

# **Consultancy to Progress Hospital in the Home Care Provision**

## **Final Report**

by

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Consultancy for Commonwealth  
Department of Health and Aged Care

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## Table of Contents

Executive Summary and Recommendations.....	1
Executive Summary.....	1
Recommendations .....	8
Chapter One – Introduction.....	13
1.1. Overview of Report .....	13
1.2. What is HITH? .....	15
Chapter 2 The evidence for HITH .....	17
2.1. The development of HITH .....	17
2.2. How well does HITH work? What is the evidence? .....	18
Chapter 3 – Report on survey findings and consultations .....	24
3.1. State/Territory survey.....	24
3.2. Facility Survey Results.....	28
3.3. Performance indicators .....	41
3.4. Provision of HITH in the private health sector .....	442
Chapter 4 – Issues and implications for HITH in Australia.....	47
4.1. Ownership of programs and classification of patients.....	47
4.2. Organisation and delivery of care.....	48
4.3. Patient Management .....	51
4.4. Funding/payment .....	54
4.5. Monitoring HITH .....	59
4.6. Evaluation of the costs and outcomes of HITH.....	65
Chapter 5 Models, evaluation criteria and application .....	67
5.1. Models .....	67
5.2. Evaluation Criteria.....	70
5.3. Applying the Evaluation Criteria.....	73
5.4. Strengths and weaknesses of HITH models .....	73
5.5. Preferred Attributes .....	75
References .....	77
Appendix A: Abstract of Cochrane Collaboration Review of Home Hospital .....	80
Appendix B: Literature Review of Clinical Effectiveness .....	882
Appendix C: Guidelines for evaluating articles.....	87
Appendix D: Economic Evaluation Articles.....	90
Appendix E: State/ Territory Survey.....	95
Appendix F: Hospital /Community Sector Survey .....	98
Appendix G: Hospitals and Facilities providing HITH .....	108
Appendix H: Selection Criteria by Facility.....	113
Appendix I: Quality / Standards (ACHS) .....	117
Appendix J: Application of Criteria to Models.....	119
References .....	133







## **Executive Summary and Recommendations**

### **Executive Summary**

#### ***Background and rationale***

In July 1998, the Commonwealth Department of Health and Family Services commissioned the Centre for Health Economics Research and Evaluation (CHERE) to identify and document Hospital in the Home (HITH) care models nationally and internationally. The purpose of this consultancy was to examine the appropriateness of this form of care for acutely ill patients and to make recommendations about how to increase the utilisation and cost effectiveness of services.

Hospital in the Home is emerging internationally and within Australia as a viable alternative form of provision of acute care. The benefits of HITH have generally been seen in terms of its capacity to provide a cost-effective and acceptable alternative to hospital inpatient care, which reduces pressure on hospital beds. However, so far there has only been limited evaluation to lend support to these claims. Over the past decade a wide range of hospital in the home programs have been introduced across the Australian health care system. These programs have often emerged in response to local factors and have a range of different purposes, funding and organisational arrangements, and varying levels of success. In some states hospital in the home has been formalised into a program, whereas in other parts of Australia the introduction of HITH has been left to local decision makers. Thus, the experience of HITH has been extremely variable. It is appropriate at this stage to draw together information about what services are available, how acceptable these services are and what they have achieved. This information is important for determining the future directions of HITH in Australia, as well as providing a valuable resource for service providers and policy makers.

#### ***Definition***

With the range of different programs that are emerging, and with changes in clinical practice, it is difficult to define HITH in terms of categories of care, types of providers, or even location of care. However, it is important to adopt a clear definition to avoid expansion of HITH to inappropriate patients. The definition must convey the importance of acute care provision and substitution for what would otherwise necessarily be hospital care. The definition of HITH recommended in this consultancy was:

*Hospital in the home involves the provision of acute care interventions to patients in their place of residence. These interventions require health care professionals (ie doctors, nurses) to take an active part in the patient's care. The place of residence may be permanent (own home) or a place of temporary residence such as with family or accommodation near the hospital.*

*Hospital in the home is a substitute for acute care provided in the hospital, thus if it did not exist the patient would be admitted to the hospital or have to*

*remain in hospital. The program must also have provision for an appropriate level of emergency back up.*

### **Effectiveness and cost-effectiveness of HITH: published evidence**

An important component of the consultancy was to synthesise existing published evidence for the safety, efficacy, effectiveness, cost-effectiveness and acceptability of HITH in Australia and internationally. Despite the large number of programs, there has only been a limited number of well-designed evaluations of HITH. However, the studies which have been undertaken suggest that HITH is feasible, and at least as effective as hospital care for many diseases, and that patient satisfaction may be increased by provision of HITH. This conclusion is supported by several randomised trials of HITH: in older medical patients; in rehabilitation of stroke and orthopaedic conditions; treatment with intravenous antibiotics and anticoagulants; and in post-surgical and psychiatric care. This does not suggest that HITH is not appropriate for management of other conditions, but there is a need for well-designed trials to evaluate its role before a strong recommendation for expansion to other clinical areas can be made. Certainly the existing literature provides no evidence that HITH is harmful, and does show that HITH is beneficial to some patients.

