

قال تعالى  
( وما أوتيتم من العلم إلا قليلاً )

الاسراء الآية (85)

# *Dedication*

*I present this thesis to all who contribute*

**&**

*Present to my father, mother.*

**&**

*All my teachers*

**&**

*All my friends.*

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## **Abstract**

Healthcare professionals and the public have increasing concerns about the ability of emergency departments to meet current demands. Increased demand for emergency services, mainly caused by a growing number of minor and moderate injuries has reached crisis proportions, especially in the Sudan. Numerous efforts have been made to explore the complex causes because it is becoming more and more important to provide adequate healthcare within tight budgets. Optimization of patient pathways in the emergency department is therefore an important factor.

This research is intended to assist physicians, planners and architects in producing a design for an emergency department which is of adequate size and contains adequate facilities to fulfill its role. As emergency departments have high patient turnover, varied case mix and a large workforce, their design is crucial to their function.

Emergency departments must be planned with due consideration for the potential for growth and expected changes in health care delivery. Current and potential models of health care must be considered.

The main goal of the research is an attempt to solve complex problems within the framework of a process owner (the ED), a strategy owner (hospital management) and a model owner (systemic consultant) by implementing more effective ways of working together for all concerned in the hospital environment.

The study started with field visits to emergency departments in different private and governmental hospitals in Khartoum state, in addition to some hospitals in turkey.

Finally the study concludes to that the standards and specifications of services provided by the hospitals in Khartoum State do not meet the international standards

and specifications of designing and service providing .At the same time the research recommends some solutions to lessen troubles of crowded in emergency sections, to provide good medical service, and to build a good therapeutic environment.

The research work contains 6 chapters:

**Chapter One:** deals with introduction of general medical services in hospitals and emergency departments, hypotheses, methodology, importance and goals of this research.

**Chapter 2:** deals with:

- General introduction about emergency medicine and emergency department and also includes the challenges faced in the emergency care system.
- History of emergency medicine and brief history of health care in Sudan.
- Background of medical service in Sudan and other countries.
- Definitions of some medical terms such as emergency, emergency service, emergency medicine, emergency departments .....etc.
- Levels of emergency services.

**Chapter 3:** reviews the Understanding of emergency departments in general hospitals in some topics such as:

- Schematic design / functional requirements.
- Design Consideration.
- Description of Patient flows.
- Functional Relationship.
- Emergency Department Waiting Time.

**Chapter 4:** discusses the Emergency Services for general hospitals such as :

- Ambulance Entrance
- Reception And Registration Office
- Triage Area
- Decontamination Room
- Examination Rooms
- Resuscitation Room
- Operation Room (for minor surgery)
- Isolation Rooms
- Plaster Room

**Chapter 5:** presents a study of some hospital emergency department in Khartoum State such as Khartoum Educational Hospital, Khartoum North Hospital... etc. and explains the problems associated with large numbers of patients in emergency department.

The chapter also reviews some emergency department in hospitals in other countries and studies some designs.

**Chapter6:** deals with the general and specific results for emergency departments and ends with recommendations and suggestions for this study.

## ملخص البحث

المتخصصون في الرعاية الصحية والجمهور أصبح لديهم اهتمام زائد بمقدرة اقسام الطوارئ لمواجهة الطلب الحالي علي الرعاية الصحية . والطلب المتزايد علي خدمات الطوارئ ينتج اساسا بزيادة الاصابات الكبيرة والطيفة والتي وصلت الي اذمة نسبية خاصة في السودان . وقد بذلت جهود كبيرة لاكتشاف المشاكل المعقدة لانها اصبحت اكثر اهمية لتوفير الرعاية الصحية الكافية في حدود الميزانيات والامكانيات الضيقة. ويعتبر التحسين من ممرات ومسارات المرضى في اقسام الطوارئ من العوامل المهمة للوصول الي رعاية طبية جيدة. تم تصميم هذا البحث في محاولة لمساعدة الاطباء والمخططين والمعماريين لتصميم أقسام الطوارئ التي تحتوي علي مساحات ومرافق كافية لاداء دورها ووظيفتها علي مستوي رفيع خاصة اقسام الطوارئ التي تحتوي علي حركة عالية وكثيفه للمرضي وكثير من القوي العاملة. مع الاخذ في الاعتبار التخطيط للتغيرات والزيادات المستقبلية المتوقعة في الطلب علي الرعاية الصحية.

