A Review of the Effective Management at The 
Paediatric Emergency Department at 
St. Luke's Hospital

Isabelle Zahra Pulis

A Dissertation Presented to the Institute of Health Care 
in Part Fulfillment of the Requirements for the Degree of 
Master of Science in Health Services Management 
at the University of Malta.

Supervised by Mr. Michael Bezzina BA, BSc (Nurs.), MSc (HSM).
DECLARATION

I declare that the following is my own, original work.

Isabelle Zahra Pulis

August, 2003
I am greatly indebted to my supervisor Mr. Michael Bezzina, for his advice, criticism and encouragement that helped and motivated me to develop and finish my thesis. I am also particularly grateful to my advisor, and associate investigator, Dr. Simon Attard Montalto, Chairman of Paediatrics, for his valuable assistance and helpful advice, and for always being so prompt and helpful when his assistance was needed.

My thanks also go to Professor Anton Buhagiar, Head of Department of Mathematics, for his assistance in the analysis of the results. Special thanks go to my colleague pharmacist and friend, Mr. Michael Gafa', for his suggestions with regards to graphics and to Dr. Kenneth Saliba for providing much-needed literature.

I am also very grateful to the medical staff at St. Luke's Hospital Paediatric Department for their co-operation in accepting to complete my questionnaire. Without their assistance I would not have been able to carry out this study.

Above all I would like to thank my family, especially my mother Lucy for her understanding, support and encouragement, and for her interest in all my endeavours. Special gratitude goes to my dearest children Luigi and Francesca, who although being very little, gave me a lot of strength and love, and courage to carry on till the end.
To My Family
EXECUTIVE SUMMARY

This study attempts to identify the factors that determine the quality and efficiency of the health service provided by the PED at St, Luke's Hospital. This was done by analysing the attendance patterns, patient characteristics and magnitude of inappropriate use of the PED. The medical staff working at the PED were also studied, including support and back-up facilities. Factors that contribute to quality of the health service provided were investigated such as waiting times, attractiveness of surroundings and doctor-patient communication. Parent satisfaction with the quality of the service provided by the PED was finally assessed. The study was carried out at St. Luke's Hospital, Malta, an acute general hospital. Two samples were used: a sample of 119 children who presented at the PED and a sample of 11 doctors who worked at the PED at the time of the study. The tools chosen were two different, author-created questionnaires.

From the data collected it was found that a high proportion of children, attend the PED with non-urgent cases, however parents have logical reasons for bringing their children to the PED. With regards to the quality of the service at the PED, parents were satisfied with the general service provided. Less satisfactory areas included relatively long waiting time, unsuitable waiting area and some deficiencies in parent-doctor communication. The PED was found to be solely managed by medical doctors, being of junior grades and with little working experience within the Paediatric Department. However these doctors are supported by an efficient back-up system from senior colleagues at the Paediatric Department. Lack of nursing staff and the
inadequacy of the present triage system were also observed. Recommendations for action to management and suggestions for further research are made.
# CONTENTS

Declaration ii  
Dedication iii  
Acknowledgments iv  
Executive summary vi  
Contents vii  
List of tables xiii  
List of figures xiv  
Dissertation word-count xv  

## Chapter I – Introduction 1  
1.0 Background to the study 2  
1.1 A new paradigm of quality 2  
1.2 Problem statement 3  
1.3 Purpose of study 3  
1.4 Aim of Study 4  
1.5 Objectives of the study 4  
1.6 Significance of the study 5  

## Chapter II – Literature Review 7  
2.0 Approach to the literature review 8  
2.1 Presentation of the literature review 9  
2.2 The Paediatric Department 10  
2.3 Eligibility 10  
2.4 The Paediatric Emergency Department 11  

vii
2.5 Paediatric Casualty premises 12
2.6 Population served 14
2.7 Patterns of attendance 14
2.8 Paediatric emergency staff 15
2.9 Categories of paediatric problems in the A&E Department 17
  2.9.1 Trauma & surgical problems 18
  2.9.2 Medical problems 18
2.10 Use of the Paediatric Emergency Department 19
2.11 Appropriateness of the Paediatric Emergency visits 20
2.12 Reasons for inappropriate use of the Paediatric Emergency Department 22
2.13 Emergency Department service quality 24
2.14 Patient satisfaction 25
2.15 Patient satisfaction at the Paediatric Emergency Department 25
2.16 Prolonged waiting time for medical care 26
2.17 Extensive waiting times affect treatment outcomes 27
2.18 Patient-staff communication 28
2.19 Paediatric triage 29

Chapter III – Methodology 31
3.0 Introduction 32
3.1 Research design 32
3.2 Setting 32
3.3 Target population definition 33
3.4 Accessible population 33
3.5 Inclusion criteria
3.6 Exclusion criteria
3.7 Sample size
  3.7.1 Sample I
  3.7.2 Sample II
3.8 Sampling method
  3.8.1 Sample I
  3.8.2 Sample II
3.9 Choice of the main research tools
3.10 The problem of non-response
3.11 Questionnaire I – The paediatric parents’ questionnaire
3.12 Questionnaire II – Paediatric Emergency doctors’ questionnaire
3.13 Development and presentation of the questionnaires
3.14 Preamble
3.15 Pilot survey
3.16 Data collection
3.17 Administration of the questionnaires
  3.17.1 Paediatric patients’ questionnaire
  3.17.2 Paediatric Casualty doctors’ questionnaire
3.18 Instruction to respondents
3.19 Determination of appropriateness of the paediatric visits
3.20 Coding, tabulation and data processing
3.21 Ethical considerations and approvals
## Chapter IV – Results

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>Introduction</td>
<td>57</td>
</tr>
<tr>
<td>4.1</td>
<td>Part 1 – Results from the Parents’ questionnaires</td>
<td>57</td>
</tr>
<tr>
<td>4.1.1</td>
<td>Response rate</td>
<td>57</td>
</tr>
<tr>
<td>4.1.2</td>
<td>Patterns of attendance at the PED</td>
<td>57</td>
</tr>
<tr>
<td>4.1.3</td>
<td>Patient characteristics</td>
<td>61</td>
</tr>
<tr>
<td>4.1.4</td>
<td>Usual site of medical care</td>
<td>68</td>
</tr>
<tr>
<td>4.1.5</td>
<td>Reasons for choosing the PED as the site of medical care</td>
<td>69</td>
</tr>
<tr>
<td>4.1.6</td>
<td>Referral status</td>
<td>70</td>
</tr>
<tr>
<td>4.1.7</td>
<td>Presenting complaints</td>
<td>71</td>
</tr>
<tr>
<td>4.1.8</td>
<td>Recurrent health conditions</td>
<td>72</td>
</tr>
<tr>
<td>4.1.9</td>
<td>Patient satisfaction with the service</td>
<td>73</td>
</tr>
<tr>
<td>4.1.10</td>
<td>Satisfaction with doctor-patient communication</td>
<td>74</td>
</tr>
<tr>
<td>4.1.11</td>
<td>Waiting time</td>
<td>75</td>
</tr>
<tr>
<td>4.1.12</td>
<td>Adequacy of the facilities</td>
<td>76</td>
</tr>
<tr>
<td>4.1.13</td>
<td>Recommended improvements to the PED</td>
<td>78</td>
</tr>
<tr>
<td>4.1.14</td>
<td>Hospital admissions</td>
<td>79</td>
</tr>
<tr>
<td>4.1.15</td>
<td>Appropriateness of the paediatric visits</td>
<td>80</td>
</tr>
<tr>
<td>4.2</td>
<td>Part 2 – Results from the doctors’ questionnaires</td>
<td>81</td>
</tr>
<tr>
<td>4.2.1</td>
<td>Response rate</td>
<td>81</td>
</tr>
<tr>
<td>4.2.2</td>
<td>Personal characteristics</td>
<td>82</td>
</tr>
<tr>
<td>4.2.3</td>
<td>Medical support from senior paediatric colleagues</td>
<td>84</td>
</tr>
<tr>
<td>4.2.4</td>
<td>Support from other departments</td>
<td>85</td>
</tr>
<tr>
<td>4.2.5</td>
<td>Nursing support</td>
<td>86</td>
</tr>
<tr>
<td>4.2.6</td>
<td>The PED facilities</td>
<td>86</td>
</tr>
</tbody>
</table>
4.2.7 Improvement suggestions

4.2.8 Hindering factors

Chapter V – Discussion

5.0 Background to the discussion

5.1 Response rate

5.2 Patterns of attendance

5.2.1 Seasonal variations

5.2.2 Daily variations

5.2.3 Time of arrival

5.3 Patient characteristics

5.3.1 Gender

5.3.2 Children’s age

5.3.3 Parents’ age and family status

5.3.4 Parents’ educational level

5.3.5 Private insurance and transportation

5.3.6 Site where parents usually take their children for medical care

5.3.7 Reason for choosing the PED as the site for medical care

5.4 Appropriateness of the paediatric visits

5.4.1 Referral status and admissions

5.4.2 Presenting problems

5.5 Management of the PED treatment room

5.5.1 Doctors’ grades and working experience

5.5.2 Medical support from paediatric colleagues

90

90

92

93

93

94

94

95

95

96

97

97

97

98

99

99

100

101

101

102

103

103

105
LIST OF TABLES

Table 1  Age of paediatric patients at the time of study 63
Table 2  Parent’s age at time of study 64
Table 3  Children’s family unit at the time of the study 65
Table 4  Adult/s accompanying their children at the paediatric emergency 66
Table 5  Education level of the children’s parents 67
Table 6  Usual site of medical care reported by the patients’ parent/s 69
Table 7  Reasons for choosing the PED for treatment. 70
Table 8  Presenting complaints of the paediatric patients 71
Table 9  Parents who were satisfied with items describing the quality of staff communication 74
Table 10  The waiting time spent before receiving medical attention at the PED 75
Table 11  Adequacy of facilities of the paediatric waiting room 76
Table 12  Adequacy of the paediatric emergency treatment room 77
Table 13  Most common recommended improvements to the PED 79
Table 14  Number of paediatric attendances rated as being urgent or not urgent by two independent doctors 80
Table 15  Doctors’ working experience with the paediatric department 83
Table 16  Adequacy of the emergency department waiting room 87
Table 17  Recommended improvements to the paediatric waiting room 88
Table 18  Adequacy rating of the paediatric emergency treatment room 89
Table 19  Improvements recommended to the PED by the casualty doctors 90
Table 20  Factors hindering paediatric casualty doctors from providing a better health service 91
LIST OF FIGURES

Figure 1  Variation in the number of attendances at the PED in different months  58
Figure 2  Variation in the number of Attendances at the PED during weekdays and weekends  59
Figure 3  Variations in Paediatric Emergency Attendances according to the time of the day during weekdays (Mondays to Fridays)  60
Figure 4  Variation in Paediatric Emergency Attendances according to the time of day during weekends (Saturdays & Sundays)  61
Figure 5  Children's age at time of study  62
Figure 6  Age of Parents at the time of study  64
Figure 7  Family status of respondents at the time of study  66
Figure 8  Percentages of presenting complaints by paediatric patients  72
Figure 9  Satisfaction score with the service provided by the PED  73
Figure 10  Graphical representation of the waiting time at the PED  75
Figure 11  Adequacy of the facilities of the paediatric waiting room  77
Figure 12  Adequacy of the Paediatric Emergency room treatment  78
Figure 13  Hospital Admissions of paediatric patients following the visit to the PED  79
Figure 14  Percentage of urgent and non-urgent cases as rated by two independent doctors  81
Figure 15  Grades of Doctors working within the PED  82
Figure 16  Doctors' working experience within the Paediatric Department  83
Figure 17  Adequacy rating of emergency waiting room factors  87
DISSERTATION WORD-COUNT – 20,266 words
Chapter I

Introduction
1.0 Background to the Study

Each year between 10,200 and 12,300 children in Malta seek medical care in the Paediatric Emergency Department (PED) (Attard Montalto, 2002). Studies overseas indicate that between one third and one half of the paediatric emergency visits are for non-urgent conditions (Van-Tan et al., 1992; Bradley et al., 1995; Phelps et al., 2000). This type of medical service utilisation affects the quality of health care provided by the paediatric department in several ways.

Descriptive studies have shown that most parents of children attending an emergency department are satisfied with the services provided by the department (Brown et al., 1995; Hafon et al., 1996). Less satisfied parents reported having to wait significantly longer than satisfied parents, before receiving medical attention (Brown et al., 1995). Others reported that an inappropriate triage system failed to identify the urgency of the child’s condition (Hodge, 1999). Other quality aspects included the lack of information about the child’s condition (Davies, 1995) and the lack of medical and nursing staff at the paediatric emergency room (Prince et al., 1992).

1.1 A New Paradigm of Quality

Traditional view of quality is defined by such things as accurate, prompt diagnosis and safe and effective treatment (Hernandez et al., 2001). The paradigm of providing traditional ‘quality’ care has changed. Today, patients and families, otherwise known as consumers, are not solely satisfied with traditional quality care. Health care consumers
measure quality in terms of accessibility, availability, waiting times, good communication with staff and attractiveness of surroundings (Hernandez et al., 2001). What used to be the ‘niceties’ of health care are increasingly becoming the necessities.

1.2 Problem Statement

Inappropriate attendances to Paediatric Emergency Departments have been shown in many studies to be a sizable problem (Prince et al., 1992). Patients who attend the PED with problems that could be dealt with by the general practitioner use time and resources of the department that could be otherwise used for patients with more appropriate needs. This inappropriate use of the Paediatric Emergency Department results in an unnecessary workload for the limited Paediatric Casualty Staff. This problem is addressed to the PED at St Luke’s Hospital, Malta.

1.3 Purpose of the Study

The misuse of the Paediatric Emergency Department by patients with non-urgent condition effects the efficiency and the quality of this health-care service. Therefore, if the non-urgent cases were to be reduced or eliminated, the medical staff at the paediatric casualty could provide better quality service to the patients who truly require such an emergency service.

This in turn will increase job satisfaction of the paediatric emergency doctors, reduce their workload and increase the efficiency of the paediatric casualty.
However, most importantly, the child with a condition requiring treatment by the paediatric emergency department will also benefit from a reduction in waiting time, reduced health risk, better quality of care and therefore, increased patient satisfaction.

1.4 Aim

The aim of this study is to attempt to identify the factors that determine the quality and efficiency of the health service provided by the Paediatric Emergency Department at St Luke’s Hospital.

1.5 Objectives of the Study

The following objectives were set out for this study:

1. To study the attendance patterns of the PED at St Luke’s Hospital;
2. To identify patient characteristics at the Paediatric Casualty Department;
3. To identify the magnitude of inappropriate use of the Paediatric Emergency Department for non-urgent problems
4. To study the day-to-day management of the Paediatric Emergency treatment room including the medical staff who man it, the back up service and the support services.
To assess the appropriateness of the factors that contribute to the 'quality' of the service provided by the Paediatric Emergency Department, that is waiting times, attractiveness of surrounding and good communication with staff.

6. To assess the parent satisfaction with the quality of the service provided by the PED.

**1.6 Significance of the Study**

This study will provide health services managers with insight on the everyday running of the Paediatric Emergency Department and will highlight the availability and appropriateness of the necessary factors that contribute to the provision of an efficient and good quality service by the Paediatric Emergency Department.

In the past, much has been written about the population's tendency to overuse emergency departments for themselves and their children. This overuse results in an increased workload on the paediatric casualty especially in the winter season. Hospital staff are assessing increasing number of children not requiring hospital emergency services (Boyle *et al.*, 2000). This suggests that there is a need for advice or minor treatment rather than hospital management and that this can be undertaken in the community, utilising the Primary Care Physicians. This will in turn lead to a reduction in the number of children visiting the Paediatric Emergency Department, a reduction in patient queues and waiting times and therefore, an increase in patient satisfaction.
On the other hand from the paediatric emergency doctors’ point of view, the reduced number of patients in the emergency room will give them the opportunity to provide better quality care to the patients who really require their specialist care.

Finally, by reducing the number of patients in the Paediatric Emergency Department, a child who requires immediate care and who, may not be correctly assessed as a triage priority will not be subjected to added health risk. This is because a child requiring immediate treatment will benefit from decreased waiting lists and will be treated in a more timely manner, reducing any risk to his health.
Chapter II

Literature Review
2.0 Approach to the Literature review

Management and medical indices were consulted as well as the Internet to identify studies.

Initially, literature searches were carried out in two areas, namely: the use of paediatric emergency department and the management of the paediatric emergency department. For the use of the paediatric emergency department, searches were carried out using ‘paediatric’ or ‘paediatrics, ‘child’ or ‘children’, ‘emergency department’ ‘accident and emergency department’, ‘A&E department’, ‘casualty department’, ‘use’ and ‘misuse’, ‘appropriate’ and ‘inappropriate’ as key words.