The review of evidence regarding the cost-effectiveness of HITH is less clear cut. Here the literature is beset both by problems of study design and by a more intractable difficulty of being able to make valid generalisable comparisons. In particular, the cost structure of HITH in a pilot or trial phase may be considerably different from that in full-scale operation. Further, the key drivers of relative costs may be local factors relating to geography, patient throughput and clinical practice and organisational issues. Thus it is not surprising that the very few well-designed economic evaluations of HITH provide conflicting evidence about relative cost-effectiveness. It is not possible at this stage to draw clear conclusions about whether HITH is likely to be a lower cost form of care in any particular setting. It is thus particularly important that service providers, clinical managers and policy makers are able to identify the range of factors which are likely to affect resource use at the local level. It is also important that the scope of the analysis is sufficiently broad to take into account factors such as costs borne by patients, carers, and by other care sectors.

Although evaluation of a number of programs within Australia have provided valuable information about what is likely to be feasible, acceptable and effective within Australia, few are randomised trials. A recent randomised trial in Australia (of the Prince of Wales Hospital program in NSW), supports international evidence that HITH provides a safe effective alternative to hospital care. However, the economic evaluation of this program has yet to be released. The Victorian HITH program has been the subject of 3 detailed audits, but these do not provide comparison with hospital care. Similarly, there has been only limited evaluation of programs in other states, and limited information about costs of HITH provision, although a costing study is now under way at Royal Melbourne Hospital. Thus, there remains a need for well-conducted local trials comparing HITH and hospital care and different models of HITH care. Such evidence is important in increasing the clinical acceptance of HITH.

## ***HITH in Australia***

All States and Territories have some level of HITH provision, although the degree to which it is an organised program varies considerably. This variation is partly the result of different organisational arrangements for the provision of hospital and community health services within the States and Territories. Victoria and South Australia have well-established HITH programs, with active policy and funding support for HITH at the State level. Possibly as a result, it is in these States that HITH programs are most widespread. Both States fund hospital and HITH services on a casemix basis, but in Victoria there is also (time-limited) incentive funding for the establishment of HITH. In both these States policies and procedures have been developed at the State level covering the provision of HITH and defining what is to be funded as HITH care. In other States, HITH programs exist to varying levels. Within the ACT HITH funding is provided to hospitals directly from the ACT Department of Health and Community Care. Tasmania has two HITH programs, but funding for these is part of general hospital funding (casemix based). In Queensland and NSW there are both established and pilot programs, Western Australia has a pilot program and some hospital funded programs and there is some provision of HITH care within the Northern Territory. However, at this stage, in States/Territories other than Victoria and South Australia there is less formalised support at the State level for the provision of HITH services.

One of the purposes of this consultancy was to describe in detail the extent and nature of programs existing across Australia. The project team undertook a survey of facilities to determine where and what HITH care was being provided. All States and Territories were approached to seek permission to contact facilities to determine whether they offered HITH programs (even when not designated as HITH). Because of the ongoing audit, the Victorian Department of Human Services requested that facilities within that State not be approached, and that the information provided by the Department and from the audit be used instead. Surveys were sent to all facilities in other States which had been identified by the State/Territory Health Department, Area Health Services or by other means as having a HITH type program. A total of 52 facilities were surveyed, and 43 responses were received, of which 36 facilities indicated they had a HITH program. The survey sought a wide range of information including the type of program offered, throughput, organisational arrangements, funding arrangements and policies and procedures. The main results of the survey are summarised in Section 3.2. There are a large number of HITH programs being offered across Australia (see Appendix G). Both State and local arrangements vary widely. Most programs are offered in the public sector, with only a small number of private providers setting up HITH programs.

There are limited HITH services within the private sector in Australia due to barriers in funding, legislative and organisational arrangements. Additionally, to be eligible for existing HITH programs, private patients in a public hospital must relinquish their private patient status whilst an admitted patient. This presents financial disincentives for the public hospital who might otherwise receive payment of health insurance benefits for costs associated with that admission.

