eligible hospitals to distribute questionnaires to the physician directors of eligible EDs. Of the 38 hospitals, 57.1% filled out the survey immediately. The remaining 42.9% asked the researcher to return to collect the survey. Some physicians discussed and elaborated on certain aspects of the survey questions, and replied to the open-ended survey questions; the researcher wrote down and

analyzed the data from these 'mini-interviews' along with the corresponding completed questionnaire.

Quantitative data was coded and entered into a spreadsheet, where it was then analyzed for significant information regarding the quality and preparedness of emergency departments in the surveyed hospitals. Qualitative data from the short-answer questions was examined, and then condensed into keywords that reflected the participants' thoughts about factors that influence the quality of care and working conditions in the emergency department. The keywords from each surveyed hospital were then compared and contrasted with one another in order to determine physician attitudes towards the development of emergency medical services in Jordan. The coded results of the study were discussed with the researcher's project advisor, to ensure that the outcomes were analyzed properly, and all factors of the research were considered when writing the conclusions.

## RESULTS

An average of 9.3 physicians per emergency department was calculated. Out of all of the departments that responded to the survey, 100% were open 24/7.

**Figure 2**

Factor	Percentage	Emergency
More physicians	34.7%	departments
Expanding space and services	30.4%	reported
More nurses	25.9%	having around 15.4 beds
		per department, with the
		greatest number of beds in

an emergency department being 60, and the fewest being 1 bed. This statistic translated to an average of 12.1% of all hospital beds in Amman being emergency department beds.

22 out of the 23 departments that responded to the survey indicated that the hospital owned a private ambulance. However, no emergency departments reported that patients arrived



primarily by ambulance, and a majority (73.9%) reported patients accessed the emergency department via private transport (see Figure 6). Private transport was understood by most respondents to be either a private vehicle or on foot. Six hospitals (26.1%) reported that patients arrived in equal numbers by ambulance and private transport.

Only 63.6% of emergency departments have a system for screening and providing triage for patients. This was also reflected in the organization of some emergency departments in Amman that deliver emergency care based on the type of case presenting, rather than the urgency of the case, and patients are dealt with by subspecialists rather than an emergency physician (for example, surgical cases are treated by a surgeon, and orthopedic cases treated by an orthopedic specialist). Two respondents indicated that an important reform of the emergency department would be to focus on case criticality rather than type of case, and interestingly, one department had hopes to introduce specialty-directed approach. However, all hospitals that commented on the availability of specialists agreed that a family medicine clinic (or a 'fast track' or 'urgent care') should be available to deal with non-critical cases that present to the emergency department.

Figure 3 displays the percentages of departments that are equipped to handle particular classifications of emergencies. Not surprisingly, 91.3% (36) of emergency departments are capable of dealing with cardiac emergencies, which is echoed by the availability of cardiac equipment. Only one department from the 23 eligible respondents reported not having an electrocardiograph (EKG machine), and the same statistics apply for the presence of cardiac medication and access to ancillary electrocardiography services (see Figure 4 and Figure 5). Burns are handled by 82.6% (19) of EDs. Three departments responded "sometimes" for treatment of burns, and are not included in the statistic. They justified their cases as only treating burns of a certain percentage. Only 47.8% (11) of departments managed ophthalmic emergencies.

All emergency departments that answered the questionnaire have oxygen delivery capability; whether it is freestanding oxygen tanks or a central oxygen system. Code carts and pulse

oximetry equipment were reported to be present by 95.6% (22) of respondents. Astonishingly, one of the emergency departments denied having or using personal protective equipment, including examination gloves, face masks, and eye protection.

All emergency departments reported having medication to treat inflammation. The fewest emergency departments, at 73.9% (17), reported having antidotes for poisoning. Only one department denied having medications for cardiac cases, seizures, respiratory distress, and burns, and another department denied having access to sedatives.

Five departments (26.1%) do not have access to respiratory therapy services within their hospital, and two (17.4%) do not have access to an anesthesia department (see Figure 5).