Searches were also carried out to find instruments for the study or tools to guide in the construction of the research instruments. However, no reliable and validated tools were found. One questionnaire used in a study to determine the use of the paediatric emergency department including the patient characteristics, was identified from the literature search (Phelps et al., 2000). However, when the author was contacted on more than one occasion by e-mail, no reply was received. Therefore the tools used in the study were both constructed by the author.

For the second part of the study relating to the management of the paediatric emergency department, searches were carried out using ‘management’, ‘quality’, ‘efficiency’, ‘effectiveness’, ‘paediatric emergency doctors’ or ‘paediatric casualty doctors’ as the key words.
All searches were done twice, once using the English spelling and once the American spelling. Reference lists at the end of identified articles were than used to identify further studies.

Most of the studies used were obtained from published, peer-reviewed journals in the English language. Small-scale studies were excluded. Non-empirical work was only used if it came from seminal authors for theory building. When systematic reviews or meta-analysis were available, they were utilised in preference to single-sample studies, since they are considered to carry most weight (Greenhalgh, 1997).

2.1 Presentation of the Literature Review

The literature review is presented in a structured format. First an introduction about the Paediatric Department, mainly its Emergency Department is presented. This includes the premises of the department, the population served, the patterns of attendance, the paediatric emergency staff and the categories of paediatric emergency attendances.

The use of the Paediatric Emergency and the appropriateness of the visits is then reviewed. The final part of the literature review focuses on factors that influence Emergency Department Service Quality and Patient Satisfaction. Such factors include Waiting time and Patient – Staff Communication and the Paediatric Triage.
2.2 The Paediatric Department

The Department of Paediatrics at St Luke's Hospital provides comprehensive health care services for children in the inpatient, outpatient and community level. In addition, the department is fully set up in several sub-speciality services in a hospital setting, such as paediatric oncology, paediatric cardiology and paediatric endocrinology. Several outreach clinics in the community including well-baby clinics and school medical services also exist (Paediatric Department, 2002).

Urgent Paediatric Referrals may be sent to the paediatric casualty using the standard ‘Ticket of Referral’ form (Appendix C). Alternatively, a medical practitioner may send a patient to casualty using a covering letter or, in the case of self-referred patients, no documentation is required.

Urgent cases should be discussed by the referral doctor directly with the consultant paediatrician on call for the day (rota available from St Luke’s switchboard), and seen/admitted within twenty-four hours.

2.3 Eligibility

All children up to the age of fourteen (14) years are entitled to all the services without any charge, provided they are citizens of Malta and Gozo. There is no processing fee for any service within the Department for Maltese citizens. Non-Maltese citizens will be
required to pay a fee for services rendered from the Department which all vary according to the country of origin. Malta has reciprocal health agreements with certain countries such as the United Kingdom, thereby allowing for special rates for citizens of these countries. The Department of Paediatrics does not handle these financial transactions directly (Paediatric Department, 2002).

2.4 The Paediatric Emergency Department

On average, around 11,000 children attend the Paediatric Accident and Emergency Department at St Luke’s Hospital annually (Attard Montalto, 2002). Some, have genuine causes to be in a hospital setting. Undoubtedly, many have problems that could be treated in a community or general practice. There are many reasons why children attend the paediatric emergency department and not other departments. These include parental anxiety, availability of community service, access to primary health care and previous experience (Morton & Phillips, 1992).

The role of the Paediatric Emergency Department in the management of paediatric emergencies is to distinguish the child in need of emergency or urgent care from the large numbers of less serious presentations; to provide these children with an area where they can be best dealt with; and then to deal effectively with these children (Hernandez et al., 2001). This can be summarised as getting the right child to the right place to be treated by the right person in the right time frame.
The ability to treat any child at any given time depends on the following factors:-

- Number of children attending the paediatric emergency room;
- Availability of nursing staff at the paediatric treatment room;
- The number of medical staff;
- The availability of back up facilities (Beattie et al, 1997).

This clearly requires a great deal of planning and preparation, a process facilitated by some important principles. These include the premises, the population served, the patterns of attendance, the people, priorities and prevention.

2.5 Paediatric Casualty Premises

The environment within which paediatric accident and emergency medicine is practised is important. Children are not young adults – they relate differently from adults to the outside world (Beattie et al., 1997).

Beattie et al (1997) suggest that children are more amenable to treatment if they are calm and undistressed. A friendly, welcoming environment will help this. Every effort should be made to protect the children from the sights and sounds of a typical accident and emergency setting. Ideally, children should be treated separately from the adult population by provision of separate waiting areas, treatment rooms and X-ray facilities (Brown et al., 1995). This however, is not always possible. Even so, every effort should be made to protect the child as suggested above.
This can be facilitated by having bright, airy waiting rooms that have plenty of toys and games to keep the children occupied. The presence of a trained play teacher in the accident and emergency setting has tremendous benefit (Brown et al., 1995). It is not just ill or injured children who benefit from play leaders or play therapy – parents can be relieved of some of the stress and worry occasioned by their ill or injured child. Parents may have to attend the AED accompanied by the ill child’s siblings whose needs will also have to be catered for. Within the treatment setting, distraction therapy as explained above can again be employed. Familiar cartoon characters on the walls, toys and a friendly relaxed atmosphere can also help diagnosis and treatment (Beattie et al., 1997).

Other facilities that can make the life of parents and children easier include:

- Nappy changing areas;
- Areas where mothers can breastfeed in private and comfort;
- Toilets dedicated to children. (These should be of a height suitable for children to use on their own).

In Malta, the Paediatric Emergency Department at St. Luke’s Hospital, is situated within the Adult A&E Department. A common A&E waiting room is utilized by both adult and paediatric patients who also make use of the same triage facilities. A Paediatric treatment room is available, which is separate from the adult treatment rooms. This consists of two treatment areas, two oxygen points, one emergency trolley and one medicine cabinet. Medical equipment such as weighing scales is shared by the two treatment points.
2.6 Population Served

All of us know that children grow and develop from birth to adulthood. One of the debates of modern times is when to stop children from being treated in paediatric facilities. Is it at the age of fourteen or sixteen? At present in Malta the population served at the paediatric emergency are children below the age of 14 years. However for the last few months, there has been an ongoing debate in order to increase the ‘paediatric’ age from 14 to 16 years. This was proposed by the Paediatric Department but met some resistance from some members of staff and from the nurses’ union (Attard Montalto, 2002). It is important for this issue to be addressed and decisions made. The needs of the adolescent population are different to those of the infant and toddler group.

In Scotland, it is generally accepted that the appropriate time for transfer of children to an adult facility is around the time of puberty (Beattie et al., 1997). This does not stop immature children from attending a paediatric facility but will encourage mature and peri and post pubertal children to be dealt with in adult facilities.

2.7 Patterns of Attendance

The spectrum of disease and injury is vast, but certain attendance patterns emerge when analysed over time. There are both seasonal and temporal variations in this pattern. In the United Kingdom, paediatric trauma reaches its peak in the summer months, but
respiratory disease is more prevalent in the winter months (Boyle et al., 2000). Other conditions show no such seasonal trends but present at any time of the year. Some accidents are equally prevalent throughout the year, for example burns and poisoning.

Daily variations also occur. The morning can often be relatively quiet, attendances reaching a plateau sometimes after lunch. A steady state then exists until about 5.00 p.m. when another mini peak occurs with attendances eventually falling off towards midnight (Bradley et al., 1995).

A knowledge of these typical patterns is essential to enable planning of the service. The large workload of a busy Paediatric Emergency Department will put pressure on the department, therefore attendance patterns should be taken into consideration when planning workloads. Failure to address these needs will lead to high patient-waiting times, uneven staffing and frustration all around.

2.8 Paediatric Emergency Staff

Staffing in paediatric emergency care is crucial. Dealing with paediatric emergencies can be one of the most worrying and frightening experiences, but when successful, one of the most rewarding. Staff working with children must enjoy the challenge. They must be comfortable with children and be aware of the different needs of the growing child (Beattie et al., 1997). The best facilities in the world would otherwise be wasted.
All senior staff within the Emergency Department should have training in the skills required to deal effectively with children. This will help to create an ambience suitable for the training of junior staff, who will hopefully become imbued with the correct ethos, thus creating a self-perpetuating quality of care (Armon et al., 2001).

It should also be borne in mind that one is not only treating children but also the guardians and relatives of the children presenting to the department. Very often the parents need as much time and consideration as the child. The staff within the paediatric emergency department should recognise and provide this (Armon et al., 2001).

The Director of the Paediatric Department is ultimately responsible for the provision of services to children (Attard Montalto, 2003). A paediatric registrar should be available for immediate consultation about acutely ill children. Should the registrar not be available, a senior medical staff member should assume this role. Consultant staff to the Department should include the following personnel, who would be available on a twenty-four hourly basis:– paediatrician, paediatric surgeon and an anesthetist (Australian College of Paediatrics, 2003). Other specialists may be involved in consulting roles, depending on the level of service provided by the hospital. Junior medical staff must be involved in an ongoing teaching programme in paediatric emergency medicine.

A study carried out in 2001, showed that in Nottingham, 78% of children (the majority with minor illness) were seen by a Senior House Officer (SHO) alone. Registrars and consultants were involved only in 20% and 2% of cases respectively. Consultant
workload within this department was mainly in follow up clinics for resuscitation calls, administration and teaching. Registrars were more involved than consultants, but only when their assistance or consultation was called upon, by their junior staff (Armon et al., 2001). SHOs and housemen are therefore exposed to most of the children.

The pattern observed in this Nottingham study (2001) is similar to the one employed in Malta, where most of the patients are seen by a Senior House Officer or Houseman (Attard Montalto, 2002). Therefore, presenting problem - based guidelines are ideal to provide a framework in which junior staff can consolidate their experience and from which they can learn (Armon et al., 2001). The management of paediatric emergencies should follow this set of practices, which is determined prior to the child arriving. Therefore, junior and inexperienced staff can practice safe and immediate care. Within this framework there should be a recommendation that senior staff be called to help and advise with difficult cases. In addition, basic advice should be available to help with the management of difficult areas such as suspected child abuse (Armon et al., 2001).

2.9 Categories of Paediatric Problems in the A & E Department

Paediatric problems in the Paediatric Emergency Department can be divided into two categories: (Morton et al., 1992).

- Trauma / Surgical
- Medical.
2.9.1 Trauma & Surgical Problems

Injured children account for a large proportion of paediatric attendances at the Paediatric Emergency Department. Most have relatively minor injuries or abrasions, but a few will have suffered major blunt or more rarely penetrating injuries, severe burns or scalds.

Accidents are the most common cause of death in children over one year old in the United Kingdom (Illingworth, 1997). About 20% of children’s admission to hospital are the result of accidents (Morton et al., 1992).

A smaller percentage of patients have non-traumatic surgical problems such as irritable hip, Perthe’s disease, appendicitis, hernia, etc (Morton et al., 1992).

2.9.2 Medical Problems

Medical problems range from the seriously ill child with convulsions, collapse or respiratory difficulty, to patients who have conditions usually treated by their general practitioner. In this latter group are children who have been treated by their general practitioner but whose parents want a second opinion, children whose illness is not improving as quickly as their parents expect and children whose parents fear they are seriously ill (Boyle et al., 2000). Children under five years old and especially children under two, predominate in the medical attenders (Carlisle et al., 1998, Hulland et al., 1999, Boyle, et al, 2000).
The Pediatric Emergency Department at St Luke’s Hospital focuses mainly on medical paediatric problems. Surgical and Trauma presentations are seen by the Adult Accident and Emergency Department. Therefore, since this study is based on the management of the Paediatric Emergency Department, only medical problems are included in the study.

2.10 Use of the Paediatric Emergency Department

Emergency hospital attendances are rising. The number of patients seen in the Paediatric Emergency Department in Malta prior to 1997 is not documented (Gatt, 2003). However, from 1997 to 2000, the number of paediatric emergency visits has increased from 10,204 to 11,831 (Attard Montalto, 2002). This shows a 16% increase in paediatric emergency attendances during this four-year period (a 4% increase each year).

This trend can also be observed in other countries. The number of patients seen in the Paediatric Emergency Department in England showed a rise of 2% each year over the last decade, which is set to continue. In North America there has been a 22% increase in paediatric emergency department visits over a decade (Boyle et al., 2000).

Although there is a large number of people attending accident and emergency departments, detailed analysis and audit of the services with respect to children are not commonly reported in the literature. This may reflect the many difficulties in analysing
the large volume of data generated by the accident and emergency departments and the lack of uniformity in the way the information is processed (Boyle et al., 2000).

Many studies show that hospital staff are assessing increasing numbers of children not requiring hospital care or hospital admission (Krauss et al., 1991; Wise et al., 1997; Boyle et al, 2000; Coleman et al, 2001.). This suggests that there is a need for advice rather than hospital inpatient management and that this can be undertaken in the community.

2.11 Appropriateness of Paediatric Emergency Visits

Several methods for identifying inappropriate attenders have been used. Worth & Hurst (1989) classified patients depending on their condition. Patients with conditions such as sprains, bruises and rashes, which would usually be treated by the GP, were seen as inappropriate. Dale et al (1995a) described inappropriate attenders as being self-referred patients in the A&E Department, presenting with symptoms caused by conditions unlikely to need immediate resuscitation or urgent care and unlikely to need hospital admission, or with non-urgent complications of chronic conditions. Lowy et al (1994) and Prince & Worth (1994) utilise a system, which divides patients into groups according to the clinical management needs dictated by the patient’s diagnosis. Patients with conditions requiring management that could be provided by a general practitioner are considered as inappropriate attenders. However, Lowy et al (1994) concluded that this classification was unreliable because the system labelled patients as inappropriate
attenders when a panel of GPs felt that they would require the services of the A&E Department. Worth & Hurst (1989) also defined all patients who presented in the A&E Department over forty-eight hours after the injury as inappropriate attenders.

For this study, the chosen definition of Appropriateness is the one by Oberlander et al (1993), were Appropriateness is determined by the patient's condition, evident need to see a physician and the need to be seen in an emergency department at the time

Figure 1. Algorithm questions needed to determine appropriateness of a visit (Oberlander et al., 1993).
Figure 1 above shows an algorithm used to determine the appropriateness of a visit to the paediatric emergency department. An appropriate visit occurs if there is a definite need to see an emergency department physician at the time of the visit. Such a visit would occur if the presenting complaint was a major medical problem, such as a severe or respiratory distress, temperature greater than 38.5°C in a child less than twelve weeks of age, lethargy or a referral from an outside physician.

An inappropriate visit is one when a child:

- Does not need to be seen by a physician,
- Comes to the paediatric emergency department too early or too late in the course of the illness
- Can be seen elsewhere at the time (Oberlander et al, 1993).

2.12 Reasons for Inappropriate use of the Paediatric Emergency Department

The reasons why patients whose problems could equally be treated in a setting other than the emergency department, attend hospital are complex. Most ambulatory patients seek care in emergency departments because of worrying symptoms. (Lal & Kibiridge, 1999). However, attendances are often viewed by health professionals as inappropriate, and these ‘inappropriate attendances’ may account for about one-third of those seen in emergency departments (Stewart et al., 1998).
Common reasons given for using the emergency department include:

- It was thought to be the most appropriate place;
- It was the easiest or fastest place to go to;
- A second opinion was wanted;
- The General Practitioner (GP) could not be contacted;
- Long delay to see a GP
- Referred by GP or another source (Prince & Worth, 1992).

Other reasons included anxiety of the parent/s and the time of the visit (Oberlarder et al., 1993). The preconceived idea that hospital emergency doctors are more experienced and provide a better service is another reason for paediatric emergency visits (Phelps et al., 2000).

An important reason for the increase in patients seeking care in the Paediatric Emergency Department is the convenience that the Emergency Department provides (American College of Healthcare Executives, 1998). The Paediatric Emergency Department is open twenty-four hours a day to provide urgent medical care. Most of the doctor’s offices are not open in the late evening hours and on weekends and public holidays. Also, patients do not want to take time-off from work for minor medical problems. Subsequently parents present with their children to the emergency department for care (Prince & Worth, 1992).
2.13 Emergency Department Service Quality

Health Services Managers and Health Care professionals need to understand and know how to meet the fundamental service needs all patients share. These needs occur within the basic dimensions of individualising care, coordinating care, improving communication, enhancing physical comfort and providing support to patients (Cleary & Edgman - Levitan, 1997). The Paediatric Emergency Department faces unique challenges due to the wide range of services it provides for children of different ages and backgrounds including various types of urgent care, and primary care for some paediatric populations.