The provision of private health care is covered under the *National Health Act 1953* and the *Health Insurance Act 1973*. Under the *National Health Act 1953* health insurance funds can only pay benefits from hospital tables for admitted patients. Under strict interpretation of the legislation, this means that health funds have only been able to offer

HITH services to their members from their ancillary tables where these rebates are not eligible for inclusion in the reinsurance arrangements. However, the Commonwealth Department of Health and Aged Care has facilitated the development of three HITH pilot programs within the private sector and is currently coordinating the national evaluation of these. An additional 3-5 HITH pilot programs may also commence during 1999. Should the national evaluation of these programs (not available within the timeframe of this consultancy) provide support for HITH programs within the private sector, legislative amendments may be pursued to alter the definition of “hospital” and/or “hospital treatment”. This would enable greater flexibility in the delivery of health services within the private sector, as these services attract health insurance rebates.

A further issue for private health insurance funds is the need for a clear delineation of boundaries between HITH care and (non-admitted) community care. This relates to HITH services providing a substitute for admitted acute care rather than assuming a service profile similar to that of community-type services. There has thus far been limited interest in HITH from the private hospital sector, although there is increasing recognition by both insurers and private hospitals that there is a demand for this type of care from their clients.

#### *Key issues for further development of HITH within Australia*

Information from the surveys and consultations raised important issues regarding the ownership of programs and how patients are classified, the organisation and delivery of care, patient management within HITH, funding and payment and how best to monitor and evaluate HITH programs. Particularly important issues are summarised below.

- Patient selection is a critical factor to the success and cost-effectiveness of HITH programs. This requires clear admission criteria to ensure that HITH is truly a substitute rather than an add-on to inpatient care, but also only patients who are appropriate are accepted into the program (in terms of factors such as home environment and social support). However mechanisms must be available to maximise the referral base for HITH. A related issue is the need for appropriate discharge criteria to ensure that the HITH episode does not unnecessarily extend the entire episode of care (recognising that comparisons between HITH and hospital episodes, such as for length of stay, may not be valid).
- Ownership and management of HITH programs can be organised through hospital or community health services, and can be established at a hospital-wide level or within a specific clinical division, at a community-wide level or with a specific clinical focus. In Australia there is a range of different organisational structures operating successfully, although the hospital based model predominates.
- The level of acceptance by clinicians, particularly hospital clinicians, is a critical success factor for HITH programs. From the surveys and consultations it appears that at this stage in Australia, hospital based programs have greater clinical acceptance.
- Both specialty based and general HITH programs have been successful in Australia, and there are no clear arguments for preferring one or the other. Further, there are good reasons to remain flexible and to allow programs to adapt to local factors (for example, which has the greatest clinical support).

- Lines of medico-legal responsibility need to be explicit in HITH programs. Within hospital based programs, the usual arrangements for medico-legal accountability should apply. However, within community based programs it is important to ensure that there is a recognised legal entity with ultimate responsibility for the patient's care.
- It is important to establish HITH-specific policies and procedures within programs. Within Australia there are now a number of well-established programs with clear and appropriate policies and procedures, and these could be adapted for new programs.
- The choice between hospital and HITH care requires informed consent by patients, with full information about the benefits and risks of HITH. This should entail explicit negotiation of a plan of care between the providers, patient and carer, with clear information about the rights and responsibilities of all parties. Given the specific nature of HITH, it may be appropriate for this plan to include signed consent forms for admission to HITH care. Patients must be clear that they are free to choose hospital or HITH care.
- The impact of HITH on carers, including the possibility of costs being shifted to the patient and carers, or to other care providing organisations, should be recognised and monitored.
- Flexibility of staffing arrangements appears to be important to the success and efficiency of HITH programs: in particular, the ability either to scale staff numbers up or down at short notice, or to redeploy staff in other activities. It is also important to note that HITH programs often need a wide range of staff, and given the location of care, the staff often need higher skill levels than would be necessary for the same tasks within a hospital setting (because of the need to be autonomous).
- General practitioners are an important component of many HITH programs. Their involvement highlights the need for high levels of communication and coordination between hospital and community based practitioners, and between general practitioners and other care providers.
- The medical record is a critical communication vehicle within HITH programs, and it is essential that all providers are able to access the record as required, and contribute to it meticulously. There are strong arguments for the medical record to be stored securely in the patient's home during the episode of care. However, at the end of the episode, arrangements must be made for the medical record to be stored permanently in an appropriate location. This should take account of the need for the medical record to be incorporated in hospital records (particularly for hospital programs) and be available for audit and evaluation.
- It is increasingly recognised that HITH care should not necessarily be limited to the patient's home. For example, options for residents of aged care facilities to receive HITH care or for patients to receive HITH care in a temporary place of residence should be available.
- There is a lack of consistency in the ways that resource use and clinical performance data from HITH episodes are collected and reported. There is an urgent need for the development of an agreed minimum data set for HITH across Australia.
- A measure of acuity is necessary to assist programs in determining which patients are suitable for HITH as well as determining expected resource use, and permitting

comparisons across programs. AN-DRGs are appropriate for classification and costing of total episodes of care (HITH and hospital) but are not necessarily good indicators of the level of acuity or intensity of resource use within the HITH component alone.