وبهذا يتمحور هذا البحث في ايجاد حلول للمشاكل المعقدة في اطار عمليات المالك (قسم الطوارئ) واستراتيجية المالك ( ادارة المستشفى) وممثل المالك (نظام الاستشاري) من خلال ايجاد طرق اكثر فعالية للعمل المشترك من بين كل المعنيين داخل بيئة المستشفى.

وقد اجريت الدراسة في المقام الاول في شكل زيارات ميدانية لعدد من اقسام الطوارئ في مستشفيات ولاية الخرطوم الحكومية منها والخاصة وبعض المستشفيات بدولة تركيا بهدف دراسة الناحية التصميمية والخدمية لاقسام الطوارئ والمشاكل التي تواجه هذه الاقسام ومدى مطابقتها مع للمعايير والمواصفات العالمية التي تم عرضها خلال فصول البحث.

وخلصت الدراسة الي ان تصميم بعض المستشفيات في ولاية الخرطوم والخدمات التي تقدم فيها غير مستوفية للمعايير والمواصفات العالميه مما ادي الي خلق بيئة صحية غير جيدة للمرضي والعاملين في بعض المستشفيات .

وقد تم طرح عدد من التوصيات بشأن ايجاد بعض الحلول التي يمكن العمل بها للتقليل من مشاكل الازدحام في اقسام الطوارئ وتوفير خدمات طبية جيدة وخلق بيئة علاجيه جيدة.

ويحتوي البحث علي 6 فصول محتوياتها علي النحو التالي :

الفصل الاول : ويتناول مقدمة عامة للخدمات الطبية في المستشفيات واقسام الطوارئ وفرضيات البحث ومنهجية البحث واهميته واهدافه.

الفصل الثاني : ويتناول عدة مواضيع تتمثل في :

- مقدمة عامة وتعريفه بطب الطوارئ واقسام الطوارئ.
- خلفية تاريخية عن الخدمة الطبية الطارئة .
- خلفية عن اقسام الطوارئ في السودان وبعض البلدان الاخري.
- تعريف لبعض المصطلحات الطبية.
- اهمية قسم الطوارئ.
- مستويات تقديم الخدمات الطبية الطارئة.

الفصل الثالث : ويستعرض المفهوم العام لاقسام الطوارئ في بعض المواضيع علي النحو التالي :

- المتطلبات الوظيفية.
- الاعتبارات التصميمية.
- وصف لحركة المرضي داخل قسم الطوارئ.



▪ العلاقات الوظيفية.

▪ زمن الانتظار في اقسام الطوارئ.

الفصل الرابع : ويناقدش خدمات الطوارئ في المستشفيات العامة مثل :

▪ مدخل الاسعاف .

▪ مكتب التسجيل والاستقبال .

▪ منطقة الفرز .

▪ غرف الكشف .

▪ غرفه التطهير .

▪ غرفة الانعاش .

▪ غرفة العمليات (العمليات الصغري).

▪ غرفة العزل .

▪ غرفه الجبص .

الفصل الخامس : ويقدم دراسة ميدانية لبعض اقسام الطوارئ في اكبر المستشفيات في ولاية الخرطوم مثل

مستشفى الخرطوم التعليمي ومستشفى الخرطوم بحري وغيرهما . ويشرح المشاكل المتعلقة بالاعداد الكبيره

للمرضي داخل هذه الاقسام .

كما يناقدش هذا الفصل بعض اقسام الطوارئ في مستشفيات في بلدان اخري من حيث التصميم المعماري

والخدمات الطبية .

الفصل السادس : ويتناول النتائج العامة للخدمات الصحية والخاصة باقسام الطوارئ كما يتناول التوصيات

والمقترحات من خلال هذه الدراسة.

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