SHORT STAY AND
OBSERVATION UNITS

FINAL REPORT

30 May 2001
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SHORT STAY AND OBSERVATION UNITS IN VICTORIAN HOSPITALS

This project was funded by the Victorian Department of Human Services to investigate the use of Short Stay Observation Units throughout the State and to understand the potential for expanding this model of care within Victoria. The project was undertaken by the Clinical Epidemiology and Health Service Evaluation Unit based at Melbourne Health.

Project Management Team
The SOU project management team included:
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Acknowledgements
The Project Management Team acknowledges the valuable contributions of the following people who provided valuable insight into Short Stay and/or Medical Assessment and Planning Unit functions and operations:

♦ Dr Barry McGrath  
   Physician, Monash Medical Centre
♦ Dr Andrew Dent  
   Director, Emergency Care Centre, St Vincent’s Hospital
♦ Dr Marcus Kennedy  
   Director, Emergency Department, Angliss Hospital
♦ Professor Justin La Broy  
   Professor of Medicine, Townsville Hospital
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GLOSSARY OF TERMS

A&E Department
Accident and Emergency Department is the terminology used to describe Emergency Departments in the United Kingdom.

Ambulance Bypass
A two hour time period during which ambulances are requested to bypass a specified emergency department when the hospital has determined that the emergency department has reached its capacity to treat patients safely.

Breakthrough
The Breakthrough methodology was designed by the Institute of Healthcare Improvement in the United States in 1995 to bring together health agencies that share a commitment to making major, rapid changes that produce breakthrough results.

Care Coordination
As part of the Winter Emergency Demand Strategy in 2000, the Care Coordination initiative was implemented to improve emergency patients access to appropriate care. Key care coordination functions include:
   • community liaison
   • aged care liaison
   • drug and alcohol liaison
   • improved bed management.

CCU
Coronary Care Unit – a hospital unit with specialised staff and equipment to care for patients with heart disease.

Chest Pain Evaluation Area (CPEA)
Chest Pain Evaluation Areas are designated areas within or adjacent to emergency departments designed to improve the efficacy of assessment of patients presenting with chest pain.

Demand Management
Demand management is organisation of services to ensure the most cost efficient, appropriate and equitable health system possible considering social, cultural and economic features of the population.

DRG
Diagnosis Related Group – a patient classification system for acute hospital inpatients based on diagnosis and procedures.

Effective Discharge Strategy
The Department of Human Services Effective Discharge Strategy was initiated to improve discharge planning processes across Victorian hospitals. The strategy incorporates the following elements:
1. Discharge process improvement
2. Measuring and rewarding good performance
3. Support of initiatives that have statewide application

Elective Admission
A planned admission to hospital. Emergency admissions and transfers from other hospitals are not counted as elective admissions.

Emergency Admission
A patient requiring an unplanned admission to hospital due to unexpected illness or injury that necessitates urgent care.

**Emergency Department (ED)**
A hospital department that specialises in providing emergency care for those who are in need of urgent care (for example ambulance cases) and those who choose to seek treatment in an emergency department.

**Emergency Patient**
A patient who presents to an emergency department with an unexpected illness or injury who requires urgent care.

**HACC**
Home and Community Care - Jointly funded by the Commonwealth and State/Territory governments, the Home and Community Care program (HACC) aims to provide basic maintenance and support services for frail older people, people with disability and their carers. Services are provided to assist carers in their caring role, thereby preventing inappropriate or premature admission to long-term residential aged care and thus enhancing the consumer's quality of life. Local government organisations provide a vast majority of services funded through HACC, excluding community nursing, for example, home help, meals on wheels, home maintenance and adult day care.

**Hospital in the Home (HITH)**
The provision of acute care in the home, which involves the treatment of patients with acute conditions who would otherwise have required treatment in a hospital bed.

**ICU**
Intensive Care Unit – a hospital unit with specialised staff and equipment to provide care for critically ill, injured or post-operative patients.

**Inpatient**
A person admitted to hospital for medical, surgical or psychiatric treatment, observation or care. Inpatients may be same day, that is they may be admitted and discharged on a given day, or multi-day stay, that is they may spend at least one night in hospital.

**Performance Indicators**
An item of quantitative information reported to enable the monitoring of a condition or the performance of an organisation.

**Medical Assessment and Planning Unit - MAPU**
A medical assessment and planning unit (MAPU) is a designated ward of a hospital that is specifically staffed and equipped to receive medical inpatients for observation, care and treatment for up to 48 hours, prior to transfer to the appropriate medical ward or home if appropriate. These units concentrate patient assessment and planning activities with the aim of streamlining care processes and length of stay and are used for patients that have an anticipated length of stay of greater than 24 hours.

**Post Acute Care (PAC)**
A time limited short term intervention designed to assist patients to recuperate following an acute hospital admission and to facilitate their independence or transition to continuing care where required.

**Residential Care**
Personal and/or nursing care that is provided to a person in a residential care facility in which the person is also provided with accommodation that includes appropriate staffing, meals, cleaning services, furnishings and equipment, for the provision of that care and accommodation.

**Short Stay Observation Unit (SOU)**
Short Say Observation Units are designated areas within or attached to emergency departments that are used to accommodate patients expected to require a short episode of care ie 4-24 hours. These units are designed to provide intensive short-term assessment and/or therapy for select conditions in order to streamline the episode of care.

**Substitution and Diversionary Services**
Substitution and Diversionary Services aim to ensure that patients are able to receive the most timely and appropriate care possible with greater flexibility and patient choice in treatment and service provision. Through enabling patients to receive appropriate care in the community they can assist hospitals to maximise bed availability by:

- preventing presentations at emergency departments
- preventing admissions to acute beds from emergency departments
- reducing lengths of stay in acute beds, and
- preventing unplanned readmissions to hospital.

**VAED**
Victorian admitted episode dataset - all Victorian public and private acute hospitals, including acute care facilities in rehabilitation and extended care institutions and day procedure centres, are required to report the relevant minimum data set of admitted patient activity. These data are compiled into the Victorian Admitted Episode Dataset.

**VEMD**
Victorian emergency minimum dataset - the Victorian Emergency Minimum Dataset centrally collects patient level emergency data. The dataset has the potential to facilitate the improvement of both the treatment and the prevention of illness and injury.

**WIES**
Weighted inlier equivalent separation - a unit of measure for casemix adjusted throughput.
Executive Summary

Background
This project was commissioned by the Victorian Department of Human Services to investigate the use of Short Stay Observation Units and to understand the potential for expanding this model of care within Victoria. The project was undertaken by the Clinical Epidemiology and Health Service Evaluation Unit based at Melbourne Health and was overseen by a Steering Committee with broad representation from Victorian hospitals (see Appendix A). The focus of this study complements an evaluation of Chest Pain Evaluation Units (CPEAs), which involved Royal Melbourne Hospital, The Alfred and Monash Medical Centre. For detail relating to CPEAs, readers are referred to the Department of Human Services Review of Chest Pain Evaluation Areas Final Report, September 2000.

The specific objectives of this project were to:
1. conduct a review of the published literature and local evaluation data concerning the establishment and operation of SOU’s and outcomes of care for patients
2. describe the features of SOU’s operating in Victorian public hospitals
3. identify models for SOU’s in the following settings:
   • teaching hospitals - large
   • teaching hospitals - other
   • large regional base and suburban hospitals
4. make recommendations concerning:
   • models of service
   • types of patients best managed in short stay/observation units
   • staffing structure and management of SOU’s
   • relationship of the SOU to demand management strategies for the hospital
   • communication with patient and community-based continuing medical care
5. identify potential performance indicators for SOU’s
6. identify and make recommendations concerning the recording of SOU patients in the VEMD and VAED

The initial project scope was expanded to include differentiating the features of SOUs from those of Medical Assessment and Planning Units (MAPUs), which provide an alternative approach to fast-tracking episodes of care.

Methodology
This project methodology involved the following 4 separate processes for gathering information:

- Literature Review
  The literature review was based on a Medline search, examination of relevant Internet Web sites, and peer nomination to ensure that both peer-reviewed and non-peer-reviewed material was identified.

- Victorian Hospital Survey
  A 3 part hospital survey was developed to identify the existence and structure of SOU’s in operation and was distributed to the 31 hospitals that have emergency departments in Victoria.

- Victorian Site Visits
  For those hospitals that identified that they had an Observation Unit, site visits were undertaken to examine the physical facilities and their relationship to the emergency department, and to interview staff with respect to operations and effectiveness of the unit. This information was used to supplement the data gathered through the surveys.
• **Interstate Site Visits**
In order to explore interstate experience with SOUs and MAPUs site visits were conducted to:
- Royal Brisbane Hospital (SOU and MAPU)
- Ipswich hospital (SOU)
- Townsville Hospital (SOU and MAPU)

**Key Findings and Recommendations**
Following analysis of all of the information gathered through the processes outlined above, the following key findings and recommendations were identified.

**Literature Review**
The literature review identified that Short Stay/Observation Units (SOUs) have the potential to improve the management of a small proportion (ie in the order of 2-5%) of emergency department presentations.

Potential advantages of well managed SOUs include:
- reduced length of stay for target patient groups
- reduced numbers of diagnostic investigations
- reduced numbers of inappropriate discharges
- improved patient satisfaction
- improved emergency department efficiency
- improved use of hospital beds.

Potential disadvantages of SOUs include:
- procrastination over patient management decisions
- fragmentation in continuity of care
- compromised communication regarding patient care plans
- inadequate time for patient education
- increased rates of representation to the emergency department
- diversion of emergency physician attention and
- the requirement for designated staff and space.

**Features of SOUs and MAPUs**
Patients suitable for management in SOUs include those who require a period of short-term investigation to determine the severity of their illness (eg undifferentiated chest pain) or those who are likely to respond to a short course of therapy (eg asthma) with anticipated lengths of stay of between 4 and 24 hours. The majority of patients (ie 80%) will be discharged from hospital after their stay in an SOU, while the remainder will require transfer into a ward bed for on-going care.

MAPUs are generally used to geographically co-locate emergency general medical admissions. Patients are managed in MAPUs for up to 48 hours in order to streamline care planning processes and engage appropriate allied health services. Emergency medical admissions requiring specialty services such as CCU and ICU are not managed through MAPUs. Following a stay of up to 48 hours in MAPU, the majority of these patients (ie 80%) will be transferred into other medical wards for ongoing management, while the remainder may be discharged.

**SOU Models of Care**
Key features of SOU service models include that they:
- are located within or in proximity to the emergency department
- admit patients with an expected length of stay of up to 24 hours
- are configured with facilities similar to those of a hospital ward (eg beds, lockers, showers etc)
- have strict admission and discharge criteria
- are supported by frequent medical review of patients
• have priority access to pathology and radiology investigations
• have clinical protocols for management of high volume conditions
• provide a quieter and more calm environment than the emergency department and
• share infra-structure and staffing with the emergency department.

The most appropriate model of SOU service for any given hospital will be dependent upon the characteristics of the patients that it manages.

Recommendation 1
It is therefore recommended that individual sites develop policies and procedures that define the service model for SOUs, so that the service is structured to meet the needs of specific patient groups considered suitable for this care at a local level.

Recommendation 2
For hospitals that are planning to introduce an SOU, it is recommended that an analysis of clinical conditions presenting to the emergency department be undertaken, to inform the service configuration required for the types and volumes of patients that are to be managed through the unit. This information needs to be analysed in light of cultural and support service factors and should be considered in planning the design, location, facilities and staffing required for the unit.

SOU Patient Types
Patients suitable for management in an SOU include those who require a period of short-term investigation and/or therapy with anticipated lengths of stay of between 4 and 24 hours. Conditions suitable for management in an SOU include:
• undifferentiated chest pain
• asthma
• transient ischaemic attacks
• head trauma
• stable drug overdose
• selected infections
• allergy reactions.

Staffing Structure and Management of SOUs
The principles of SOU operations are underpinned by a philosophy of ‘fast-tracking’ episodes of care, which are characterised by frequent medical review to ascertain readiness for discharge or requirement for in-patient transfer. Thus, in order to effectively achieve this streamlined approach to care, careful consideration needs to be given to appropriate medical, nursing and allied health staffing. The management of SOUs needs to be developed to fit the structure of the specific hospital with appropriate numbers and grades of staff to meet the needs of target patient groups.

In general SOUs, are managed as an addendum to the emergency department, where the culture of frequent assessment and short-term therapy is well established. Medical responsibility for management of the unit frequently lies with the emergency department director and this model enhances the important relationship between the SOU and the emergency department. Further this model facilitates sharing appropriately skilled staff between the emergency department and the SOU.

Careful consideration of the SOU staffing profile should be undertaken in the planning stages. SOUs may be opened as ‘additional’ beds or by reconfiguring the use of existing beds. In our current climate, the preferred approach would be to establish SOUs through opening additional beds. This approach necessitates provision of additional staffing particularly in the areas of medicine and nursing.
Recommendation 3
It is therefore recommended that staffing profiles for SOUs be developed by hospitals with careful consideration of the following factors:

- Staff will require expertise that matches the needs of patients being admitted to the SOU
- Medical staff in SOUs require the skills, knowledge and experience to make admission/discharge decisions
- Medical staffing needs to be structured to facilitate frequent medical review of patients
- Nursing staffing should be established with a nurse to patient ratio of 1:4 depending on the patient conditions managed
- Allied health time required will depend on the patient mix. For example, social workers may be required extensively in units that admit short stay patients with complex social problems
- Provision should be made for medical and nursing education time, particularly in the area of advanced patient assessment skills.

Relationship with Demand Management
Considering the current emergency demand management pressures within Victoria, SOUs need to be managed such that beds are quarantined for short stay purposes or they may readily become 'blocked' with patients who require longer term care.

SOUs have the potential to facilitate remodeling clinical care around substitution and diversion services for suitable patient groups, while they may also play a role in expanding care coordination to new groups of patients who require a brief episode of in-hospital care.

In order to optimise their role in hospital demand management strategies it is important to manage SOUs at less than 100% occupancy. Average SOU occupancy rates should be in the order of 80%

Recommendation 4
In defining or expanding the role of SOUs within organizations it is recommended that hospitals consider the implications of the following operational aspects of SOUs:

- Quarantining SOU beds for short stay patients only
- In order to optimise their role in hospital demand management strategies it is important to manage SOUs at less than 100% occupancy. Average SOU occupancy rates should be in the order of 80%
- In many hospitals SOUs may be suitable for placement of short stay, care coordination patients while support services or accommodation arrangements are being organised
- Where appropriate, links with HITH services should be established so that suitable patients can receive appropriate care without occupying a traditional ward bed and thereby promote expansion of effective substitution services
- SOUs should establish effective links with PAC and HACC services so that patient episodes can be fast tracked whilst ensuring appropriate follow-up services are employed where required
- From the literature, SOU patients who require transfer into a ward tend to have longer lengths of stay and higher costs than the average. While the reasons for this are not clear, the finding should be tested in the experience of the Victorian SOUs and this information should be used in refining discharge risk assessment processes.

Communication with Patients and GPs
Managing patients within an SOU compresses the amount of time available for educating patients about their condition, treatment and follow-up arrangements and what to do in the event that their condition subsequently deteriorates. This model also limits the opportunity to reinforce key messages. Therefore, the processes used to convey information to these patients require careful attention.

**Recommendation 5**

It is recommended that SOUs develop and implement policies that address patient information both verbally and in writing. Where possible key information should be provided to the patient and their carer, and written patient information should be used to describe:

− diagnosis
− on-going care instructions
− medication instructions
− follow-up arrangements
− expected course of the illness or injury
− potential complications and
− what to do in the event that their condition deteriorates.

**Recommendation 6**

In order to evaluate the quality and effectiveness of care provided within the SOU, it is further recommended that procedures be developed to follow-up a sample of SOU patients following discharge via telephone.

SOUs have the potential to facilitate the transition from in-patient to ambulatory models of care. Inherent in this transition is the requirement to establish very effective communication strategies with on-going care providers, whether they are hospital based eg medical staff in outpatient clinics or whether they are community based eg GPs. Strategies for streamlining effective information transfer to continuing care providers are important for all patients and for this group in particular.

**Recommendation 7**

It is recommended that SOUs implement strict policies and procedures for communication with community care providers and critically evaluate their effectiveness at regular intervals. The approach used by hospitals should fit with their quality improvement framework.

**SOU Performance Indicators**

From the analyses undertaken in this project a range of SOU Performance Indicators were identified including those that address:

− Utilisation review such as;
  - Volumes of patients
  - Types of patients
  - Percentage of patients admitted for on-going care
  - Percentage of chest pain patients admitted to CCU
  - Percentage of all emergency department visits
  - Average time spent in the SOU and
  - Proportion of patients that exceed the SOU time limit.

− Quality assurance such as;
  - Number of patients who leave against medical advice
  - Mortality
  - Adverse events
  - Complaints
  - Comparison of admitting and discharge diagnosis
- Representations within 48 hours
- Repeated admissions to the SOU and
- Appropriateness of admissions judged against admission criteria.

**Recommendation 8**

With respect to SOU performance monitoring, it is recommended that the Australasian College for Emergency Medicine (Victorian Branch) and the Emergency Nurses’ Association (Victorian Branch) develop and endorse state-wide criteria for assessing SOU performance and establish state benchmarks. This work should build on the material provided in Chapter 8 of this report and could be used to lead the development of similar SOU performance criteria for national use.

Further, it is recommended that SOUs implement internal quality review processes including clinical audits to evaluate their operational and clinical effectiveness at regular intervals. The approach used by units should fit with their organization’s quality improvement framework.

**Implications for the VEMD and the VAED**

Acute hospitals routinely report admitted patient activity to the DHS through the Victorian Admitted Episode Dataset (VAED). In addition, hospitals report emergency department presentations through the Victorian Emergency Minimum Dataset (VEMD).

In order to understand the potential value of SOUs within the Victorian health context, and capitalise on the opportunities that these Units may offer for improving patient care practices, it will be necessary to measure and analyse a variety of performance measures as identified in Section 8 of this report. The data required to derive the vast majority of these performance measures are captured through the VAED and the VEMD. However, at this point in time there is no opportunity to differentiate between patients who are managed within an SOU and those who are not.

**Recommendation 9**

It is recommended that amendments be incorporated into the VAED (Accommodation Type) and VEMD (Departure Status) respectively (as detailed in Chapter 9) to enable:
- identification of SOU patients in each of these data-sets
- analysis of SOU utilisation
- analysis of the impact of the SOU on the hospital
- development of an appropriate funding model and
- monitoring of related aspects of the quality of these services.

**Recommendation 10**

It is recommended that the DHS establish a process for registering SOUs to facilitate reporting of relevant activity through the VAED and VEMD respectively. This process will also facilitate identification of SOU sites for proposed performance incentives and impact analyses.

**Recommendation 11**

As for SOUs, it is recommended that the DHS establish a process for registering MAPUs in Victorian hospitals in order to facilitate VAED reporting and to focus future analysis of this concept within the local environment.
The current approach to calculating length of stay in the VAED is date-based and therefore limited to whole days. This approach lacks sufficient sensitivity for accurately monitoring SOU lengths of stay and related performance measures.

**Recommendation 12**

It is therefore recommended that DHS file formats and procedures for calculating length of stay be reviewed in order to support this level of analysis as described in Section 9.

**Maximising SOU benefits**

In order to understand the impact of SOUs in Victorian hospitals and promote implementation of these units in an effective manner, it will be important to examine the use of SOUs that have been in operation for at least 12 months.

**Recommendation 13**

It is recommended that the DHS undertake an impact analysis of the SOUs currently in operation at St Vincent’s and Angliss, that encompasses their first 12 months of operation. This work should examine:

- SOU utilisation including occupancy, average length of stay and destination on separation from the SOU,
- a comparison of hospital length of stay data for high volume SOU conditions (as compared with state benchmarks and historical performance),
- clinical outcomes,
- costs of care provided,
- revenue generated under WIES funding,
- patient satisfaction, and
- the extent to which the SOU is linked to HITH and PAC services.

In fostering the development of SOUs so that their impact is maximised, proposed Units should be carefully assessed against a framework, which includes a number of critical success factors as detailed in Recommendation 14.

**Recommendation 14**

Further, it is recommended that requests to the DHS for funding to support new SOUs be evaluated against criteria that are established to assess the strength of a business case. These criteria should include:

- Evidence of executive support
- Nomination of a medical and a nursing champion
- Evidence of medical and nursing support
- Capacity to manage 5-10% of emergency presentations
- A planned 24 hour time limit
- Admission criteria that preclude use of the SOU beds for patients awaiting an inpatient bed
- Clear discharge criteria
- Identification of candidate conditions and anticipated patient volumes
- An appropriate staffing structure
- A clear and comprehensive strategy for evaluating the performance of the SOU and the impact of the Unit on the hospital.

**Enhancing SOU Care Through Clinical Guidelines**
Many of the studies reviewed in Section 4 of this report highlight the important synergy between SOUs and the use of clinical guidelines. There are numerous evaluations of the beneficial impact of clinical guidelines within the short stay environment. From the CPEA Review (KPMG Consulting 2000), each of the 3 participating Melbourne hospitals used a protocol-based approach to assessment of undifferentiated chest pain. However, from the Victorian hospital survey results, there are very few clinical guidelines of protocols currently being used in the management of SOU patients. With the exception of the Angliss SOU, which has implemented clinical guidelines for over 28 conditions, the potential benefits to be achieved through the use of clinical guidelines for fast tracking emergency presentations remains largely untapped.

**Recommendation 15**

It is therefore recommended that development of clinical guidelines for high volume SOU conditions be promoted within each SOU. Opportunities for progressing this work across hospitals that have or are developing SOUs should be considered using either a ‘health roundtable’ and/or a ‘breakthrough’ methodology so that key learnings can be shared across hospitals.

**SOU Funding**

Same-day WIES caps currently provide a disincentive for hospitals to further increase their same-day workload. At the same time, it is not desirable to encourage use of the SOU by patients who would otherwise be safely discharged. From a funding perspective it will be necessary to strike a balance in the transfer of multi-day to same-day activity so that SOU utilisation is optimised.

**Recommendation 16**

It is therefore recommended that for hospitals with an SOU, the same-day and multi-day WIES targets be reviewed to encourage optimal utilisation of the SOU facility.