The first short-answer question asked on the questionnaire discussed factors that the participant feels would make working at the emergency department easier. The most prominent answer, suggested by eight participants, was an increase in physician staffing of the ED (see Figure 2). It was often followed up with a comment regarding the importance of having these physicians be emergency medical specialists, and residents who stood nearby would always agree. The medical resident that completed the questionnaire mentioned that her colleagues were often frustrated to receive emergency medicine training from a general practitioner, and felt that a higher standard of care could be expected from residents trained by emergency medical specialists.

Seven of the emergency departments (25.9%) felt that more nurses were needed on the emergency department staff, and four hospitals (14.8%) felt that their current nursing staff needed to be better trained.

Expanding the emergency department to make room for more patients and/or more services was mentioned by seven respondents (30.4%) as a way to improve work conditions. Some physicians elaborated by including specific facilities that should be added to the emergency department, such as x-ray and MRI capabilities, respiratory therapy, a pharmacy, and triage beds.

Four (17.3%) respondents said that the procedural equipment available was not sufficient to provide the highest quality of medical care. One physician mentioned that their lack of equipment is made worse by the absence of an organizational system for resources that are available, and some equipment needs to be retrieved from other departments in the hospital, even during the treatment of a critical case.

Seven departments conveyed the need for a formal trauma system, including priority triage screening, equipment, and emergency or trauma specialists, as both an improvement of work conditions and patient outcomes. These seven departments, as well as four others, discussed with the researcher the lack of proper pre-hospital care provided to patients. Concerns included those of two physicians who felt paramedics should triage patients in a pre-hospital setting. All eleven physicians said that a paramedic program should be developed and only paramedics should be hired to ride in ambulances and provide pre-hospital care.

For patients arriving to the hospital with legitimate emergencies, two respondents explicitly discussed the need for emergency medical technicians (EMTs) to be certified paramedics and available to bring critical patients to the ED. One physician said that a way to communicate with Civil Defense (public sector) ambulances should be available to all emergency departments in order to allow the ED staff to assess and prepare for the incoming case.

Two respondents mentioned high rates of unnecessary use of emergency departments by patients who are seeking the services of a primary care physician, which increases treatment costs and delays care for more urgent cases. They also wrote about problems with overcrowding caused by the families of patients, even in examination rooms. Interestingly, both participants bridged the issues by suggesting patient education campaigns, including pamphlets, television programs, and radio programs that would teach patients about medical conditions and what type of illness or injury warrants a visit to the emergency department. One physician discussed the importance of promoting the role of primary health care clinics, for both preventing the abuse of the emergency

department and reducing the incidence of emergencies. Four respondents felt that the development of 'fast-track' or 'urgent care' clinics in the emergency department would help clear the ED for dealing with acute cases.

Two physicians commented on the need to reform the insurance programs available to patients. They described the situation that occurs with many patients who are turned away from receipt of important care after initial stabilization in the emergency department, and how it is their duty as physicians to provide care to all people who come to their department. They discussed that whether or not insurance reform occurs, hospitals should implement a computer system that allows the physicians and administration to access patient information, including insurance status, family history, and medication history. One of the two physicians suggested that this information should be on a network accessible to all hospitals due to the prevalence of patients shopping between hospitals.

The final question presented on the questionnaire inquires about future developments that physicians would like to see happen in the emergency department. This question provoked the most thought from the physicians, who often recruited the opinions of other physicians or nurses that stood nearby. Answers were varied. The most consistent response was "more beds", followed closely by the adoption of a computerized patient registration system, and then the improvement of access to ancillary facilities. Responses pertaining to both the development and innovation of the facilities in the department, as well as space and accommodation were the most prevalent.

## **DISCUSSION AND RECOMMENDATIONS**

The purpose of this study was to determine the availability of essential emergency equipment and medication in emergency departments in Amman, as well as collect physician opinions about the emergency health care sector that would improve patient outcomes. This section aims to discuss how the data collected for this research provides valuable information

regarding the current state of the emergency health care sector, and the changes that would promote the development of Jordan's emergency health care sector.