Compared to a general practitioner’s office or clinic, the Hospital Paediatric Emergency Department has less control over the timing of patients’ visits or treatment. The process can prove tedious for patients who must tell their story to a registration clerk, a triage nurse and the emergency physician (Chinnis & White, 1999). Poor service in the Emergency Department, in fact, affects patients’ satisfaction as well as their health outcomes.

Just as all patients want a technically competent clinical diagnosis, they also want service that demonstrates caring competence, compassion and service excellence. To treat one aspect while ignoring or neglecting the other, can result in poor clinical outcomes or less than optimal patient satisfaction (Mayer & Cates, 1999).
2.14 Patient Satisfaction

Patient satisfaction is both an indicator of quality of care and a component of quality care (Mayer et al., 1998). Patients constantly judge the motives and competence of caregivers through their interaction with them. This judgement is a very personal one, based on perceptions of care, being responsive to patients’ individual needs, rather than to any universal code of standards.

In addition to its connection to quality of care and clinical outcomes, patient satisfaction has been linked to the following:

- Healthcare employee satisfaction;
- Healthcare employee retention;
- Risk management (National Quality Measures, 2002).

2.15 Patient Satisfaction at the Paediatric Emergency Department

Increasing numbers of paediatric patient visits at the Paediatric Emergency Department and overcrowding may lead to decreased quality of care and patient dissatisfaction. If patients do not feel confident and satisfied enough with the treatment they receive, they may further exacerbate a medical problem such as not taking required medication as prescribed (Bruce et al., 1998).
Two major causes of patient dissatisfaction at the paediatric emergency department include:

- Prolonged waiting times for medical care and
- Patient staff communication (Clark et al, 1996).

2.16 Prolonged Waiting Time for Medical Care

Lengthy waiting time for care is a major component that can influence patient dissatisfaction. Paediatric emergency departments are experiencing a significant increase in the volume of patients they are seeing. In Malta, the Paediatric Emergency visits increased by sixteen per cent in a four-year period (from 1997 to 2000) (Attard Montalto, 2002). More and more paediatric patients are turning to the Paediatric Emergency Department for primary care. On top of that one quarter to one-half of paediatric admissions occur through the Paediatric Emergency Department (Foundation of the American College of Health Executives, 1996).

The reasons patients may have to wait for treatment in an emergency department include:

- **Triage.** If a child presents with a minor illness or injury, he/she has to wait while more sick or more severely injured patients are seen first. Triage is used to sort patients in order of severity of illness.

- **Overcrowding.** The number of patients visiting the Emergency Department has increased throughout the years (Attard Montalto, 2002). This results in overcrowding and increased waiting times.
• Temporary overcrowding due to epidemics (e.g. flu season). In a Paediatric Emergency Department, many children may arrive at once, needing immediate medical care.

If a child has a minor illness or injury, and the emergency department is not overcrowded, his visit may be brief. However, if the paediatric patient requires blood tests, X-rays or other diagnostic tests, the visit may be longer because it will take time to obtain the test results. If the paediatric emergency doctor consults another senior paediatrician or medical specialist, the child may have to wait longer. (Cleary & Edgman, 1997).

According to many emergency physicians, weekends are considered to be the busiest days of the week. During weekends, volume of visits reach a peak in the late afternoon and early evening (4.00 p.m. to 8.00 p.m.). At these peak hours and during the weekends, waiting times are relatively longer than during other off-peak hours (Boyle et al, 2000).

2.17 Extensive Waiting Times affect treatment outcomes

Long waits can affect patient outcomes. Patients may get tired of waiting and leave even though they need emergency medical care. Some patients may wait longer than optimal, but paediatric emergency departments work hard to make sure the sickest patients are seen first and that all patients are seen in a timely manner (Mayer & Cates, 1999).
Reducing waits and delays is critical in improving outcomes in the paediatric emergency department. Minutes can save lives of patients. Shorter waits also affect patient satisfaction and quality of care for paediatric patients and caregivers.

2.18 Patient – Staff Communication

In the Paediatric Emergency Department, good communication is important for both the child especially in the older child, and the parents. The health-care practitioners with communication skills and techniques will enjoy improved outcomes and enhanced satisfaction (Green-Hernandez et al., 2001).

Patients want to know what is going on, why there are delays in receiving necessary treatment and what to expect next in their plan of care at the paediatric emergency department. Studies show that patients wanted some form of easily understood information presented in a timely manner (Bruce et al., 1993). If patients are kept informed, they tend to feel less neglected and have some sense of where their care is heading. This will lead to enhanced patient satisfaction.

Another important point to bring up regarding communication is the negative communication that may be unknowingly conveyed by triage nurses, reception clerks or doctors to patient (Cleary & Edgman – Levitan, 1997). Inappropriate use of the paediatric emergency department is a big complaint of emergency department staff. The staff’s own personal views that the patient is improperly using the system may cause
underlying tension between staff and patients. Staff feeling of abuse by patients can develop. It is important to understand that patients have judged their problem to be worthy of a paediatric emergency inset (American College of Healthcare Executive, 1998). Regardless of why a patient has presented to the emergency department for medical care, staff need to be empathetic and compassionate. Good communication and interpersonal skills have a significant impact on patient satisfaction.

2.19 Paediatric Triage

It is particularly difficult to meet the needs of children and the expectations of their parents or caregivers in the Paediatric Emergency Department. Children are less likely to have life-threatening conditions than adults, however, the signs and symptoms of serious problems may be subtle or develop quickly (Raper et al., 1999).

Assessment of presenting complaint is often complicated by the children’s inability to communicate their difficulties. Many conditions are also categorised differently in the paediatric population.

Goals of Paediatric Triage include:

- To rapidly identify patients with urgent or life threatening conditions;
- To determine the most appropriate treatment for patients presenting at the emergency department;
- To decrease congestion in paediatric emergency treatment areas;
• To provide a logical mechanism for ongoing patient assessment;
• To provide information to patients and their families regarding expected waiting time
• To provide reliable information defining department acuity (Canadian Journal of Emergency Medicine, 2001).

Rapid access to healthcare provider assessment increases patient satisfaction and enhances public relations. An efficient triage system should reduce client anticipation and increase satisfaction by reducing waiting times (Raper et al., 1999). A study concluded by Pace (2001), revealed that at St Luke's Hospital only 33.8% of children presenting at the Paediatric Emergency Department were triaged during the period of study (Pace, 2001).

Triage involves the identification of the urgency with which children require treatment. However, this important system of prioritisation is inadequately carried out at the Paediatric Department in St Luke's Hospital (Pace, 2001). This may therefore, give rise to children not being treated according to the urgency of their case but according to their presentation time at the emergency department. Such a situation coupled with the high amount of non-urgent cases presenting at the Paediatric Emergency Department may pose a health risk to seriously ill patients (Bentley, 1995).
Chapter III

Methodology
3.0 Introduction

The primary aim of the study was to identify the factors that contribute to the effective and efficient management of the Paediatric Casualty. For this reason this study targeted two main components: the paediatric patients and the paediatric casualty medical staff. Only medical doctors were included as they were the only persons working at the PED at the time of the study. The method adopted was mainly quantitative but some qualitative factors were also adopted.

3.1 Research Design

The study consisted of two prospective questionnaire surveys conducted on a five-month period, between February 2003 and June 2003.

3.2 Setting

The study was carried out at St Luke’s Hospital, Malta, an acute general hospital serving all the Maltese population. The main setting consisted of the Paediatric Emergency Department within the hospital.
3.3 Target Population Definition

Between 1997 and 2002, an average of 11,385 children visited the Paediatric Emergency Department annually at St Luke’s Hospital (Attard Montalto, 2002). These are usually accompanied by one or both parents, or by another adult.

The paediatric medical officers involved in the everyday running of the Paediatric Emergency Departments at St Luke’s Hospital, vary in their rank from houseman to consultant.

3.4 Accessible Population

Because of financial, human and time constraints, the study could not be carried out on all the paediatric medical officers who are involved in giving paediatric emergency service. In such a case, a more accessible population had to be identified (Polit & Hungler, 1995). Therefore, the study was carried out on the paediatric medical officers who spent more than four hours of their daily working time at the paediatric casualty.

The accessible paediatric population included all the children requiring treatment for a ‘medical’ condition on the days that the study was carried out. The paediatric patients requiring ‘surgical’ care by the main Accident and Emergency Department were excluded from the study.
3.5 Inclusion criteria

In order to be eligible to participate for the first study the paediatric subjects had to:

- Be aged between 0 and 14 years
- Present at the Paediatric Emergency Department on the days chosen for the study.

For the second study the subjects had to:-

- Be qualified medical doctors
- Work at the paediatric casualty department for a period of more than four hours in a working day at the time of the study.

3.6 Exclusion Criteria

A number of exclusion criteria were also adopted so as to make the sample as homogenous as possible. Homogeneity enhances a study’s internal validity by reducing the number of variables extraneous to the study, which could confound the results (Polit & Hungler, 1995).

The exclusion criteria for the study involving paediatric patients were: -

- Children requiring immediate medical attention (e.g. resuscitation)
- Children who arrive at the paediatric casualty by ambulance
- Children requiring 'non-medical' treatment by the main Accident and Emergency Department (such as trauma, lacerations).
The exclusion criteria for the study involving the paediatric medical officers were:

- Medical doctors who are part of the paediatric emergency team but give their service only when they are called upon by the junior medical doctors working at the paediatric emergency room.

Therefore all consultants and senior registrars were excluded from the study as they were never present for a prolonged period of time at the paediatric treatment room in the study period.

3.7 Sample Size

Two samples were used in the study: a sample of adults accompanying paediatric patients and another sample of paediatric emergency doctors.

3.7.1 Sample I

This study sample consisted of 119 adults accompanying children who presented at St Luke's Hospital Paediatric Emergency Department.
3.7.2 Sample II

The second sample included 11 paediatric casualty officers who worked at the Paediatric Emergency Department at the time of the study. This sample consisted of all the doctors working at the Paediatric Emergency Department in the three-month period studied.

Keeping in mind that size is less important than representativeness (Bennett 1973) and that ‘a sample’s accuracy is more important than its size’ (Oppenheim, 1992) a sample of around 119 patients and 11 paediatric emergency doctors was deemed to be adequate to reach the objectives of the study and keep within the limit of the resources available.

3.8 Sampling Method

3.8.1 Sample I

Because the characteristics of the paediatric patients had the potential to vary based on the day of the week and the time of day that the child was brought to the Paediatric Emergency Department, the data was collected both in a winter block (between February and early March) and a summer block (June). A schedule was designed so that weekdays, weekends, daytime and nighttime shifts were all included in the study. Therefore the day was divided into six-hour periods as follows:

- 0.01 to 6.00 hours
• 6.01 to 12.00 hours
• 12.01 to 18.00 hours
• 18.01 to 24.00 hours

The above six-hour blocks were studied consecutively during four consecutive weekdays and two consecutive weekends respectively (two Saturdays and two Sundays) as follows:

• From 0.01 to 6.00 hours on a Monday
• From 6.01 to 12.00 hours on a Tuesday
• From 12.01 to 18.00 hours on a Wednesday
• From 18.01 to 24.00 hours on a Thursday.

This was performed in both a summer and a winter season to avoid seasonal bias.

The inclusion and exclusion criteria were then applied to each patient presenting on the above study period and thus a sample of the paediatric patients was obtained.

3.8.2 Sample II

A list of the doctors that worked at the paediatric casualty between January and June, was provided by the Director of the Paediatric Department. Once the inclusion and exclusion criteria were applied to each doctor, the sampling frame of the paediatric medical officers eligible to take part in the study was drawn up. These doctors were all included in the study.
3.9 Choice of the Main Research Tools

The tools chosen were two questionnaires. One was presented to the adults accompanying the children at the Paediatric Casualty and the other to the PED doctors. The questionnaires were structured and consisted of a mixture of open ended and closed-ended questions. After taking into consideration that the study was being carried out in an emergency department, these tools were chosen as they were not difficult to fill in and did not take a lot of time to answer. In return they elicited a lot of information from both the parents and the paediatric doctors (Garson, 2002).

3.10 The Problem of Non-response

A major difficulty when gathering data in population surveys is the problem of non-response or non-cooperation (Donalson & Donaldson, 2000). Therefore, planning and organisation of the study was geared to obtaining the highest possible recruitment of the sample under investigation.

Key factors for success in minimising non-response included:-

- A polite initial approach to the members of the sample, explaining in detail the reason for the study and the confidential and voluntary basis of the study.

- A letter of introduction (preamble) explaining in writing what was already said verbally.
• Questionnaires were administered face to face by the author and not administered by any other third person.
• Collection of the questionnaires was done on the same day of administration.

3.11 Questionnaire I – The Paediatric Patients’ Questionnaire

The survey instrument (Appendix A) consisted of four sections. Section A included a number of forced choice questions; Section B contained open-ended questions; Section C included a short demographic section and Section D consisted of a mixture of closed-ended and open-ended questions.

Section A

This section consisted of ten choice questions focusing on:

• The relationship of the adult accompanying the child, to the child.
• The educational attainment of the working parent. If both parents worked, the higher educational level was used for the study.
• The type of family unit in which the child lives.
• The age of the child
• The age of the parent accompanying the child
• The employment status of the parent
• Private transport availability
• Coverage of child by a private medical insurance
• Whether the child currently had a regular doctor
• The speciality of the child regular doctor.

Section B

This section consisted of four open-ended questions focusing on:
• The parents’ reason/s for bringing the child to the Paediatric Emergency Department on the specific occasion (that is the presenting complaint of the child).
• The reason for choosing to attend the Paediatric Emergency Department and not any other service
• Specific indications of need such as a recurrent health conditions
• The referral status of the child’s visit.

Section C

This section consisted of a short demographic section including:
• The place where the child and his/her family lives
• The usual site of medical care used when the child is sick
• Availability of a health centre in the area.

Section D

Section D consisted of a mixture of closed-ended and open-ended questions regarding the services and facilities at the Paediatric Emergency Department. These included:
• The parents’ satisfaction with the services provided
• The waiting time, that is the time which elapsed before the child was seen by a paediatric medical doctor
• The parents’ satisfaction regarding the communication with the Paediatric Casualty medical doctor
• The appropriateness of the facilities at the Paediatric Emergency Department
• The improvements recommended at the Paediatric Emergency Department.

The paediatric patients’ questionnaire was author-created and the questions consisted of requests for factual information (e.g. demographics) and others that required recall (the site of medical care of the parent as a child). The questions were designed as single-item questions with most categories representing an exhaustive list of possible responses.

To ensure that the full range of possible responses were covered (Polit & Hungler, 1995), no limit end categories were provided where ordinal data was requested. For example, for parents’ age last birthday, the first category was ’19 years old or less’. Also where nominal data was requested (for example, family status), an ‘other (please specify)’ category was included (Appendix A).

3.12 Questionnaire II – Paediatric Emergency Doctors’ Questionnaire

The survey instrument (Appendix A) consisted of two questions about personal data, followed by 20 other questions divided into three different sections.
The Personal Data required included:

- The grade of the paediatric casualty medical doctor
- The working experience at the Paediatric Department.

This was requested to describe the sample of medical doctors working at the Paediatric Emergency Department.

**Section A**

This section consisted of 8 choice questions regarding the support required by the Paediatric Casualty Officers from their colleagues in Paediatrics. These included:

- The number of times per day that telephone assistance is needed from senior colleagues in paediatrics
- The number of patients presenting at the emergency department on an average day
- The average time taken for the paediatric colleagues to reply to give the telephone assistance
- The average satisfaction score with the telephone advice given
- The number of times per day that a senior paediatric colleague is required to personally review a paediatric patient at the A & E Department
- The time taken for the paediatric colleague to arrive to the Paediatric A & E when his assistance is called upon
- The frequency of need for additional back up/help to assist in clearing the workload
- The availability of additional paediatric medical staff when workload is high.
Section B

This section consisted of 3 choice questions and 2 open-ended questions focusing on the support services required by the paediatric casualty officers from other departments.

These questions included: -

- The type of support services required from other departments
- The frequency of need of support services in an average working day
- The availability of such support services
- The timeliness of support services
- The need of nursing staff in the paediatric casualty treatment room.

Section C

This section consisted of 7 questions regarding the facilities and equipment in the Paediatric Casualty Department and the required improvements needed. These included:

- The adequacy of the paediatric casualty waiting room regarding appearance, cleanliness, size, comfort and child-friendliness;
- The improvements recommended in the paediatric casualty waiting room;
- The adequacy of the paediatric casualty treatment room regarding size, cleanliness, maintenance of medical equipment and child-friendliness
- The availability of the required medical equipment in the paediatric casualty treatment room;
- The medical equipment that should be available;
• The improvements required at the Paediatric A&E Department;
• The factors hindering medical staff from providing a better service to the public.