**Recommendation 17**

In order to encourage appropriate use of SOUs, it is recommended that an incentive program be considered to reward management of appropriate clinical conditions through achievement of benchmark discharge and in-patient transfer rates and/or demonstrated reductions in average lengths of stay for specified DRGs. These targets should be negotiated on a site-by-site basis.

Current WIES funding arrangements for SOU patients create a perverse incentive to keep SOU patients overnight in order to attract multi-day WIES revenue. In a recent analysis of the chest pain evaluation pilot conducted by KPMG for the Department of Human Services, it was noted that: *Casemix payment of CPEA patients is an appropriate approach (KPMG Consulting 2000).* However, with respect to same-day and multi-day stay SOU episodes this report identified that: *An assessment is required of the viability of ensuring that the case weight for CPEA does not differentiate between patients designated as ‘same day’ and those whose stay spans midnight.* This level of assessment is also required for more general use SOU facilities. Following implementation of the recommendations regarding VAED revisions, it will be possible to identify those patients who are formally managed as SOU patients.
Recommendation 18

In light of this, it is recommended that the approach adopted for funding this sub-group of patients be reviewed so that funding is based on activity rather than whether or not the activity spanned midnight.

Conclusions

From the various sources of information analysed throughout this project, SOUs clearly have potential to improve the management of a small proportion (ie in the order of 5-10%) of emergency department presentations. This equates to approximately 20,000 to 40,000 patients across the 12 major Melbourne metropolitan hospitals per year. Further to this, SOUs have potential to:

- Improve patient satisfaction,
- Improve efficiencies in the operation of emergency departments,
- Improve the utilisation of hospital resources, and
- Facilitate treatment of increased numbers of patients.

However, despite the potential benefits to be gained from an SOU; of the 5 Victorian hospitals that have implemented these facilities for managing general conditions, 3 were unable to maintain their SOU function as they were ‘blocked’ by patients who had been admitted to these beds awaiting a ward bed. Acute care demand pressures in the metropolitan region have reached an unprecedented level over the last 12 months and peaked at around the time of this survey. Emergency departments have experienced extreme workloads, which have adversely impacted on emergency department efficiency. Despite the fact that SOUs are intended to optimise the efficiency of emergency departments, the function of these units in 3 Victorian sites has been compromised to the extent that they operate as ‘holding’ or ‘multi-day stay’ wards. This approach precludes achieving the potential benefits that these units could deliver in terms of improved patient management and enhanced efficiency. Therefore, future expansion of this approach to patient care requires careful consideration, with the potential benefits weighed against the risks that arise from current demand pressures.

Factors that have been identified as critical to the successful management of an SOU include:

- Evidence of executive support
- Nomination of a medical and a nursing champion
- Evidence of medical and nursing support
- Capacity to manage 2-5% of emergency presentations
- A planned 24 hour time limit
- Admission criteria that preclude use of the SOU beds for patients awaiting an inpatient bed
- Clearly defined processes for patient management planning
- Clear discharge criteria
- Careful selection of candidate conditions
- Priority access to pathology tests and radiology investigations
- An appropriate staffing structure that enables frequent medical review of patients
- A clear and comprehensive strategy for evaluating the performance of the SOU and the impact of the Unit on the hospital.
While there may be a cost benefit in implementation of an observation unit, in our current environment it is probable that the real benefits to be gained will arise from improved utilisation of in-hospital facilities, with bed-days saved from medical admissions becoming available for alternative use. However, the potential to ‘save’ bed days from medical admissions through the use of SOUs, needs to be very carefully managed. SOUs may benefit organizations in two key ways:

- by providing a small number of additional inpatient beds (ie increasing capacity) and
- by improving patient flow for a small, but significant proportion of emergency department presentations.

If SOUs are managed in such a way that they become ‘holding units’ for patients awaiting a ward bed, the benefits achieved will be limited to those relating to increased capacity only. More significant benefits can be achieved through initiatives that increase patient flow. SOUs thus have the potential to provide for benefits arising from both increased capacity and increased flow if they are managed to preserve their short stay function.
1 Introduction

Patients presenting to an acute hospital who require treatment beyond the initial hours of assessment, treatment and observation, have traditionally been admitted to the hospital in-patient ward for ongoing management. In recent years there has been a move to the use of Short Stay/Observation Units (SOU’s) as an alternative to traditional in-patient admission for specific patient groups.

The reason for this change relates to the need to provide a more intensive initial period of assessment and re-evaluation over a shorter period. Problems associated with pre-existing management practices include:

1. Timeliness of medical registrar review of patients in the Emergency Department (ED) pending admission
2. Slow access to diagnostic facilities and turn around times for results following admission
3. The delays associated with ward-based management and discharge for patients who might otherwise have had a short length of stay (LOS)
4. Issues faced in the management of “difficult” patients in the ED including; frail aged, those with poor social supports, and persons with complex medical problems arriving at the ED outside of normal business hours.

Similarly, there may be issues pertaining to seasonal variations in demand and the system of care including demand management strategies when bed occupancy levels are maintained greater than 95%.

The evolution of SOU’s generates a new set of issues to consider including:

1. Do such units improve the hospital’s ability to reduce ‘blocked admissions’, a term used to describe emergency patients who wait for excessive periods prior to being admitted to an inpatient bed
2. What are the implications of different management structures and locations for patient care and length of stay
3. What is the staffing profile of these units relative to types of patients/conditions managed
4. What performance indicators have hospitals developed to measure effectiveness and efficiency of these units
5. How should the clinical activity in such areas be counted in the Victorian Emergency Minimum Dataset (VEMD) and the Victorian Admitted Episode Dataset (VAED).

The function of SOU’s needs to be carefully described and accurately distinguished from other facilities such as medical assessment and planning units (MAPUs) which serve a distinctly different purpose. In order to facilitate the development of these units in the context of a demand-management strategy, this clinical activity can then be identified accurately and appropriate process measures developed along with outcome measures from the patient and institutional perspective, as part of a routine set of performance indicators. In order to examine the patterns of activity in SOU’s, opportunities for subsequent improvement and the overall impact of these units on service delivery, ongoing data collection (as part of the VAED and VEMD) will be required.

1.1 Aims

The aims of this project were to:

1. Describe the distribution and operation of short stay/observation units in Victorian public hospitals, identifying the key features which differentiate between the types of units/approaches

1.2 Specific Objectives

The specific objectives of the project were to:
1 conduct a review of the published literature and local evaluation data concerning the establishment and operation of SOU’s and outcomes of care for patients
2 describe the features of SOU’s operating in Victorian public hospitals
3 identify models for SOU’s in the following settings:
   • teaching hospitals - large
   • teaching hospitals - other
   • large regional base and suburban hospitals
4 make recommendations concerning:
   • staffing structure and management of SOU’s
   • models of service
   • relationship of the SOU to demand management strategies for the hospital
   • types of patients best managed in short stay/observation units
   • communication with patient and community-based continuing medical care
5 identify potential performance indicators for SOU’s
6 identify and make recommendations concerning the recording of SOU patients in the VEMD and VAED.

Following commencement of the project it was evident that there was significant confusion around the concepts short stay unit and medical assessment and planning unit. These facilities have quite distinct functions. The project subsequently sought to differentiate between these facilities, develop appropriate definitions within the Victorian context and expand the data collection to include information about the use of medical assessment and planning units in Victoria.

2 Methodology

2.1 Project Steering Committee
A Steering Committee was established at commencement of the project in order to refine the methodology used, monitor progress against the project plan and inform implementation of the various stages. The Steering Committee membership is included in Appendix A.

2.2 Literature Review
The literature review produced a current report on published evidence to support the role of the SOU in an acute hospital setting. The literature search included a Medline search, examination of relevant Internet Web sites and peer nomination to ensure that published literature including both peer-reviewed and non-peer-reviewed material including government agency reports were identified.

2.3 Victorian Hospital Survey
A 3 part hospital survey was developed to identify the existence and structure of SOU’s in operation. This survey was distributed to the 31 hospitals that have emergency departments in Victoria. Survey A sought key contact details and information on whether or not hospitals had Observation/Holding and/or Assessment facilities. Survey B was designed to determine the unmet need for SOUs and was completed by all hospitals that did not have an SOU or MAPU facility. Survey C was completed by hospitals that do have an SOU and/or MAPU in order to examine the structure, function and activity levels of these facilities.

2.4 Victorian Site Visits
For those hospitals that identified that they had an Observation Unit, site visits were undertaken to examine the physical facilities and their relationship to the emergency department, and to interview staff
with respect to operations and effectiveness of the unit. This information was used to supplement the data gathered through the surveys.

2.5 Interstate Site Visits

Three interstate observation units, which were acknowledged as being benchmark examples of SOU’s on the basis of published results or peer nomination, were identified and site visits were undertaken as follows:

- Royal Brisbane Hospital - level 1 teaching hospital
- Ipswich Hospital - metropolitan district hospital
- Townsville Hospital - major rural hospital.

Interviews with relevant medical and nursing staff were undertaken to explore the following features of these units:

- Model of service delivery
- Location
- Size (number of beds)
- Staffing structure
- Hours of operation
- Activity levels
- Conditions managed
- Demographic features of patients
- Current effectiveness in terms of patient outcomes and use of hospital resources and
- Barriers to effectiveness.

2.6 VAED and VEMD

Following analysis of the information gathered through each of the preceding stages of this project, issues surrounding SOU patient data management were considered. A key objective of the project was to identify a range of SOU performance indicators, which could be used to inform future practice and assist in continuous quality improvement activities. The implications for managing relevant data were considered and specific strategies were identified for the VAED and the VEMD respectively.

2.7 Final Report

From these activities a final project report was collated which fulfils the objectives of the project, and in particular, identifies potential performance indicators and makes recommendations concerning:

- Staffing structure and management of SOU’s
- Models of service
- Relationship of the SOU to demand management strategies for the hospital
- Types of patients best managed in short stay/observation units
- Performance indicators
- Communication with patient and community-based continuing medical care.

While this report describes experience with both SOUs and MAPUs the recommendations arising from analysis of this information relate to SOUs only.

3 Ethical Considerations

This project did not have any ethical issues of concern and was approved by the Continuum of Care Committee of Royal Melbourne Hospital as a Quality Assurance activity.
4 Literature Review

The Victorian health care system is under increasing pressure to accommodate the health care needs of an ageing population, which is challenging the system with increasingly complex health care needs. The proportion of people with chronic conditions has increased to the extent that chronic conditions are the major cause of illness, disability and death in the United States today (Anonymous 1996). Increasingly, individuals with chronic conditions are limited in their ability to undertake normal activities of daily living. In the United States the number of people who will be unable to go to school, to work, or to live independently due to a chronic condition is projected to reach 20 million by the year 2050 (Anonymous 1996). One in five of the nearly 50 million disabled persons in America needs help with basic daily activities and a large percentage (42%) of these are under the age of 65 years. While the demand for care is increasing, the pool of potential caregivers is shrinking. In 1990, the ratio of the population in the average caregiving range, ages 50 to 64, to the population aged 85 and over was 11 to 1. By 2050, it is projected that there will be only 4 potential caregivers for every elderly person (Anonymous 1996). The impact of these trends is being exacerbated by societal and cultural changes that have transposed women from the home into the work-force. The impact of this transition has in effect been, erosion of the home based carer network and a shift in society’s expectations of where responsibility lies for provision of care and support for individuals who are unable to live independently.

These trends will continue as developments in health care practices and population trends combine to bring about unprecedented demand for health services. Strategies that aim to address the up-surge in demand for hospital care have been implemented at both state-wide and individual hospital levels. Examples of state-wide reform include the Hospital in the Home program, The effective discharge strategy, the post acute care program and preventive interventions that target specific diseases such as the influenza immunisation program. At a hospital level, programs such as hospital outreach services, case management, disease management and the implementation of patient assessment and planning units have aimed to enhance the capacity of hospitals to improve efficiency and optimise service utilisation. More recently, within Victoria, the concept of observation medicine has gathered attention and there is growing interest in the potential of observation units to assist in streamlining the appropriate delivery of health services.

4.1 Aims

The aims of this literature review were to:
1. describe international experience in the use of observation and short stay units. This aspect of the review was undertaken to establish the general functions of observation units, the characteristics of patients managed, the principles that underpin effective management, and the advantages and disadvantages associated with the use of observation units, and
2. analyse the extent to which the use of observation units is supported by objective evidence.

Description of the framework for observation medicine has generally incorporated use of the term short stay ward, arising from literature published in the United Kingdom, while this concept is described using the term observation unit in the United States.

The following review summarises the key themes relating to observation medicine that have been reported in the literature.

4.2 Methodology

4.2.1 Literature search

The literature search involved a number of small, topic-based searches undertaken by searching under the MeSH heading observation unit and then using different text words or phrases (for example short
stay ward, emergency department, utilisation). These searches were undertaken on the following electronic health care databases:

- Medline
- Cinahl
- Best Evidence
- The Cochrane Library

Searches were limited to material published in the English language and examined publications from 1960 onwards. Due to time constraints material was sought from within Australia only.

A number of other electronic databases and bibliographic sources were also searched including:

- The Australian Department of Health and Aged Care
- The New Zealand Health Technology Clearing House
- NHS
- US Agency for Health Care Policy and Research
- References cited in publications obtained through the course of research on the topic
- Internet sites (eg Google)
- Personal contacts

This literature search methodology was undertaken to ensure that both peer-reviewed and non-peer-reviewed literature, including government agency reports, were identified.

### 4.2.2 Appraisal methodology

In addressing the first aim of this review, the description of international experience, all identified items that had a key focus on the core topic were reviewed in order to gain a comprehensive understanding of experience as described from the perspective of authors. This approach was adopted to explore the diversity in philosophical principles and models of implementation that have been utilised.

In addressing the second aim of this review, analysis of the extent to which the use of observation units is supported by objective evidence, material has been included based on levels of evidence. Definitions for levels of evidence were based on NH&MRC ratings that have been adapted from the US Preventive Services Task Force protocol (US Preventive Services Task Force, 1989) as follows (National Health and Medical Research Council 1999):

- **I** Evidence obtained from at least one randomised controlled trial
- **II-1** Evidence obtained from controlled trials without randomisation
- **II-2** Evidence from cohort or case control analytic studies
- **II-3** Evidence obtained from time series studies
- **III** Evidence obtained from descriptive studies
- **IV** Opinions of respected authorities based on consensus or clinical experience.

#### 4.2.2.1 Inclusion criteria

Evidence grades were applied to all of the literature items based upon the study design of each article. Items were included in the analysis of the extent to which the use of observation units is supported by objective evidence, if they were comparative studies that rated at evidence levels I, II-1, II-2 or II–3.

#### 4.2.2.2 Exclusion criteria

Articles were excluded from the analysis of the extent to which the use of observation units is supported by objective evidence, if they were descriptive and/or opinion based articles that rated at evidence levels
III or IV. Further to this, studies were excluded if they did not clearly describe the methods or results. Letters and non-English language studies were also excluded from this analysis.

4.3 Description of SOU utilisation

4.3.1 Philosophy
Traditionally, patients presenting to an acute hospital emergency department who require treatment beyond the initial hours of assessment, treatment and observation, have been admitted to hospital in-patient wards for ongoing management. In recent years there has been a move to the use of Short Stay/Observation Units (SOU’s), as an alternative to direct inpatient admission for specific groups of patients.

The concept behind the observation unit is that it is an extension of emergency services, providing continued patient management to better define the patient’s diagnosis and reduce costs and inappropriate discharge dispositions. The ultimate goal is to improve the quality of medical care to patients through extended observation and treatment, while reducing inappropriate admissions and health care costs (American College of Emergency Physicians 1988).

4.3.2 History of observation medicine
Significant events in the history of observation medicine are summarized in Table 1.

The concept of observation medicine has attracted significant attention in the published literature since the Nuffield Provincial Hospital Trust Review of short stay units determined that ‘short stay observation beds were essential for good casualty departments’ in 1960.


Guidelines from the British Association of Accident and Emergency Medicine (BAEM) were published in 1989 (British Association for Accident and Emergency Medicine 1989). These guidelines stated that the short stay ward ‘is an essential part of every accident and emergency department’ and suggest provision of one bed per 5,000 new attendances. (BAEM 1989 quoted in (Goodacre 1998)). Despite this recommendation, a UK study published in 1998 demonstrated that only 95 of 260 major A&E units (ie 37%) listed in the British Association for Accident and Emergency Medicine 1996 directory, currently operated units under the control of the Accident & Emergency department (Goodacre 1998). From analysis of the literature since 1960, the case for implementation of observation units is not clear-cut.
## Table 4.1 - Evolution of Observation Medicine

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<th>Year</th>
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<td>1970s</td>
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<td>Casemix funding introduced - (1983)</td>
<td>First PNG article on observation units (Biddulph 1984) - 1984</td>
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<td>1970s</td>
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<td>Am J Emerg Med: 27% of EDs have observation units (Yealy, DeHart et al. 1989)</td>
<td>MJA - first Australian article on observation services – half of 44 major hospitals had observation wards (Jelinek and Galvin 1989) – 1989</td>
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<td>ACEP forms Observation Services Section of membership - 1990</td>
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<td>ENA position paper on observation services - 1991</td>
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<td>1980s</td>
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<td>AMA and HCFA approve first CPT codes for observation services, ACEP: <em>Emergency Department Design</em>, which includes chapters on observation areas and chest pain units – 1993 (Riggs Jr 1993)</td>
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<td>Ann Intern Med: observation medicine is called ‘a new field of medical practice’ (Platt 1994)</td>
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<td>Am J Cardiol: ACEP information paper on chest pain units in emergency departments (Graff, Joseph et al. 1995) - 1995</td>
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<td>First Irish article on short stay units (Hadden, Dearden et al. 1996) - 1996</td>
<td>NHAAP: 22% of EDs have chest pain units (Zaleski, McCarren et al. 1997) – 1997</td>
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<td>1995</td>
<td>Survey of UK EDs demonstrates 37% of major A&amp;E units have SSWs</td>
<td>ACEP: Observation Unit Implementation and Management Strategies. AMA and HCFA approve second set of CPT codes for observation services. First RCT published on observation unit for unstable angina.</td>
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<td>First Hong Kong article on short stay units (Yeung 1999) – 1999</td>
</tr>
</tbody>
</table>
Experience with Observation Medicine has been reported from around the world. Various studies examining the use of observation units have been published from the United States (Landers, Waeckerle et al. 1975; Farrell 1982), the United Kingdom (Dallos and Mouzas 1981; Morgan 1981; Gabbay and Mason 1987; Ramaiiah and Pal 1987; Clancy 1989; Maimaris and Kirby 1991; Jones, O'Driscoll et al. 1995; Rainer 1996), Canada (Neville and Rowland 1983), Australia (Jelinek and Galvin 1989; Jelinek, Mountain et al. 1999), India (Aggarwal, Wali et al. 1995), France (Rey-Bellet, David et al. 1997), Ireland (Hadden, Dearden et al. 1996), Spain (Marti Cipriano, Valdivieso Martinez et al. 1999), Hong Kong (Yeung 1999), Papua New Guinea (Biddulph 1984) and Norway (Ruus, Rytter et al. 1983; Oie and Fanebust 1993).

4.3.3 Characteristics of Observation Services

4.3.3.1 Duration and Intensity of Service
Principles underpinning the use of observation units require that these facilities be used for a time limited, interim period, which is strictly enforced. Policies regarding maximum length of stay have ranged from 8 to 48 hours.

The intensity of services provided in observation units has been described to fall between that required in the emergency department and that provided in general wards. As the patient episode is frequently ‘fast-tracked’ the hours of care per patient can be significantly higher than the respective hours per patient in a general ward.

4.3.3.2 Sites for Observation
Observation units may be established within the emergency department, adjacent to the emergency department, or as a separate ward. In the absence of a designated observation unit, this function may be performed within the emergency department on one hand or within hospital wards on the other hand. It appears that a proportion of patients that are deemed to require observation are in fact discharged when designated units for this purpose are not available (MacLaren, Ghoorahoo et al. 1993). This raises concerns regarding patient safety and the adequacy of patient follow-up arrangements, which have not been explicitly explored. Conversely, many patients that would otherwise be discharged are admitted to observation units when these facilities are available.

The preferred location for observation units is not clear from the literature. One study that has compared an A&E observation unit with management in general acute wards concluded that the A&E observation ward was more efficient than the general acute wards at dealing with short stay patients. This retrospective study analysed patient management before and after closure of an observation ward (Hadden, Dearden et al. 1996). However, there have been no studies which compare the effectiveness of an A&E Observation Unit with an Observation Unit located elsewhere in the hospital.

4.3.3.3 Staffing the Observation Wards
Klein (Klein and Patterson 1991) argues that the observation unit is an extension of the Emergency Department, so it is logical for an emergency physician to assume responsibility for medical care. His rationale includes that the emergency physician is:
• especially skilled at treating the multiplicity of problems encountered
• experienced at deciding when a patient needs to be admitted or when a patient is ready for discharge
• very familiar with and understands the therapy initiated in the emergency department and can formulate a treatment plan that expands intelligently upon it.

Further, Klein proposes that a physician director and a nursing assistant director should be appointed as units seem to run best when formal lines of command have been established and are recognized by all. Management responsibilities in SOUs include formulating a complete set of policies and procedures, undertaking financial management, performing quality assurance and utilization review.
In his analysis of observation units in the management of paediatric emergencies, Klein indicated that the level of care provided falls between that of a paediatric inpatient floor and an intensive care unit. He concluded that this intensity of care necessitates staff who are dedicated solely to the observation unit and staffing must be adequate to permit close observation and fairly intensive treatment. Klein advocates that these providers should be part of the regular emergency department staff and in addition, the availability of a social worker can be extremely helpful.

The majority of observation unit literature arises from units that are managed as an addendum to the emergency department. These units tend to be managed by emergency department physicians. However, opinion is divided as to who should most appropriately assume responsibility for the medical management of these Units and there are no comparative studies which report advantages of one model over another.

**Holding Beds versus Observation Beds**

From definitions provided in the US literature, holding units have been defined as designated areas in the outpatient setting where patients are held pending prearranged criteria. These units may be under the control of the emergency department. Holding units have 2 main purposes as follows:

- Outpatient treatment such as IV therapy for blood transfusions, plasmaphoresis, chemotherapy or antibiotics; and
- Accommodation of patients awaiting an inpatient bed, or patients waiting for transfer, placement or transportation from the hospital.

