

Length of stay as an indicator for efficient and effective
trauma management pre and post implementation of a
State Major Trauma Unit in Western Australia.

Krystle Hiller

30755592

*This thesis is presented as part of the requirement for the degree
of Bachelor of Nursing with Honours at Murdoch University,
June 19th 2009.*

DECLARATION

I declare that this thesis is my own account of my research and contains as its main content, work that has not previously been submitted for a degree at any tertiary education institution.

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Thesis Title: Length of stay as an indicator for efficient and effective trauma management pre and post implementation of a State Major Trauma Unit in Western Australia.

Author: Krystle Hiller

Year: 2009

ACKNOWLEDGEMENTS

I begin my acknowledgements by thanking Murdoch University for the opportunity to complete my honours degree. It has enabled me to have a clear understanding where I would like my career to begin. I appreciate all the support given to me by the University from library resources to advice and emotional support. It has been quite difficult being the first of the honours students, with great expectations and pressure, however, the University has supported me well along the way. Thanks to Julia Hobson, who assisted me in my writing skills from the University Learning Services. Your encouragement and ideas got me through tough writer's blocks.

Next to thank would be Royal Perth Hospital in general and the Quality Improvement Activity Committee for giving me approval to conduct the study. Royal Perth Hospital staff assisted me immensely by helping me broaden my thoughts. Thanks to Danny Koh and associates for speaking with me in regards to episode of care and hospital budgets, without your thoughts and knowledge I would have a large deficit within my study.

Thank-you to Royal Perth Hospital and the Medical Research Foundation for running a week's course in SPSS training. I don't know how I would have managed without this invaluable knowledge I have now attained. This leads me to Jenny Laylor, the SPSS legend who heads up SPSS training in WA. Your selflessness and ability to always help me out when needed astounded me, as I'm sure this time was unpaid, and was much appreciated.

Next up is Maxine Burrell, Trauma Programme Manager, and the Trauma Registry at RPH. Maxine, you have helped me more than you would know. Your thinking, knowledge and connections in the trauma world of Australia have made this study what it is and I could not have done it without you. Thankyou for helping us guide this study into what it is today. I would like to acknowledge Dr Sudhakar Rao the head of Trauma Services WA and Sheryl Jonescu the Trauma Case Manager (RPH) for taking time out for me to discuss my study and for sharing your knowledge in trauma services. Your thoughts have been so helpful and has allowed me to broaden my thinking about trauma management.

I would like to thank my family especially Angie Stoneham, who spent hours on the phone with me. The support I have received from you and the Stoneham's has kept me going. Thankyou for looking after my health in times of extreme stress, the vitamins and herbal teas have kept me well to enable no lost time through sickness. Thanks to my immediate family for the support I have gained over the years through study. To Mum especially, you ignited the flame and passion for research for me and it has lead me to where I am today. Thanks Dad for always cheering me up with your jokes and enabling me to relax and de-stress. Kurt for the constant love and encouragement. As well as my second parents, Robyn and Frank Wilson for their love and words of wisdom.

I would like to acknowledge my partner Michael, who has an unwavering belief in me that I can achieve anything I set my mind to. You have dealt with the moods and stress that no-one else could believe and you continue to encourage my need to keep learning. And yes I will have a year off! Without your constant support I could not have completed this thesis. Thankyou.

Finally, the amazing, intelligent, efficient and astounding queens of research, Professor Anne McMurray and Dr Catherine Fetherston. I have been the luckiest honours candidate to have landed such brilliant supervisors. Anne your amazing talent with words and knowledge in nursing management and quality agendas has astounded me. Cath your brilliance in statistics and methodology has allowed me to gain an appreciation and love for research, I hope one day I can have half of your knowledge. Anyone in the future who can be supervised by the both of you will be destined for success. It has not only been the technical side of the study that you have both supported but also the emotional. At times when I thought I could never get it finished or if I wanted to give up, your support always got me motivated to continue. Cath you met with me at the drop of a hat and let me call you at home on weekends! And Anne you were just a phone call away or a quick click of the mouse. I have not at one minute felt unsupported in my quest to complete this degree and appreciate all the hard work you have both invested into my learning. I would not be where I am today without you both. I will attribute my future years in research to this experience and I feel that I have been well prepared for my years ahead with the knowledge you have given me.

ABSTRACT

Background: Trauma is the leading cause of death of Australians aged between 14 and 50 years with trauma admissions to hospitals costing governments millions of dollars per year. Managing health budgets set by governments whilst still delivering quality health care is an important issue. Strategies for addressing effectiveness and efficiency are often focused on providing high quality, cost effective services, which are aimed at reducing hospital length of stay while providing appropriate care. One such strategy adopted by Royal Perth Hospital (RPH) has been the creation of a new State Major Trauma Unit (SMTU) that offers increased trauma services by allowing for greater contact between patients, nursing medical and allied health teams.

Aim: The aim of this study was to evaluate the new Western Australian State Major Trauma Unit and its impact on length of hospital stay in major trauma patients. Results can be used to analyse one indicator of effectiveness; namely, length of stay in relation to differing types of services offered pre and post implementation of the SMTU. This provides the basis for recommendations for further studies into effectiveness and efficiency in trauma management in areas such as cost analysis, delayed discharges and unplanned admissions.

Methodology: A retrospective analysis was conducted using data from the Trauma Registry from Royal Perth Hospital. Data on the length of stay (LOS) of patients with an Injury Severity Score (ISS) >15 who were admitted to any general ward at RPH in 2007, prior to establishment of the SMTU, were compared with data from patients who were admitted to the SMTU during the same period in 2008. Descriptive analysis included comparisons of median and interquartile range of age, sex, admission, specialty, discharge destination and ISS. A Chi Square Test of Contingencies or Mann Whitney U test was used to test for any differences in demographic data and the length of stay between these two groups. All p values < .05 are considered significant.