Strain on Jordanian EDs is a very real and taxing issue that creates difficulties in providing top quality care to patients requiring urgent and immediate attention. The importance of a well functioning trauma unit in emergency departments is essential to providing treatment to the critically ill or injured and improving the outcomes of such cases. Lacking an adequate system for the triage of patients can delay care and cause poor patient outcomes. The research suggests that some hospitals lack a system for triage priority screening, and most physicians commented that their department's triage capabilities should be improved. According to the respondents, improvement entails adopting a priority screening system, ensuring equipment and medications are available for patients requiring triage, and enough beds available to treat incoming patients. In terms of triage capabilities, especially for critical patients, the investigator recommends that certain emergency departments be assigned the role of "trauma departments" or "trauma centres", which would receive patients suffering life-threatening illness or injury and requiring immediate care. For all emergency departments, the importance of a priority screening system to provide treatment to patients based on the severity of the case cannot be overstressed.

Hospitals and emergency departments need to consider more than just space when dealing with patients. They also need to consider the availability of physicians and other qualified medical staff. It is perceived that the growing demand for emergency medical care in Jordan is not being met by emergency physician supply, and complex emergencies are difficult to deal with because of this lack of specialists. By supporting the development of emergency medicine as an independent specialty, physicians will be able to provide the highest quality of focused care to patients in need. The training of nurses as well as paramedics and non-medical staff rotating in the emergency departments should also be addressed. Hiring qualified nurses and providing continuing education

programs for nurses and physicians will keep staff members up to date on medical developments and findings, and help guarantee that patients are receiving the best quality of care available.

Neglect towards pre-hospital care, particularly first-responders and emergency transport, is a topic addressed by many of the physicians that filled out the survey. Many respondents discussed the fact that emergency medical technicians do not have to be licensed paramedics, and how this affects the outcomes of patients arriving via medical transport. Emergency transport is available from either the public or private sector, and each act independently of one another. One physician from a public institution said that only licensed paramedics were hired to ride in his department's ambulances, and shared his opinion that even ambulance drivers should be trained paramedics. Two other physicians talked to the investigator about the role of paramedics in triaging patients before their arrival to the emergency department, which would allow the hospital to deliver more focused treatment. Developing and implementing a postgraduate paramedic course at universities and health centres throughout Jordan would create a skilled workforce able to provide quality care on-site of an emergency. Doing so would not only improve patient outcomes, but also reduce hospital costs and create a new market for jobs.

The coordination between transport services and emergency departments is also an important aspect to consider when developing emergency medical services. Jordan does support an emergency contact number (193) that connects callers to Civil Defense dispatch operators. However, once en route, there is no communication system between ambulances and emergency departments to inform physicians about estimated time of arrival and patient status. The researcher suggests that the adoption of radio communication between EMS and ED would allow the emergency department to prepare its resources for the arrival of a patient.

Although the study shows that most emergency departments in Amman are generally well equipped and reasonably staffed, the data collected suggests that there may be inconsistencies in the available equipment and facilities between departments that may be a source of varying levels

and qualities of care. In order to reduce inequities in the quality of emergency care, emergency departments should meet certain criteria in order to be classified as such. Criteria would include available equipment and medication, the availability of trained EMTs, and a rotating staff of specialized emergency physicians. With a concrete group of departments available, they can then be ranked in terms of the level of care that they provide to patients, including departments specialized for managing trauma cases. Ideally, the criteria would be created and regulated by an objective third party, such as the Health Care Accreditation Council. However, it is also important for departments to have the capacity to monitor their own performance and foster a culture of self-improvement.

The promotion of primary care and public health education is also essential to the prevention of medical emergencies. Identifying health priority issues that cause negative impacts on health and targeting these issues with programs that address the reduction of health inequalities will help reduce overcrowding, abuse, and costs of receiving care in an emergency department. Developing these issues that intersect with emergency medicine is important, and can form a framework for the development and growth of the emergency medical sector in Jordan.

#### **FUTURE RESEARCH**

This study regarding the quality of emergency health care as determined by the availability of essential emergency equipment and the perceived function of EDs is the first of its kind, and lays groundwork for future studies of the emergency health care sector in Jordan. The investigator hopes to return to Jordan and continue researching emergency health care from different perspectives, including emergency medical services and transport, emergency medical education, public health education, and the hospital system in greater detail. The investigator aims to open a dialogue in the medical community about the expansion of emergency medicine as a specialty and the provision of emergency care to patients. The next steps of this research project would include gathering data about the demographics of emergency patients, and the opinions of patients

regarding the quality and accessibility of emergency care. Further interests include exploring the capabilities of EMS in Jordan, and the difficulties encountered while providing pre-hospital care. The availability of continuing education programs should be addressed, and all emergency physicians and staff should be provided with training as emergency medicine develops as an individual specialty. Considering further opportunities to provide and improve such programs should be studied. Ultimately, the researcher hopes to influence the establishment of a committee that regulates and enforces emergency health care services and standards, and reduce the inequities present in the emergency health care sector of Jordan.