Holding units are considered to be advantageous as they allow ‘outpatient’ like management of conditions that formerly required hospitalization and thereby significantly reduce health care costs, while they can free critical care personnel and space for patients awaiting admission (American College of Emergency Physicians 1988).

**23 Hour Beds versus Observation Beds**

The concept of the 23-hour observation bed has arisen in the US in response to Medicare legislation. Hospitals are not reimbursed for an admitted Medicare patient who fails to meet intensity of service or severity of illness criteria. Medicare does allow patients to be admitted to observation beds for periods of up to 24 hours. Many US states have adopted similar standards for their Medicaid patients. In general these beds provide an area to care for any patient who has not been admitted but whose condition necessitates a period of observation of up to 24 hours. They are also used for day surgical patients requiring additional observation prior to discharge (American College of Emergency Physicians 1988).

**The medical assessment and planning unit (MAPU)**

Medical assessment and planning units have emerged within Australia in recent years. These units have a role that is distinct to that of the observation unit, but this concept has not as yet been defined or reported in the published literature. The key distinction between these units and observation units is that these units are designed to focus assessment and care planning processes for admitted medical patients, while observation units are generally used for patients requiring brief episodes of care.

**4.4 Types of Observation Services**

Numerous clinical problems have been successfully managed in observation units. All of these problems are characterized by having a reasonably low likelihood of admission as well as by the need for additional time before a decision regarding disposition can be made (Klein and Patterson 1991). Klein has classified conditions for which observation services may be useful as follows:

1. Diseases likely to respond to a brief course of therapy, which then can be modified so that treatment can be continued at home (eg status asthmaticus, gastroenteritis, and mild dehydration)
2. Illnesses of uncertain severity or seriousness, which are expected to rapidly evolve and fully declare themselves (eg hydrocarbon poisoning that is asymptomatic, mild croup)
3. Undiagnosed conditions undergoing lengthy testing which, if normal, will result in discharge (eg a suspected ingestion awaiting toxicology test results, acute cerebellar ataxia, low to moderate risk chest pain)
4. Problems needing prolonged observation that should resolve within 12 to 24 hours (a child who has been oversedated for a laceration repair, a postictal state)
5. Rare postoperative cases (eg following anaesthesia for removal of an oesophageal foreign body)
6. Social service situations requiring additional time to be worked out (eg an abused child awaiting placement).

4.4.1 Observation for Diagnostic Evaluation
A proportion of the patients that present to the emergency department require an extended series of physical assessments and/or investigations in order to determine the seriousness of their complaint. The goal of a short period of observation is to improve the physician’s diagnostic performance in identifying these illnesses. Syndromes that have been evaluated using a period of observation are described below.

4.4.1.1 Abdominal Pain
The aetiology of abdominal pain varies widely and patients frequently present with ‘non-classical’ signs and symptoms, which impede the physician’s ability to arrive at a definitive diagnosis. Many authors have described the merits of a period of observation for ruling out appendicitis in these patients (Jones 1969; Lewis, Holcroft et al. 1975; White, Santillana et al. 1975; Neutra 1978; Nase, Kovakik et al. 1981; Clarke 1984; Nauta and Magnant 1986; Kerr 1987; Graff, Radford et al. 1989; Graff and Radford 1990). All of these papers agree that a period of observation is necessary for patients with atypical patterns of pain. White and co-authors compared a 4 year period prior to implementation of a policy that required intensive in-hospital observation of patients with abdominal pain, with a 4 year period after the policy. While this paper is now quite dated, the proportion of non-specific abdominal pain patients who were operated on dropped from 65% to 7%, while the proportion of false-positive surgery decreased from 15% to 2% with no increase in the perforation rate.

4.4.1.2 Chest Pain
The use of observation units in the management of acute chest pain has evolved to the point where some hospitals have dedicated chest pain units. The diagnostic tools for this patient group have evolved significantly over the last 20 years from historical and physical features with ST segment changes in ECGs (Goldman, Cook et al. 1988), to CK levels (Lee, Cook et al. 1989), to CK-MB levels (Gibler, Lewis et al. 1990), to troponin levels (Solymoss, Bourassa et al. 1997) to continuous ST segment monitoring. A significant feature of even the most sophisticated tools is that serial monitoring over a period of up to 12 hours is still required to arrive at a definitive diagnosis in many patients.

Reporting on the outcomes of a randomised controlled trial comparing observation unit management of chest pain with routine management, Farkough (Farkough, Smars et al. 1998) concluded that observation units were a safe, effective and cost savings means of ensuring patients with intermediate risk of cardiovascular events receive appropriate care. A limitation of this study was that patients managed in the observation unit were managed in accordance with a strict protocol, while this protocol was not adopted in the routine management group. Thus it is not clear what the benefits of the observation unit were over and above managing the patients via the strict protocol or whether observation units have a role in facilitating the implementation of treatment protocols.

4.4.1.3 Fever
Browne (Browne, Ryan et al. 1997) reported their experience with 498 children with fever of greater than 39.4 degrees C. Two hundred and ninety one children were admitted to hospital, while the remaining 207 were observed in the short stay annexe of the emergency department. Those at high risk of bacteraemia (ie total white cell count > 20 x 10^9/l) were treated with ceftriaxone. The authors concluded that use of their protocol within the short stay annexe restricted empiric antibiotic treatment in
this group with no adverse events at follow up. Once again, it is not possible to distinguish between the benefits of the observation unit and the benefits of the protocol.

4.4.1.4 Seizure
Rosenthal et al (Rosenthal, Heim et al. 1980) developed a screening survey to be used with a period of observation in an emergency department observation ward for assessing patients with a first time seizure. From their study, which retrospectively reviewed 91 patients, their tool would have identified 41 of the 42 patients needing admission for serious illnesses, while preventing admission of 49 patients that did not have a serious cause of their seizure. In this study the screening survey, which involved a period of observation, was the key focus.

4.4.1.5 Trauma
Conrad (Conrad, Marchovichick et al. 1985) reported on a review of 520 patients with acute traumatic injuries managed in an emergency department observation unit. These patients represented 2.5% of all trauma patients. Fifty three (15.4%) of these observation unit patients required subsequent admission, 389 (80%) of these patients did not require hospitalisation and 16 (4%) left against medical advice. It is not clear from this study how many of these patients would have been deemed not to require hospitalisation in the absence of an Observation Unit. These authors concluded that an observation unit within the ED is cost-efficient, was very useful in the management of trauma patients and in particular, in patients whose signs and symptoms are initially obscured by drug or ethanol intoxication.

Ramaiah and Pal (Ramaiah and Pal 1987) reviewed the management of 188 patients who presented to an emergency department in Wales with self-injury or physical assault who were managed in the short stay ward. Abuse of alcohol and unemployment were identified as an important features in many of these patients. The short stay unit was determined to be an ideal facility for the cost-effective management of this group.

Abdominal Trauma
Henneman (Hennemen 1989) reviewed 230 patients with abdominal trauma and negative diagnostic peritoneal lavage, managed with 12 hours of observation. Eighty one percent were discharged home, 17% required admission with 4 patients requiring laparotomy. This American author identified potential savings of $51,329 and concluded that selected patients with significant abdominal trauma and a negative diagnostic peritoneal lavage can be managed safely and cost effectively in an ED observation unit.

Head Trauma
Fischer and co-authors (Fischer, Carlson et al. 1981) reviewed 333 patients admitted with concussion but normal neurological examination. Of the patients with skull fractures, 37% developed major neurological sequelae or required neurosurgical intervention. The authors recommended a period of observation for patients with concussion and skull fracture.

MacLaren (MacLaren, Ghoorahoo et al. 1993) reviewed 405 patients presenting with head injury to an emergency department and compared appropriate and inappropriate admission rates when the observation unit was open and when it was closed. They concluded that availability of the observation ward reduced the number of patients with minor head injury who were discharged inappropriately.

Brown and co-authors (Brown, Raine et al. 1994) compared the management of 483 patients presenting with minor head injury to the accident and emergency departments of two Scottish hospitals. Of the 277 patients assessed in the first hospital, 83 (30%) fulfilled at least one of their accepted criteria for recommending admission to hospital and 49 (17.7%) patients were actually admitted. In the same period the second hospital assessed 206 patients with minor head injury, 49 (24%) of whom fulfilled criteria for admission. However, only 10 (4.9%) patients were actually admitted. The authors identified that the
major relevant differentiating factor between the two departments was existence in the former of an observation ward.

In a letter to the editor of the Journal of Accident and Emergency Medicine, Jones, Driscoll and Luke (Jones, O'Driscoll et al. 1995) describe the value of their 18 bed short stay unit at the Royal Liverpool University Hospital. Twenty one percent of patients admitted to this ward over a 6 month period had sustained a head injury, and of these, 84% were discharged home following uneventful observation over an average period of 12.15 hours. These authors underscore the value of the short stay unit in assessing this group of patients as many are intoxicated or confused. Further to this, Jones and colleagues, expand on the appropriateness of their unit in addressing secondary neuropsychiatric morbidity through provision of an appropriate environment for early counseling focused on explanation of pathophysiology, typical sequelae and the likely time course of recovery to patients in the presence of family, friends or significant others.

**Thoracic Trauma**

Weigelt (Weigelt, Aurbakken et al. 1982) described the outcomes of managing one hundred and ten asymptomatic patients following stab wounds to the chest. Ten patients (9%) developed delayed pneumothorax or haemothorax. There were no complications from managing patients in the observation unit. This study concluded that asymptomatic patients could be managed without hospitalization.

Ammons (Ammons, Moore et al. 1986) et al reported on one hundred and fifty patients with thoracic trauma without evidence of intrathoracic injury managed in an observation unit. Twenty-one patients developed problems such as pneumothorax during observation and were admitted and the remaining one hundred and twenty nine patients were discharged home without requiring hospitalization. Patients requiring admission generally declared themselves within 6 hours. One hundred and twenty nine (ie 86%) patients were spared hospital admission, while the authors reported no increase in morbidity or mortality.

Stratis (Stratis, Francis et al. 1988) analysed eighty-one patients over a 4 year period that did not have an apparent intrathoracic injury after a penetrating chest wound. During 24 hours of observation, signs of injury developed in one patient.

Fullum (Fullum, Siram et al. 1990) reported on twenty-five of one hundred consecutive patients with stab wounds to the chest who did not have evidence of intrathoracic injury. During 24 hours of observation no patients developed delayed pneumothorax or haemothorax.

### 4.4.1.6 Other Diagnostic Evaluation Conditions

Other conditions that have been identified as requiring a period of observation to ascertain their seriousness include confusion, dizziness, syncope, vaginal bleeding, gastrointestinal/ genitourinary bleeding and headache.

### 4.4.2 Short-Term Therapy

The second most common reason patients are treated in an emergency department observation unit is for short-term therapy of emergency conditions. It has been proposed that when observation beds are used in conjunction with the standard emergency department services, a larger proportion of emergent conditions can be successfully treated avoiding admission to the acute care hospital (Graff, Gibler et al. 1992).

Experience in providing short-term therapy in SOUs has been reported for the following conditions:

#### 4.4.2.1 Asthma

O’Brien (O’Brien, Hein et al. 1980) and co-authors described the course of 104 (24%) of 434 patients with an acute asthma attack that did not respond to initial emergency department treatment and were
subsequently admitted to a holding unit. Sixty-seven percent of the patients who were managed in the holding unit were discharged home without hospitalisation. These authors concluded that the cost for services provided to this group through the holding unit, would have more than doubled if these patients were managed in the in-patient setting.

Zwicke (Zwicke, Donohue et al. 1982) examined use of the emergency department observation unit in the treatment of 46 asthmatics. Twenty-seven of the patients were treated in the observation unit (for a mean period of 19 hours) with two thirds discharged home without hospitalisation at 34% of the cost of acute care hospitalisation. The authors concluded that the observation unit was safe, appropriate, less expensive, and decreased the hospitalisation rate, while the unit was not used for procrastination in decision making.

Willet (Willet, Davis et al. 1985) evaluated short term holding unit treatment of asthmatic children that had not responded after 1.5 hours of therapy in the emergency department. One hundred and three of these patients were randomized to treatment in an emergency department observation unit versus routine ward. The authors concluded that patients treated in the emergency department observation area had lower costs ($1,133 versus $1,987), shorter length of stay (1.63 versus 2.95 days) and no increased morbidity or returns to hospital for further treatment.

Murphy (Murphy, Zalenski et al. 1989) evaluated the utility of extending the emergency department treatment of asthma and found that 24 percent of patients with acute asthma were not adequately treated within the first 4 hours of an emergency department visit. This group found that prolonging therapy for a further 8 hours using an emergency department observation unit allowed 80% of the 4 hour treatment failures to go home without hospitalisation.

Brillman (Brillman and Tandberg 1994) investigated the hypothesis that the use of an observation unit in the emergency department results in cost savings by lowering the hospital admission rate. The hospital admission rate for asthma was studied in 834 patients prior to opening the observation unit and in 390 patients after opening the unit. Brillman concluded that the use of an observation unit for asthmatic patients results in lower initial discharge rates from the emergency department and does not reduce eventual hospitalization appreciably.

Gouin (Gouin, Macarthur et al. 1997) the use of an observation unit in the emergency department was associated with a reduction in the hospitalization rate for children with acute asthma exacerbation. However, they also noted an increased rate of repeat visits to the emergency department after the introduction of the observation unit.

Rydman et al (Rydman, Isola et al. 1998) undertook a randomized controlled trial to establish whether an accelerated treatment protocol in acute asthmatics through an observation unit could offset the need for inpatient admissions and reduce total cost per episode of care without compromising patient quality of life. Patients managed through the observation unit had lower mean costs of treatment (US$1,202 v US$2,247) and higher quality of life outcomes with no differences in clinical outcomes.

McConnochie (McConnochie, Russo et al. 1999) undertook a retrospective review of 2,028 asthma hospitalizations and concluded that more than 70% of asthma hospitalizations in this population could be cared for in alternative settings (short stay units or in home nursing) with supplemental oxygen, nebulized medication treatments and close nursing observation (for 2 nursing shifts).

Evans and co-authors (Evans, LeBailley et al. 1999) described their experience with re-engineering management of acute asthma in children and concluded that standardizing treatment, aggregating asthma patients in one location and providing education and follow-up through the use of case managers was effective in optimizing care for asthma patients. Further, they noted that their protocol shifts some costs from expensive services including ED to less costly case management and outreach personnel.
4.4.2.2 Dehydration
Moineau (Moineau and Newman 1990) examined the use of a protocol involving rapid intravenous rehydration over a period of 3 hours in the emergency department for dehydration arising from illnesses such as viral gastroenteritis. Seventeen patients improved without hospitalisation, with one patient requiring a second course of intravenous hydration.

4.4.2.3 Infection
Israel (Israel, Lowenstein et al. 1991) described the outcome of 87 patients with pyelonephritis who were treated for a mean of 7.4 hours in an emergency department observation unit. Seventy-two per cent of patients were effectively managed as outpatients, nine (22%) were hospitalised directly from the observation unit and five (6%) returned with persistent symptoms after ED therapy and were hospitalised. These authors found that no clinical or laboratory variable predicted success or failure of ED observation unit therapy at the time of initial presentation.

Ward (Ward, Jorden et al. 1991) reported their experience with 60 patients with pyelonephritis who were treated with parenteral antibiotics in an emergency department observation unit for a period of 12 hours. Fifty-nine patients (98%) avoided an acute care admission and no complications were identified.

Elkharrat (Elkharrat, Chastang et al. 1999) described their experience with a decisional algorithm that was found to be useful in determining that over 85% of women who presented to the ED with pyelonephritis may be safely treated as outpatients following a brief stay in the observation unit if necessary.

4.4.2.4 Overdose
Callaham (Callaham 1982) described a case study of a woman with desipramine overdose who sustained a cardiac arrest 11 hours after drug ingestion. The authors recommend a protocol whereby patients exhibiting signs of peripheral anticholinergic syndrome, central nervous system signs or ECG abnormalities in tricyclic antidepressant overdose are immediately admitted to hospital for observation.

Guzzardi (Guzzardi 1984) outlined discharge indications from the emergency department for the poisoned patient and recommended an observation period of 6 to 8 hours to identify manifestations of toxicity.

Callaham (Callaham and Kassel 1985) studied 18 fatal cases of tricyclic antidepressant overdose and concluded that patients who had fatal ingestions developed major signs of toxicity mandating admission within 2 hours of arrival at the hospital. The mean time from arrival to death was 5.43 hours. All deaths occurred with 24 hours of arrival at the hospital. In addition, half of the fatal cases presented with only trivial signs of poisoning, but deteriorated within an hour. The authors proposed an algorithm for a 6 hour period of observation in tricyclic antidepressant overdose patients.

Brett (Brett, Rothschild et al. 1987) retrospectively analysed data on 209 overdose cases to establish whether clinical assessment in the emergency department could identify patients at risk of complications. Patients were classified as low risk when none of the following criteria were present in the emergency department: need for intubation, seizures, unresponsive to verbal stimuli, arterial CO2 pressure greater than 44 mm Hg, any arrhythmia or systolic pressure less than 80 mm Hg. Of 151 low-risk patients, none developed a high-risk condition after admission and none required an intensive care intervention. The authors concluded that patients conforming to their low risk profile during several hours of observation in the emergency department do not normally require ICU admission.

4.4.2.5 Pancreatitis
Saunders (Saunders and Gentile 1988) reviewed 27 consecutive admissions to an emergency department observation unit for exacerbation of recurrent alcoholic pancreatitis. Quality of care was compared with 27 randomly selected, matched patients admitted to the hospital. Fifty two per cent of observation unit
patients were discharged home without hospitalisation. The authors concluded that the emergency department observation unit is a valid site for treatment of a proportion of patients with pancreatitis presenting to the acute care hospital.

4.4.2.6 Psychiatric emergency

Two studies have examined the potential for managing some psychiatric emergencies in observation units. Yohanna (Yohanna, Christopher et al. 1998) identified that short stay admissions although similar to longer stay patients in terms of demographics, Axis I diagnosis, payer status and appropriateness of admission, were clinically distinct. Ryan (Ryan, Clemmett et al. 1996) concluded that the use of a specialised accident and emergency based team and an accident and emergency observation ward is appropriate for the management of many deliberate self-harm patients.

4.4.2.7 Alcohol and substance abuse

In 1976 Diamond (Diamond, Schofferman et al. 1976) reported that observation units were useful for managing selected patients, with drug overdose and alcohol withdrawal being the primary disorders admitted. In a subsequent prospective study of alcohol related admissions, Taylor and colleagues (Taylor, Kilbane et al. 1986) reported that thirty-five percent of patients with alcohol related problems were managed in an emergency department observation unit rather than being admitted to a hospital ward. These patients comprised 26% of patients managed in that observation unit.

Hodgkinson, Jellet and Ashby (Hodgkinson, Jellet et al. 1991) reviewed the management of oral drug overdose in the Accident and Emergency Department at Royal Brisbane Hospital. Of 323 presentations for oral drug overdose, 76% were successfully managed in an observation unit with oral or nasogastric activated charcoal. This protocol did not encourage the use of ipecac syrup, and orogastric lavage was only used for specific indications. These authors concluded that morbidity and mortality were not adversely impacted when patient outcomes were compared with other studies.

4.4.2.8 Paediatric Patient Care

Ellerstein and Sullivan (Ellerstein and Sullivan 1980) described their experience with a paediatric observation unit at The Royal Children’s Hospital of Buffalo. This unit managed children with an expected length of stay of less than 24 hours. Within 24 hours, all children were discharged home (83%) or transferred to an inpatient unit (17%). Children with respiratory conditions were most likely to require further hospitalization, while children with accidental ingestions were least likely. These authors identified that education of medical students and house officers was enhanced by the opportunity to observe the evolution of common disease processes.

Browne (Browne and Penna 1996) reviewed 1,300 children managed through a short stay facility over a twelve-month period. The authors concluded that short stay facilities are efficient and cost-effective for children with acute illness who can be rapidly stabilised without critical incident. Further, these authors considered that short stay facilities should be used to augment efficiency within children’s emergency services that have high turnover and limited bed capacity.

4.4.2.9 Geriatric Patient Care

Use of short stay facilities in the elderly has been explored in 2 studies. Khan (Khan 1997) examined the use of a short stay facility by patients over 65 years of age and concluded that the addition of a short stay ward can shorten the hospital stay for selected elderly patients and reduce the demand for inpatient hospital beds. Harrop (Harrop and Morgan 1985) determined that judicious use of short stay ward beds in the accident and emergency department for patients over 70 years relieved pressure on beds elsewhere and allowed time to prepare for further care in the community.
4.4.2.10 Other Short Term Therapy Conditions
Other conditions that have been identified which may respond to short term therapy include congestive heart failure, chronic obstructive pulmonary disease, hyperglycaemia/hypoglycaemia, hypertensive emergencies and hematological conditions.

4.5 Management of Observation Services

4.5.1 Utilisation Review
A summary of general descriptive studies that have outlined individual hospital’s experience with observation units is shown in the following table. These studies have been graded at evidence level III.

The majority of these descriptive papers were published in the 1980s, while most were based on experience in the United Kingdom. The number of observation unit beds ranged from a minimum of 6 up to a maximum of 32 with the majority of units having 8 to 12 beds. The proportion of emergency department attendances that were managed in observation facilities was generally very small, ranging from 1.1% up to 5.4% in developed countries, with proportions reaching 8.5% and 9.6% in Hong Kong and India respectively. From this data it appears that observation unit activity commonly reaches 1,000 to 2,000 admissions per annum, which would equate to an average of between 3 and 6 admissions per day. Extrapolation of this data indicates the ratio of observation unit beds to emergency presentations ranged from 1:2,330 up to 1:12,882 with an average of 1:7,442, while the total emergency presentations for these hospitals ranged from 40,560 up to 146,965.

Brillman et al (Brillman, Mathers-Dunbar et al. 1995) summarised ten descriptive studies that detailed the use of observation units and concluded that 2-6% of presentations to the emergency department were transferred to the unit. From this review the number of observation beds ranged from four to twenty, which was equivalent to between 10 and 40% of the emergency department capacity.