The three sections were followed by a few items left for any comment or suggestion, which the paediatric casualty medical officer wished to include.

3.13 Development and Presentation of the Questionnaires

The Questionnaires used in the study were both constructed by the author, with help from the Director of Paediatric Department and following Garson's advice about survey research (Garson, 2002).

To reduce Item bias in the survey:

• The questions consisted of single item questions as multiple response items may lead to bias due to lack of mutual exclusivity (Garson, 2002).
• The questions were followed by exhaustive response alternatives, without leaving out valid choices that the respondents could make (Garson 2002). Examples included responses such as 'don’t know' or 'others' when the parents were asked if the paediatric emergency department facilities were adequate.
• Likewise, the question which focused on the family status of the child was followed by exhaustive response sets, for example single parent answers were subdivided into never married, widowed, separated.
• Unfamiliar terms and jargon were avoided, so that simple familiar terms were used.

The questionnaires were made up mainly of structured, closed-ended items. Random probe items of an open-ended nature were randomly interspersed such that any one respondent was only probed on a few items. Example: - a closed-ended question in the doctor’s questionnaire “Is the paediatric casualty waiting room appropriate regarding...” (Appendix A) is followed by a probe item: “What improvements would you recommend in the paediatric waiting room?”. As a follow up to the structured item, an open-ended item can bring to light variations in the meaning of responses. (Garson, 2002).

Other aspects considered were the order in which the questions were presented, the avoidance of questions likely to lead to ambiguous or biased answers and the layout of the questionnaire (Donaldson & Donaldson, 2000).

3.14 Preamble

To complete the questionnaires, an introductory letter was prepared. Great care was taken in its formulation to minimise evaluation apprehension, that is, the natural apprehension that people might have at being assessed and which might induce them to give socially acceptable answers instead of truthful ones (Garson, 2002).
The covering letter consisted of an introduction of the author to the participant including the name, address and degree course followed by the author. Apart from this, the letter reassured respondents about the safeguarding of anonymity and confidentiality.

The participant was also informed that taking part in the study was on a voluntary basis and therefore, was free to refuse to answer the questionnaire, or any part of the questionnaire.

The respondents were also informed about the procedure of collecting the questionnaire and that the author was available should any assistance be required in answering it (Appendix A).

The introductory letter was put at the front of each questionnaire and participants were asked to sign it if they agreed with its contents.

3.15 Pilot Survey

A pilot survey was carried out as it brings out to light items’ ambiguities and other sources of bias and error (Garson, 2002). The primary aim of the pre-test was to test the clarity of the original questionnaire. Other purposes of the pilot survey were to see if the respondent interest is aroused, if respondent attention can be maintained, if the respondent and author feel the survey has a natural flow, and if the questions were being interpreted well (Garson, 2002).
The whole methodology was also tried out including selection of respondents, data entry and computer analysis as advised by Polit & Hungler (1995).

8 respondents were chosen for the paediatric patients' pilot survey and 2 respondents for the doctor’s pilot survey. The respondents were chosen in exactly the same way as the main sample. Pretest respondents were told that they were part of the pilot survey and that their help was solicited in refining the instrument. The responses of the participants were not used in the main study, however, the questionnaire was discussed with them after they were given the opportunity to complete it.

The exercise highlighted some problems: -

The first problem consisted of the different interpretations of the question “Where you referred to the Paediatric Emergency Department by your doctor?” The term ‘referred’ was interpreted in different ways including phone contact on the same day, personal contact with the doctor previous to the of the study or personal referral of the patient by the doctor on the same day of the study. A ‘referred’ patient was used by the author to indicate a patient presenting at the PED with a standard referral form filled by the doctor prior to the emergency department visit (Appendix C). Therefore, two questions were made instead of one: - One asked the patient if he talked to his doctor on the day of the paediatric emergency visit while another question covered the possession of a referral form filled by the doctor prior to the emergency department visit.
Another problem in the paediatric patients' questionnaire arose with the interpretation of the question "Is there a health centre in the vicinity of your home?" Some respondents interpreted "vicinity" as having a health centre in their home town/village; others interpreted it as being a few minutes driving distance. Therefore, this question was omitted from the questionnaire.

In the doctor's questionnaire one problem, which involved more than one item arose. In the pilot survey, questions one, two, five and seven all started as "What is the frequency of need of...?" The questions were found to be unclear by all the three respondents of the pilot survey. Therefore, the wording of the questions were changed to "On an average working day, how many times do you need...?" After discussion with the three pre-test doctors, this was found to be more clear, therefore reducing item bias.

No problems were encountered with the other questions, therefore, no attempt was made to validate the questionnaire following these changes since they were all minor (Polit & Hungler, 1995), and since the pilot survey was carried out with the purpose to preserve the original tool rather than alter it.

A second pretest was not necessary for the same reason, as the first pre-test did not add new dimensions or make major substantive changes in the survey (Garson, 2002). No problems were encountered with the data entry and analysis either.

Following the pilot survey, difficulties with the questionnaire were viewed out and corrected so that the survey proper could be commenced.
3.16 Data Collection

It was anticipated that the distribution and collection of the patients' questionnaires would take around 8 days during the winter period and another 8 days in the summer period. Therefore, 16 days were taken to collect the patient's data, which spanned within a five-month period (February to June). On each day, questionnaires were distributed to the respondents presenting at the paediatric emergency department in a selected six-hour period. The questionnaires were collected before the patient left the paediatric emergency department. The distribution and collection of the questionnaires was planned in this way so as to minimise the risk of respondents losing the questionnaire or forgetting to hand in the answered questionnaire before leaving the hospital.

The doctor's questionnaires were distributed and collected during a five day period as the eleven doctors were present at the paediatric casualty treatment room during different hours of the day. On each day, questionnaires were distributed to the selected doctors in the morning, and were collected on the same day in the evening at a pre-arranged time convenient to the participant. Similarly to the paediatric patients' questionnaire, the distribution and collection of the doctors' questionnaire was planned in this way so as to reduce the risk of losing the questionnaire or forgetting it at home. Distribution of a small number of questionnaires on any day allowed adequate time to explain the process to the participants and to help keep the retrieval of the questionnaires manageable.
3.17 Administration of the questionnaires

3.17.1 Paediatric patients' questionnaire

The objective was to include all respondents, who presented at the Paediatric Emergency Department on the chosen dates and times. The parent/s of the paediatric patients were approached after they had completed the Emergency Department registration process. After describing the purpose of the study, the patient eligibility was ascertained and the patient's name was recorded on a separate form coded to the numbered questionnaire. The questionnaire was then distributed to the parent/s and was collected before the patient left the Paediatric Emergency Department as agreed.

All eligible respondents agreed to take part in the study and a total of 119 completed questionnaires (all distributed questionnaires) were collected at the end of the survey period.

3.17.2 Paediatric casualty doctor's questionnaire

The questionnaires were presented to the eleven paediatric casualty doctors at the paediatric emergency treatment room. Collection of the questionnaires was carried out on the same day at an agreed time to reduce the drop-out rates and thus limit the introduction of covariates. All doctors agreed to take part in the study and therefore, eleven completed questionnaires were collected.
3.18 Instruction to Respondents

For both questionnaires, the respondents who accepted to take part in the study were told not to put their name down on any part of the questionnaire. The respondents were reassured of their confidentiality.

The participants were encouraged to answer all the questions and were also asked not to consult with others while filling in the questionnaire so that answers would be those of individuals and not ideas aggregated from a group. Finally, they were asked to have the filled questionnaire ready to be handed in on the same day.

At this point, the respondents were given the questionnaire and asked to read and sign the introductory letter. This was separated from the questionnaire and retained separately by the researcher. Finally, the participants were thanked for accepting to take part in the survey and a time was set for the collection of the completed questionnaire.

3.19 Determination of Appropriateness of the Paediatric Visits

To obtain the most accurate measure of the status of the visit, two independent doctors reviewed the data collected from the A & E patients' records. Such data included the age and sex of the child, health complaint, vital signs and discharge diagnosis. The doctors rated the encounter as either an appropriate (or urgent) or an inappropriate (or non-urgent) problem.
This rating was carried out by two doctors:

- One doctor who was working at the Paediatric Emergency Department at the time of the study (Senior House Officer)
- One fully qualified paediatrician who did not work at the Paediatric Emergency Department at the time of the study (Registrar).

Agreement between rating the encounter as urgent vs non-urgent was analysed statistically and expressed as a K statistic. Scores greater than .8 suggest excellent agreement between the two raters (Garson, 2002).

3.20 Coding, Tabulation and Data Processing

Data was entered into Microsoft Excel 97 (Microsoft Corporation) spreadsheet, where basic statistical manipulations were carried out (totals, percentages, means and standard deviations and median). The data was then imported into BMDP (Bio-Medical Data Programme), a Statistical Software package for more advanced analysis.

This study was a non-experimental cross-sectional survey. Therefore, appropriate statistical analysis involved tests that test for association between the independent variables (ex. demographic characters) and the dependent variables (ex. urgency of visit) (Bradford Hill, 1984; Kirkwood, 1994).
The Chi-square Test was used as an appropriate test to determine the correlation between the independent variables and the appropriateness of the paediatric attendances. The Chi-square test is a non-parametric inferential procedure for testing whether the frequency in each category in the sample represents certain frequencies in the population (Garson, 2002). There are some important conditions for the use of the Chi-square test. These include:

1. The independent variable must be a categorical variable with two or more categories.
2. The dependent variable must be the frequency of the subjects belonging to each category.
3. The category membership must be independent.
4. The expected frequency, in any category is equal to or greater than 5 (Garson, 2002).

All the above conditions were satisfied in this case and hence the Chi-square test could be used. The level of significance used was 0.05.

In the Chi-square test a value called Chi-square is obtained. The symbol $\chi^2$ is used for this value. The larger $\chi^2$ is, the less likely it is that the raw data has a uniform distribution (Kirkwood, 1994).

The statistical software programme used, outputs the value of $\chi^2$ and the probability that the distribution of the data is uniform. The value of this probability is calculated using $\chi^2$. 
and if it is smaller than 0.05, it shows that almost certainly, the association between the different valuables is statistically significant (Bradford Hill, 1984).

Data entry and all statistical manipulations were carried out twice. The results were then compared for any differences, which were then rechecked until they matched perfectly. This improved the accuracy of the methodology and helped to reduce errors to a minimum.

3.21 Ethical Considerations and Approvals

Approvals to carry out this survey were obtained from the Ethics Committee prior to initiation of the study. Permissions were also sought from the Head of the Accident and Emergency Department and from the Director of the Paediatric department. A letter was also sent to the Superintendent of St Luke’s Hospital to inform him of the study (Appendix B).

The covering letter that was included with the questionnaires explained in simple terms the subject that was being studied and the reasons for carrying out the study. (Appendix B).

Respondents were instructed not to put their name anywhere on the questionnaire form so that the returned questionnaires could not be linked to their originators. Participants were
also assured that all information gathered would be kept in strictest confidence and that only unlinked, aggregate data would be presented in the final document.

Participants were also informed that participation was on a strictly voluntary basis and were asked for their consent in the participation of the study. Parents were assured that their child’s care would not be influenced by their decision to participate. After agreeing to take part in the study, respondents were asked to sign a pre-printed consent form, after which they were given the questionnaire to fill in.
Chapter IV

Results
4.0 Introduction

This chapter presents the results of the study and the analysis of data. The results of the Parents’ questionnaires will be presented first, followed by the results from the doctors’ questionnaires.

4.1 Part 1 - Results from the Parents’ Questionnaires

4.1.1 Response Rate

Of the 119 questionnaires distributed to the children’s parents, all were retrieved, resulting in a sample size of 119 and a response rate of 100%. This high response rate could be explained by the fact that I was constantly present within the casualty premises, monitoring the filling in of the questionnaires (See also pages 93 & 94).

4.1.2 Patterns of Attendance at the Paediatric Emergency Department

Seasonal and temporal variations in the pattern of attendance were studied by recording the date and time of each visit. The study was done in a summer and winter period and involved all the hours of the day. Weekdays and weekends were also studied for any emergent difference in the attendance patterns.
Seasonal Variations

During the study period in the month of February, 74 patients attended the Paediatric Emergency while during a similar period in the month of June; a total of 45 patients visited the Paediatric Emergency Department (PED). Figure 1 shows the seasonal variation in the pattern of attendance at the PED.

![Pie chart showing seasonal variations in attendance at PED between February and June](image)

Figure 1. Variation in the number of attendances at the Paediatric Emergency Department in different months.

Daily Variations

The total number of children attending the paediatric casualty included both those that presented in the winter and summer period. These were categorised according to the day of the week in which they presented at the emergency premises. The number of children visiting the PED was higher on Saturdays and Sundays (n = 74, 62.2%) than on weekdays.
(n = 45, 37.8%). Figure 2 shows the variation in attendances at the Paediatric Emergency Department during different days of the week.

Figure 2. Variation in the number of Attendances at the Paediatric Emergency Department during weekdays and weekends.

**Temporal Variations**

The variation in paediatric attendances according to the time of the day was studied separately for weekdays (n = 45) and weekends (n = 74). The day was divided into four 6-hourly periods.

**Weekdays**

During the weekdays studied (Monday to Friday), the number of children attending the PED was highest between 18.00 hours. and midnight (n= 16, 35.6%) and lowest between
midnight and 6.00 hours. Figure 3 shows the variation in paediatric attendances with time during weekdays.

Figure 3. Variations in Paediatric Emergency Attendances according to the time of the day during weekdays (Mondays to Fridays).

**Weekends**

Weekends were taken to include Saturdays and Sundays (n = 74). In this case, similarly to weekdays, the lowest number of paediatric attendances occurred between midnight and 6.00 hours (n = 6, 8.0%). However, attendances during the remaining hours of the day (6.01 hours to midnight) did not vary greatly. Figure 4 shows the variation in paediatric attendances with the time of the day during the weekends studied.
Figure 4. Variation in Paediatric Emergency Attendances according to the time of day during weekends (Saturdays & Sundays).

4.1.3 Patient Characteristics

The patient characteristics included gender, child’s age, parent’s age, type of family unit, insurance availability and transport availability.

Gender

The paediatric sample (n = 119) was made up of 60 male children (50.4%) and 59 female children (49.6%).
**Child's Age Last Birthday**

Data about the children's ages was collected, by asking the participant to indicate the exact age of the child, in years and months. All respondents provided the information (n = 119).

The mean ± standard deviation age of the children attending the Paediatric Emergency Department was 4.31 ± 3.71 years with the ages ranging from 3 months to 14 years. 87 of the total 119 children (73.0%) were less than five years of age. Figure 5 below shows the distribution of children's ages at the time to the study.

![Bar chart showing the distribution of children's ages at the time of study.](image)

**Figure 5. Children's age at time of study.**
Almost a third (31.9%) of the children were infants aged 1 year or less, while only 1.7% of the paediatric patients were 14 years old. Table 1 shows ages of children who attended the PED at the time of the study.

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year or less</td>
<td>31.9</td>
</tr>
<tr>
<td>2 – 3</td>
<td>19.3</td>
</tr>
<tr>
<td>4 – 5</td>
<td>21.8</td>
</tr>
<tr>
<td>6 – 7</td>
<td>9.2</td>
</tr>
<tr>
<td>8 – 9</td>
<td>4.2</td>
</tr>
<tr>
<td>10 – 11</td>
<td>5.9</td>
</tr>
<tr>
<td>12 – 13</td>
<td>5.9</td>
</tr>
<tr>
<td>14</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 1. *Age of paediatric patients at the time of study*

**Parent's Age Last Birthday**

Data about the ages of the children’s parents was collected by asking the participants to indicate to which decade their age, as of last birthday belonged. Decades were used to make the questionnaire less threatening to the participants. All respondents provided this information (n = 119). Figure 6 gives a graphical representation of the parental ages at the time of the study.
Figure 6. *Age of Parents at the time of study*

More than half of the respondents (50.4%) were between 20 and 29 year of age. Only one parent (0.8%) was over 50 years of age, and none were above 60 years. Table 2 shows the parent’s ages (percentages) at the time of the study.

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 or less</td>
<td>10.1</td>
</tr>
<tr>
<td>20 – 29</td>
<td>50.4</td>
</tr>
<tr>
<td>30 – 39</td>
<td>30.3</td>
</tr>
<tr>
<td>40 – 49</td>
<td>8.4</td>
</tr>
<tr>
<td>50 – 59</td>
<td>0.8</td>
</tr>
<tr>
<td>60 or more</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 2. *Parent’s age at time of study.*
Type of Family Units

Most children (62.4%) lived in a family whose parents were married and living together. A considerable amount of children (n = 35, 29.4%) lived with only one parent. Table 3 shows the children’s family units at the time of the study.