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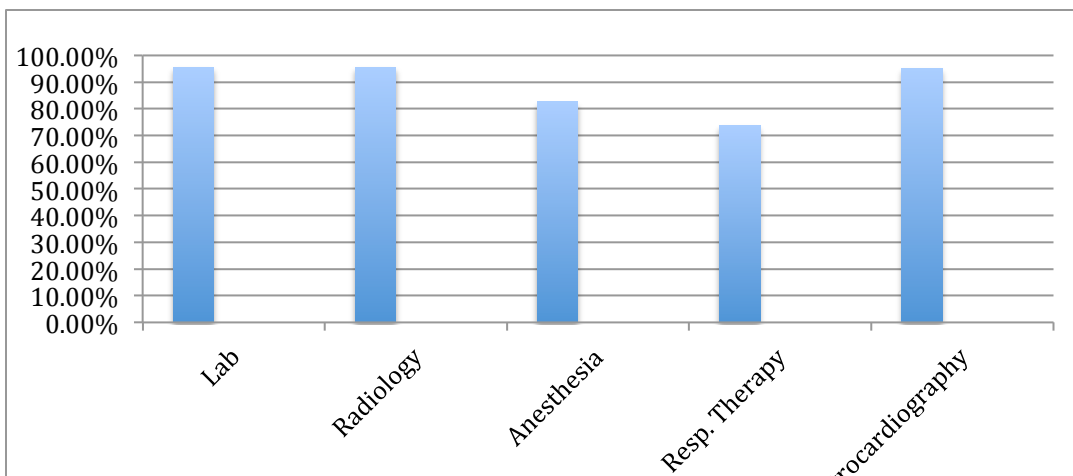
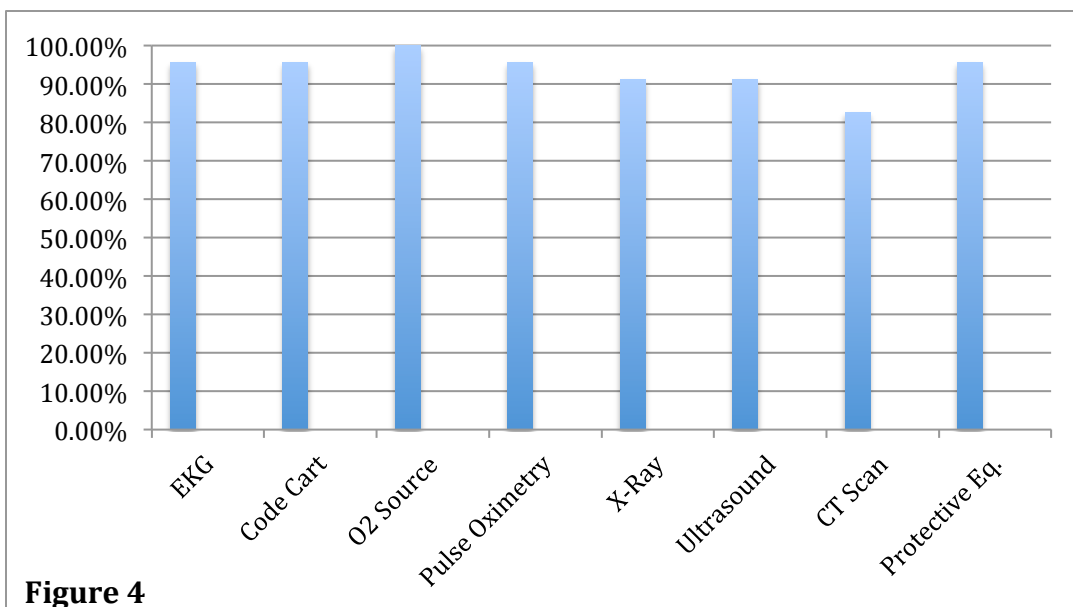
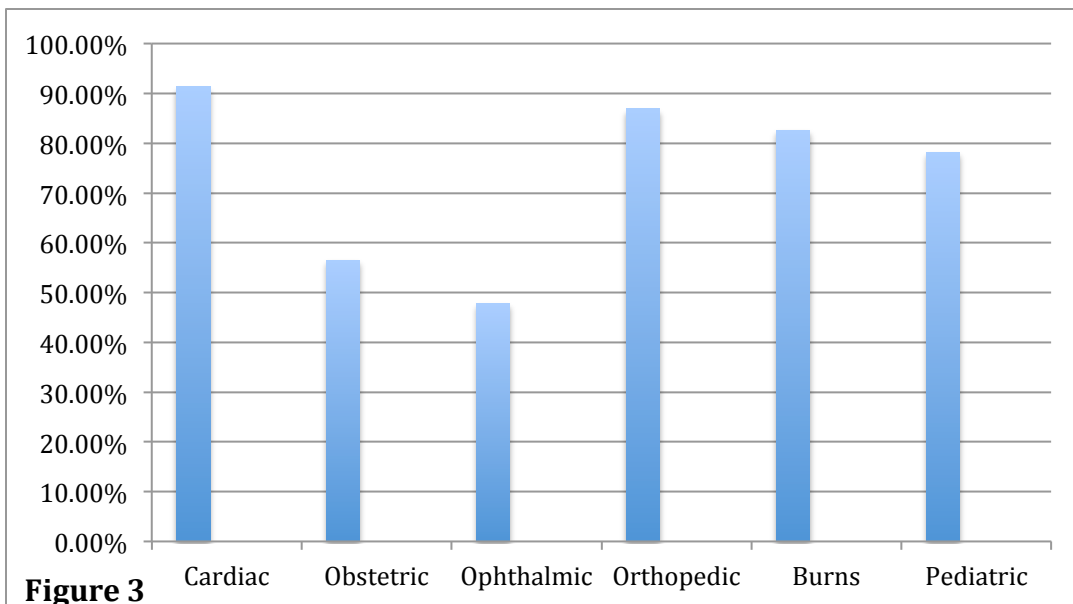
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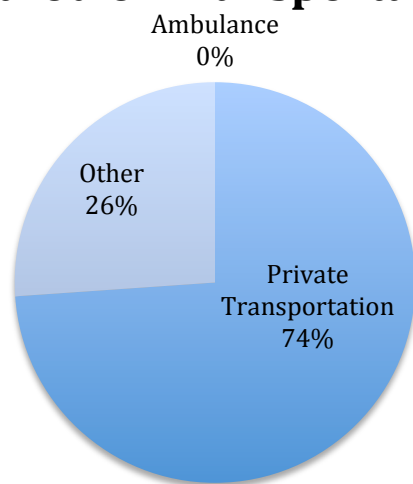
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**APPENDIX I**