Bond and Weigand (Bond and Wiegand 1997) modelled utilisation of a paediatric emergency department observation unit and concluded that in the University of Virginia Paediatric Emergency Department approximately 150 patients per 10,000 would be likely to use an observation unit. These authors concluded that staffing and facility use would be seasonally uneven. In a paediatric emergency department large enough to admit 365 paediatric emergency department observation unit patients per year, random daily variation in demand means that a single bed would be inadequate 25% of the time and empty 37% of the time. Optimal use of even a single-bed paediatric emergency department observation unit would not occur until paediatric emergency department census exceeded 30,000 to 40,000 visits annually.
<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Location</th>
<th>Beds</th>
<th>Admissions</th>
<th>% of ED Attendances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yeung (Yeung 1999)</td>
<td>1999</td>
<td>Chaiwan, HK</td>
<td>30</td>
<td>1,042 in 1 month</td>
<td>8.5%</td>
</tr>
<tr>
<td>Rainer (Rainer 1996)</td>
<td>1996</td>
<td>Glasgow, UK</td>
<td>32</td>
<td>2,460 in 1 year</td>
<td>3.3%</td>
</tr>
<tr>
<td>Aggarwal (Aggarwal et al. 1995)</td>
<td>1995</td>
<td>New Delhi, India</td>
<td>9</td>
<td>11,130 in 1 year</td>
<td>9.6%</td>
</tr>
<tr>
<td>Jones (Jones, O'Driscoll et al. 1995)</td>
<td>1995</td>
<td>Liverpool, UK</td>
<td>18</td>
<td>1,833 in 6 months</td>
<td>4.4%</td>
</tr>
<tr>
<td>Maimaris (Maimaris and Kirby 1991)</td>
<td>1991</td>
<td>London, UK</td>
<td>13</td>
<td>1,046 in 1 year</td>
<td>2.1%</td>
</tr>
<tr>
<td>Jelinek (Jelinek and Galvin 1989)</td>
<td>1989</td>
<td>Fremantle, Aust</td>
<td>8</td>
<td>1,219 in 1 year</td>
<td>1.5%</td>
</tr>
<tr>
<td>Clancy (Clancy 1989)</td>
<td>1989</td>
<td>Leeds, UK</td>
<td>16</td>
<td>1,067 in 1 year</td>
<td>1.4%</td>
</tr>
<tr>
<td>Driscoll (Driscoll and Bryce 1987)</td>
<td>1987</td>
<td>Glasgow, UK</td>
<td>16</td>
<td>1,000 consecutive</td>
<td>n/r</td>
</tr>
<tr>
<td>Gabbay (Gabbay and Mason 1987)</td>
<td>1987</td>
<td>London, UK</td>
<td>10</td>
<td>3,097 in 1 year</td>
<td>n/r</td>
</tr>
<tr>
<td>Neville (Neville and Rowland 1983)</td>
<td>1983</td>
<td>Saskatoon, Can</td>
<td>8</td>
<td>1,000 per year</td>
<td>1.3%</td>
</tr>
<tr>
<td>Farrell (Farrell 1982)</td>
<td>1982</td>
<td>Seattle, US</td>
<td>6</td>
<td>574 in 4 months</td>
<td>3.1%</td>
</tr>
<tr>
<td>Ramaiah (Ramaiah and Pal 1987)</td>
<td>1987</td>
<td>Clywd, UK</td>
<td>12</td>
<td>431 in 6 months</td>
<td>n/r</td>
</tr>
<tr>
<td>Dallos (Dallos and Mouzas 1981)</td>
<td>1981</td>
<td>London, UK</td>
<td>12</td>
<td>1,070 in 6 months</td>
<td>1.6%</td>
</tr>
<tr>
<td>Dallos (Dallos and Mouzas 1981)</td>
<td>1981</td>
<td>Enfield, UK</td>
<td>10</td>
<td>369 in 6 months</td>
<td>1.1%</td>
</tr>
<tr>
<td>Morgan (Morgan 1981)</td>
<td>1981</td>
<td>Newport, UK</td>
<td>10</td>
<td>507 in 3 months</td>
<td>5.0%</td>
</tr>
<tr>
<td>Bobziem (Bobziem 1979)</td>
<td>1979</td>
<td>Torrance, USA</td>
<td>8</td>
<td>166 in 1 month</td>
<td>2.0%</td>
</tr>
<tr>
<td>Landers (Landers, Waeckelke et al. 1975)</td>
<td>1975</td>
<td>Kansas, USA</td>
<td>7</td>
<td>1,000 in 10 months</td>
<td>2.3%</td>
</tr>
<tr>
<td>Taubenhaus (Tabenhaus and Robilotti 1972)</td>
<td>1972</td>
<td>Manhatten, USA</td>
<td>n/r</td>
<td>n/r</td>
<td>5.4%</td>
</tr>
</tbody>
</table>
Zalenski (Zalenski, Rydman et al. 1997) identified a range of factors that affect the operations and efficiency of a Chest Pain Observation Unit, including the clinical characteristics of the target patient population, protocol tests used, and hospital occupancy and reimbursement patterns.

In a study that examined use of an observation unit in paediatric asthma patients, Gouin (Gouin and Patel 1999) identified that optimal efficiency was limited by the lack of clear predictive factors for successful discharge and concluded that further study in this area was indicated.

ACEP (American College of Emergency Physicians 1988) have published parameters for utilization review in observation units as shown in the following table.

<table>
<thead>
<tr>
<th>Table 4.3 - Parameters for Utilization Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume of patients: Total</td>
</tr>
<tr>
<td>• Hour, shift, day, week, month</td>
</tr>
<tr>
<td>• Type of patient – medical, surgical, paediatric, obstetric/gynaecological</td>
</tr>
<tr>
<td>• Percentage admitted</td>
</tr>
<tr>
<td>• Percentage of chest pain patients admitted to CCU</td>
</tr>
<tr>
<td>• Percentage of all ED visits</td>
</tr>
<tr>
<td>Volume of patients: Admitted as inpatients</td>
</tr>
<tr>
<td>• Shift, day, week, month</td>
</tr>
<tr>
<td>• Percentage of total observation patients</td>
</tr>
<tr>
<td>• Percentage of all ED visits</td>
</tr>
<tr>
<td>Timeliness of care</td>
</tr>
<tr>
<td>• Average time in observation unit: all patients</td>
</tr>
<tr>
<td>• Average time in observation unit: admitted patients</td>
</tr>
<tr>
<td>• Average time</td>
</tr>
<tr>
<td>− Shift</td>
</tr>
<tr>
<td>− Day</td>
</tr>
<tr>
<td>− Week</td>
</tr>
<tr>
<td>− Month</td>
</tr>
<tr>
<td>− Physician</td>
</tr>
<tr>
<td>• Patients in observation over the time limit</td>
</tr>
</tbody>
</table>

Some of these parameters have been reported on in selected studies, however there are no published benchmarks accepted across sites. From the evidence available, SOUs characteristically manage between 2 and 5% of emergency department presentations, and of these, in the order of 15% of patients require on-going care in a hospital ward.

4.5.2 Quality Assurance

There is a dearth of material published that addresses quality assurance within the observation unit. ACEP (American College of Emergency Physicians 1988) have identified the following quality assurance screening criteria or key focus areas.
Table 4.4 - Quality Assurance Screening Criteria

- Admitted patients
- Left against medical advice
- Mortality
  - In observation unit
  - Within 48 hours of hospital admission
- Cardiac or respiratory arrests
- Adverse patient occurrences
- Incident reports
- Complaints
- Comparison of admitting versus discharge diagnosis
- Appropriateness of treatment
- Patient returns within 48 hours
- Repeated admissions to observation unit
- Appropriateness of admissions judged against admission criteria

These key focus areas provide a starting point for the development of a quality assurance program that addresses the observation unit environment. Espinosa, Kosnik and Itzcovitz (cited in, (Graff 1998)) apply the Juran trilogy, which involves Quality Planning, Quality Improvement and Quality Control to the Observation Unit setting. Within the Quality Planning component, these authors address four critical questions as follows:
- Who are the customers of the observation unit?
- What services are required by the customers?
- How satisfied are customers with the services currently provided? and
- How are services developed and operationalized that are responsive to identified needs, including the processes and systems to support those services?

Within the Quality Improvement component these authors advocate use of the FADE cycle, which incorporates focus, analyse, develop and execute phases. From the perspective of Quality Control these authors propose that the identification of processes using a priority approach will make the greatest overall impact on the system with an economy of effort.

Lenox (Lenox and New 1996) reported on a quality improvement initiative within the observation unit, which was initiated by an increase in medicare denials and revenue loss. Lenox found that redesign of the admissions process and an enhanced staff development effort produced successful outcomes within 6 months.

Mace (Mace 1998) described an analysis of patient complaints in the observation unit. Of 11,042 patients seen over a 26 month period, there were 28 patient complaints relating to staff attitude/behaviour (43%), discharge processes (25%), environmental concerns (18%), difficulties with diagnostic investigations (11%) and miscellaneous issues (3%). The authors concluded that these findings tended to parallel the findings from general wards rather than emergency departments.

Mabe and Lengacher (Mabe and Lengacher 1998) described the importance of developing an interdisciplinary team to develop and implement successful quality outcomes. Organizational realignment requires analysis of financial, clinical and demographic data. These authors identified that a crucial initial step was to get support from the organisations executive level. Other success factors identified in this paper were commitment from each member of the interdisciplinary team and communication between the team and unit staff.
4.5.3 Financial analysis

There are many studies that have concluded observation units are a cost-effective option for managing specific conditions. However, this conclusion is frequently reached without supporting evidence or is based on the assumption that all observation unit patients would have been admitted, which is not always the case (Brillman and Tandberg 1994). The following table summarises studies that have examined the relative costs of observation unit management.

<table>
<thead>
<tr>
<th>Author</th>
<th>Country</th>
<th>Medical Condition</th>
<th>Sample size</th>
<th>Study Design (Evidence Grading)</th>
<th>Results</th>
<th>Conclusions</th>
</tr>
</thead>
</table>
| Rydman et al 1998       | (Rydman, Isola et al. 1998) | Asthma Treatment n=57 Control n=56 | Randomised controlled trial | Mean costs for OU patients were lower than admitted patients with results as follows:  
OU successes $285 +$126  
Inpatients $2,247 + $1,110  
OU failures $2,770 + $967 |
| Sinclair & Green 1998   | (Sinclair and Green 1998) | General OU patients n=48 | Retrospective cost modeling analysis | Potential savings from inpatient bed use amounted to 1.68 FTE well short of the 5 FTE required to staff a 4 bed observation unit. |
| Gaspoz et al 1994       | (Gaspoz, Lee et al. 1994) | Exclusion of MI Treatment n=592 Control n=924 | Cost effectiveness study | Median costs were significantly lower for OU patients than for patients admitted to wards, to step-down facilities or the coronary care unit, but were higher than the costs for patients discharged. |
| Henneman (Hennemen 1989)| Abdominal trauma n=230 | Retrospective Descriptive Study including OU cost of care comparison with admission cost of care | The use of an OU resulted in a potential savings of $51,329. |
| Fineberg et al 1984     | (Fineberg, Scodden et al. 1984) | Chest pain n=15 | Modeled cost effectiveness analysis using 4 management strategies | It appears to be cost effective to provide an intermediate care (ie OU) option for patients with low risk of MI. |
| Zwicke et al 1982       | (Zwicke, Donohue et al. 1982) | Asthma n=46 | Retrospective Descriptive Study including cost sub-study of OU v inpatient costs | The major benefit in costs arises from the effect of the HOSTT unit utilization on hospitalization rates and the total numbers of in-hospital days. |

These studies use different approaches to determine the relative costs of observation units. In general, these authors conclude that observation unit management can be less costly than in-patient management. The significance of the cost saving varies with Henneman (Hennemen 1989) and Sinclair (Sinclair and Green 1998) reporting very modest savings, while Gaspoz (Gaspoz, Lee et al. 1994) found very significant savings relative to admitted patients with median costs (25th and 75th percentile) at 6 months in ascending order as follows:

- Discharged home $403 ($403: $927)
- Observation Unit $1,927 ($1,455: $3,650)
- Admitted to ward $4,712 ($1,868: $11,187)
- Admitted to intermediate care $4,031 ($2,069: $9,169)
- Admitted to coronary care $9,201 ($3,171: $20,011)

In considering the relative cost effectiveness of observation units, it is likely that potential cost benefits will be quickly eroded if patients suitable for discharge from the emergency department are redirected to the observation unit instead.

Considering the Victorian context, while there may be capacity to reduce hospitalisation rates, it is unlikely that cost benefits will arise from a reduction in the total numbers of in-hospital days, unless implementation of an observation unit can effectively reduce occupancy rates which are likely to remain around 100%. Rather, benefits from SOUs are more likely to be realised through improved utilisation of in-patient beds.
4.5.4 Policies and Guidelines

Well constructed policies and procedures are instrumental to effective observation units. A time limit (commonly 8, 12 or 24 hours) is most important and should be carefully monitored and strictly enforced. The Joint Commission on Accreditation of Healthcare Organisations (Joint Commission for the Accreditation of Healthcare Organisations 1990) includes the following with respect to ED observation units: “When observation beds are permitted, there are guidelines for the type of patient use, the mechanism for providing constant surveillance, and the type of nurse/patient system to be used.”

Following their original guidelines published in 1988, the ACEP published a revised policy statement on emergency department observation units in 1995 which focussed on the following key principles (American College of Emergency Physicians 1995):

- ED observation units should be directed by an emergency physician and nurse with clearly defined managerial responsibility for the unit
- Written policies and procedures for the ED observation unit should be approved by the hospital medical staff and ED medical staff; and these policies should be consistent with the Joint Commission on Accreditation of Healthcare Organisations’ standards (Joint Commission for the Accreditation of Healthcare Organisations 1990)
- ED observation unit policies and procedures should address the following:
  - Clear delineation of emergency physician and nursing staff roles, functions and responsibilities
  - Length of stay in the unit and transfers into and out of the unit
  - Admission and discharge criteria
  - Unambiguous statement of which physician bears clinical responsibility for each patient in the unit
  - Circumstances that require notification of the physician with clinical responsibility for each patient
- ED observation units should be furnished with equipment and supplies appropriate to the conditions being treated or evaluated.

There is a general perception that the absence of clear policies for managing observation units threatens their capacity to perform an observation function. Strong executive support, along with effective unit management are also key success factors for observation units.

4.5.5 Advantages

Observation units have the potential to provide advantages for patients, the emergency department and the hospital.

4.5.5.1 Patients

A number of authors have reported that observation units enhance the quality of medical care provided to patients.

The major benefits for patients that have been described include reduced waiting times (Klein and Patterson 1991; Jelinek, Mountain et al. 1999), patients are seen sooner by a senior doctor (Hadden, Dearden et al. 1996) and they have shorter overall episodes of care (Klein and Patterson 1991; Hadden, Dearden et al. 1996). Further, it has been proposed that observation units facilitate fewer diagnostic investigations (Klein and Patterson 1991; Hadden, Dearden et al. 1996) while they allow time for more accurate diagnosis (Yealy, DeHart et al. 1989). The potential risk of mis-diagnosis is reduced through the opportunity to observe patients over an emergent period.

A comparative study that evaluated the use of a short stay ward in the care of head injured patients concluded that fewer inappropriate discharges occurred when short stay facilities were available (MacLaren, Ghoorahoo et al. 1993). Brillman (Brillman and Tandberg 1994) found that fewer asthmatic
patients were discharged directly from the emergency department following introduction of an observation facility. On the other hand, a number of studies have reported reduced admission rates as a benefit from their observation units (Ward, Jorden et al. 1991). Gouin (Gouin, Macarthur et al. 1997) quantified this with findings that demonstrated a decrease in the admission rate for asthma patients from 31% to 24% following introduction of the observation unit.

In an evaluation of a chest pain observation unit, Rydman (Rydman, Zalenski et al. 1997) reported that patients were more satisfied with rapid diagnosis in the Chest Pain Observation Unit than with inpatient stays for acute chest pain.

Klein (Klein and Patterson 1991) suggests that observation units may minimise the psychological trauma associated with hospitalisation, particularly in facilities where the observation area is quieter and more comfortable than the hectic emergency department. This perspective is supported by Rydman (Rydman, Zalenski et al. 1997) and co-authors, who noted marked improvement in all four of the domains that make up the mental health summary measure in the SF-12 in asthma patients managed through the observation unit. Further, Klein suggests that observation units reduce the potential for iatrogenic complications.

Jelinek et al (Jelinek, Mountain et al. 1999) reported on their experience in Perth following re-engineering of the Emergency Department, which included re-opening of an observation ward. The reported benefits included significant improvements in waiting times, time to thrombolysis in acute myocardial infarction, complaint rate and misdiagnosed fracture. However, it is not clear from this paper how much, if any of these improvements can be attributed to the observation unit, as a number of concurrent initiatives were introduced including a significant increase in the proportion of senior medical staff.

4.5.5.2 Emergency department

Advantages that have been identified from the perspective of the emergency department include increased flexibility in patient management options (Farrell 1982). Bazarian (Bazarian, Schneider et al. 1996) noted that reducing the number of admitted patients waiting in the emergency department for inpatient beds, in this case by establishment of a short stay medicine unit, was associated with a decrease in the interval that treat and release patients spent in the emergency department. Further, Jelinek (Jelinek, Mountain et al. 1999) reported that increased throughput of short stay patients in a reopened observation ward significantly shortened average length of stay for patients with a range of conditions.

Moving patients out of the emergency department into the observation unit, opens space and frees emergency department staff, thus improving the efficiency of the emergency department. (Klein and Patterson 1991). Yealy (Yealy, DeHart et al. 1989) concluded that observation units ease the burden on the emergency department if they are well staffed, while they improve emergency physician skills, allow more accurate diagnosis and decrease liability.

4.5.5.3 Hospital

In 1982 Farrell (Farrell 1982) concluded that a 6 bed observation unit located in a community hospital avoided an estimated 1.7 admissions per day with an annual cost savings of $240,000. Reduced lengths of stay, fewer investigations and decreased admissions have been translated into lower overall health costs by a number of authors (Willet, Davis et al. 1985; Yealy, DeHart et al. 1989; Klein and Patterson 1991; Hadden, Dearden et al. 1996).

Williams et al (Williams, Jelinek et al. 2000) recently reported on the impact of a major restructure at Sir Charles Gardiner Hospital, which included a marked increase in senior staff levels and formal establishment of an observation ward that had previously operated on an ad hoc basis. Through a retrospective analysis of hospital data over a 5 year time-frame for the 10 most common DRG categories managed in the observation ward, comparisons were drawn with other Perth teaching hospitals on total
numbers of patients, total bed days and average length of stay. Increased admissions to the observation ward were paralleled by a decrease in admissions for the same DRG codes to other inpatient wards. Overall average length of stay for patients in these DRGs fell by over a third (from 3.97 to 2.59 days), while the total number of patients in these DRGs increased by 19% over the four years. At the same time the total number of bed days fell by 23%. By contrast, the average length of stay for patients in the same DRGs treated at the other Perth teaching hospitals rose by 8% These authors concluded that establishment of a formal emergency department observation ward results in more efficient management of certain groups of patients, with a decrease in overall hospital bed days and length of stay.

4.5.5.4 Other
O’Riordan (O’Riordan and Clark 1997) identified that surgical patients attending the short stay ward were a valuable source of teaching material. From a patient survey he demonstrated that 98% of patients were willing to be involved in teaching. Marks (Marks, Baskin et al. 1997) reported that clustering short stay unit patients whose symptoms suggested straightforward diagnoses, enhanced interns’ educational experiences. Using a series of interviews Marks concluded that the interns’ learning was affected by the role of the attending physician, the organisation and structure of the short stay unit, and the teaching strategies adopted in the SOU.

Klein (Klein and Patterson 1991) identified that use of observation units enabled emergency department physicians and nurses to expand their scopes of practice and to develop longer-term relationships with their patients. Klein takes this concept a step further and proposes that these factors could result in improved skills and enhanced job satisfaction.

4.5.6 Disadvantages
A number of disadvantages have been identified arising from the use of observation units.

4.5.6.1 Patients
Yealy (Yealy, DeHart et al. 1989) identified that access to an observation unit allows emergency department medical staff to procrastinate over patient management decisions. This issue has also been noted by Klein (Klein and Patterson 1991) who proposed that the potential for delayed decision-making should be managed with guidelines for admission to the observation unit.

Klein (Klein and Patterson 1991) also suggested that continuity of patient care might suffer during changes of shift. There is a requirement that medical responsibility for all patients managed in the observation unit be clearly identified and for effective communication strategies to be adopted between relevant medical staff and with other staff groups including nurses. This communication must be supported by comprehensive documentation.

Daugherty (Daugherty and Moore 1998) identified that finding time to teach patients on a short stay unit is a challenge. This issue was also identified by Blank et al (Blank, Doe et al. 1998), who conducted follow-up telephone calls to patients discharged from their chest pain observation unit. These authors concluded that patients understood the message they were given and retained some of the material three days following discharge from the chest pain observation unit. However, only 60.7% of patients knew how to take their nitroglycerine correctly. Blank and colleagues identified areas for improvement in their discharge teaching tools.

Gouin (Gouin, Macarthur et al. 1997) noted an increased rate of repeat visits to the emergency department within 72 hours (from 3% up to 5%) after the introduction of the observation unit for patients with asthma. While many authors conclude that observation units improve the quality of care for patients it is possible that this aspect of care may be compromised in some circumstances with the adoption of an observation unit.
4.5.6.2 Emergency department
From the perspective of the emergency department, Yealy (Yealy, DeHart et al. 1989) identified that the observation unit divides the emergency physician’s attention, increases the emergency physician’s responsibility, can become a ‘dumping ground’ while it provides little reimbursement for the physician. Further, Yealy noted that the observation unit occasionally impedes emergency department flow.

4.5.6.3 Hospital
The key disadvantage that observation units present for hospitals is the increased need for both staff and space Yealy (Yealy, DeHart et al. 1989). These needs translate into financial costs associated with capital works to configure an appropriate space and recurrent staffing costs. The Evidence for Observation Medicine

4.5.7 Significant Findings
A summary of key studies that have compared observation unit management and routine care is provided in the following table. These studies have been restricted to evidence levels I and II.