<table>
<thead>
<tr>
<th>Type of Family unit</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents married &amp; living together</td>
<td>74</td>
</tr>
<tr>
<td>Parents separated</td>
<td>21</td>
</tr>
<tr>
<td>Single Parents (never married)</td>
<td>14</td>
</tr>
<tr>
<td>Parents not married &amp; living together</td>
<td>10</td>
</tr>
<tr>
<td>Parents married &amp; not living together</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>119</strong></td>
</tr>
</tbody>
</table>

Table 3. Children's family unit at the time of the study.

No association was found between the type of family unit and the appropriateness of the paediatric emergency attendances ($\chi^2 = 3.17$, P>0.36). Figure 7 gives a diagramatic representation of the different family units in the study.
Figure 7. *Family status of respondents at the time of study.*

**Adults accompanying the child**

Mothers accompanied their children in 95.8% of the cases (n = 114), and were also accompanied by the father in 47.9% (n = 57). Only 5 children (4.2%) were brought to the paediatric emergency by the father alone. Table 4 gives an overview of the results achieved in this part of the study. All the children participating in the study were accompanied by one or both parents.

<table>
<thead>
<tr>
<th>Adult</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother only</td>
<td>57</td>
<td>47.9</td>
</tr>
<tr>
<td>Both Mother and Father</td>
<td>57</td>
<td>47.9</td>
</tr>
<tr>
<td>Father only</td>
<td>5</td>
<td>4.2</td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Table 4. Adults accompanying their children at the paediatric emergency*
Educational Level of the Child’s Parent

Educational level was subdivided into three categories mainly primary, secondary and tertiary levels. Most parents (n = 93, 78.2%) had a secondary level. None had a primary level of education. Table 5 shows the educational levels of the parents.

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Secondary</td>
<td>93</td>
<td>78.2</td>
</tr>
<tr>
<td>Tertiary</td>
<td>26</td>
<td>21.8</td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 5. Education level of the children’s parents

No association was found between the educational level of the parents and the appropriateness of the child’s visit ($\chi^2 = 1.72, P > 0.19$).

Possession of Private Transportation

All the children’s parents were in possession of private means of transportation (n = 119). This factor was therefore excluded from further analysis, due to lack of variability in the sample (Phelps et al, 2000).
**Availability of Private Insurance**

Almost a third (31.1%) of the children who visited the paediatric emergency department at the time of the study, \( n = 37 \), were covered by a form of private medical insurance.

When logistic regression analysis was done to examine the relationship between the availability of private insurance and the appropriateness of the paediatric visits, an association was found between the two variables \( \chi^2 = 13.28, P<0.002 \).

**Regular Doctor**

All \( n = 119 \) the children under study had a regular doctor. In more than half of the cases (54.6%, \( n = 65 \)) the regular doctor was a family doctor/general practitioner while 45.4% of the children (\( n = 54 \)), were usually seen by a paediatrician.

**4.1.4 Usual Site of Medical Care**

When asked where the children were usually taken to receive medical care, 67.2% of the parents (\( n = 80 \)), replied that the children were usually seen by their regular doctor at a private clinic or at the child’s home (30.2%). Table 6 shows the usual site of paediatric medical care.
<table>
<thead>
<tr>
<th>Usual Site of Medical Care</th>
<th>No. of children</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Doctor’s private clinic</td>
<td>44</td>
<td>37.0</td>
</tr>
<tr>
<td>Home Visits</td>
<td>36</td>
<td>30.2</td>
</tr>
<tr>
<td>Health Centre</td>
<td>21</td>
<td>17.7</td>
</tr>
<tr>
<td>Paediatric Emergency Department</td>
<td>18</td>
<td>15.1</td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 6. Usual site of medical care reported by the patients’ parent/s.

4.1.5 Reasons for choosing the PED as the site for Medical Treatment

Parents were asked why they brought their child to the PED and not to any other health service provider, on this occasion. Subjects were given 7 choices and an option to write any additional reasons. Parents were told to choose as many options as appropriate.

Availability of specialised medical care (n = 30, 25.2%) and inappropriate time to contact private doctor (n = 28, 23.5%) were the most common reasons for attending the Paediatric Emergency Department and not any other health service. 7 parents wrote additional reasons for bringing their child to the PED. These other reasons included dissatisfaction with primary health care service (n = 3, 2.5%), regular doctor was working at the hospital at the time of study (n = 1, 0.85%) and the patient was in close vicinity of the hospital premises (n = 1, 0.85%). Table 7 highlights reasons for choosing the paediatric emergency department for treatment.
<table>
<thead>
<tr>
<th>Reason</th>
<th>No. of children</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialised care available</td>
<td>30</td>
<td>25.2</td>
</tr>
<tr>
<td>Inappropriate time to contact private GP</td>
<td>28</td>
<td>23.5</td>
</tr>
<tr>
<td>Child’s condition perceived as an emergency</td>
<td>22</td>
<td>18.5</td>
</tr>
<tr>
<td>Referred by the doctor</td>
<td>19</td>
<td>16.0</td>
</tr>
<tr>
<td>Easiest/Fastest place to receive treatment</td>
<td>6</td>
<td>5.0</td>
</tr>
<tr>
<td>Unable to contact regular doctor</td>
<td>5</td>
<td>4.2</td>
</tr>
<tr>
<td>Others</td>
<td>5</td>
<td>4.2</td>
</tr>
<tr>
<td>A second opinion was wanted</td>
<td>4</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>119</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 7. *Reasons for choosing the paediatric emergency department for treatment.*

4.1.6 Referral Status

When asked whether the respondents contacted their regular doctor prior to visiting the Emergency Department, 32.8% (n = 39) replied that they did. However, only 16.0% (n = 19) of the respondents presented at the Paediatric Emergency Department with a standard referral form.
4.1.7 Presenting Complaints

The majority of presenting complaints (94.1%, n = 112) at the time of the study could be subdivided into six categories with the most frequent presenting compliant being: breathing problems (27.7%, n = 33); diarrhoea/vomiting (21.0%, n = 25); febrile illness (18.5%, n = 22) and pain (17.6%, n = 21).

<table>
<thead>
<tr>
<th>Presenting Complaint</th>
<th>No. of children</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breathing difficulties</td>
<td>33</td>
<td>27.7</td>
</tr>
<tr>
<td>Diarrhoea/Vomiting</td>
<td>25</td>
<td>21.0</td>
</tr>
<tr>
<td>Febrile illness</td>
<td>22</td>
<td>18.5</td>
</tr>
<tr>
<td>Pain</td>
<td>21</td>
<td>17.6</td>
</tr>
<tr>
<td>Rash</td>
<td>7</td>
<td>5.9</td>
</tr>
<tr>
<td>Others</td>
<td>7</td>
<td>5.9</td>
</tr>
<tr>
<td>Seizure</td>
<td>4</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>119</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 8. Presenting complaints of the paediatric patients

Presenting complaints, which were not very frequent, included: constipation (1.7%, n = 2); fainting episodes (1.7%, n = 2); ingestion of foreign body (0.8%, n = 1) and urine retention (0.8%, n = 1).
Finally one patient (0.8%) visited the paediatric emergency department to obtain advice. These 7 patients (5.9%) listed their presenting complaint under the ‘Other’ category and specified their condition. Table 8 and Figure 8 shows the presenting complaints of the paediatric patients at the time of the study.

![Figure 8. Percentages of presenting complaints by paediatric patients](image)

### 4.1.8 Recurrent Health Conditions

Two respondents did not provide this information making the sample size for this question to 117 children. Of these, 24 children (20.5%) suffered from recurrent health conditions such as asthma or febrile convulsions.
4.1.9 Patient Satisfaction with the Service

Seven (7) respondents did not answer the question about their satisfaction with the service provided at the Paediatric Emergency Department reducing the sample size to 112 participants.

None of the respondents rated the service provided at the paediatric emergency department as bad or very bad. Figure 9 shows the respondents satisfaction with the service given by the paediatric emergency department.

![Satisfaction Score](image)

Figure 9. Satisfaction score with the service provided by the paediatric emergency department.
4.1.10 Satisfaction with the Doctor-Patient Communication

Again, 7 respondents did not answer the question regarding their satisfaction with the communication with the medical officer within the paediatric casualty. Therefore, the sample size for this question was 112.

Similar to the respondents’ satisfaction with the paediatric emergency service provided, no respondent classified his or her communication with the medical officer in attendance as bad or very bad. Table 9 shows the respondents’ satisfaction ratings with their communication with the paediatric emergency department doctor.

<table>
<thead>
<tr>
<th>Item</th>
<th>No. of children</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff communicated well with me</td>
<td>108</td>
<td>96.4</td>
</tr>
<tr>
<td>Information provided was easy to understand</td>
<td>106</td>
<td>94.6</td>
</tr>
<tr>
<td>Staff communicated well with my child</td>
<td>99</td>
<td>88.4</td>
</tr>
<tr>
<td>I clearly understand how to help my child</td>
<td>87</td>
<td>77.7</td>
</tr>
<tr>
<td>I received enough information about my child</td>
<td>77</td>
<td>68.8</td>
</tr>
</tbody>
</table>

Table 9. Parents who were satisfied with the items describing the quality of staff communication.

Results showed that parents were satisfied with the communication between medical staff and their children (96.4%,n=108), and with the parent-doctor communication (94.6%,n=106).
4.1.11 Waiting Time

All respondents provided this information (n = 119), which involved the time elapsing between arrival at the Emergency Department and receiving the required medical treatment by the paediatric casualty doctors. The length of time that the patient waited before the child received treatment is shown in Table 10 and Figure 10.

<table>
<thead>
<tr>
<th>Waiting Time (minutes)</th>
<th>No. of children</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 15</td>
<td>10</td>
<td>8.4</td>
</tr>
<tr>
<td>15 – 30</td>
<td>22</td>
<td>18.5</td>
</tr>
<tr>
<td>30 – 45</td>
<td>39</td>
<td>32.8</td>
</tr>
<tr>
<td>45 – 60</td>
<td>23</td>
<td>19.3</td>
</tr>
<tr>
<td>More than 60</td>
<td>25</td>
<td>21.0</td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 10. The waiting time spent before receiving medical attention at the PED

Figure 10. Graphical representation of the waiting time at the PED
4.1.12 Adequacy of the facilities

Two respondents failed to answer this part of the questionnaire making the sample size 117.

The Waiting Room

The size of the waiting room at the Emergency Department was considered to be adequate by 104 respondents (88.9%) while only 3.4% of the respondents (n = 4) rated the waiting room as being child-friendly. Table 11 and Figure 11 show the adequacy of waiting room at the Paediatric Emergency Department regarding appearance, cleanliness, size, child-friendliness and comfort.

<table>
<thead>
<tr>
<th>Waiting Room Facilities</th>
<th>No. of respondents considering the waiting room as adequate</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>104</td>
<td>88.9</td>
</tr>
<tr>
<td>Cleanliness</td>
<td>76</td>
<td>65.0</td>
</tr>
<tr>
<td>Comfort</td>
<td>19</td>
<td>16.2</td>
</tr>
<tr>
<td>Appearance</td>
<td>16</td>
<td>13.6</td>
</tr>
<tr>
<td>Child-friendliness</td>
<td>4</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Table 11. Adequacy of facilities of the paediatric waiting room.
35% of the parents stated that the waiting room was not clean enough while 83.8% complained that it was uncomfortable. Only 3.4% of the respondents (n=4) described the waiting room as being child-friendly.

![Bar chart showing the adequacy of the facilities of the paediatric waiting room.]

Figure 11. Adequacy of the facilities of the paediatric waiting room.

**The Treatment Room**

The treatment room at the Paediatric Emergency Department was rated as adequate regarding all the factors by more than half of the respondents (58.1%)

<table>
<thead>
<tr>
<th>Paediatric Treatment Room</th>
<th>No. of respondents considering the treatment room as adequate</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>91</td>
<td>77.8</td>
</tr>
<tr>
<td>Appearance</td>
<td>87</td>
<td>74.4</td>
</tr>
<tr>
<td>Cleanliness</td>
<td>84</td>
<td>71.8</td>
</tr>
<tr>
<td>Comfort</td>
<td>75</td>
<td>64.1</td>
</tr>
<tr>
<td>Child-friendliness</td>
<td>68</td>
<td>58.1</td>
</tr>
</tbody>
</table>

Table 12. Adequacy of the paediatric emergency treatment room
Table 12 and Figure 12 show the adequacy of the paediatric casualty treatment room regarding appearance, cleanliness, size, child-friendliness and comfort.

<table>
<thead>
<tr>
<th>Size</th>
<th>Appearance</th>
<th>Cleanliness</th>
<th>Comfort</th>
<th>Child-friendliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>91</td>
<td>87</td>
<td>84</td>
<td>75</td>
<td>68</td>
</tr>
</tbody>
</table>

*Figure 12. Adequacy of the paediatric emergency treatment room.*

### 4.1.13 Recommended Improvements at the PED

The participants in this study were asked to recommend any improvements to be made within the paediatric emergency department. Such recommendations were received through an open-ended question. Fifty-two participants (43.7%) failed to provide this information lowering the sample size to 63 respondents. Table 15 shows the most common improvements regarding the paediatric emergency department.
<table>
<thead>
<tr>
<th>Recommended Improvements</th>
<th>No. of Respondents (n = 63)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child-friendly facilities</td>
<td>52</td>
<td>82.5</td>
</tr>
<tr>
<td>Separate Paediatric room</td>
<td>49</td>
<td>77.8</td>
</tr>
<tr>
<td>Children’s toilets</td>
<td>33</td>
<td>52.4</td>
</tr>
<tr>
<td>More Medical Staff</td>
<td>22</td>
<td>34.9</td>
</tr>
<tr>
<td>Reduction in waiting time</td>
<td>18</td>
<td>28.6</td>
</tr>
</tbody>
</table>

Table 13. Most common recommendations for improvements to the PED.

4.1.14 Hospital Admissions

Following the Paediatric Emergency Department visits (n = 119), 11.8% of the children (n = 14) were admitted to children’s wards. Their regular doctor referred eleven of the 14 hospitalised patients (78.6%) to the PED.

Figure 13. Hospital Admissions of paediatric patients following the visit to the PED.
When statistical analysis was performed to examine the relationship between hospital admissions and the referral status of the paediatric visits, an association was found between the two variables ($\chi^2 = 20.77, P<0.001$).

### 4.1.15 Appropriateness of the Paediatric Visits

Two doctors were asked independently to rank the paediatric visits ($n = 119$) as being urgent/appropriate or inappropriate/not urgent. Table 14 and Figure 14 show that both doctors rated more than half of the paediatric attendances as being not urgent.

<table>
<thead>
<tr>
<th>Rating Doctors</th>
<th>No. of Urgent Cases</th>
<th>No. of Non-Urgent Cases</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Doctor</td>
<td>43</td>
<td>76</td>
<td>119</td>
</tr>
<tr>
<td>Second Doctor</td>
<td>39</td>
<td>80</td>
<td>119</td>
</tr>
</tbody>
</table>

Table 14. *Number of paediatric attendances rated as being urgent or non-urgent by two independent doctors.*

The physicians independently rating each encounter as urgent versus non-urgent, agreed 97% of the time ($K=0.96$). The encounters with divergent ratings ($n=4$) were excluded from further analysis.
4.2 Part Two - Results From The Doctor’s Questionnaires

4.2.1 Response Rate

For this study, 11 questionnaires were distributed to the eligible doctors working at the Paediatric Emergency Department. All questionnaires were retrieved resulting in a sample size of 11 and a response rate of 100%.

Figure 14. Percentages of urgent and non-urgent cases as rated by two independent doctors.
4.2.2 Personal Characteristics

**Doctors' Grades**

More than half of the doctors (54.5%) were house-officers (n = 6), while only 1 doctor had a registrar grade (9.1%). Figure 15 shows the grades of the paediatric casualty doctors at the time of the study.

![Bar chart showing the grades of doctors](image)

Figure 15. Grades of Doctors working within the Paediatric Emergency Department.

**Working Experience**

In this part of the questionnaire regarding personal data, the doctors were asked about their working experience in the paediatric emergency department. More than half of the doctors (54.5%, n = 6) had worked with the paediatric department for less than 3 months.
Figure 16. **Doctors’ working experience within the paediatric department.**

Figure 16 and Table 17 show the variation in the doctors’ working experience at the time of the study.

<table>
<thead>
<tr>
<th>Working Experience</th>
<th>No. of Doctors</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 3 months</td>
<td>6</td>
<td>54.5</td>
</tr>
<tr>
<td>3 – 12 months</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>1 – 3 years</td>
<td>2</td>
<td>18.2</td>
</tr>
<tr>
<td>3 – 5 years</td>
<td>1</td>
<td>9.1</td>
</tr>
<tr>
<td>5 – 7 years</td>
<td>2</td>
<td>18.2</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Table 15. Doctors’ working experience with the paediatric department**
4.2.3 Medical Support from Senior Paediatric Colleagues

Section A of the questionnaire focused on the support required by the paediatric casualty doctors from their colleagues in paediatrics.