### Method of Transportation



**Figure 6**

## APPENDIX II

Dear Doctor,

The purpose of this survey is to get information about the emergency services available in Amman. I am a student at the School of International Training (SIT), a study abroad program focusing on public health and community development in Jordan. I am doing this survey as part of my coursework for a class, and would very much appreciate your help in answering this brief survey. The study aims to assess the availability of essential equipment in emergency departments in Amman.

There is no compensation provided for completing the survey, nor any risk introduced to the participant or respective institutions. In order to ensure complete confidentiality, please *do not* include your name or the name of your institution anywhere on the survey. The data collected from your participation will be used to supplement the aforementioned study, and only the researcher will have access to the original anonymous surveys.

To participate in the survey, please complete all of the attached questions as accurately as possible, and return the survey to the researcher on the agreed upon date. Participation is encouraged, but is entirely optional, and you have the right to refuse involvement at any time.

Thank you for taking the time to provide important material to this study. With the results, we hope to trigger national interest in the expansion of emergency services in Jordan, and improve the access and quality of emergency healthcare to Jordanians. If you would like a copy of the completed study, please fill out the form at the bottom of this cover sheet, detach it, and return it to the researcher with the completed survey. If you would like additional information or have concerns about the study, please do not hesitate to contact the researcher at the number below.