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Location</th>
<th>Design</th>
<th>Authors Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farkouh (Farkouh, Smars et al. 1998)</td>
<td>1998</td>
<td>Minnesota, USA</td>
<td>n=424 (I)</td>
<td>An ED chest pain OU can be a safe, effective, and cost-saving alternative for patients at intermediate risk of cardiovascular events</td>
</tr>
<tr>
<td>Rydman (Rydman, Isola et al. 1998)</td>
<td>1998</td>
<td>Illinois, USA</td>
<td>n=113 (I)</td>
<td>The ED OU was a lower cost and as effective treatment alternative for refractory asthma</td>
</tr>
<tr>
<td>Gouin (Gouin, Macarthur et al. 1997)</td>
<td>1997</td>
<td>Canada</td>
<td></td>
<td>An ED OU was associated with a significant reduction in admission of paediatric asthma patients, however there was also a significant increase in the number of patients returning to the ED within 72 hours</td>
</tr>
<tr>
<td>McDermott (McDermott, Murphy et al. 1997)</td>
<td>1997</td>
<td>USA</td>
<td>n=222 (I)</td>
<td>Treatment of selected patients with asthma in an EDFU results in the safe discharge of most such patients. Quality gains and cost-effective measures can be achieved by the use of such units</td>
</tr>
<tr>
<td>Gomez (Gomez, Anderson et al. 1996)</td>
<td>1996</td>
<td>Utah, USA</td>
<td>n=100 (I)</td>
<td>The rapid protocol ruled out MI and unstable angina more quickly and cost-effectively than routine hospital care</td>
</tr>
<tr>
<td>Bazarian (Bazarian, Schneider et al. 1996)</td>
<td>1996</td>
<td>New York, USA</td>
<td>n=1,424 (II-1)</td>
<td>Reducing the number of admitted patients waiting in the ED for inpatient beds, in this case by establishing a short stay unit, is associated with a decrease in the interval that treat and release patients spend in the ED.</td>
</tr>
<tr>
<td>Hadden (Hadden, Dearden et al. 1996)</td>
<td>1996</td>
<td>Belfast, UK</td>
<td>n=214 (II-1)</td>
<td>The A&amp;E observation ward was more efficient than the general acute wards at dealing with short stay patients</td>
</tr>
<tr>
<td>Gaspoz (Gaspoz, Lee et al. 1994)</td>
<td>1994</td>
<td>Massachusetts, USA</td>
<td>Treat n= 529 Control n= 924 (II-1)</td>
<td>The coronary OU may be a safe and cost-saving alternative to current management for low risk acute MI patients admitted from the ED. Replication in other hospitals required</td>
</tr>
<tr>
<td>Brillman (Brillman and Tandberg 1994)</td>
<td>1994</td>
<td>New Mexico, USA</td>
<td>n=1,224 (II-1)</td>
<td>Use of observation unit for asthma patients reduces initial discharge rate without reducing eventual hospital admissions appreciably</td>
</tr>
<tr>
<td>MacLaren (MacLaren, Ghoorahoo et al. 1993)</td>
<td>1993</td>
<td>London, UK</td>
<td>n=405 (II-1)</td>
<td>Fewer head injured patients were discharged from A&amp;E when the SSW was available</td>
</tr>
<tr>
<td>Saunders (Saunders and Gentile 1988)</td>
<td>1988</td>
<td>Denver, USA</td>
<td>n=54 (II-2)</td>
<td>Length of stay did not differ between alcoholic pancreatitis patients on the observation unit and those admitted directly to hospital</td>
</tr>
<tr>
<td>Willet (Willet, Davis et al. 1985)</td>
<td>1985</td>
<td>Chicago, USA</td>
<td>n=103 (I)</td>
<td>Asthmatic children treated in the OU had lower costs, shorter length of stay and no increase in morbidity or returns to the hospital</td>
</tr>
</tbody>
</table>
While these studies are more methodologically rigorous than the many descriptive studies that have been cited, they are not without limitations. The majority of these comparative studies have a before and after design which predisposes them to the influence of time related changes such as altered practice behaviours, changes in case-mix and/or increased hospital bed numbers. Five of these comparative studies are randomised controlled trials, which are considered to be methodologically superior as they minimise the risks of bias. However, the impact of the observation unit in these trials is generally clouded by the concurrent implementation of a patient care protocol, which is not used for the control group. Thus it is not clear what proportion of the benefits observed can be attributed to the observation unit.

While the descriptive studies suggest that an observation unit can provide quality care, minimize length of stay and reduce inpatient admissions, the comparative studies are inconsistent with respect to these outcome measures. Table 4.7 summarises the highest level of evidence to support the outcomes listed.

<table>
<thead>
<tr>
<th>Table 4.7 - Impact of Observation Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential Benefit</strong></td>
</tr>
<tr>
<td><strong>Impact on clinical outcome</strong></td>
</tr>
<tr>
<td>Improved</td>
</tr>
<tr>
<td>No change</td>
</tr>
<tr>
<td>Decreased</td>
</tr>
<tr>
<td><strong>Impact on length of stay</strong></td>
</tr>
<tr>
<td>Increased length of stay</td>
</tr>
<tr>
<td>No change</td>
</tr>
<tr>
<td>Decreased length of stay</td>
</tr>
<tr>
<td><strong>Impact on efficiency of ED</strong></td>
</tr>
<tr>
<td>Improved</td>
</tr>
<tr>
<td>No change</td>
</tr>
<tr>
<td>Decreased</td>
</tr>
<tr>
<td><strong>Impact on representations to ED</strong></td>
</tr>
<tr>
<td>Increased representations</td>
</tr>
<tr>
<td>No change in representations</td>
</tr>
<tr>
<td>Decreased representations</td>
</tr>
<tr>
<td><strong>Impact on medical admissions</strong></td>
</tr>
<tr>
<td>Increased</td>
</tr>
<tr>
<td>No change</td>
</tr>
<tr>
<td>Reduced</td>
</tr>
<tr>
<td><strong>Cost effectiveness</strong></td>
</tr>
<tr>
<td>More costly that routine care</td>
</tr>
<tr>
<td>Cost neutral</td>
</tr>
<tr>
<td>Less costly than routine care</td>
</tr>
<tr>
<td><strong>Impact on patient quality of life</strong></td>
</tr>
<tr>
<td>Improved quality of life</td>
</tr>
<tr>
<td>No change in quality of life</td>
</tr>
<tr>
<td>Decreased quality of life</td>
</tr>
<tr>
<td><strong>Impact on patient satisfaction</strong></td>
</tr>
<tr>
<td>Higher satisfaction</td>
</tr>
<tr>
<td>Equivalent satisfaction</td>
</tr>
<tr>
<td>Lower satisfaction</td>
</tr>
</tbody>
</table>
4.5.7.1 Impact on clinical outcomes

Randomised clinical trials conducted by Farkouh et al and Rydman et al (Farkouh, Smars et al. 1998; Rydman, Isola et al. 1998) have demonstrated equivalent patient outcomes for observation unit patients and routine care patients in chest pain and asthma patients respectively.

Farkouh and co-authors (Farkouh, Smars et al. 1998) examined 6 month outcomes including non-fatal myocardial infarction, acute congestive heart failure, stroke, out of hospital cardiac arrest and death in 424 patients with intermediate risk unstable angina randomised to chest pain unit management or hospital admission. There were a total of 18 events in the hospital admission group and a total of 14 in the chest pain unit group. These findings were not statistically significant. Further, analysis of secondary outcomes including additional visits to the emergency department for chest pain, cardiac revascularisation, cardiac diagnostic tests, and any hospitalisation for cardiac care demonstrated no significant difference in outcomes between the groups.

Rydman and co-authors (Rydman, Isola et al. 1998) compared the progress of 113 patients who did not resolve their acute asthma exacerbation after 3 hours of emergency department therapy. These patients were randomised to receive treatment in an emergency department observation unit or inpatient care. This study found no difference in clinical outcomes as measured by peak flow rates or post-intervention relapse free survival at 8 weeks.

No level I or II studies have demonstrated superior or inferior clinical outcomes for patients managed through observation units.

4.5.7.2 Impact on length of stay

Gomez et al (Gomez, Anderson et al. 1996) evaluated the efficacy of their Rapid protocol, which included a period of observation in a chest pain unit, to exclude the diagnosis of myocardial ischaemia in a randomised controlled trial involving 100 chest pain patients. In this study the average length of stay for Rapid protocol patients was 15.4 ± 12.2 hours which compared favourably with 54.6 ± 126 hours for routine care patients. The authors attribute these findings to their protocol and it is not clear what role the observation unit plays.

Saunders (Saunders and Gentile 1988) examined patients with mild exacerbations of recurrent pancreatitis and compared 27 consecutive patients managed through the observation ward with 27 randomly selected patients admitted directly to hospital. Fourteen of the observation ward patients improved sufficiently for discharge within 24 hours with a mean stay of 14.4 hours. The remaining 13 observation unit patients required continuing hospitalization with an average length of stay of 7.5 days, which exceeded the average length of stay for patients admitted directly to hospital (5.8 days). Significant differences were noted between groups with respect to serum amylase with observation ward patients having a significantly lower value than patients admitted to hospital.

There are no studies that have demonstrated that observation units increase patient length of stay.

4.5.7.3 Impact on efficiency of ED

Bazarian et al (Bazarian, Schneider et al. 1996) examined the impact of reducing emergency department ‘boarders’ (through the use of a short stay medicine unit) on the amount of time that ‘treat and release’ patients spent in the emergency department. The mean (± SD) number of admitted patients per day waiting in the emergency department for greater than 8 hours for an inpatient bed dropped from 9.6 ± 4.2 before institution of this unit to 2.3 ± 2.6. The authors reported that following implementation of the short stay unit, there was a significant reduction in the average number of hours spent in the emergency department for treat and release patients with chest pain (from 7.3 ± 6.0 to 5.5 ± 4.8 hours per patient, p<0.001) and asthma (from 5.0 ± 3.6 to 4.2 ± 2.9 hours per patient, p<0.05), but not with sickle cell crisis or seizure. However, these findings are confounded by an increase in the average number of certified
beds during the study period from 722 to 736. It is therefore not clear what proportion of the observed benefits were attributable to the short stay facility.

There is no level I or II evidence to indicate that observation facilities impede the efficiency of emergency departments.

4.5.7.4 Impact on medical admissions
In evaluating the impact of the observation unit on the volume of medical admissions, Farkouh et al (Farkouh, Smars et al. 1998) based their findings on the assumption that all patients with intermediate risk chest pain would have been admitted. In their study, 97 of the 212 presentations to the emergency department (46%) avoided admission to an inpatient ward through assessment in the chest pain unit.

McDemott (McDermott, Murphy et al. 1997) used a prospective randomised controlled trial in patients with acute asthma who did not meet discharge criteria within three hours of presentation to the emergency department. Patients were randomised to receive on-going care in the emergency diagnostic and treatment unit or in a hospital ward. Of the 110 patients managed through the emergency diagnostic and treatment unit, 59% were discharged home and 41% were transferred on to an inpatient ward. In this study 45 patients avoided an inpatient admission.

Brillman and Tandberg (Brillman and Tandberg 1994) undertook a retrospective comparative cohort analysis of 834 asthma patients prior to opening the observation ward and 390 asthma patients following the opening of the observation ward. These authors found that use of an observation unit for asthmatic patients reduced initial discharge rates from the emergency department and did not reduce eventual hospitalization appreciably.

4.5.7.5 Cost effectiveness
Rydman (Rydman, Isola et al. 1998) compared direct costs of observation unit management with routine care for asthma patients over seven days. The study determined the amount of resource consumption for each patient from chart abstraction. Calculation of the unit cost per resource included allocation of fixed and variable costs using multiple distribution methods. Costs per unit of resource were calculated as the product of each resource consumed, by the unit cost of that service per patient. The total cost per patient was derived by summing the costs of all services for each patient. Rydman concluded that observation unit patients had significantly lower costs (mean = $1203 ± $1,344) than those admitted to inpatient care (mean = $2,247 ± $1,110). Mean costs for observation unit patients who failed to meet discharge criteria and were therefore hospitalised were $2,770 ± $967.

4.5.7.6 Patient quality of life
The previous study by Rydman (Rydman, Isola et al. 1998) also examined patient quality of life findings. This randomised controlled trial undertaken in asthma patients demonstrated a pattern of improved quality of life associated with the observation unit. Observation unit patients improved beyond hospital inpatients on five SF-36 scales. Observation unit patients reported improvements in all four of the domains that comprise the mental health summary measure in the newly developed SF-12, while inpatients demonstrated no statistically significant improvements in these domains. Once again, observation unit treatment resulted in significantly higher physical functioning.

4.5.7.7 Patient satisfaction
Evaluation of patient satisfaction has been undertaken using a randomised controlled trial methodology in chest pain and asthmatic patients. Rydman and co-authors (Rydman, Zalenski et al. 1997) evaluated comparative levels of patient satisfaction in chest pain patients presenting to the emergency department. A total of 104 patients were randomised to receive treatment using the diagnostic protocol of a chest pain observation unit or hospital inpatient management. Patient satisfaction was assessed by means of an interview before hospital discharge. The authors concluded that patients were more satisfied with rapid
diagnosis in the chest pain observation unit than with inpatient stays for acute chest pain. This study incorporates the use of a diagnostic protocol in conjunction with observation in a chest pain unit and it is therefore not clear to what extent the observation unit enhances patient satisfaction.

Subsequently, Rydman and colleagues (Rydman, Roberts et al. 1999) reported on patient satisfaction in 163 asthma patients that met criteria for hospital admission after three hours of standard asthma therapy in the emergency department. Eighty-one patients were randomised to receive therapy in the asthma observation unit located in the emergency department, and 82 patients to routine hospital care. The patients in the observation unit scored higher on all seven care satisfaction measures. Their satisfaction was significantly greater for four measures as follows: received service wanted, would recommend the service to others, were satisfied with the service and were satisfied with their overall care. Observation unit patients also reported fewer total problems with care and fewer problems with communication, emotional support, physical comfort, and special needs than patients in the hospitalised group.

4.5.8 Methodological Limitations
This paper has used a structured approach to review the literature in two stages. The first stage, which provides a comprehensive account of the history of observation units, included all relevant material with a key focus on observation units and the second stage, which focuses on an objective evaluation of the use of observation units, is limited to material that met evidence levels I and II only.

This review has been restricted to analysis of English language studies only. Considering the time-lines of the project, studies were further limited to those available within Australia. However, the proportion of articles that could not be located in Australia was small and over 90% of articles identified were accessed. The bulk of the studies included in this review were conducted outside of Australia and therefore there may be significant differences in the benefits and limitations of these units within the Australian context.

Many of the studies cited, particularly in Stage 1 of this review, are now quite dated. Earlier studies date back to the 1970s. Innovations and developments in medical practices will have significantly impacted the management of most patient groups so that the potential for benefits from observation units will have changed over this time. However, this material has been included in Stage 1 to provide a historical account of the evolution of observation units.

This review has significantly benefited through advice from a small number of individuals related to the project, however it has not been subjected to wide peer review.

The extent of material in evidence levels 1 and 2 is very small. This limits the generalisability of key findings. Further to this, the majority of these studies are confounded by the use of protocols and/or an overall increase in hospital bed numbers which clouds interpretation of study findings. The reader is referred to original studies for full clarification of methods and results.

4.5.9 Contradictory Review Findings
Krome (Krome 1989) published an editorial review, which reflected on 15 years of published material reporting on the use of emergency department observation units and identified the following consistencies in what had been written:
- they have been shown to be a safe place to initiate treatment until a final decision can be made regarding disposition,
- they must be under the administrative and medical control of the emergency department,
- they must have a time limit which is strictly enforced,
- repeated observations of the patient must be made and documented,
- there must be a clear objective for each patient admitted to the unit and
the unit cannot function in lieu of inpatient beds.
Krome concluded that there was little left to be learned about their use.

Some nine years later Goodacre (Goodacre 1998) examined the use of short stay units in the United Kingdom and undertook a review of the literature. She identified that use of these facilities in the United Kingdom is highly variable. While there were many reports of well run short stay units, consistent evidence of clinical value and cost effectiveness compared to other methods of care were lacking. She concluded that further comparative studies were required to define the role of the short stay ward.

In considering the relative benefits of observation units from the randomized clinical trials reported so far:
• These trials have all been disease specific examining either chest pain or asthma
• Importantly, management through the observation unit has been driven by clinical protocols
• It is not clear what proportion of the observed benefits could be attributable to the clinical protocol alone
• Studies of clinical protocols compared with routine care have demonstrated similar benefits with respect to length of stay, costs and patient outcomes (McFadden, Elsanadi et al. 1995; Nichol, Walls et al. 1997; Zalenski, Rydman et al. 1997; Akerman and Sinert 1999).

In a recent Australian editorial on emergency department observation wards (Campbell, Greenberg et al. 2000) the authors identify that the need for continuing care to be organized from the emergency department rather than inpatient wards will increase. Campbell and colleagues identify a number of challenges for optimizing use of this model of care as follows:
• Adoption of a systems approach to reengineering clinical processes and related cultural changes
• Prospective delineation of responsibility for patient care to avoid ‘turf wars’
• The importance of piloting and prospectively evaluating the impact of new models
• Development of key performance measures to monitor improvements
• Continuing professional development for nurses and changes in the structure and organization of inpatient management by physicians and surgeons.

5 Victorian Observation Units

5.1 Survey Responses
Responses were received from each of the 31 Victorian hospitals surveyed. The majority of surveys were completed by Emergency Department medical and/or nursing staff. The following discussion is based on the responses received to the survey and therefore reflects the perspective of emergency department staff.

5.2 Survey Findings

5.2.1 SOU utilisation across Victoria
Table 5.1 summarises the key findings from Survey A, which explored the use of SOUs and MAPUs in Victorian hospitals. For the purposes of the survey definitions were provided for describing these facilities as follows:
• A patient assessment and planning unit is a designated area that may or may not be under the control of the emergency department, in which suitable patients undergo rapid assessment and early intervention. Patients may stay for up to 48 hours in order to ‘fast track’ the hospital episode or clarify the requirement for transfer to another inpatient bed.
• An emergency department observation unit is a designated area within or attached to the emergency department for patients who require further treatment or evaluation to determine the need for admission.

• An observation ward is a designated area discrete from the emergency department for patients who require further treatment or evaluation to determine the need for admission.

• A holding unit is a designated area that may or may not be under the control of the emergency department in which a patient is held pending prearranged actions such as admission or transfer.

• An observation status bed is a bed in an area of the hospital in which a patient may be evaluated and treated for up to 24 hours before a decision about disposition is needed.

Table 5.1 – Victorian Hospital SOU/MAPU Facilities

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Short Stay Unit</th>
<th>MAPU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angliss</td>
<td>4 bed Observation Ward</td>
<td></td>
</tr>
<tr>
<td>Austin &amp; Repatriation Medical Centre</td>
<td>-</td>
<td>23 beds</td>
</tr>
<tr>
<td>Bairnsdale Regional Health</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Ballarat Health Services</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Barwon Health</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Bendigo Health Care Group</td>
<td>ED Observation cubicles</td>
<td></td>
</tr>
<tr>
<td>Box Hill Hospital</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Central Gippsland Health Service</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dandenong Hospital</td>
<td>7 bed Observation Holding Unit</td>
<td></td>
</tr>
<tr>
<td>Echuca Regional Health</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Frankston Hospital</td>
<td>6 ED Observation cubicles</td>
<td></td>
</tr>
<tr>
<td>Goulburn Valley Health</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Latrobe Regional Hospital</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Maroondah Hospital</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Mercy Public Hospital - Werribee</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Mercy Hospital for Women</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Mildura Base Hospital</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Monash Medical Centre</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Northern Hospital</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Royal Children’s Hospital</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Royal Melbourne Hospital</td>
<td>5 bed Chest Pain area in ED</td>
<td></td>
</tr>
<tr>
<td>Royal Women’s Hospital</td>
<td>Pregnancy Day Care Centre</td>
<td></td>
</tr>
<tr>
<td>South West Healthcare - Warnambool</td>
<td>2 ED Observation cubicles</td>
<td></td>
</tr>
<tr>
<td>St Vincent’s Hospital</td>
<td>6 bed Observation Unit</td>
<td>15 beds</td>
</tr>
<tr>
<td>Sunshine Hospital</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>The Alfred</td>
<td>6 bed Observation Holding Unit</td>
<td></td>
</tr>
<tr>
<td>Wangaratta District Base Hospital</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>West Gippsland Health Care Group</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Western Hospital</td>
<td>-</td>
<td>20 beds</td>
</tr>
<tr>
<td>Wimmera Health Care Group</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Wodonga Regional Health Service</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

The majority of hospitals surveyed (20 of the 31) had neither a SOU nor a MAPU.

5.2.2 Potential use of SOUs

Hospitals with no SOU or MAPU were asked to complete Survey B, which sought information about past experience with SOU facilities and the potential for use of SOUs in the future.

In response to the question; Is your hospital planning to have an Observation/Assessment facility within the next 12 months:

• Two hospitals had plans to have a facility, one unit with three beds, the other with twenty beds. The key objectives identified by hospitals for these planned units included;
  - Reducing the number of short stay admissions
- Re-assessment of patients for re-admission
- Faster processing of short stay medical patients
- Better discharge co-ordination.

- Fifteen hospitals indicated that they had no plans to have an Observation/Assessment facility within the next twelve months

- Of the hospitals with no plans, one hospital indicated that they were in early discussion stages about the idea, whilst another indicated that staffing was a major impediment

- One hospital supported the idea of having a Medical Assessment and Planning Unit.

In response to the question: Has your hospital had an Observation/Assessment facility in the last 5 years:

- Three hospitals responded that they had a facility that was no longer operational. One of these hospitals had a chest pain evaluation unit located within the Emergency Department, but it planned to cease operation in November 2000 due to cessation of specified funding. Reasons cited for discontinuing these services included:
  - Lack of proper implementation
  - Lack of ownership from clinicians
  - Under resourced
  - Beds used as ED cubicles
  - Beds used for patients already admitted to hospital, but waiting for a ward bed.

- Fifteen hospitals had not had an Observation/Assessment facility in the last five years

- Two of the hospitals that had an Observational/Assessment in the past five years that was no longer working, were both planning to re-establish an Emergency Department Observation Unit within the next 12 months.