**Telephone Advice**

The participants were asked about the number of times that a senior paediatric colleague was contacted for telephone advice. All the doctors (n = 11) reported that telephone advice was needed in less than 5 occasions on an average day.

When telephone assistance was required, all doctors reported that paediatric colleagues always answered their calls in less than 15 minutes.

When asked whether the respondents were satisfied with the telephone advice given, 7 doctors (63.6%) reported that the telephone advice was very good while doctors said that it was good (36.4%). No telephone advice was rated as being bad or very bad.

**Paediatric reviews**

The participants were asked how many times a senior paediatric colleague was requested to personally review a paediatric patient at the A&E Department. All the respondents (n = 11) reported that this was requested less than four times in an average day. When senior doctors from the paediatric department were asked to review a child at the children’s emergency room, 8 respondents (72.7%) reported that it usually took less than
15 minutes. The other 3 respondents (27.3%) stated that it usually takes between 15 to 30 minutes for the senior staff to arrive at the Emergency Department and personally visit a child.

**Clearing of a high workload**

When the respondents were asked whether additional paediatric medical staff was available when the workload was relatively high all the participants (n = 11) replied that help was available. Three participants (27.3%) requested help to clear the workload in the last 10 duties while the other 8 casualty doctors (72.7%) did not require any additional backup to clear a high workload.

### 4.2.4 Support from Other Departments

Section B focused on the support services required by the paediatric casualty officers from other departments. When asked what type of support services are usually needed from other departments, it was identified that such services were needed from the following departments:

- Surgical Department
- Medical Department
- Adult A&E Department
- Ear, Nose and Throat Department
- Ophthalmic Department
- Pharmacy Department
• Laboratory (usually emergency laboratory)

All the participants (n = 11, 100%) reported that the support services required were available when needed, however, 3 doctors (27.3%) complained that the emergency laboratory results were not readily available. All the participant doctors replied that support services from other departments were needed in less than 25% of the cases seen.

4.2.5 Nursing Support

When specifically asked whether nursing staff was needed in the paediatric emergency treatment room, 91.0% of the respondents (n = 10) answered that nurses were needed.

4.2.6 The Paediatric A&E facilities

This section focused on the premises utilised by children when visiting the children's emergency department.

_The Waiting Room_

The respondents were asked to rate whether the waiting room utilised at the emergency department was adequate or not regarding various factors. While 9 doctors (81.8%) rated the size of the waiting room as adequate, all respondents (n = 11) answered that the waiting room was not child-friendly. Table 16 and Figure 17 show the adequacy of the waiting room at the paediatric emergency department.
<table>
<thead>
<tr>
<th>Waiting Room Factors</th>
<th>No. of doctors (n = 11) rating the facilities adequate</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>9</td>
<td>81.8</td>
</tr>
<tr>
<td>Cleanliness</td>
<td>5</td>
<td>45.5</td>
</tr>
<tr>
<td>Appearance</td>
<td>1</td>
<td>9.1</td>
</tr>
<tr>
<td>Comfort</td>
<td>1</td>
<td>9.1</td>
</tr>
<tr>
<td>Child-friendliness</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Table 16. Adequacy of the emergency department waiting room.

90.1% of the participant doctors described the waiting room as being uncomfortable and not pleasing to the eye, for both the parents and children awaiting treatment.

Figure 17. Adequacy rating of emergency waiting room factors.
Recommended Improvements

The respondents were asked to recommend any improvements necessary in the paediatric emergency waiting room. This question was presented in an open-ended form so as to invite any type of feedback.

Ten respondents (91.0%) recommended that the children should be provided with a separate paediatric waiting room, which should be equipped with play facilities, pictures and a child-friendly atmosphere. Table 17 provides an overview of recommended improvements by all the respondents.

<table>
<thead>
<tr>
<th>Recommended Waiting Room Improvements</th>
<th>No. of doctors (n = 11)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate Paediatric Waiting Room</td>
<td>10</td>
<td>90.1</td>
</tr>
<tr>
<td>Play Facilities</td>
<td>10</td>
<td>90.1</td>
</tr>
<tr>
<td>Child-friendly Atmosphere</td>
<td>10</td>
<td>90.1</td>
</tr>
<tr>
<td>Children’s Toilets</td>
<td>7</td>
<td>63.6</td>
</tr>
<tr>
<td>Nappy Changing Facilities</td>
<td>5</td>
<td>45.5</td>
</tr>
<tr>
<td>Educational Information</td>
<td>5</td>
<td>45.5</td>
</tr>
<tr>
<td>Breast-feeding Area</td>
<td>2</td>
<td>18.2</td>
</tr>
</tbody>
</table>

Table 17. Recommended improvements to the paediatric waiting room.
The Treatment Room

Respondents were asked to rate the treatment room facility as adequate or not adequate regarding size, cleanliness, maintenance of equipment, and child-friendliness. The treatment room was considered to be adequate regarding all factors by more than half of the respondents. Table 18 shows the adequacy rating of the paediatric casualty treatment room by the casualty doctors.

<table>
<thead>
<tr>
<th>Treatment Room</th>
<th>Adequate replies</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>10</td>
<td>90.1</td>
</tr>
<tr>
<td>Maintenance of Medical Equipment</td>
<td>10</td>
<td>90.1</td>
</tr>
<tr>
<td>Cleanliness</td>
<td>8</td>
<td>72.3</td>
</tr>
<tr>
<td>Child-friendliness</td>
<td>7</td>
<td>63.6</td>
</tr>
</tbody>
</table>

Table 18. Adequacy rating of the paediatric emergency treatment room

Medical Equipment

When asked whether all the required medical equipment was available in the treatment room, all respondents (n = 11, 100%) answered that it was not. In an open-ended question the respondents listed the missing necessary equipment as being:

- Peak Flow Meter
- Ophtalmscope
- Haemo Gluco Test (HGT) Machine
- Tendon Hammer
- Pulse-Oximeter
4.2.7 Improvement Suggestion to the Paediatric A&E Department

In an open-ended question, the paediatric casualty doctors were asked to state any improvements necessary to the paediatric casualty system, which will help in providing a better health service. This question was answered by 90.1% (n = 10). Table 19 shows the improvements recommended by the respondents to the children’s A&E department.

<table>
<thead>
<tr>
<th>Recommended Improvements</th>
<th>No. of Doctors (n=10)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant/Adequate Triage</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Paediatric Nurses</td>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>Efficient Computer System</td>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>Educational Information</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Child-friendly Environment</td>
<td>4</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 19. Improvements recommended to the PED by the casualty doctors

4.2.8 Hindering Factors

In another open-ended question, the doctors were asked to identify any factors, which hinder the respondent from providing a better service. Again, one respondent failed to provide the necessary information making the sample size 10 (90.1%).
These participants (n = 10) complained that the large number of trivial, inappropriate visits to the departments was one of the hindering factors. Table 20 highlights the factors that stop the respondents from giving a better health service.

<table>
<thead>
<tr>
<th>Hindering Factors</th>
<th>No. of Doctors (n=10)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate Attendances</td>
<td>10</td>
<td>100.0</td>
</tr>
<tr>
<td>Large Workload</td>
<td>7</td>
<td>70.0</td>
</tr>
<tr>
<td>Inconsistent Triage</td>
<td>7</td>
<td>70.0</td>
</tr>
<tr>
<td>Lack of Nursing Staff</td>
<td>7</td>
<td>70.0</td>
</tr>
<tr>
<td>Missing Medical Equipment</td>
<td>6</td>
<td>70.0</td>
</tr>
<tr>
<td>Lack of Medical Staff</td>
<td>4</td>
<td>40.0</td>
</tr>
</tbody>
</table>

Table 20. *Factors hindering paediatric casualty doctors from providing a better health service.*
Chapter V

Discussion
5.0 **Background to Discussion**

This chapter will include the interpretation, analysis and discussion of the results and highlight the limitations of the study. Outcomes of the results are then compared to other studies and the implications of results are discussed.

5.1 **Response Rate**

The response rate for both the parents' questionnaires and the doctors' exceeded all expectations. Garson (2001) advises that face-to-face encounters, meeting respondents at a convenient time to them, keeping questionnaires short and quick to complete, and assuring respondents of total confidentiality and anonymity all help increase the response rate. All these techniques were applied in this study and may account for the high response rate.

Apart from this, prospective participants were asked beforehand whether they wanted or had the time to take part in the survey. This might have also contributed to the high response rate by committing those who accepted to take part to actually complete and hand in the questionnaire.

The fact that the parents' questionnaires were collected by the author prior to the respondent's departure from the Emergency Department as agreed beforehand, also
encouraged a high response rate, as it minimised loss or misplacement of the questionnaire.

5.2 Patterns of Attendance

The first objective of the study was to analyse the patterns of attendance at the Paediatric Department of St Luke’s Hospital. Trends or patterns in the attendance, relating to the day, month and time of day were examined.

5.2.1 Seasonal Variations

During the study period, the number of patients visiting the PED for medical reasons was higher in the winter month, (February, n=74) than in the summer month, (June, n=45) studied by a ratio of 1.64:1. This seasonal trend is similar to Paediatric Emergency Departments in other countries. (Prince & Worth, 1992, Haflon et al., 1996, Simons, 1999, Boyle et al., 2000).

The higher number of patients in the Winter period could be explained by the increased incidence of cold-weather illnesses (Simons, 1999) such as respiratory tract infections. These tend to decline during the summer (Phelps et al., 2001), however, accidents peak in the summer months when children are given more freedom to play outside (Simons, 1999). This study did not demonstrate summer accident peaks as the surgical and trauma-cases were excluded from the study.
The reason for studying 'medical' attendances only was that the surgical and trauma are not seen by the Paediatric Emergency Staff but by the general (adult) A&E Department.

5.2.2 Daily Variations

The number of paediatric visits was higher on Saturdays and Sundays, where the mean daily attendance was 37, as compared to other weekdays where the mean attendance was 23 children per day. The higher paediatric attendance rate during the weekends could be explained by the unavailability of regular doctors during these days (Bradley et al., 1995; Boyle et al., 2000).

5.2.3 Time of Arrival

It appeared that there is distinct pattern in the time of arrival of the children over a twenty-four hour period. The overall pattern demonstrated that most children attend between 6.00am and 24.00. Within these times it appears that there is a dramatic rise in paediatric attendance to the Paediatric Emergency Department between 18.00 and midnight.

When the temporal variation pattern was analysed separately for weekdays and weekends, another trend emerged. In both cases, the lowest number of paediatric attendances occurred between midnight and 6.00 a.m. On weekends, the attendances during the
remaining hours of the day did not vary greatly while during weekdays attendances were comparatively low in the first half of the day and higher between noon and midnight.

Weekday patterns can be explained in two ways. Either Paediatric A&E. is attended more after 6.00 p.m. as it is around this time that G.P. clinics are closing for the day or the mother of the child who most frequently accompanied the child to A&E., needed to wait until her partner could either provide transport or mind the other children in the household (Simons, 1999). It is also possible that the trend is a cumulation of both factors together.

Weekend trends may be explained by the inability to reach private doctors directly by phone. Most general practitioners and paediatricians do not operate their clinics during the weekends and are more difficult to reach by phone (Boyle et al., 2000). Other factors which might affect the attendance patterns are that the children do not attend school and parents usually do not work during Saturdays and Sundays (Wise, 1997).

5.3 Patient Characteristics

The second objective of the study was to identify patient characteristics at the P.E.D. at St Luke’s Hospital.
5.3.1 Gender

The ratio of male is to female children was almost identical with 60 boys (50.4%) and 59 girls (49.6%) presenting to the Paediatric Emergency Department at the time of the study.

5.3.2 Children’s Age

The mean age of the children attending the Paediatric Emergency Department at the time of the study was 4.31 years with 73.0% of these children being less than five years of age. This compares well to other similar studies carried out overseas. In a study carried out in Quebec, Canada, by Oberlander et al. in 1993, the average age of children attending the Paediatric Emergency Department was 4.10 years while in a similar study by Armon et al. (2001) in a Paediatric Emergency Department in Nottingham the mean age of medical attenders was 4.6 years.

Almost one third of the paediatric attenders (31.9%) were infants who were younger than one year.

5.3.3 Parent’s Age and Family Status

All the children participating in the study, were accompanied by one or both parents. Mothers accompanied their children in 95.8% of the cases while fathers were present in 52.1% of attendances. This result may be explained by the fact that in Malta, children
spend more time with their mothers than they do with their fathers as a considerable number of mothers temporarily give up their work to take care of their children.

Overall, parents were young with more than half of the respondents (50.4%) being younger than twenty-nine years. Only one parent was over fifty years of age and none was above sixty years.

Most parents were married with both parents living together (62.4%). However, a significant amount of children (29.4%) lived with only one parent, either because their mother was a single parent and never married (11.8%) or because their parents were separated and the child lived mainly with one parent (17.6%).

5.3.4 Parent’s Educational Level

The majority of parents who took part in the study (78.2%) had a secondary level education meaning that they have completed both primary and secondary schooling. This can be explained by the compulsory attendances of schools in Malta up to the age of sixteen or up to finishing the end of Secondary School Education. Less than a quarter of the parent (21.8%) had a tertiary education.
5.3.5 Private Insurance and Transportation

All the parents possessed a private means of transportation, however, some mothers (n=29, 24.4%) reported being without their car as their husband used it to go to work.

Almost a third of the children (31.1%) were covered by a private medical insurance at the time of the study. The availability of private insurance was found to be associated with the appropriateness of the visits ($\chi^2=13.28$, P<0.002). Children having a private insurance were more likely to present at the Paediatric Emergency Department with appropriate / urgent complaints.

5.3.6 Site where parents usually take their children for medical care

All the parents (n=119) reported that their child had a regular doctor. In 54.6% of the cases the regular doctor was a family doctor/general practitioner, while 45.4% of the children were usually seen by a paediatrician.

When asked where they usually took their children for care when they were sick, 67.2% of the parents reported taking their children to the regular doctor's clinic or else the regular doctor visiting the child at home. 32.8% of the parents utilised government services as a usual site for medical care with 17.7% attending the Government Health Centres and 15.1% utilising the Paediatric Emergency Department regularly.
5.3.7 Reason for choosing the PED as the site for Medical Care

Parents in our sample cited concern about the possible severity of the child’s illness as the most frequent reason for their visit (25.5%). This finding is similar to those reported in several previous studies (Feigleman S. et al., 1990; Levy, 1994). Levy (1994), found that many parents were motivated by specific anxieties. The author reported that approximately one third of all visits to the paediatrician were motivated by parent’s fears that something serious was wrong. Parental stress or a tendency to overestimate the clinical significance of the symptoms of minor illnesses, have been shown to influence the decision to choose emergency department care (Feigleman, 1990; Abidin, 1992).

The second most frequent reason reported (23.5%) was that it was an inappropriate time to contact the General Practitioner. Most of the doctor’s offices are not open in the late evening hours, weekends and public holidays, therefore, patients seek care in the Paediatric Emergency Department due to the convenience that it provides. The Paediatric Emergency Department opens twenty-four hours a day to provide medical care.

Another important reason included the availability of Specialised Care at the Paediatric Emergency Department (18.5%). Parents have a preconceived idea that hospital doctors are more experienced and provide a better service (Phelps et al., 2000). However, from this study, it was concluded that more than half of the doctors (54.5%) working at the Paediatric Emergency Department were house-officers with less than three months experience with the Paediatric Department.
Other reasons for presenting to the Paediatric Emergency Department included being referred by the General Practitioner (16.0%), easiest/fastest place to receive treatment (5%) and advice seeking (3.4%).

5.4 Appropriateness of the Paediatric Visits

The third objective of the study was to identify the inappropriate use of the PED for non-urgent problems. From the study it was determined that 66.1% of the paediatric emergency visits were non-urgent cases or inappropriate attenders. This is consistent with previous reports carried out overseas by Smith & McNamara (1988), Oberlander et al. (1993), Young et al. (1996) and Phelps et al. (2000), where almost two thirds of the visits to the Emergency Department were classified as non-urgent by medical personnel.

5.4.1 Referral Status and Admissions

Only 16% of the respondents (n=19) presented at the Paediatric Emergency Department with a standard referral form (Appendix C), however, 32.8% of the parents reported that they had contacted their regular doctor prior to visiting the Emergency Department either personally or by phone.