Results: There was no statistically significant difference found between the length of stay or Injury Severity Score of major trauma patients who were admitted to RPH in 2007 and 2008.

Conclusions: The results are useful in providing an indicator of trauma patient management in terms of length of stay. The lack of a significant finding suggests the need for a longer term analysis of the LOS for patients admitted to the SMTU and further research into other indicators of effectiveness and efficiency.

TABLE OF CONTENTS

TITLE PAGE	i
DECLARATION	ii
COPYRIGHT	iii
ACNOWLEDGMENTS	iv-v
ABSTRACT	vi
TABLE OF CONTENTS	vii-ix
DEFINITION OF TERMS	x-xii
CHAPTER 1-INTRODUCTION AND BACKGROUND	13-29
1.1. Introduction	13
1.2. Background to the Study	13-27
1.2.1. Trauma Management	13-14
1.2.2. Trauma Management in Western Australia	14-17
1.2.3. The Development of Trauma Systems	17-18
1.2.4. Models of Trauma Care	19-23
1.2.5. Trauma Management and the Australian Healthcare System	23-27
1.3. Summary	28-29
CHAPTER 2- REVIEW OF THE LITERATURE	30-43
2.1. Introduction	30
2.2. Patient Length of Stay	31-33

2.3. Efficiency and Effectiveness of Patient Flow	33-37
2.4. Royal Perth Management	37-41
2.5. Summary	41-42
2.6. Factors Impacting on LOS	42
2.7 Significance of the Study	42-43
CHAPTER 3- METHODOLOGY	44-47
3.1. Hypothesis	44
3.2. Ethics Approval	44-45
3.3. Inclusion Criteria	45
3.4. Exclusion Criteria	45
3.5. Data Collection	46-47
3.6. Statistical Analysis	46-47
CHAPTER 4- FINDINGS	48-57
4.1. Characteristics of the Sample	48-49
4.2. Demographics of the Sample	50-53
4.2.1. Age	50
4.2.2. Type of Admission	50-52
4.2.3. Discharge Destination	53
4.3. Injury Severity Score	54-55
4.4. Length of Stay	56-57

CHAPTER 5- DISCUSSION	58-69
5.1. Discussion of the Findings	58-64
5.1.1. Type of Admission	58-59
5.1.2. Discharge	59-60
5.1.3 Injury Severity Score	60-62
5.1.4. Length of Stay	62-64
5.2. Length of Stay as an Appropriate Indicator of Efficiency and Effectiveness	64-66
5.3. Length of Stay and Patient Outcomes	66-67
5.4. Limitations	67-69
CHAPTER 6- CONCLUSION	70-71
6.1. Conclusions of the study	70-71
REFERENCES	72-80
APPENDICES	81-83
Appendix A- Injury Severity Score	81-83

DEFINITION OF TERMS

Length of Stay: a period of time a patient remains in a hospital or other healthcare facility as an inpatient (Harris, Nagy and Vardaxis 2006:996).

Efficiency: the productive use of resources.

Effectiveness: producing favourable results.

Major Trauma Centre: Is a hospital, usually one of the largest in the state, which is located within the capital city. The hospital is dedicated to the treatment of trauma patients within the State where it is located.

State Major Trauma Unit: A 30 bed ward located at Royal Perth Hospital which is dedicated to the treatment of major trauma patients in Western Australia.

Major Trauma Patient: A patient who has been injured physically and categorised by the type of injuries and injury severity. Major Trauma Patients are those who have an Injury Severity Score of >15 .

Injury Severity Score: A scoring system for trauma patients which classifies the severity of injury into categories; minor and major.

Trauma: “occurs when an uncontrolled source of energy makes contact with the body and the body cannot tolerate exposure to that acute energy causing injury” Curtis, Ramsden & Friendship (2007).

Trauma System: A structured system formed to treat trauma patients.

Admission: The process of being accepted; made entry.

Discharge: The process of being dismissed from an institutional setting.

Episode of Care: The term used to describe the patient’s category of admission or nature of clinical service. The episodes of care are characterised by labels such as ‘acute care’, ‘rehabilitation care’, and ‘palliative care’. There are ten types of clinical service under which a patient can be placed.

High Dependency Unit: Department within the hospital where acutely ill patients are treated.

Intensive Care Unit: Department within the hospital where acutely ill patients are treated, however patients may be ventilated if they are unable to maintain their airway or if they need to be sedated due to pain.

Ventilation: The artificial support of a patient's airway by a plastic tube which is placed into a patient's trachea (structure which connects the mouth to the lungs). This plastic tubing is connected to a machine that breathes for the patient.

Multi Disciplinary Team: A team of professionals within each department of a hospital including: physiotherapists, psychologists, speech pathologist, doctors, nurses, occupational therapists and social workers.

Trauma Case Manager: A nurse who is dedicated the management of each trauma admission. These professionals manage each patient case by case. They facilitate communication between health care professionals to ensure the timely assessment and treatment of the patients' injuries

Diagnostic Related Groups: On admission, and after diagnosis patients are categorized into specific Diagnostic Related Groups (DRG), which are related to the aetiology of disease (Liberero, Martin, Peiro & Munujos, 2004).

Tertiary survey: The third and final physical assessment completed by medical staff to effectively diagnose and treat trauma patients. The tertiary survey should be completed within 48 hours of injury if the patient is not head injured or intubated.