In their responses to the question: Do you consider that an Observation/Assessment facility would be useful in your hospital, 12 hospitals answered yes, whilst the remaining six did not perceive that such a facility would be useful.

The reasons that the twelve hospitals thought that an Observation/Assessment facility would be useful included:

- Reduce the number of short stay patient admissions (n=5)
- Have all of the investigations completed in the ED
- Free up acute cubicles for new patients
- Improve patient satisfaction
- Improve emergency staff skills/expertise in management of conditions that would otherwise leave the department
- Observation is an important part of Emergency medicine
- Provide extra resources for the ED
- Better processing and discharge of Medical patients
- Optimise use of non in-patient resources
- Reduce the patient waiting time in ED pending admission to ward (n=2)
- Useful for specific conditions with strict guidelines for admission and discharge
- Enables intensive investigation or treatment 24hrs/7 days by experts.

The reasons cited by the six hospitals that thought an Observational/Assessment ward would not be useful included:
• The only patients that ever stay longer than 12 hours in the ED are those waiting for transport to another hospital and this is very rare.
• Bed availability in the hospital is not a problem.
• Low patient numbers / insufficient appropriate patients (n=3)
• Lack of funding.

These six hospitals were either rural facilities or specialty centres such as Women’s hospitals.

5.2.3 Short Stay Units in Victoria

Bendigo, Frankston and Warrnambool Hospitals each had Observation Cubicles within their emergency departments. In addition, the Bendigo Emergency Department has access to a six bed Radiology Day Procedure Unit, where suitable patients can be observed as short stay patients. In light of the demand pressures at Frankston, the 6 Observation beds are generally used for multi-day stay patients awaiting an inpatient bed, while it is estimated that 95% of patients managed in these beds are subsequently transferred to a hospital ward. This approach precludes use of these beds for Short Stay patients.

The Royal Women’s Hospital has a Pregnancy Day Care Centre, which operates Monday to Friday from 8am to 5.30pm. This Centre was originally established to assess women with hypertension in pregnancy and reduce the number of unnecessary in-hospital bed days. The Pregnancy Day Care Centre has expanded its role to include management of women presenting to the emergency department with hyperemesis gravidarum.

The Royal Melbourne Hospital has a five bed Chest Pain Evaluation Area located within the Emergency Department. A recent evaluation of this unit was undertaken as part of a chest pain evaluation area study funded by the Department of Human Services. This evaluation also examined chest pain evaluation initiatives at Monash Medical Centre (where this function has been incorporated into the emergency department) and The Alfred. For further detail regarding the findings of the Chest Pain Evaluation Area analysis, readers are referred to the KPMG Summary Report (KPMG Consulting 2000) and individual hospital reports.

The Alfred has a six bed Observation Holding area which was originally established for management of patients with minor head injury, undifferentiated chest pain, drug overdose; for patients awaiting transport home and for patients with conditions that did not require formal in-hospital management. This facility is currently used to accommodate multi-day stay patients as bed closures at The Alfred (relating to the nursing shortage) have significantly impacted on the number of inpatient beds.

The Dandenong Hospital has a seven bed facility that was originally established as an Observation Unit for conditions such as drug overdose, head injury etc. However, this facility is also now operating as a holding area for patients prior to transfer to a ward bed due to access block. Patients commonly remain in this area for 2 to 3 days. This facility is managed by the admitting units of the hospital (not emergency staff) and the patients are reportedly considered low priority.

5.3 SOU Facilities

Two of the 31 hospitals surveyed, Angliss and St Vincent’s, had SOUs that undertook non-specialised short stay observation unit functions.

5.3.1 Purpose

These Short Stay Units were established to improve the management of patients requiring brief episodes of care. At the time of admission to the SOU patients are expected to be discharged following:
• Rapid assessment and early intervention,
• Short term observation, and/or
• Short term treatment.
Reasons cited for establishing these units included to:
• improve patient flow
• reduce emergency department congestion
• avoid unnecessary hospital bed days
• improve integration with Hospital in the Home and
• improve patient care.

Hospitals rated how well their facility met its primary objective using a visual analogue scale from 1(not at all well) to 10 (extremely well). These two hospitals rated their facility at 6 and 7.5.

5.3.2 Physical Structure
The Angliss Observation Unit was established in April 2000 as a 24 hour, 7 days per week facility. It comprises 4 beds and is located in a ward that is near-by but geographically removed from the emergency department. However, plans to redevelop the emergency department include provision for the Observation Unit within the emergency department.

At St Vincent’s Hospital, the Observation Unit was also established early in 2000 as a 6 bed annexe to the emergency department. This facility also operates 24 hours over 7 days of the week.

5.3.3 Staffing
Both Angliss and St Vincents SOUs are managed by Emergency Department physicians with medical staff shared from the emergency departments.

At Angliss, nursing staff are provided from the ward in which the Unit is located with one nurse allocated to the 4 bed facility throughout the day. At St Vincents Hospital nursing staff are rotated through the Observation facility from the Emergency Department, with one nurse allocated to the 6 bed unit at all times.

Ancillary staff are shared with the emergency department in both hospitals.

5.3.4 Activity levels
At the time of the survey neither St Vincent’s nor Angliss Observation Units had been operational for a complete year. In its initial months of operation, the Angliss Observation Unit managed a total of 202 patients between the 12th of April and the 16th of July with an average of 16 patients per week. The number of patients managed has grown as the Unit has become established.

St Vincents Hospital provided data on activity from June through to September 2000. Over this 4 month period a total of 166 patients were managed as Observation patients within the Unit (ie an average of 9 patients per week). Additional patients awaiting a ward bed are managed within the Observation Unit, but are not included in Observation Unit statistics.

5.3.5 Entry criteria and suitable conditions
Both Angliss and St Vincents have documented criteria against which patients are assessed for admission to the Observation Units.

General admission criteria to the Observation Unit at Angliss Hospital are as follows:
• Clearly defined health problem
• Clearly identified patient care goals
  - Short term therapy of emergency conditions (16-24 hours)
  - Meeting psychosocial needs
• Limited need for intense medical services
• Limited severity of illness – anticipation of discharge or transfer within defined time limits (expected variance of up to 15%)
• Clinical condition appropriate for Short Stay Unit – specified conditions include:

- Post sedative procedure observation
- Renal colic
- Biliary colic
- Selected infections
- Asthma
- Allergic reactions
- Hypertensive urgencies
- Intoxication
- Deep venous thrombosis
- Migraine
- Pneumothorax
- Urinary retention
- Mild left ventricular failure
- Post seizure
- Transient ischaemic attack
- Pain management post injury
- Stable drug overdose
- Observation after minor head injury
- Psychosocial crisis
- Transfusion
- Awaiting social supports
- Viral meningitis
- Hypoglycaemia

Policies at Angliss preclude use of the Observation Unit for holding patients who are awaiting an in-patient bed. Considering the structure of the current Hospital Access Performance bonus program, which applies penalties for patients who wait longer than 12 hours for an inpatient bed, it will be important to establish similar policies at all hospitals with an SOU. Further definition around patients suitable for SOU care is provided in Section 9.1.1.

5.3.6 Demographic features
The following table summarises the age distribution of the 202 patients managed in the Angliss Observation Unit from mid April to mid July 2000 and the 52 patients managed at St Vincent’s in June 2000.

<table>
<thead>
<tr>
<th></th>
<th>Angliss</th>
<th>St Vincent’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10 yrs</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>11 - 20 yrs</td>
<td>12.4%</td>
<td>3.8%</td>
</tr>
<tr>
<td>21 - 40 yrs</td>
<td>34.8%</td>
<td>22.9%</td>
</tr>
<tr>
<td>41 - 60 yrs</td>
<td>25.4%</td>
<td>32.5%</td>
</tr>
<tr>
<td>61 - 80 yrs</td>
<td>15.4%</td>
<td>15.2%</td>
</tr>
<tr>
<td>&gt; 80 yrs</td>
<td>12.0%</td>
<td>9.5%</td>
</tr>
</tbody>
</table>

Sixty percent of patients at Angliss and fifty-five percent of patients at St Vincent’s Hospital were between 21 and 60 years of age. Angliss staff estimated that equivalent numbers of males and females were admitted to the Observation Unit, while marginally more females were admitted to St Vincent’s Short Stay Unit.

5.3.7 Duration of stay
The average length of stay for patients admitted to the Angliss Observation Unit was 14 hours, while data provided from St Vincents indicated that the average length of stay in the Observation Unit was 9.3 hours (which excludes prior emergency department stay).
Length of stay calculations from the Victorian Admitted Episode Dataset are calculated in days as apposed to hours and do not provide a sensitive measure of this parameter. This will become a major issue for DHS in monitoring the performance of SOUs.

5.3.8 Number and percentage of ED attendances admitted to SOU

The annual emergency department presentations and projections for annual SOU admissions for each hospital are shown in the following table.

<table>
<thead>
<tr>
<th>Table 5.3 – SOU:ED Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Annual ED Attendances (1999-2000)</td>
</tr>
<tr>
<td>Annualised SOU Attendances</td>
</tr>
<tr>
<td>SOU proportion of ED Attendances</td>
</tr>
</tbody>
</table>

NB: Projections for annual SOU admissions are based on actual admissions in the first few months of operation and are likely to under-represent actual annual figures.

From these preliminary figures, SOU admissions account for less than 5% of Emergency Department presentations. Once these SOUs have become established it is likely that the proportion of patients managed within the SOU may grow to a limited extent, but this pattern is consistent with experience reported in the literature.

5.3.9 Access to diagnostic tests

Observation Units at both Angliss and St Vincent’s have priority access to radiology investigations, while priority is given to St Vincent’s Observation Unit patients for pathology services as well.

5.3.10 SOU patient destinations

The following table summarises the destination of patients on separation from the Angliss and St Vincent’s Observation Units.

<table>
<thead>
<tr>
<th>Table 5.4 – Observation Unit Separations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Transferred to aged care residential facility</td>
</tr>
<tr>
<td>Discharged home</td>
</tr>
<tr>
<td>Admitted to ward/HITH</td>
</tr>
<tr>
<td>Transferred to another hospital campus</td>
</tr>
<tr>
<td>Left at own risk</td>
</tr>
<tr>
<td>Died within the observation facility</td>
</tr>
<tr>
<td>Transferred to mental health residential facility</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

In line with the objectives of these Units, the majority of patients (80%-84%) were discharged home. At Angliss 14% (ie 28 of 202 patients) required further care as an inpatient, while the remaining patients were transferred to another hospital or residential care. At St Vincent’s Hospital 12%, (ie 6 of 52 patients) were transferred to another hospital campus or residential care, while 2 patients left against medical advice.
5.3.11 Representation rates
Neither Angliss nor St Vincent’s routinely monitored un-planned representation rates for patients admitted to their Observation Units.

5.3.12 Possible SOU success factors
The increasing trend in demand for acute care services is concentrated within emergency departments. Hospitals throughout Victoria, but particularly within the metropolitan area, face unprecedented demand pressures, which have been compounded by a range of factors including the ageing population presenting with increasingly complex health care problems, the nursing staff shortage and changes in consumer expectations. In three of the five metropolitan hospitals with Observation Units, inadequate access to inpatient beds has been cited as the reason that these facilities have become unable to function as observation facilities. The pressure arising from patients awaiting placement in an inpatient ward have resulted in use of the designated observation beds to accommodate these patients. This in turn, blocks these beds such that they can no longer be used for short stay patients. One site reported that 20-30% of emergency patients who were admitted, received their entire length of stay in the Emergency Department with stays of up to 1 week. Thus this Observation Unit has in effect become a multi-day stay ward.

Despite these emergency demand pressures, St Vincent’s and Angliss continue to use their Observation Units for short stay patients. The reasons behind this are probably multi-factorial but features of these 2 units include:

- They are managed by emergency department medical staff and patients are admitted under emergency physicians
- They have clearly defined policies which address patient admission criteria
- They are located in close proximity to the emergency department
- They have policies that ensure regular, frequent patient review
- They have policies that restrict planned length of stay to 24 hours
- The units are managed such that actual length of stay is less than 24 hours

Both St Vincent’s and Angliss SOUs have been in operation for less than 12 months and it is therefore premature to infer that performance to date will be sustainable into the future. The impact of demand pressures intermittently blocks the SOU beds at St Vincent’s Hospital where patients may be accommodated while awaiting a ward bed. At the time the survey was conducted the Angliss SOU admission policy precluded use of SOU beds for this group of patients and SOU bed block was not identified as an issue at Angliss.

6 MAPU and EMU Facilities
From the hospital surveys, A&RMC (23 beds) and Western Hospital (20 beds) both had Medical Assessment and Planning Units and St Vincent’s Hospital had a 15 bed Emergency Medical Unit (EMU).

6.1.1 Purpose
The reasons for establishing each of these Units are underpinned by an awareness of the opportunity to improve the processes used in the management of medical patients. At St Vincent’s Hospital it was recognised that a significant number of medical conditions could be managed within a 24 hour time frame when the frequency of medical review was increased. This became apparent when medical patients awaiting admission in the emergency department had improved to the point that they were ready for discharge by the time a ward bed was available.

The reasons cited for establishing these Units included to:
- Facilitate behavioural change
• Fast track diagnosis, risk assessment, symptom relief and development of patient management plans
• Improve emergency department utilisation
• Reduce length of stay
• Break down professional boundary issues and improve the early involvement of allied health personnel and ACAS as appropriate
• Provide a conduit to Hospital in the Home
• Accelerate access to geriatric and rehabilitation beds

In rating how well their facility met its primary objective using a visual analogue scale from 1 (not at all well) to 10 (extremely well) these three hospitals rated their Units at either 7 or 8.

6.1.2 Physical Structure
The MAPUs and EMU in these three sites are located within patient ward areas of the hospital. These Units are remote from the emergency departments. Each of these facilities operate over 24 hours, 7 days per week.

6.1.3 Staffing
At both A&RMc and Western Hospital, medical responsibility for management of the MAPU lies with the general physicians, while at St Vincent’s Hospital the medical responsibility for the Unit is shared between the Heads of General Medicine and the Emergency Department Director. Staffing profiles of these units are summarised in the following table.

| Table 6.1 – Staffing Profiles (EFT) |
|-------------------------------|-----------------|-----------------|
| Staff                         | MAPU A&RMc (23 beds) | MAPU Western (20 beds) | EMU St Vincent’s* (15 of 30 beds) |
| Medical                       | 4.0              | 1.6             | 4.04             |
| Nursing                       | 29.0             | 23.9^           | 30.22            |
| Pharmacy                      | 0.5              | 0.5             | 1.05             |
| Physiotherapy                 | 1.2              | -^              | 1.0              |
| Social Workers                | 1.4              | -^              | 1.5              |
| Dietician                     | -                | -^              | 0.5              |
| Speech Pathology              | -                | -               | 0.4              |
| Occupational Therapy         | -                | -               | 0.5              |
| Clerical                      | 1.5              | 1.56            | 2.63             |
| Patient Services Assistants   | 4.0              | 2.8             | -                |

* At St Vincent’s Hospital this staffing is provided for 30 beds of which up to 15 are used for EMU patients
^ At Western Hospital Allied Health staff are utilised in the same manner as for General Medical Units, but additional physiotherapy time is provided on week-ends.

Overall staffing profiles are consistent with those of general medicine units. Allied health staff have an important role in these units with designated pharmacy, physiotherapy and social worker staff at both A&RMc and St Vincent’s Hospital.
6.1.4 Activity levels

At the time of the hospital survey, each of these Units had been in operation for a matter of months as they commenced operation in April to May 2000. Thus the activity profiles shown in the following table are based on data from the initial 2 months of operation only.

<table>
<thead>
<tr>
<th>Table 6.2 – Activity Profiles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Timeframe</td>
</tr>
<tr>
<td>Total separations</td>
</tr>
<tr>
<td>Average separations per day</td>
</tr>
<tr>
<td>Annualised patients</td>
</tr>
<tr>
<td>Total MAPU days</td>
</tr>
<tr>
<td>Annualised MAPU days</td>
</tr>
<tr>
<td>Proportion of ED patients</td>
</tr>
</tbody>
</table>

Considering that these Units were becoming established at the time of this survey, it is premature to draw conclusions regarding their impact or their effectiveness. However, early analysis of data for general medical multi-day patients at A&RMC, indicates that the average length of stay in 2000 has been lower since the inception of the MAPU than for the same period last year. In order to allow for seasonal variations, subsequent analysis of average length of stay across sites would be useful to establish whether this trend is wide-spread and sustained once these units have been in operation for a full year.

6.1.5 Entry criteria and suitable conditions

All three hospitals have specific criteria to determine patients suitable for admission to the MAPU. By way of example the A&RMC MAPU Access Guidelines are as follows:

- General Medical Unit admissions via the Emergency Department are admitted to MAPU
- Emergency medical admissions excluded from MAPU include patients requiring CCU, ICU, SCU isolation and Bi-pap
- Seriously ill patients not requiring critical care can be transferred to MAPU
- Elective admissions are to be transferred to the wards and do not go through MAPU
- Patients requiring admission from outpatients are directly admitted to MAPU unless they require immediate intervention in the Emergency Department.

Diverse medical conditions are managed through these Units. The top 10 (by volume) conditions managed in the September Quarter of 2000 at St Vincent’s Hospital were:

- Chronic obstructive airways disease
- Heart failure and shock
- Miscellaneous digestive system disorders
- Cellulitis
- Bronchitis and asthma
- Chest pain
- Signs and symptoms not elsewhere classified
- Seizure age > 2
- Non-surgical neck and back conditions
- Poisoning/toxic effects of drugs and other substances
Between 9 and 17 patients were admitted with each of these conditions over this time-frame.

6.1.6 Demographic features

The age distribution of patients managed within the A&RMC and Western MAPUs and St Vincent’s EMU is shown in the following table.

<table>
<thead>
<tr>
<th>Age Range</th>
<th>MAPU</th>
<th>EMU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A&amp;RMC (23 beds)</td>
<td>Western (20 beds)</td>
</tr>
<tr>
<td>&lt; 10 yrs</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>11 - 20 yrs</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>21 - 40 yrs</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>41 - 60 yrs</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>61 - 80 yrs</td>
<td>40%</td>
<td>46%</td>
</tr>
<tr>
<td>&gt; 80 yrs</td>
<td>20%</td>
<td>37%</td>
</tr>
</tbody>
</table>

The age profile of patients managed in these Units is similar to the majority of patients aged between 41 and 80 years in each site. A significant proportion of patients in each site were greater than 80 years of age (up to 37% at Western Hospital).

Hospitals reported that 55% to 60% of patients managed within their Units were male.

6.1.7 Duration of stay

The policies surrounding maximal length of stay in MAPUs and the EMU and the actual average length of stay for these sites are summarised in Table 6.4.

<table>
<thead>
<tr>
<th>MAPU</th>
<th>EMU</th>
</tr>
</thead>
<tbody>
<tr>
<td>A&amp;RMC (23 beds)</td>
<td>Western (20 beds)</td>
</tr>
<tr>
<td>Policy for maximum stay</td>
<td>≤ 48 hours</td>
</tr>
<tr>
<td>Actual average length of stay</td>
<td>72 hours</td>
</tr>
</tbody>
</table>

Each hospital has a policy that stipulates maximum length of stay within the MAPU or EMU is up to 48 hours. Actual length of stay for these patients has been significantly higher than 48 hours and relates to the difficulties in accessing beds in other wards for patient transfers. Key differences in expected length of stay across these sites arise from the fact that St Vincent’s Hospital only admits patients with an expected length of stay of up to 48 hours to their MAPU, while the remaining sites admit all general medical admissions to their MAPU.
6.1.8 Access to diagnostic tests
All three hospitals reported that their MAPU had priority access to radiology services, while priority access to pathology was also available at St Vincent’s and A&RMC.

6.1.9 MAPU/EMU patient destinations
The following table summarises the destination of patients on separation from the Unit.

<table>
<thead>
<tr>
<th>Table 6.5 – Patient Destinations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAPU</strong></td>
</tr>
<tr>
<td><strong>A&amp;RMC</strong></td>
</tr>
<tr>
<td>Transferred to aged care residential facility</td>
</tr>
<tr>
<td>Discharged home</td>
</tr>
<tr>
<td>Admitted to ward/HITH</td>
</tr>
<tr>
<td>Transferred to another hospital campus</td>
</tr>
<tr>
<td>Left at own risk</td>
</tr>
<tr>
<td>Died within the MAPU</td>
</tr>
<tr>
<td>Transferred to mental health residential facility</td>
</tr>
<tr>
<td>Actual or estimated</td>
</tr>
</tbody>
</table>

Variations in patient destinations on leaving these Units reflect the differences in how these units are being used. At St Vincent’s Hospital a very high proportion of patients are being discharged home, which is consistent with their approach of only admitting patients who are likely to require a short episode of care. At both A&RMC and Western, the MAPUs are used for streamlining care processes for the vast majority of medical patients regardless of their intended length of stay.

6.1.10 Representation rates
The numbers of patients who have an un-planned representation within 48 hours for the same or a similar complaint following discharge from the MAPU are monitored at Western Hospital. For the period May – June 2000 there were 5 patients who represented to the hospital following discharge. This parameter had not been assessed at the remaining sites.

6.1.11 MAPU/EMU Strengths
Each site was asked to identify the key strengths of their MAPU. Analysis of this information revealed the following major themes. The MAPU:

- Fosters the culture of rapid treatment and turnover
- Improves collaboration between emergency and general physicians (at St Vincent’s)
- Decreases obstructions to rapid admission when necessary
- Has senior management support
- Enhances behavioural and cultural changes that would otherwise be very difficult to achieve
- Facilitates early engagement of allied health staff
- Reduces average length of stay for medical patients with improved bed access.

6.1.12 MAPU/EMU Opportunities
In order to identify opportunities for further enhancing MAPU performance, each site was asked to identify impediments to optimal functioning of their facility. Core issues arising from this item were common across sites and included:
7 Interstate Benchmark Sites

The use of SOUs is more common in Queensland hospitals than in other states. Various Queensland hospitals have used observation units in conjunction with their emergency departments in an attempt to streamline processes, maintain bed availability for incoming patients and prevent inappropriate admissions to the inpatient areas. Consequently, site visits were conducted in Queensland at the Royal Brisbane, Ipswich and Townsville Hospitals to explore their experiences with SOUs and to identify the potential benefits of this approach for the Victorian health care system. Two of these hospitals had Medical Assessment and Planning Units (MAPU) in addition to their SOU.