Following the Paediatric Emergency Department visits, 11.8% of the children (n=14) were admitted to a hospital children’s ward. Eleven of the fourteen hospitalised patients (78.6%) were referred by their regular doctor, suggesting a degree of clinical selection
prior to attendance. Statistical analysis showed an association between the referral status and the hospital admission of paediatric patients ($\chi^2=20.77, P<0.001$).

Another association was found between the referral status of the patients and the appropriateness of the paediatric visits ($\chi^2=7.42, P<0.01$). Patients presenting at the Paediatric Emergency Department with a referral from a general practitioner were more likely to be rated as appropriate attenders.

5.4.2 Presenting Problems

A total of 94.1% of the medical attenders at the time of the study, presented to the Paediatric Emergency Department with one of six categories of the commonest presenting problems. These included breathing difficulties (27.7%), diarrhoea/vomiting (21.0%), febrile illness (18.5%), pain (17.6%) rash (5.9%) and seizure (3.4%).

Data collected in a Canadian Emergency Room on paediatric diagnosis showed 34% respiratory, 15% otitis media, 14% gastroenteritis, 7% abdominal pain, 8.8% rash, 5% fever and 1.6% seizure (Weir et al., 1989). These show a similar spectrum of disorder to our data but differ in the inclusion of otitis media, as this is a discharge diagnosis. Data from a USA Emergency Room also found a similar range of presenting problems but in differing proportions: febrile illness in 21%, respiratory distress in 12%, vomiting in 10%, abdominal pain 7%, rash in 6% and seizures in 2% (Krauss et al., 1991).
Similar presenting problems were found in paediatric admission data from five Yorkshire Hospitals though in different proportions. These admissions were listed as: diarrhea and vomiting 9%; abdominal pain 3%; and for seizures 1.6% (Stewart et al., 1998).

Only 20.5% of the parents reported that their children suffered from any recurrent health condition.

5.5 Management of the Paediatric Emergency Treatment Room

The fourth objective was to study the day-to-day management of the Paediatric Emergency treatment room including the working medical staff, the back up services available and further support required. Previously to initiating the study, it was determined that the Treatment Room at the PED is managed solely by doctors (Attard Montalto, 2002).

5.5.1 Doctor's Grades and Working Experience

More than half of the doctors (54.5%) working at the PED at the time of the study were house officers (H.O.) who had worked with the Paediatric Department for less than three months. 36.4% were senior house-officers (SHOs) whose paediatric experience ranged from one year to seven years. One doctor (9.1%) had a registrar post and had worked with the department between five and seven years. No Senior Registrars and Consultants were identified in the study.
Therefore, the Paediatric Emergency Department at St Luke's Hospital, is managed mainly by House Officers and Senior House Officers. This pattern was observed in another study carried out by Armon et al. in 2001 in a Nottingham PED. A total of 75% of cases were reported as dealt with by the SHO as the most senior medical member of staff involved in their care while registrars were involved in 20% of cases (Armon et al., 2001).

This study highlights the fact that “Junior” doctors manage acutely ill children in the PED at present. Some of these ‘Junior’ doctors have worked with the Paediatric Department for less than three months and so, have very little experience with paediatric patients and paediatric problems. Therefore, guidelines based on paediatric presenting-problems should be available at the PED to provide a framework in which junior medical staff can consolidate their experience and from which they can learn (Armon et al., 2001). Utilising such set-practices, junior and inexperienced staff can practice safe, immediate care (Grimshaw & Russell, 1993). Within these guidelines, there should be a recommendation that senior staff should be called to help and advise in difficult cases (Armon et al., 2001).

When asked about the availability of such guidelines, emergency doctors reported that they were not available at the PED at St Luke’s Hospital. A basic compendium of the medicinal treatment and dosages to be prescribed or administered for common illnesses was compiled by a SHO who worked with the Paediatric Department (Vella Muscat, 2003, private conversation). This was done on her own initiative to help junior,
inexperienced doctors. Other doctors carried personal books on how to handle paediatric emergencies.

5.5.2 Medical Support from Paediatric Colleagues

Medical staff at the PED required support from paediatric colleagues in the form of telephone advice, personal patient reviews and medical assistance when workload is relatively high.

Telephone assistance was needed to help in less than five cases on an average day and this was given in less than fifteen minutes. All the emergency room doctors reported that they were satisfied with the telephone advice given.

Senior doctors from the Paediatric Department were needed to review a child at the PED in less than four times on an average day. All emergency room doctors reported that it usually took less than thirty minutes for the senior staff to arrive at the Emergency Department. 72.7% of the respondents stated that paediatric medical support arrived in less than fifteen minutes.

All participants reported that additional paediatric medical staff was available when the workload was relatively high. This was requested by 27.3% of the doctors working at the PED at the time of the study. 72.7% did not ask for any additional back up to clear high workloads.
The results obtained from this part of the study showed that although PED doctors lack paediatric experience, the Paediatric Emergency Treatment Room is run in an efficient and smooth manner with good back up facilities from medical doctors working within the Paediatric Department. Although telephone advice, personal reviews and medical help were not requested very often on an average working day, they were always available when needed. The study also showed that medical support from paediatric colleagues was available in a prompt and timely manner, therefore minimising any health risks associated with delay in treatment of urgent paediatric cases.

5.5.3 Support from Other Departments

Participant doctors reported that support services from other departments were needed in less than 25% of the cases seen. These included services from the Surgical, Medical, Ear, Nose and Throat, Ophthalmic and Pharmacy Department. The General A&E Department and the Emergency Laboratory were also required to provide support services.

All the doctors reported that the support services were available when needed, however, 27.3% of the participants stated that the emergency laboratory results were not available in a timely manner. Other support services were available in a timely manner.
5.5.4 Need for Nursing Staff

When specifically asked whether nursing staff was required in the Paediatric Emergency Treatment room, 91% of the respondents answered that nurses were needed. The need for nursing help was also highlighted by 60% of participant doctors in the improvement suggestion section of the questionnaire.

Read et al. (1992) reported that 6% of Paediatric A&E Departments in England and Wales had an official emergency nurse practitioner system, while in 1995, Meek et al., (1995). found that 24% of Paediatric A&E units had emergency nurses helping in the running of the department, and predicted that this number would continue to increase. Although in Malta all paediatric patients must be seen by a medical doctor at the PED, nursing support could be seen as a method of reducing waiting times in the Paediatric Emergency Department (Wise, 1997). Nursing help could consist of administration of medicines or nebuliser treatment; weighing of children; temperature charting and handling of restless children. Introduction of nurses to work hand in hand with the doctors at the PED can speed up the treatment of paediatric attendances so that waiting times are reduced and quality of care is improved for both the minor cases and patients with more urgent cases (Bellavia & Brown, 1991). Burgess (1992) describes the introduction of nursing staff and states that patient waiting times were reduced from ninety to sixty minutes when nursing staff was on duty together with medical doctors at the Paediatric Emergency Department.
The introduction of nurses at the PED as a method of reducing waiting time in the A&E department is not without its opponents. There is a strong argument that nurses should not be seen as a cheap method of filling a medical shortfall. Diamond (1995) states that nurses will not only have to perform the traditional nursing tasks but they will inevitably be used to replace junior doctors. The patient however, has a right to expect the same standard of care, regardless of whether it is provided by a nurse or doctor (Diamond, 1995).

Besides, The London Audit Commission in 1996 noted that a paediatric nurse is, in fact, more expensive than a Senior House Officer (Wise, 1997). Walsh (1989) and Robinson (1993) point out that the saving of doctor’s time at the expense of nurses’ time may be of no benefit to the patient.

5.5.5 Nursing Triage

In an open-ended question about any suggestions for improvement to the PED, 90% of the doctor respondents highlighted the need of an adequate triage system, while 70% of the respondents reported inconsistent triage as a factor, which hinders paediatric casualty doctor from providing a better service. These findings were consistent with findings in the study carried out by Pace in 2001, which revealed that at St Luke’s Hospital only 33.8% of children presenting at the PED were triaged during the period of his study (Pace, 2001).
Phillips and Robson (1992) emphasise the necessity for prompt triage of children, especially infants, who are frequently carried into the department by their parents. In 1991, the Department of Health, UK, published an article: *Action for Sick Children*, which reinforced Department of Health guidelines. These guidelines recommended that there should be ‘effective procedures to prioritise waiting children and ensure that they are seen promptly’ (Department of Health, UK, 1991).

The lack of a consistent, adequate triage system at the PED in St Luke’s Hospital may give rise to children not being prioritised according to the urgency of their case but according to the time they present at the Emergency Department. Such a situation, coupled with the high amount of non-urgent cases presenting at the PED may pose a health risk to seriously ill patients (Bentley, 1995).

### 5.6 Quality of the Service

The fifth objective of this project was to study the factors that contribute to the quality of the service provided by the PED including the waiting time, attractiveness of the surroundings and good communication with staff.

#### 5.6.1 Waiting Time

Only 26.9% of the patients waited less than half an hour before receiving medical attention at the PED while 19.3% of the respondents waited between 45 and 60
minutes...This study showed that weekends are considered to be the busiest days of the week. During weekdays' peak hours, and all day on weekends, waiting times are relatively long as the number of paediatric attendances are high.

When statistical analysis was performed to examine the relationship between waiting time and parent satisfaction with the service, an association was found between the two variables ($\chi^2=6.69, P<0.03$). Less satisfied patients reported having to wait for a prolonged period of time before their child received medical treatment.

5.6.2 Communication with Medical Staff

A high percentage of parents felt that medical staff communicated well both with parents (94.6%) and children (96.4%). 88.4% of parents stated that information provided by the PED staff was easy to understand. However, 22.3% of parents reported that they did not understand clearly how to help their child and 31.2% of parents indicated that they did not receive enough information about the child’s illness.

5.6.3 The Paediatric A&E Facilities

The adequacy of the PED facilities was analysed in both the parents’ and the doctors’ questionnaires. PED premises were subdivided into the waiting room and the treatment room.
The size of the waiting room was considered to be adequate by 88.9% of the parents and 100% of the doctors. However, 76.6% of parents and 100% of the doctors stated that it was not child-friendly. Only 16.2% of the parents and 9.1% of the doctors rated the A&E waiting room as being comfortable.

The results of the study show that both doctors and children’s parents perceive the A&E Department waiting room as being uncomfortable and not-child-friendly. Presently, children utilising PED services wait to receive medical treatment in the General A&E waiting room, which is therefore used for both adult and paediatric patients. Both parents (77.8%) and doctors (90.1%) suggested the need for a separate paediatric waiting room so that paediatric patients can be shielded as much as possible from adult patients. Children must be protected from the sights and sounds of an Adult A&E Department that may be stressful to them (Brown et al., 1995).

Children are more amenable to treatment if they are calm and undistressed (Beattie et al., 1997) and a friendly welcoming environment will help this. This can be facilitated by having bright, airy waiting rooms, that have plenty of toys and games, to help keep the children occupied. Familiar cartoon characters on the walls, toys and a friendly relaxed atmosphere can also help diagnosis and treatment (Beattie et al., 1997). The presence of a trained play teacher in the paediatric A&E facilities may also show tremendous benefits (Brown et al., 1995).

Apart from the need of a separate waiting room at the A&E Department, parents and doctors alike highlighted the need of children’s toilets, nappy changing facilities and
breast-feeding areas. The Paediatric Emergency Treatment room was rated as being adequate with regards to size, cleanliness and appearance by more than 70% of the parents and doctors. However, 41.9% of parents and 36.4% of doctors reported that the treatment room was not adequately child-friendly.

All doctors reported that some important medical equipment was not available at the Paediatric Emergency Treatment Room. Missing necessary equipment included:

- An ophthalmoscope which is necessary for neurological examinations especially to exclude increased intracranial pressure;
- A Haemo-Gluco-Test Machine which is essential in the management of diabetic patients;
- A tendon hammer used for neurological examinations;
- A Pulse-Oxymeter which gives an indication of oxygen saturation in the circulation, hence valuable in identifying patients in need of urgent treatment.

PED doctors indicated that they borrow the mentioned equipment from the General A&E Department, however, such a procedure is time consuming, uncomfortable for both patients and doctors and an important factor which affects patient waiting time and therefore, also patient satisfaction with the service.
5.7 Parent Satisfaction with the PED Service

The sixth and final objective was to assess the parent satisfaction with the quality of the service provided in the PED. 64.3% of the parents rated the service provided by the PED as 'good' while 25.9% as 'very good'. The results suggest that parents were generally satisfied with the quality of the services provided in the Paediatric Emergency Department. No 'bad' or 'very bad' rating was given.

One of the difficulties that confront studies of patient satisfaction is the tendency of patients to report high levels of satisfaction, regardless of the nature of the service being evaluated (Brown et al., 1995). This makes it difficult to identify the particular concerns that give rise to dissatisfaction among some patients.

There are several possible explanations for the high levels of parent satisfaction. It is possible that the majority of patients attending health services at the PED are satisfied with the quality of care they receive. Despite the problems that can arise in health services, most staff are highly trained and dedicated to their profession (Bruce et al., 1998). In the light of this, it is not surprising that the quality of health services is generally reported to be good. However, there are several other factors that may contribute to the high levels of satisfaction reported by patients.

First, it is possible that patients may be reluctant to report dissatisfaction in studies such as this, where they may perceive that they may be later identified. Secondly, it is possible
that high levels of satisfaction reflect, in part, a social desirability bias with patients tending to give a perceived acceptable response to items describing the quality of services (Polit & Hungler, 1995, Garson, 2002). Finally, there may be a tendency for patients to provide 'grateful testimony' with responses reflecting gratitude for the help provided rather than an assessment of the quality of the help (Brown et al., 1998).

When the reports from the less satisfied parents in the present study were examined, a clear pattern emerged. Less satisfied parents were concerned about the speed with which their children's needs were not met and the quality of staff communication with parents. Of particular importance for later treatment compliance was the observation that some parents in the less satisfied group reported that they did not know what was required for the ongoing care of their children after discharge from the PED. This finding is consistent with the results of other studies (Brown et al., 1998, Mayer et al., 1998). It suggests that the children of parents who are less satisfied with the services that they receive in a PED may be less likely to receive the ongoing treatment recommended by the medical staff in the Department.

5.8 Limitations of the Study

All the limitations inherent in carrying out research in general, and in using a cross-sectional survey in particular, would apply to a greater or lesser event to this study. This includes faults in sampling, coding, tabulating and data processing (Garson, 2002). Since
this was a non-experimental study, no causation may be inferred but only correlation (Oppenheim, 1992, Garson, 2002).

Results were obtained from a sample of parents and the doctors. The relatively small samples studied may limit generalisability of the findings. The data collection was also carried out during limited study periods in summer and winter months, and as a result, represent a snapshot of data rather than data collected for longer intervals which may be more representative over time.

The Hawthorn effect is a limitation whenever subjects are aware that they are being studied (Garson, 2002). In order to limit this effect, respondents were left alone to fill in the questionnaire, and they were assured of anonymity even to the researcher. This was achieved, by the respondents mixing their own completed questionnaire with that of others.

Another limitation of this study, that is inherent in any collection of self-reported data is the effect of social desirability, where respondents may suppress their true opinions to give socially acceptable responses (Polit & Hungler, 1995, Garson 2002). No attempt was made to measure social desirability in this study, and therefore, the magnitude of the effect that it might have had on this study is not known. However, respondents were reassured about total confidentiality to ‘encourage frankness’ (Polit & Hungler, 1995) so as to reduce the effect of social desirability to a minimum.
Chapter VI

Conclusion & Recommendations
6.0 Conclusion

It appears from the data collected, that a high proportion of children who attend the Paediatric Emergency Department present with conditions which are neither accidents nor emergencies. Many of these small children could have been seen and treated by their own general practitioners without ever having to attend the A&E Department. However, the literature supports our findings, that parents have logical reasons for bringing their children to the PED. If the trends seen in this study can be generalised to the whole paediatric population, it seems likely that hospital-based paediatric doctors will have to be comfortable dealing with problems traditionally managed in the primary-care setting.

With regards to the quality of service in this busy Accident and Emergency Department, it appears that on the whole, the parents who participated in the study were satisfied with the general service provided. However, specific areas were identified as being less satisfactory than others. These included the relatively long waiting time, the quality of parent-doctor communication and the unavailability of a suitable waiting area. The significance of lower ratings of satisfaction should not be overlooked. Patients have certain expectations for the care they should receive. When experience fulfills these expectations, patients are likely to be satisfied; when experience fails to meet expectations, patients usually report being dissatisfied (Mack et al., 1995; Rhee & Bird, 1996). Knowing this, it is important to know which areas in the Paediatric Emergency Department need to be adapted to meet the patients' expectations.
The Paediatric Emergency Treatment Room was found to be solely managed by medical doctors with no assistance from nursing staff. The grades of the doctors at the time of the study were mainly those of House-Officers and Senior House-Officers with most doctors having very little working experience within the Paediatric Department. The management of the PED by 'junior' doctors in Malta is similar to the management of A&E Departments in other countries. This study showed also that 'junior' doctors working at the PED are supported by an efficient back-up system by the Paediatric Department which includes the provision of telephone advice from senior doctors, consultations by senior medical staff and medical assistance whenever any kind of medical help is required. Apart from being efficient, this support system offered by the Paediatric Department is also prompt and timely, providing paediatric patients with a safe and efficient health service.