Sincerely,

Seif Laeth Sari Nasir

Creighton University '15 | SIT Study Abroad

Biology | Behavioural and Cognitive Neuropsychology

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Mob: 079 536 2105

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**Request for completed study. DO NOT RETURN THIS FORM STILL ATTACHED TO THE SURVEY.**

*I would like to receive a copy of the completed study. Please send it to the participant listed below.*

Name:

Address (personal/institution):

## Emergency Department Survey

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Please complete the following survey as accurately as possible. **All answers will be kept confidential.** Data will be used to supplement a study concerning the growth and development of the emergency healthcare sector in Jordan. If any questions or concerns arise while filling out the survey, please discuss them with the researcher.

### I. BASIC INFORMATION

- (a) Is your hospital: **Public** **Private** **Military**
- (b) Approximately how many beds does the hospital have? \_\_\_\_\_
- (c) Approximately how many beds does the emergency department have? \_\_\_\_\_
- (d) What hours is the emergency department open? **24/7** **Other**
- (e) Can any person be treated in your emergency department? **Yes** **No**
- (f) How do most patients access the emergency department?  
**Ambulance** **Private transportation** **Other** \_\_\_\_\_
- (g) Does the emergency department have its own ambulance? **Yes** **No**
- (h) How many physicians are on the emergency room staff? \_\_\_\_\_  
How many physicians work at the busiest hours? \_\_\_\_\_

### II. EMERGENCIES

- (a) Does the emergency department have a system for triage priority screening?  
**Yes** **No**
- (b) Is the emergency department equipped to handle multiple trauma victims (3 or more) simultaneously?  
**Yes** **No**
- (c) Do you treat the following emergencies:
- Cardiac emergencies? **Yes** **No** **Sometimes**
- Obstetric emergencies? **Yes** **No** **Sometimes**
- Ophthalmic emergencies? **Yes** **No** **Sometimes**
- Orthopedic emergencies? **Yes** **No** **Sometimes**
- Burns? **Yes** **No** **Sometimes**
- Pediatric emergencies? **Yes** **No** **Sometimes**

### III. EQUIPMENT

Does your emergency department have the following equipment?

- (a) Electrocardiogram (EKG) **Yes** **No**
- (b) Code cart/defibrillator **Yes** **No**
- (c) Oxygen tanks **Yes** **No**
- (d) Pulse oximetry **Yes** **No**
- (e) X-Ray equipment **Yes** **No**
- (f) Ultrasound equipment **Yes** **No**

(g) CT Scan **Yes No**

(i) Personal protective equipment (gloves, eye protection, face masks, etc)? **Yes No**

#### **IV. MEDICATIONS**

Does your emergency department have medications for:

(a) Poisonings? **Yes No**

(b) Heart conditions? **Yes No**

(c) Seizures? **Yes No**

(d) Inflammation? **Yes No**

(e) Respiratory distress? **Yes No**

(f) Burns/Skin irritation? **Yes No**

(g) Sedation? **Yes No**

#### **V. ANCILLARY SERVICES**

Which ancillary services are available to the emergency department? (check box if available)

Lab

Radiology

Anesthesia

Respiratory Therapy

Electrocardiography

#### **VI. PERSONAL INPUT AND OPINION**

(a) What do you wish the emergency department had that would make your job easier?

(b) What do you wish the emergency department had that would improve patient outcomes?

(c) What would you like to see developed in the emergency department in the future?

## APPENDIX III

**Consent to Use of Independent Study Project (ISP)**

(To be included with the electronic version of the paper and in the file of any World Learning/SIT Study Abroad archive.)

Student Name: Seif L. S. Nasir

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Title of ISP: Quality of emergency departments in Amman evaluated by the availability of essential emergency equipment

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Program and Term: Jordan: Health and Community Development, Spring 2014

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1. When you submit your ISP to your academic director, World Learning/SIT Study Abroad would like to include and archive it in the permanent library collection at the SIT Study Abroad program office in the country where you studied and/or at any World Learning office. Please indicate below whether you grant us the permission to do so.

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	NOT responsible for any unauthorized use of my ISP by any third party who might access it on the Internet or otherwise.
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Student Signature: \_\_\_\_\_ Date: \_\_\_\_\_