7.1 Royal Brisbane Hospital

Royal Brisbane Hospital is the tertiary referral hospital for Central Queensland and currently has approximately 750 beds with an occupancy rate of around 90%. Redevelopment of this hospital is occurring on the existing site with co-location of Royal Women’s and Royal Children’s Hospitals.

Royal Brisbane Hospital currently has a Short Stay Observation Unit, which was developed within the Emergency Department approximately 15 years ago and a Medical Assessment and Planning Unit, which opened a year ago. National Triage Scale Category 5 patients are managed in an area separate from the Emergency Department in a GP and Visiting Medical Officer staffed general clinic.

7.1.1 Short Stay Unit

The Emergency Department manages the SOU, which is a component of the Division of Critical Care. The Division of Critical Care encompasses Emergency Medicine, Ambulatory Care, Anaesthetics and Intensive Care. Emergency Department medical and nursing staff rotate through all areas within the Emergency Department, including resuscitation and the SOU. A staff specialist and a registrar are rostered each day to the SOU and conduct a ward round at 0800, 1200 and 1600. The night registrar covers both the Emergency Department and the SOU. On the weekends, a staff specialist covers both the Emergency Department and SOU. Four nursing staff are rostered to cover the SOU on both morning and evening shifts and three nurses are rostered overnight. The SOU also has a receptionist five days per week.

The SOU aims to investigate and discharge patients within 24 hours and is reported to decrease admissions and competition for inpatient beds. This is achieved by having strict admission criteria and the completion of a management plan prior to the patient being transferred to the SOU. However, there is some demarcation between inpatient medical staff and emergency medical staff regarding the management of patients within the SOU. The Division of General Medicine would like to assume responsibility for the SOU but the Emergency Department identifies that there are many types of patients other than General Medical managed within the SOU.

7.1.2 Medical Assessment & Planning Unit

The Royal Brisbane Hospital’s MAPU was set up within the Division of Medicine twelve months ago to receive all new admissions for the Medical Units, of which 90% are emergency admissions. The MAPU is a focus area for new patients and enables thorough investigation, open access to allied health staff and development of a management plan prior to transfer to the appropriate ward or home.

A designated full time physician is responsible for the overall management of MAPU. The Medical Units rotate through MAPU as per an 8 week rotating roster to admit and plan patients’ care prior to
Patients within MAPU are reviewed daily at 0800 by consultant medical staff and then followed through to the home ward as required.

Nursing staff in conjunction with the designated physician provide continuity of care to the MAPU and Clinical Nurse Consultants from the home medical ward provide continuity for the patients by visiting MAPU to assist with the development of management plans prior to the patient being transferred to the home ward.

The MAPU compliments both the Emergency Department and SOU by transferring responsibility to the MAPU for finding appropriate beds for medical patients. This enables the Division of Medicine to control the destination of medical patients and manipulate the acuity of their outliers (i.e., patients accommodated in beds outside the home ward). For example, short stay medical patients are more likely to be placed as an outlier on a surgical ward than a longer stay medical patient.

7.2 Townsville Hospital

Townsville Hospital is the tertiary referral hospital for Northern Queensland and currently has 470 beds. Redevelopment of this hospital is occurring and a new hospital will be opened in 12 months time. The new hospital will comprise of 452 beds and the model of care will change with the new configuration.

Townsville hospital currently has a Short Stay Observation Unit and a Medical Assessment and Planning Unit, which both opened at similar times early in 2000.

7.2.1 Short Stay Unit

The SOU is under the auspice of the Emergency Department with the emergency physicians admitting and managing patients in the unit. There is little interaction between the medical inpatient units and the SOU, except for when there is a need to admit patients to inpatient beds. This Unit was established despite initial physician concerns regarding appropriateness of this model – however, the general physicians reported that these concerns have not been borne out.

Medical staff from the Emergency Department manage patients within the SOU. There has not been an increase in EFT to perform in this role. Patients are seen by junior medical Emergency Department staff prior to transfer to the SOU, the Emergency Department Physicians then take responsibility for the ongoing management of the patients whilst they reside in the SOU. The Emergency Department physician reviews patients in the SOU by conducting rounds in the morning, at 1300 and 1800.

The nursing staff levels within the Emergency Department have been increased by 4.2 EFT Registered Nurses and 4.2 EFT Enrolled Nurses (endorsed) to support the SOU. 1 RN and 1 EN cover each shift in the SOU. All nursing staff within the Emergency Department rotate through the various areas, including resuscitation and the SOU.

There has been no increase in levels of allied health staff to support the SOU. The social worker affiliated with the Discharge Planning Unit spends a significant amount of time working with patients in the SOU.

7.2.2 Medical Assessment & Planning Unit

The Townsville MAPU is managed jointly by the Directorate of Ambulatory Care (Nursing) and the Department of Medicine. This Unit functions in a similar fashion to the Royal Brisbane Hospital’s MAPU, but does not have a designated physician responsible for the Unit. Medical staff are provided by each of the four medical units on a rotational basis. These four units rotate through MAPU dependent upon which unit is on intake. This unit then conducts a round at 0800 (which takes 1 – 1 ½ hours). Each patient is reviewed and the registrar completes a management plan. The MAPU has priority access to medical staff ie intern/registrar respond to call immediately. The intern on ‘intake’ spends most of his/her time in the MAPU.
Designated MAPU nursing staff provide continuity of care to patients in the Unit while allied health staff have open access and visit daily to identify potential patients that require their service.

### 7.3 Ipswich Hospital

Ipswich Hospital is a 320 bed hospital in the Western suburbs of Brisbane. Ipswich hospital has had an SOU for many years, which was limited to day-time hours only. In 1997, the SOU hours of operation were extended to cover 24 hours per day. The Emergency Department manages the SOU, which is a component of the Division of Medicine. Medical staff from the Emergency Department assume medical responsibility for patients whilst they are in the SOU and patients are only reviewed by inpatient medical staff if it is anticipated that they will require inpatient beds.

The SOU is staffed by one registered nurse each shift (4.2 EFT per week). Nursing staff from the Emergency Department rotate through the SOU regularly; even so, there is a desire to have a designated RN who takes on responsibility for developing specific protocols and processes for the SOU.

Allied health involvement is primarily physiotherapy, social work and integrated mental health who visit the SOU to pick up potential referrals.

### 7.4 Common Themes & Key Lessons

The key benefits identified by those interviewed in relation to SOUs were that the SOU reduces competition for inpatient beds by preventing inappropriate admissions and providing a focus for effective planning of investigations and discharge or transfer to the wards. The SOU is identified as an area where allied health professionals, drug and alcohol personnel, psychiatric liaison and Hospital in the Home can engage with patients and implement interventions in a timely fashion thereby streamlining processes and potentially reducing the number of patients who require a ward bed, while also reducing representations to the Emergency Department. A comparison of key characteristics of SOUs in these Queensland hospitals is provided in Table 7.1.
Table 7.1 – Queensland SOU Site Visits

<table>
<thead>
<tr>
<th>Components</th>
<th>Royal Brisbane Hospital</th>
<th>Townsville Hospital</th>
<th>Ipswich Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Beds</td>
<td>750</td>
<td>470</td>
<td>320</td>
</tr>
<tr>
<td>MAPU Beds</td>
<td>18</td>
<td>14</td>
<td>NIL</td>
</tr>
<tr>
<td>SOU Beds</td>
<td>16</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Location of SOU Beds</td>
<td>Within the ED</td>
<td>Adjacent to the ED</td>
<td>Adjacent to the ED</td>
</tr>
<tr>
<td>SOU Hours of Operation</td>
<td>24 hours, 7 days</td>
<td>24 hours, 7 days</td>
<td>24 hours, 7 days</td>
</tr>
<tr>
<td>Emergency Presentations Annually</td>
<td>62,000</td>
<td>39,000</td>
<td>36,000</td>
</tr>
<tr>
<td>SOU Patients Annually</td>
<td>5,600</td>
<td>978</td>
<td>3,950</td>
</tr>
<tr>
<td>SOU as a Proportion of ED Presentations</td>
<td>9.0%</td>
<td>2.5%</td>
<td>11.0%</td>
</tr>
<tr>
<td>Average SOU Patients per day</td>
<td>15</td>
<td>3 - 4</td>
<td>9</td>
</tr>
<tr>
<td>Average LOS in SOU</td>
<td>24.2 hours</td>
<td>11.5 hours</td>
<td>24 hours</td>
</tr>
<tr>
<td>% Patients admitted to inpatient wards from SOU</td>
<td>5%</td>
<td>9%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Medical Staffing</td>
<td>Staff Specialist daily</td>
<td>Medical Staff from ED maintain responsibly for SOU patients, without an increase in the EDs medical FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Registrar coverage over 24 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing Staff</td>
<td>19.6 FTE</td>
<td>8.4 FTE</td>
<td>4.2 FTE</td>
</tr>
<tr>
<td>Allied Health, Discharge Planning Coordinators, Psychiatric Liaison and Hospital in the Home.</td>
<td>The SOU provides an area of focus for these personnel, who all include the SOU in their rounds to identify potential patients</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These hospitals identified a number of critical success factors in the operations of their SOUs. Clearly defined admission criteria were considered of paramount importance to ensure that appropriate patients were managed within the SOU or alternatively transferred to the inpatient areas to enable timely throughput and prevent inappropriate use of the SOU. Prior to transfer to the SOU, the development of patient management plans that included discharge/transfer criteria promoted timely throughput. Further, it is noted that in Royal Brisbane Hospital and in Ipswich Hospital, where there are strong links between SOU and Hospital in the Home, the proportion of Emergency Department presentations managed in their SOUs is as high as 9% and 11% respectively.
Table 7.2 provides an overview of the major patient conditions managed at each of these sites.

<table>
<thead>
<tr>
<th>Table 7.2 – SOU Patient Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Royal Brisbane Hospital</strong></td>
</tr>
<tr>
<td>• Self poisoning</td>
</tr>
<tr>
<td>• Chest pain</td>
</tr>
<tr>
<td>• Ureteric colic</td>
</tr>
<tr>
<td>• Minor head injury</td>
</tr>
<tr>
<td>• Asthma</td>
</tr>
<tr>
<td>• As a buffer for the hospital if beds are unavailable</td>
</tr>
<tr>
<td>• Overnight stays, patients are not admitted to the wards after 2200 except for MAPU patients</td>
</tr>
<tr>
<td>• Palliative care if inpatient beds are full</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Priority access to pathology tests and radiology investigations were also important in streamlining decision making within SOUs. Most importantly, these units also had priority access to in-patient beds in the event that a patient required ongoing care after their observation period. Having the capacity to move patients that required on-going care was crucial to freeing the observation beds for their intended purpose.

Adequate staffing was also highlighted as critical to the effectiveness of an SOU. Two SOUs had been developed without an increase in FTE for medical staff. It was reported there was an increased workload for medical staff with the establishment of the SOU and without increased staffing, management of patients within the Emergency Department was potentially compromised. It was identified that emergency trained nursing staff were ideal to work within an SOU, as patients were similar to emergency patients and turnover was high. Continuity of care within the SOU is a high priority to ensure that time lines are met and patients are provided with adequate discharge information. However, rotation of staff through all areas of the Emergency Department facilitates maintenance of skills and the opportunity to follow the progress of patients. Therefore a balance between continuity of care and flexibility of staff between the Emergency Department areas is required for the effective management of the SOU.
The SOU tends to be a quieter environment than the Emergency Department and subsequently provides a good learning environment. The close proximity of most SOUs to the Emergency Department allows medical staff to accompany trainees and follow the progress of patients with disorders requiring a period of observation, acute treatment, procedures or awaiting test results. The interaction between emergency staff and other hospital staff also provides educational opportunities. The training programs in these units were better developed for nursing staff than for medical staff. However, they presented good opportunities for Emergency Department medical trainees, including interns and students to follow the progress of patients with disorders requiring a period of observation, acute treatment, minor procedure or awaiting test results. The proximity of these units to the emergency department allowed medical staff to make frequent visits with good learning opportunities for accompanying trainees.

One of the particular advantages of SOUs was that they served as a site for other hospital staff (such as psychiatrists, social workers, hospital in the home staff etc) to interact positively with Emergency staff. This interaction can be planned (eg morning assessments) and provides further educational opportunities for trainees.

To maintain effective relationships between inpatient medical units and the Emergency Department, it was recommended that inpatient medical staff be involved with the development of admission criteria and guidelines for the SOU. The potential for tension between inpatient medical staff and emergency physicians was discussed at all sites. This tension may relate to conflict regarding the management of SOU patients, timely review of patients pending inpatient admission, perception that the concept of SOUs devalued the role of physicians, surgeons and gynaecologists and that boundaries of responsibility were being contested.

The MAPUs visited had similar features to the SOUs in that they provided an area of focus for observation, efficient coordination of investigations, effective interdisciplinary care planning with engagement between the patient and all health care disciplines within a designated geographical location. While the length of stay within both SOUs and MAPUs is timelimited, the key differences were that MAPU patients were all medical and were most likely to be transferred to the inpatient wards, while SOU patients were likely to be discharged on departure from the SOU. The MAPU has a triage role for the Medical Units and removes the imperative of finding inpatient beds away from the Emergency Department.

The establishment of a MAPU plays a significant role in re-engineering processes for the Medical Units and consequently requires the commitment of the clinical staff to ensure its success. The success of the Royal Brisbane Hospital MAPU was predicated on the interdisciplinary Clinical Services Development Unit that is resourced to undertake a designated change agent role to promote service improvements based on health outcomes. Key factors that contributed to the success of this MAPU were:

- a cultural shift away from a 5 day to a 7 day model of care
- a shift in emphasis away from ‘referrals’ to allied health staff, to facilitated case-finding for allied health staff with open access to patients
- priority access to pathology and radiology and
- priority access to inpatient medical beds.

The MAPU model also provides a number of benefits for training through:

- Teamwork – promotion of a team approach to patient care is a key objective in medical education and training of junior staff. The organisational structure of the MAPUs in Townsville and Royal Brisbane Hospitals facilitated high levels of cooperation between Emergency, MAPU, allied health pathology and radiology staff. There was a focus on early identification of clinical problems and expedited care planning involving all relevant team members.
- Medical responsibility – the earliest possible contact between interns and their patients is critical to meeting prevocational training training objectives and skills development. In the
MAPU setting, medical registrars and interns are assessing patients earlier in the course of their illness, which expedites planning and management. This is in contrast to the fragmented processes used in the traditional hospital system that are characterised by delays. The MAPU structure encourages medical registrars to develop their skill as team leaders in setting priorities and developing management plans. Further, the physician on take is able to provide earlier input into the patient management process than is often the case with routine ward rounds. Training models in medical education are well served by an action learning setting.

- Process evaluation – The MAPU model, with its acute short stay focus, encourages the team to identify better ways of doing things and facilitates implementation of clinical pathways. Identification of patient care issues that result in readmissions can provide the focus for quality improvement initiatives and preventative strategies. There is an opportunity for closer interaction between medical unit staff and hospital in the home staff, while these and other influences provide excellent learning opportunities for medical trainees.

- A positive working environment – provided the hospital culture is supportive and the MAPU itself does not become ‘bed-blocked’, medical unit staff are encouraged by a ‘can-do’ attitude (eg through protected time for morning scans, tests etc) and this is positively reflected in their learning.

- MAPU staffing – MAPUs do not generally have medical staff allocated to the Unit but are generally serviced by the acute medical team on take. This allows for continuity of patient care. A potential downside for teamwork is that the MAPU nursing staff do not interact with the same medical staff on a day to day basis. Some units have a MAPU medical Unit Manager and this appears to have added benefits for teaching and training.

- Medical students – medical students were attracted to visit these MAPUs and the rapid throughput of acute medical patients provided excellent learning opportunities.

8 Observation Unit Performance Measures

Experience with measuring performance of SOUs is lacking in Victoria where existing Units have been in operation for less than 12 months. From analysis of interstate experience and the available literature, (particularly publications from the American College of Emergency Physicians), the two key areas that emerge for monitoring performance of these Units are utilization review and quality improvement.

8.1 Parameters for Utilization Review

The following utilization review measures were assessed by the Steering Committee and considered important for informing future work in this area.
Table 8.1 – SOU Utilisation Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Potential Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume of observation unit patients:</td>
<td>VAED</td>
</tr>
<tr>
<td>total per hour, shift, day, week, month</td>
<td></td>
</tr>
<tr>
<td>Type of patient:</td>
<td>VAED</td>
</tr>
<tr>
<td>medical, surgical, paediatric, obstetric/gynaecological</td>
<td></td>
</tr>
<tr>
<td>Volume of patients transferred to another inpatient bed:</td>
<td>VAED</td>
</tr>
<tr>
<td>total by shift, day, week, month</td>
<td></td>
</tr>
<tr>
<td>Percentage of patients transferred to another inpatient bed</td>
<td>VAED</td>
</tr>
<tr>
<td>Percentage of patients transferred to CCU</td>
<td>VAED</td>
</tr>
<tr>
<td>SOU patients as a percentage of all ED visits</td>
<td>VEMD</td>
</tr>
<tr>
<td>Average time in observation unit: all patients</td>
<td>VAED (measure in hours)</td>
</tr>
<tr>
<td>Volume of patients staying &gt; 24 hours</td>
<td>VAED</td>
</tr>
<tr>
<td>Median time in observation unit: all patients</td>
<td>VAED</td>
</tr>
<tr>
<td>Average time in observation unit: admitted patients</td>
<td>VAED</td>
</tr>
<tr>
<td>Median time in observation unit: admitted patients</td>
<td>VAED</td>
</tr>
<tr>
<td>Average time spent in OU:</td>
<td>VAED</td>
</tr>
<tr>
<td>• Shift</td>
<td></td>
</tr>
<tr>
<td>• Day</td>
<td></td>
</tr>
<tr>
<td>• Week</td>
<td></td>
</tr>
<tr>
<td>• Month</td>
<td></td>
</tr>
<tr>
<td>• Physician</td>
<td></td>
</tr>
<tr>
<td>Average time to be seen by a doctor in ED</td>
<td>VEMD</td>
</tr>
<tr>
<td>Average time to bed request for admitted patients from ED</td>
<td>VEMD</td>
</tr>
<tr>
<td>Average time to transfer request for patients transferring from the SOU</td>
<td>VEMD</td>
</tr>
<tr>
<td>Average hospital length of stay for target DRGs</td>
<td>VAED</td>
</tr>
</tbody>
</table>

The majority of these indicators could be extracted from existing data sources, the VAED and VEMD, if it is possible to identify these patients within each data set. Recommendations around this are included in the next section.

The average time to transfer request for patients transferring from the SOU can not be derived through the VAED. The relative merits of collecting this item need to be weighed against the procedures that would be required to support collecting it.

A particular issue for monitoring SOU performance measures relates to length of stay calculations derived from the VAED. Existing DHS procedures calculate length of stay in whole days, which does not provide the level of sensitivity required to monitor SOU performance. Thus the existing VAED file structures and length of stay calculation procedures would need to be changed to support this level of analysis.
8.2 Quality Assurance Screening Criteria

With respect to quality improvement criteria relevant to the SOU setting, the Steering Committee identified the following key indicators.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Potential Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left against medical advice</td>
<td>VAED</td>
</tr>
<tr>
<td>Mortality</td>
<td></td>
</tr>
<tr>
<td>• In observation unit</td>
<td>VAED</td>
</tr>
<tr>
<td>• Within 48 hours of hospital admission</td>
<td></td>
</tr>
<tr>
<td>Cardiac or respiratory arrests</td>
<td>-</td>
</tr>
<tr>
<td>Adverse patient occurrences</td>
<td>-</td>
</tr>
<tr>
<td>Incident reports</td>
<td>-</td>
</tr>
<tr>
<td>Complaints</td>
<td>-</td>
</tr>
<tr>
<td>Comparison of admitting versus discharge diagnosis</td>
<td>VEMD, VAED</td>
</tr>
<tr>
<td>Appropriateness of treatment</td>
<td>-</td>
</tr>
<tr>
<td>Patient returns within 48 hours</td>
<td>VEMD, VAED</td>
</tr>
<tr>
<td>Repeated admissions to observation unit</td>
<td>VAED</td>
</tr>
<tr>
<td>Appropriateness of admissions judged against admission criteria</td>
<td>-</td>
</tr>
<tr>
<td>Frequency of unplanned medical review</td>
<td>-</td>
</tr>
<tr>
<td>Ambulance bypass</td>
<td>MAS</td>
</tr>
<tr>
<td>≥12 hour stays in ED</td>
<td>VAED</td>
</tr>
</tbody>
</table>

Of these 14 performance indicators, it would be possible to derive 7 through existing data sets. The remaining 7 items do not fit within routine collections and would require specific strategies to develop monitoring processes. These processes need to be established at the hospital level in keeping with the overall quality improvement framework.

9 Data Collections

Acute hospitals routinely report admitted patient activity to the DHS through the Victorian Admitted Episode Dataset (VAED). In addition, hospitals report emergency department presentations through the Victorian Emergency Minimum Dataset (VEMD). Both of these collections contain a range of data items for each admission to the hospital or presentation to the emergency department. These datasets are used within the Victorian health system for:

- Epidemiological purposes
- Health service planning and coordination
- Policy assessment and formulation
- Clinical research
- Quality improvement
- Patient management and
- Health facility operation and management.

In order to understand the potential value of SOUs within the Victorian health context, and capitalise on the opportunities that these Units may offer for improving patient care practices, it will be necessary to measure and analyse a variety of performance measures. A range of relevant performance measures has been identified in Section 8 of this report. The data required to derive the vast majority of these performance measures are captured through the VAED and the VEMD. However, at this point in time there is no opportunity to differentiate between patients who are managed within an SOU and those that are not. See Recommendation 9 Page66.
9.1 Data Element Concepts

9.1.1 Short Stay Observation Unit

A short stay observation unit (SOU) is a designated unit within a hospital that is specifically staffed and equipped to provide observation, care and treatment for emergency patients who have an expected length of stay of between 4 and 24 hours.