Most doctors complained of inadequate or inconsistent triage and strongly emphasised the need of nursing assistance in the PED treatment room. The inadequacy of the premises, especially the waiting room was also reported by both doctors and parents.

6.1 Recommendations to Management

In order to increase the quality of care and ensure patient satisfaction, Health Services Managers should device and implement strategies to reduce patient waiting time, enhance the atmosphere in the waiting room and improve the current triage of children in the A&D department.
Reducing waiting time and delays is critical in improving outcomes in the Emergency Department. Minutes can save lives of a patient. Shorter waits also affect patient satisfaction and quality of life for patients and caregivers (Vescio et al., 1999). Reduction in waiting time can be achieved by introducing nursing staff in the PED treatment room. Since most attendances are of a non-urgent nature, nurses can be of huge help in performing minor nursing duties such as giving nebuliser treatment, weighing of infants and children, temperature charting, application of suppositories and helping in calming and handling restless and distressed patients. This nursing assistance may not be required throughout the whole day during the weekdays but is more important during peak hours, on weekends and on public holidays, when the workload is relatively high.

Another recommendation to management is the provision of a waiting room for paediatric patients which should be separate from the adult A&E waiting room, therefore, protecting children from the sights and sounds of a busy adult A&E setting. It is being suggested that a small room which is situated next to the A&E reception may be utilised as a paediatric waiting area. This space is currently being used as a waiting room for patients attending X-ray services. It is therefore suggested that such adult patients may wait in the adults’ A&E room. This would make it possible to utilise this area for paediatric patients in attendance of medical treatment. The waiting room should be welcoming and offer a pleasant environment. Familiar cartoon characters on the wall; toys and a friendly relaxed atmosphere can all help diagnosis and treatment. The provision of children’s toilets and diapers changing areas should ideally be available within the paediatric waiting room.
The waiting times that parents spend at the A&E Department could be also used for health education purposes. This can be done by providing information leaflets on minor illnesses, their treatment and course of action. Areas on the walls can be used to hang posters with attractive child-friendly information about accident prevention.

The final recommendation for a more efficient emergency department is the improvement of the present triage practices within St. Luke’s PED. More formal triage policies might be well organised, as it appears that triage decisions are often left to the discretion of the individual nurse. Formalising the policy would help to ensure that triage decision do not differ substantially depending on the nurse on triage duty at the time.

6.2 Recommendation for future research

Suggestions for future research would be to repeat the study using a larger sample size and over a longer period of time. Utilising a larger sample would enable researchers to examine specific variables such as demographics or attendance patterns, to determine how these effect the responses related to the satisfaction. Other suggestions would include the development of a more sensitive tool for measuring Emergency Department patient satisfaction. This tool should include a mechanism for allowing patients to provide suggestions on how to improve areas that had low satisfaction ratings.
References


Miami Children’s Hospital Medical Services – Emergency Department. Available

Satisfaction with a Questionnaire. *Journal of Emergency Nursing*, 12: 32A-
35A.

Oxford University Press.

National Quality Measures Clearinghouse. Emergency Department satisfaction: mean
section score for “Doctors” questions on Emergency Department Survey.
22/7/03.

emergency department care: does the patient know best? *British Medical
Journal*, 305, 157-158.

the future based on mistakes of the past: The Homebush Triage Standard.


Appendix A
A Review of the effective management at the Paediatric Emergency Department

Dear Sir/Madam,

I am a final year M.Sc. (Health Services Management) student. As part fulfillment of my degree, I am conducting a study on the factors that contribute to the effective management of the Children’s Emergency Department at St. Luke’s Hospital.

Your identity will be kept strictly confidential, since only myself will have access to the personal data provided, which will be stored at my own residence. It is therefore important not to write your name anywhere on the questionnaire. If for any reason you do not wish to take part in the study, you are free to do so. I would however be very grateful if you agree to participate, as without your help this project would not be possible.

I will personally collect the questionnaire, and will be available for any assistance required in answering it. Thank you in advance for your co-operation.

Isabelle Zahra Pulis
B.Pharm(Hons.)
50, Zingla Street, Zabbar.
Tel- 21822237

I declare that I have fully understood the conditions of this questionnaire as outlined above, and accept them on a voluntary basis.

______________________________  ______________________________
Name                                      Signature

Date______________________________
SECTION A

**Question 1**
What is your relationship to the child requiring treatment at the Paediatric emergency Department?

- Mother
- Father
- Grandparent
- Aunt/Uncle
- Carer
- Unrelated

**Question 2**
What is your educational attainment?

- Primary level
- Secondary level
- Tertiary level

**Question 3**
What was your age on your last birthday?

- 19 years or less
- 20 – 29
- 30 – 39
- 40 – 49
- 50 – 59
- 60 years or more

**Question 4**
What was the child’s age on his/her last birthday?
**Question 5**
What type of family unit does the child live in?

Parents married & living together
Parents married & not living together
Parents separated
Parents not married and living together
Single parent (never married)
Other

**Question 6**
What is the employment / profession / business of the child's parents?

Mother
Father

**Question 7**
Do you possess any private transportation?

Yes
No

**Question 8**
Is the child covered by any form of private insurance?

Yes
No

**Question 9**
Does the child currently have a regular doctor?

Yes
No

**Question 10**
If yes, is the regular doctor a

General Practitioner
Paediatrician
Other
**SECTION B**

**Question 11**
What is the reason for bringing the child to the Paediatric A&E department on this specific occasion (Presenting Complaint)?

**Question 12**
What is the reason for choosing to attend the Paediatric A&E department and not any other service?

**Question 13**
Does the child have any specific recurrent health condition?

Yes  ____
No  ____

**Question 14**
Did you talk to your GP / regular doctor before coming here today?

Yes  ____
No  ____

**Question 15**
Do you have a ticket of referral?

Yes  ____
No  ____

**SECTION C**

**Question 16**
Where do the child and his/her family live?
**Question 17**
Where is the child usually taken for medical care when he/she is sick?

- Doctor’s private clinic
- Home visits
- Health centre
- Paediatric Emergency Dept.
- Other

**Question 18**
Were you (the caretaker) taken for medical care when you were a child?

**SECTION D**

**Question 19**
What is the satisfaction score of the service provided at the Paediatric Emergency department?

- Very Good
- Good
- Average
- Bad
- Very Bad

**Question 20**
How long did you wait before the child received the necessary treatment?

- 0 – 15 min
- 15 – 30 min
- 30 – 45 min
- 45 – 60 min
- More than 60 min (State)

**Question 21**
What was the satisfaction scale regarding the communication with the Paediatric Casualty medical doctor?

- Very Good
- Good
- Average
- Bad
- Very Bad
**Question 22**
Were you satisfied with the quality of medical staff communication regarding:

- Information provided was easy to understand
- Staff communicated well with my child
- Staff communicated well with me
- I clearly understood how to help my child
- I received enough information about my child’s illness

**Question 23**
Do you think that the waiting room at the Paediatric Emergency Department is adequate regarding:

- Appearance
- Cleanliness
- Size
- Child-friendliness
- Comfort

**Question 24**
Is the treatment room adequate with regards to:

- Appearance
- Cleanliness
- Size
- Child-friendliness
- Comfort

**Question 25**
What improvements do you recommend at the Paediatric A&E Department?

-------------------
-------------------

Thank you
A Review of the effective management at the Paediatric Emergency Department

Dear Doctor,

I am a final year MSc (Health Services Management) student. As part fulfillment of my degree I am conducting a study in the effective management at the Paediatric Emergency Department.

Your identity will be kept strictly confidential, since only I will have access to the data provided by you. Any information presented to third persons will be documented in a coded form. If for any reason you do not wish to take part in the study, you are free to do so. I would however appreciate that you concur, since without your help this project will not be possible.

I will personally collect the questionnaire on the agreed date.

Thanking you in advance for your co-operation,

Isabelle Zahra Pulis
B.Pharm(Hons)
50, Zingla Street, Zabbar.
Tel - 21822237
**Personal Data**

i. Your grade:  
- Houseman  
- SHO

ii. How long have you been working in the Paediatric Department?

- 0 – 3 months  
- 3 – 6 months  
- 6 – 9 months  
- 9 – 12 months  
- more than 12 months (State how long)

---

**SECTION A**

This section focuses on the support required by the Paediatric Casualty officers from their colleagues in Paediatrics

**Question 1**
On an average day, how many times do you need to telephone a Senior paediatric colleague for advice?

- 0 – 4 times  
- 5 – 9 times  
- 10 – 14 times  
- 15 – 19 times  
- More than 19 times (State no. of times)

**Question 2**
How many patients present at the Paediatric Emergency Department on an average day?

- 0 – 9 children  
- 10 – 14 children  
- 15 – 19 children  
- 20 – 24 children  
- 25 – 30 children  
- More than 30 children (State the no. of children)
**Question 3**
What is the average time taken for the paediatric colleagues to reply and give telephone assistance?

Less than 15 min  
15 – 30 min  
30 – 45 min  
45 – 60 min  
More than 60 min

**Question 4**
What is the average satisfaction score with the telephone advice given?

Very Good  
Good  
Average  
Bad  
Very Bad

**Question 5**
On an average working day, how many times do you request a senior paediatric colleague to personally review paediatric patients at the A&E Department?

0 – 4 times  
5 – 9 times  
10 – 14 times  
15 – 20 times  
More than 20 times (State no. of times)

**Question 6**
On average, how long does it take for the paediatric colleague to arrive to the Paediatric A&E after you call?

Less than 15 min  
15 – 30 min  
30 – 45 min  
45 – 60 min  
More than 60 min (State time)
**Question 7**
In the last 10 duties, how many times did you request additional back-up/help to assist in clearing the workload?

- 0 times
- 1 – 2 times
- 3 – 4 times
- 5 – 6 times
- 7 – 8 times
- 9 – 10 times

**Question 8**
Is additional Paediatric Medical staff available when the workload is relatively high?

- Yes
- No
- Not always

**SECTION B**
This section focuses on the support services required by the paediatric casualty officers from other departments.

**Question 9**
What type of support services are required by the Paediatric A & E medical staff from other departments?

**Question 10**
How often are support services required by the Paediatric A & E on an average working day?

- 0 – 25% of cases seen
- 25 – 50%
- 50 – 75%
- 75 – 100%
**Question 11**
Are the required support services always available? If not, state which are unavailable.

---

**Question 12**
Is the availability of support services timely?

Yes ______
No ______
Average ______

**Question 13**
Do you feel that nursing staff is needed in the paediatric casualty room?

Yes ______
No ______

---

**SECTION C**

This section focuses on the facilities in the Paediatric Casualty Department.

**Question 14**
Is the paediatric casualty waiting room adequate regarding:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleanliness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child-friendliness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Question 15**
What improvements do you recommend in the paediatric waiting room?

---

---
**Question 16**  
Is the paediatric casualty treatment room adequate regarding:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleanliness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance of medical equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child-friendliness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Question 17**  
Is the required equipment available in the paediatric casualty treatment room?

- Yes ___
- No ___

**Question 18**  
If any medical equipment is not available, state which necessary equipment is missing.

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

**Question 19**  
What improvements are required at the Paediatric A & E Department?

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

**Question 20**  
What factors are hindering medical staff at the Paediatric Casualty from providing a better service?

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

**Other comments and suggestions**

**Thank You for your time.**
Appendix B
24th July 2003

Ms Isabelle Zahra Pulis
50 Zingla Street
Zabbar

Dear Ms Zahra Pulis

Please refer to your application submitted to the Research Ethics Committee in connection with your postgraduate dissertation entitled:

**A REVIEW OF THE EFFECTIVE MANAGEMENT OF THE PAEDIATRIC EMERGENCY DEPARTMENT**

At the last meeting of the Research Ethics Committee held on 28th May 2003 members reviewed and approved the above-mentioned Protocol.

You are kindly requested to submit to the Research Ethics Committee a brief report on completion of your research.

Yours sincerely

[Signature]

f/Research Ethics Committee

cc Mr Michael Bezzina
Supervisor
2nd June 2003

Dear Sir,

RE: A review of the effective management of the Paediatric Emergency Department, Study conducted by Mrs. Isabelle Zahra Pulis

I am writing to confirm that I am fully supportive of the above research study being conducted by Mrs. Isabelle Zahra Pulis. This study is being carried out within our Department and, indeed, I am an associate investigator in the study which includes paediatric patients cared for by the Department of Paediatrics.

Yours sincerely,

[Signature]

DR. S. ATTARD MONTALTO
MBChB, MD(L’pool), FRCPCH, FRCP, DCH
Chairman Pediatrics

c.c. Mrs Isabelle Zahra Pulis
Paediatric Department

24th March 2003

Dr. Robert Camilleri
Acting Head
A & E Department
St. Luke’s Hospital

Dear Robert

I am writing to let you know that Mrs. Isabelle Zahra Pulis will shortly be undertaking an in-house audit/review study on the services offered within Paediatric Casualty at St. Luke’s Hospital. This will form part of her own MSc (Health Services Management), but has been fully sanctioned and supported by ourselves. Isabelle will be undertaking the audit by direct interview/questionnaires over the next few months.

I have enclosed draft copies of her questionnaires for your information and I would be very grateful if you would support her in this initiative. I would also be grateful if you would inform your medical and nursing colleagues of this study.

With very best wishes,

Dr. S. Attard Montalto
MBChB, MB(L’pool), FRCP, FRCPCH, DCH

Enc: draft copies of questionnaire (parents)
Enc: draft copy of questionnaire (doctors)

c.c. Mrs. Isabelle Zahra Pulis (c/o Dr. Patrick Zahra)
25th March 2003

Dr. Frank Bartolo  
Medical Administrator  
St. Luke's Hospital  
G'Mangia

Dear Frank,

I am writing to let you know that Mrs. Isabelle Zahra Pulis will shortly be undertaking an in-home audit/review of the services offered in Paediatric Casualty (as perceived by the clients and also by the doctors working within A & E). This study has been fully supported by ourselves and I would be very grateful for your official authorisation. I have enclosed draft copies of Isabelle’s questionnaires for your information.

With best wishes.

DR. S. ATTARD MONTALTO  
Chairman Paediatrics

Enc: draft copy of questionnaire for parents  
Enc: draft copy of questionnaire for doctors  

c.c: Mrs Isabelle Zahra  
c/o Dr Patrick Zahra
TO WHOM IT MAY CONCERN

Dear Sir/Madam,

I am writing to confirm that Mrs. Isabelle Zahra Pulis is currently completing a study looking at the services provided in the Emergency Department for children. She is doing this with the full support of the Paediatric (Children’s) Department and the study will form part of her MSc(Health Services Management).

I would be very grateful if you would support Mrs. Zahra Pulis in this study.

Your sincerely,

Dr. S. Attard Montalto
MBChB, MD(I. pool), FRCP, FRCPCH, DCH
Chairman Paediatrics
Appendix C
TICKET OF REFERRAL OF A PATIENT TO HOSPITAL

DEPARTMENT OF HEALTH

Part A

To be filled by Medical Practitioner referring a patient to hospital.

Referral to........................................ Hospital

Hospital No. ..........................................................
(if any)
I.D. Card No. ..........................................................
(if patient has an Identity Card)

Name of patient ........................................... Age .................
Address of patient ........................................ Tel. No. .................
Tel. No. .................
(if any)
Name and address of nearest relative ...................... Tel. No. .................
Tel. No. .................
(if any)

Referred for ........................................... To ......................... Dept.

Relevant Clinical History

Treatment/Observations

Signature ..........................................................
Date ......................... Name and Address (Printed or Block Letters)

..........................................................
FOR OFFICIAL USE ONLY

To be filled by medical officer examining or admitting the patient.

Occupation of (1) patient .................................................................

(2) head of household .................................................................

National Insurance Number ........................................ Identity Card No. .............

(if patient has an Identity Card or Public Registry No. if any).

Date of Birth of Patient .............................................................

Name and Surname of parents (if deceased, write 'late' in front of name)

........................................................................................................

........................................................................................................

Patient admitted to ........................................ ward on .........................

at ......................... a.m./p.m. (to be filled only in case of admission)

............................................................... Signature of medical officer

............................................................... Name in Block Letters

............................................................... Date