The concept of short stay observation units has gathered interest within the Victorian health system over recent times and SOUs have been developed in conjunction with Emergency Departments. An SOU may be in, adjacent or remote from the emergency department. The primary function of an SOU is an extension of emergency care and enables observation, care and treatment of non-elective patients for less than 24 hours. The concept of an SOU excludes elective surgical and radiological procedures.

9.1.2 Medical Assessment and Planning Unit

A medical assessment and planning unit (MAPU) is a designated ward of a hospital that is specifically staffed and equipped to receive medical inpatients for observation, care and treatment for up to 48 hours, prior to transfer to the appropriate medical ward or home if appropriate.

The concept of medical assessment and planning units has gained interest within the Victorian health system over the past twelve months and MAPUs have been developed under the auspice of the Division of Medicine, in some hospitals. The primary function of a MAPU is to triage medical admissions and provide an area of focus for observation, effective planning of investigations and care, and engagement between the patient and all health care disciplines, prior to transfer to the appropriate medical ward or home if appropriate.

9.2 VAED Amendments

It is proposed that the VAED be amended to facilitate identification of SOU and MAPU patients through adjustments to Accommodation type as follows:

9.2.1 Accommodation Type

Data domain:

1. Overnight accommodation: shared room
2. Overnight accommodation: single room
3. Same Day accommodation
4. Hospital in the home (HITH)
5. Newborn accommodation
6. Emergency department accommodation
7. Short stay observation unit accommodation
8. Medical assessment and planning unit accommodation

Guide for use:

7. Short stay observation unit accommodation
   For an admitted patient while in a short stay observation unit, whether this facility is in, adjacent to or remote from the emergency department. Includes: general and specific short stay observation units, for example, chest pain units. Excludes: short stay facilities designated specifically for elective surgical or radiological procedures.

8. Medical assessment and planning unit accommodation
For admitted patients while in a medical assessment and planning unit.

### 9.3 VEMD Amendments

It is proposed that the VEMD be amended to facilitate identification of SOU patients through adjustments to Departure Status as follows:

#### 9.3.1 Departure Status

**Data domain**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Departure and transfer to aged care residential facility (includes nursing home and hostel)</td>
</tr>
<tr>
<td>1</td>
<td>Discharge home (includes return to nursing home, mental health residential facility)</td>
</tr>
<tr>
<td>2</td>
<td>Admission to ward (including HITH) / return to inpatient ward</td>
</tr>
<tr>
<td>3</td>
<td>Admission to short stay observation unit</td>
</tr>
<tr>
<td>4</td>
<td>Transfer out of this hospital campus to another hospital campus (also record transfer destination)</td>
</tr>
<tr>
<td>5</td>
<td>Left at own risk, after treatment started</td>
</tr>
<tr>
<td>6</td>
<td>Left before being seen by doctor (or definitive service provider)</td>
</tr>
<tr>
<td>7</td>
<td>Died within ED</td>
</tr>
<tr>
<td>8</td>
<td>Dead on arrival</td>
</tr>
<tr>
<td>9</td>
<td>Departure and transfer to mental health residential facility (includes psychogeriatric nursing home and community care unit)</td>
</tr>
</tbody>
</table>

**Guide for use:**

2. **Admission to ward (including HITH) / Return to inpatient ward**
   Includes patients who are admitted to the ward after attending the ED at the same hospital (and HITH), and those patients who attend the ED from an inpatient ward at the same hospital and then return to the ward. Excludes: patients admitted to a short stay observation unit, (use Code 3 – Admission to short stay observation unit).

   Any change in ‘Campus code’ in multi-campus transfers is considered a transfer and requires a ‘Transfer destination’ code.

3. **Admission to short stay observation unit**
   Includes patients admitted to specialised short stay observation units such as chest pain evaluation units.
10 Recommendations

10.1 Models of SOU service
Key features of SOU service models include that they:
- are located within or in proximity to the emergency department
- admit patients with an expected length of stay of up to 24 hours
- are configured with facilities similar to those of a hospital ward (e.g., beds, lockers, showers etc)
- have strict admission and discharge criteria
- are supported by frequent medical review of patients
- have priority access to pathology and radiology investigations
- have clinical guidelines for management of high volume conditions
- provide a quieter and more calm environment than the emergency department and
- share infrastructure and staffing with the emergency department.

The most appropriate model of SOU service for any given hospital will be dependent upon the characteristics of the patients that it manages.

Recommendation 1

It is therefore recommended that individual sites develop policies and procedures that define the service model for SOUs, so that the service is structured to meet the needs of specific patient groups considered suitable for this care at a local level.

10.2 Types of patients best managed in SOUs

The types of patients suitable for management in SOUs will vary across different organizations dependent upon the volume of a wide range of candidate conditions. Other factors that will inform patient selection include organisational culture, access to pathology and radiology services, variation in clinical practice, variation in levels of collaboration with specific services such as HITH and PAC and access to drug and alcohol and psychiatric assessment teams.

Patient conditions that are potentially suitable for management in an SOU will generally require:
- a short course of therapy before expected resolution of the condition (e.g., asthma)
- a short course of therapy before expected follow-up through HITH, GPs or outpatients or
- an extended episode of investigation (i.e., greater than 4 hours but less than 24 hours) to establish the requirement for ongoing in-hospital care (e.g., undifferentiated chest pain).

From interstate experience patients may be considered unsuitable for management in an SOU if they are children (in a general hospital); or if they are over 70 years of age, as it is highly likely that their clinical complexity will preclude effective assessment and clinical management within the 24 hour time limit.
**Recommendation 2**

For hospitals that are planning to introduce an SOU, it is recommended that an analysis of clinical conditions presenting to the emergency department be undertaken, to inform the service configuration required for the types and volumes of patients that are to be managed through the unit. This information needs to be analysed in light of cultural and support service factors and should be considered in planning the design, location, facilities and staffing required for the unit.

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**10.3 Staffing structure and management of SOUs**

The principles of SOU operations are underpinned by a philosophy of ‘fast-tracking’ episodes of care, which are characterised by frequent medical review to ascertain readiness for discharge or requirement for in-patient transfer. Thus, in order to effectively achieve this streamlined approach to care, careful consideration needs to be given to appropriate medical, nursing and allied health staffing. The management of SOUs needs to be developed to fit the structure of the specific hospital with appropriate numbers and grades of staff to meet the needs of target patient groups.

In general SOUs, are managed as an addendum to the emergency department, where the culture of frequent assessment and short-term therapy is well established. Medical responsibility for management of the unit frequently lies with the emergency department director and this model enhances the important relationship between the SOU and the emergency department. Further this model facilitates sharing appropriately skilled staff between the emergency department and the SOU.

Careful consideration of the SOU staffing profile should be undertaken in the planning stages. SOUs may be opened as ‘additional’ beds or by reconfiguring the use of existing beds. In our current climate, the preferred approach would be to establish SOUs through opening additional beds. This approach necessitates provision of additional staffing particularly in the areas of medicine and nursing.

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**Recommendation 3**

It is therefore recommended that staffing profiles for SOUs be developed by hospitals with careful consideration of the following factors:

- Staff will require expertise that matches the needs of patients being admitted to the SOU
- Medical staff in SOUs require the skills, knowledge and experience to make admission/discharge decisions
- Medical staffing needs to be structured to facilitate frequent medical review of patients
- Nursing staffing should be established with a nurse to patient ratio of 1:4 depending on the patient conditions managed
- Allied health time required will depend on the patient mix. For example, social workers may be required extensively in units that admit short stay patients with complex social problems
- Provision should be made for medical and nursing education time, particularly in the area of advanced patient assessment skills.

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**10.4 Relationship of the SOU to demand management strategies for the hospital**

Considering the current emergency demand pressures within Victoria, SOUs need to be managed such that beds are quarantined for short stay purposes only or they may readily become ‘blocked’ with patients who require longer term care.
SOUs have the potential to facilitate redesign of clinical treatment processes around substitution and diversion services (e.g., Hospital in the Home, Post Acute Care) for suitable patient groups. They may also provide opportunities to expand care coordination services to new groups of patients who require a brief episode of in-hospital care.

In order to optimise their role in hospital demand management strategies it is important to manage SOUs at less than 100% occupancy. Average SOU occupancy rates should be in the order of 80%.

Recommendation 4

In defining or expanding the role of SOUs within organizations it is recommended that hospitals consider the implications of the following operational aspects of SOUs:

- Quarantining SOU beds for short stay patients only
- In order to optimise their role in hospital demand management strategies it is important to manage SOUs at less than 100% occupancy. Average SOU occupancy rates should be in the order of 80%-90%
- In many hospitals, SOUs may be suitable for placement of short stay, care coordination patients while support services or accommodation arrangements are being organised
- Where appropriate, links with HITH services should be established so that suitable patients can receive appropriate care without occupying a traditional ward bed and thereby promote expansion of effective substitution services
- SOUs should establish effective links with PAC and HACC services so that patient episodes can be fast tracked whilst ensuring appropriate follow-up services are employed where required

From the literature, SOU patients who require transfer into a ward tend to have longer lengths of stay and higher costs than the average. While the reasons for this are not clear, the finding should be tested in the experience of the Victorian SOUs and this information should be used in refining discharge risk assessment processes.

10.5 Communication with patient and community-based continuing medical care

Managing patients within an SOU compresses the amount of time available for educating patients about their condition, treatment and follow-up arrangements and what to do in the event that their condition subsequently deteriorates. This model also limits the opportunity to reinforce key messages. Therefore, the processes used to convey information to these patients require careful attention.
Recommendation 5

It is recommended that SOUs develop and implement policies that address patient information both verbally and in writing. Where possible key information should be provided to the patient and their carer, and written patient information should be used to describe:

- diagnosis
- on-going care instructions
- medication instructions
- follow-up arrangements
- expected course of the illness or injury
- potential complications and
- what to do in the event that their condition deteriorates.

Recommendation 6

In order to evaluate the quality and effectiveness of care provided within the SOU, it is further recommended that procedures be developed to follow-up SOU patients following discharge via telephone.

SOUs have the potential to facilitate the transition from in-patient to ambulatory models of care. Inherent in this transition is the requirement to establish very effective communication strategies with on-going care providers, whether they are hospital based eg medical staff in outpatient clinics or whether they are community based eg GPs. Strategies for streamlining effective information transfer to continuing care providers are important for all patients and for this group in particular.

Recommendation 7

It is recommended that SOUs implement strict policies and procedures for communication with community care providers and critically evaluate their effectiveness at regular intervals. The approach used by hospitals should fit with their quality improvement framework.

10.6 Performance indicators of SOUs

Recommendation 8

With respect to SOU performance monitoring, it is recommended that the Australasian College for Emergency Medicine (Victorian Branch) and the Emergency Nurses’ Association (Victorian Branch) develop and endorse state-wide criteria for assessing SOU performance and establish state benchmarks. This work should build on the material provided in Chapter 8 of this Report and could be used to lead the development of similar SOU performance criteria for national use.

Further, it is recommended that SOUs implement internal quality review processes including clinical audits to evaluate their operational and clinical effectiveness at regular intervals. The approach used by units should fit with their organization’s quality improvement framework.
10.7 Recording of SOU patients in the VEMD and VAED

Recommendation 9

It is recommended that amendments be incorporated into the VAED and VEMD respectively (as detailed in Section 9) to enable:

- identification of SOU patients in each of these data-sets
- analysis of SOU utilisation
- analysis of the impact of the SOU on the hospital
- development of an appropriate funding model and
- monitoring of related aspects of the quality of these services.

Recommendation 10

It is recommended that the DHS establish a process for registering SOUs to facilitate reporting of relevant activity through the VAED and VEMD respectively. This process will also facilitate identification of SOU sites for proposed performance incentives and impact analyses.

Recommendation 11

As for SOUs, it is recommended that the DHS establish a process for registering MAPUs in Victorian hospitals in order to facilitate VAED reporting and to focus future analysis of this concept within the local environment.

The current approach to calculating length of stay in the VAED is date-based and therefore limited to whole days. This approach lacks sufficient sensitivity for accurately monitoring SOU lengths of stay and related performance measures. In addition, the number of different accommodation types that can be assigned to an individual patient episode is limited. The use of additional accommodation types will impact on the file format required to capture accommodation types across the episode.

Recommendation 12

It is therefore recommended that DHS file formats and procedures for calculating length of stay be reviewed in order to support this level of analysis as described in Section 9.
10.8 Maximising SOU benefits

In order to understand the impact of SOUs in Victorian hospitals and promote implementation of these units in an effective manner, it will be important to examine the use of SOUs that have been in operation for at least 12 months.

Recommendation 13

It is recommended that the DHS undertake an impact analysis of the SOUs currently in operation at St Vincent’s and Angliss, that encompasses their first 12 months of operation. This work should examine:

- SOU utilisation including occupancy, average length of stay and destination on separation from the SOU,
- a comparison of hospital length of stay data for high volume SOU conditions (as compared with state benchmarks and historical performance),
- clinical outcomes,
- costs of care provided,
- revenue generated under WIES funding,
- patient satisfaction, and
- the extent to which the SOU is linked to HITH and PAC services.

In fostering the development of SOUs so that their impact is maximised, proposed Units should be carefully assessed against a framework, which includes a number of critical success factors as detailed in Recommendation 14.

Recommendation 14

It is recommended that requests to the DHS for funding to support new SOUs be evaluated against criteria that are established to assess the strength of a business case. These criteria should include:

- Evidence of executive support
- Nomination of a medical and a nursing champion
- Evidence of medical and nursing support
- Capacity to manage 5-10% of emergency presentations
- A planned 24 hour time limit
- Admission criteria that preclude use of the SOU beds for patients awaiting an inpatient bed
- Clear discharge criteria
- Identification of candidate conditions and anticipated patient volumes
- An appropriate staffing structure
- A clear and comprehensive strategy for evaluating the performance of the SOU and the impact of the Unit on the hospital.
10.9 Enhancing SOU care through clinical guidelines

Within the context of this report, clinical guidelines refer to systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances. Clinical guidelines are relatively flexible. They are meant to serve as a reference point of patient care to be followed in most cases and are based on patient management principles of moderate clinical certainty.

Many of the studies reviewed in Section 4 of this report highlight the important synergy between SOUs and the use of clinical protocols or clinical guidelines. There are numerous evaluations of the beneficial impact of clinical protocols within the short stay environment. Further, it may well be that the SOU environment facilitates implementation of clinical guidelines which can be difficult to achieve in other environments. From the CPEA Review (KPMG Consulting 2000), each of the 3 participating Melbourne hospitals used a protocol-based approach to assessment of undifferentiated chest pain. However, from the Victorian hospital survey results, there are very few clinical protocols or clinical guidelines currently being used in the management of SOU patients. With the exception of the Angliss SOU, which has implemented clinical guidelines for over 28 clinical conditions (see example for allergic reactions in Appendix D), the potential benefits to be achieved through the use of clinical guidelines in SOUs remains largely untapped.

Recommendation 15

It is therefore recommended that development of clinical guidelines for high volume SOU conditions be promoted within each SOU. Opportunities for progressing this work across hospitals that have or are developing SOUs should be considered using either a ‘health roundtable’ and/or a ‘breakthrough’ methodology so that key learnings can be shared across hospitals.

10.10 SOU Funding

Same-day WIES caps currently provide a disincentive for hospitals to further increase their same-day workload. At the same time, it is not desirable to encourage use of the SOU by patients who would otherwise be safely discharged. From a funding perspective it will be necessary to strike a balance in the transfer of multi-day to same-day activity so that SOU utilisation is optimised.

Recommendation 16

It is therefore recommended that for hospitals with an SOU, the same-day and multi-day WIES targets be reviewed to encourage optimal utilisation of the SOU facility.

Recommendation 17

In order to encourage appropriate use of SOUs, it is recommended that an incentive program be considered to reward management of appropriate clinical conditions through achievement of benchmark discharge and in-patient transfer rates and/or demonstrated reductions in average lengths of stay for specified DRGs. These targets should be negotiated on a site-by-site basis.

Current WIES funding arrangements for SOU patients create a perverse incentive to keep SOU patients overnight in order to attract multi-day WIES revenue. In a recent analysis of the chest pain evaluation pilot conducted by KPMG for the Department of Human Services, it was noted that: Casemix payment of CPEA patients is an appropriate approach. (KPMG Consulting 2000) However, with respect to same-day and multi day stay SOU episodes this report identified that: An assessment is required of the viability of ensuring that the case weight for CPEA does not differentiate between patients designated as ‘same day’ and those whose stay spans midnight. This level of assessment is also required for more
general use SOU facilities. Following implementation of the recommendations regarding VAED revisions, it will be possible to identify those patients who are formally managed as SOU patients.

**Recommendation 18**

In light of this, it is recommended that the approach adopted for funding this sub-group of patients be reviewed so that funding is based on activity rather than whether or not the activity spanned midnight.

### 11 Conclusions

From the various sources of information analysed throughout this project, SOUs clearly have potential to improve the management of a small proportion (ie in the order of 5-10%) of emergency department presentations. This equates to approximately 21,500 patients across the 12 major Melbourne metropolitan hospitals per year. Further to this, SOUs have potential to:

- Improve efficiencies in the operation of emergency departments where many short stay patients are managed by default,
- Improve the utilisation of hospital resources through reduced use of ward beds and through reduced lengths of stay, and
- Facilitate treatment of increased numbers of patients.

However, despite the potential benefits to be gained from an SOU; of the 5 Victorian hospitals that have implemented these facilities for managing general conditions, 3 were unable to maintain their SOU function as they were ‘blocked’ by patients who had been admitted to these beds awaiting a ward bed. Acute care demand pressures in the metropolitan region have reached an unprecedented level over the last 12 months and peaked at around the time of this survey. Emergency departments have experienced extreme workloads, which have adversely impacted on emergency department efficiency. Despite the fact that SOUs are intended to optimise the efficiency of emergency departments, the function of these units in 3 Victorian sites has been compromised to the extent that they operate as ‘holding’ or ‘multi-day stay’ wards. This approach precludes achieving the potential benefits that these units could deliver in terms of improved patient management and enhanced efficiency. Therefore, future expansion of this approach to patient care requires careful consideration, with the potential benefits weighed against the risks that arise from current demand pressures.

Factors that have been identified as critical to the successful management of an SOU include:

- Evidence of executive support
- Nomination of a medical and a nursing champion
- Evidence of medical and nursing support
- Capacity to manage 2-5% of emergency presentations
- A planned 24 hour time limit
- Admission criteria that preclude use of the SOU beds for patients awaiting an inpatient bed
- Clearly defined processes for patient management planning
- Clear discharge criteria
- Careful selection of candidate conditions
- Priority access to pathology tests and radiology investigations
- An appropriate staffing structure that enables frequent medical review of patients
• A clear and comprehensive strategy for evaluating the performance of the SOU and the impact of the Unit on the hospital.

While there may be a cost benefit in implementation of an observation unit, in our current environment it is probable that the real benefits to be gained will arise from improved utilisation of in-hospital facilities, with bed-days saved from medical admissions becoming available for alternative use. However, the potential to ‘save’ bed days from medical admissions through the use of SOUs, needs to be very carefully managed. SOUs may benefit organizations in two key ways:
  • through providing a small number of additional inpatient beds (ie increasing capacity)
  and
  • through improving patient flow for a small, but significant proportion of emergency department presentations.

If SOUs are managed in such a way that they become ‘holding units’ for patients awaiting a ward bed, the benefits achieved will be limited to those relating to increased capacity only which will have a minimal short term impact. More significant benefits can be achieved through initiatives that increase patient flow. SOUs thus have the potential to provide for benefits arising from both increased capacity and increased flow if they are managed to preserve their short stay function.

In order to promote effective use of SOUs in Victorian hospitals it will be necessary to review existing funding strategies so that incentives are provided to manage patients efficiently and maintain average occupancy levels around 80%
Appendix A

SOU Project Steering Committee Membership

Dr George Braitberg  Director, Department of Emergency Medicine, Austin & Repatriation Medical Centre
Prof Peter Cameron  Director, Emergency Department, Royal Melbourne Hospital
Assoe Prof Don Campbell  Head, Clinical Epidemiology & Health Service Evaluation Unit, Melbourne Health
Ms Sue Daly  Project Manager, Clinical Epidemiology & Health Service Evaluation Unit, Melbourne Health
Dr Andrew Dent  Director, Emergency Care Centre, St Vincent’s Hospital
Ms Liz Edmonds  Operations Director, Emergency Department, Western Hospital
Ms Angela Edwards  Project Officer, Department of Human Services
Ms Katy Fielding  Project Officer, Department of Human Services
Ms Lisa Hines  Business Development Manager, AXA Health Insurance
Ms Dana Kiley  Clinical Coordinator, Southern Health, Dandenong Hospital
Mr Zoltan Kokai  Executive Director, Corporate Services, Maroondah Hospital
Ms Anne McCarter  Manager for Quality Integration, Maroondah Hospital
Dr Barry McGrath  Physician, Monash Medical Centre
Dr Brendan Murphy  Medical Director, St Vincent’s Hospital
Dr John Pasco  Director, Emergency Department, Geelong Hospital
Appendix B

References


Oie, B. and R. Fanbust (1993). “Emergency admissions to a department of internal medicine. Are departments of internal medicine used optimally, and how would observation units affect the management of the department?” Tidsskr Nor Laegeforen 113(7): 836-8.


Appendix C

Queensland Site Visit - Interviewees

The project team wishes to acknowledge the commitment of time and the information provided by the following people with particular expertise in SOU and MAPU functions who were interviewed during site visits.

**Townsville Hospital**
- Prof Justin La Broy: Professor of Medicine
- Dr Niall Small: Director of Emergency
- Wendy Rossiter: Nurse Unit Manager - Emergency
- Sue Kelleher: Nursing Director - Ambulatory Care
- Valmai Ahola: Nurse Unit Manager - MAPU

**Ipswich Hospital**
- Dr Stephen Brierly: Director of Emergency
- Judy Burrows: Nurse Unit Manager - Emergency

**Royal Brisbane Hospital**
- Dr Rooke Pillay: Director of Emergency
- Dr Cameron Bennett: Physician - Director of MAPU
- Jane Levy: Project Nurse
- Cathy Brock: Bed Coordinator
- Jenny Dodson: Nursing Director - Division of Medicine
- Sandy/Sharon: Nurse Unit Manager - MAPU
Appendix D

Sample Guideline – Allergic Reactions

Angliss Hospital