- Related to this is the need to establish a set of agreed performance indicators for monitoring and evaluation of HITH programs. This set of performance indicators must be sufficiently broad to incorporate the range of HITH programs, while allowing for benchmarking across programs. This consultancy recommends a set of clinical indicators which could be used as a basis for developing HITH benchmarks.
- There remains a strong need for detailed comparative evaluation of HITH and hospital care within Australia in a range of different settings. This should include a multi-centre randomised controlled trial.

### ***Funding arrangements***

With the wide range of HITH programs across Australia and State/Territory differences in funding arrangements for hospital and health services, there is enormous variation in the funding of HITH care across programs, including block grants, per diem, casemix payment (generally for HITH and hospital care), incentive funding and fee-for-service. Often a single program has a mixture of funding arrangements. It was not appropriate within this consultancy to recommend a particular funding arrangement. However, it was possible to identify key funding issues and a set of funding principles for HITH, as outlined below.

- Because HITH overlaps with hospital and community based care, HITH may substitute for a range of different services which are currently funded from different sources. This creates a potential barrier to expansion of HITH because of concerns about cost-shifting or because payment for some services is precluded by existing funding arrangements. Equally, there is a risk that HITH provision can be driven by perverse funding incentives. There is a strong argument for Commonwealth and State governments to cooperate in identifying the areas of overlap. Pooling of funds from different programs may be appropriate.
- To ensure that relative costs are assessed appropriately and to reduce incentives for cost-shifting, it is desirable that all HITH services are funded from within the HITH program. It may be appropriate for this to include services provided by general practitioners and specialists, which would normally be funded under the Medicare Benefits Scheme. This would require the different funding agencies to agree on pooling of funds for HITH services.
- If medical practitioners are to be encouraged to be involved in HITH provision, medical remuneration needs to take account of the additional time required for HITH provision (compared with usual consultations).
- Ideally funding arrangements for HITH should be consistent with funding arrangements for hospital services (which may be output based or global-budget based).
- Regardless of the level at which the HITH program is funded, the pool of funds for HITH services should not be separate from overall hospital funds. The incentives to assess the relative costs of HITH and inpatient care are increased if the responsibility

for paying for these services rests with a single administrative unit (clinical division, hospital or region).

- Because the establishment costs of HITH are high and there is often resistance to new methods of service provision, there remain strong arguments for some incentive funding for HITH, to cover the establishment costs. However, such funding should only be provided where the facility can make a strong business case for the value of HITH, including identification of mechanisms for long-term funding of HITH.
- Funding arrangements for private sector provision of HITH and for private insurance coverage of HITH need to be clarified, to ensure that all patients have access to HITH services where they are appropriate.

### ***Models of HITH provision***

Using the information gathered in the first part of the consultancy, six models were constructed, representing a broad spectrum of provision of care using HITH. The models were evaluated using pre-determined economic and non-economic criteria (see Section 5.2). In doing this, the strengths and weaknesses of various models have been highlighted and some preferred attributes of a HITH program have been identified. It is clear from the evaluation of the models and the summary of strengths and weaknesses, that there is no single preferred model for HITH in Australia. However, under current arrangements, hospital-based models have some advantages over community-based models. Hospitals are more likely to have clear lines of accountability and medico-legal responsibility, and the establishment of procedures and protocols for acute care is facilitated by a hospital setting. Because hospitals are the traditional providers of acute care, hospital staff may currently be more equipped to provide HITH, and clinical acceptance of care in the home may be greater when the clinical control of the program is hospital based. Because of historical institutional and funding arrangements, hospital based models provide less opportunity for cost-shifting. Managers of hospital based programs may be more aware of the overall resource implications of HITH becoming additional, rather than substitute care, and there may be greater scope for the appropriate resource shifts to occur.

This should not imply that future HITH programs should only be set up as hospital based, because there may be many longer term benefits of community based programs. There may be greater flexibility in community based programs, because of greater experience in providing care in the home. Community based providers will have greater awareness of the issues faced by people who are coping with ill health in the home. In addition, the cost structure of community care may ultimately mean that it is a less expensive way to provide HITH. Many of the overhead costs such as the cost of cars may be able to be shared with existing community services. A community-based program may be able to cover a much larger geographical area than a hospital-based program. Thus, there are strong arguments for Commonwealth and State/Territory governments, and other relevant agencies to examine ways in which financial and organisational arrangements could be modified to remove impediments to community-based HITH programs.

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Steering Group and Clinical Reference Group have provided advice and feedback regarding the stages of the consultancy and their input has been invaluable. In addition, many other individuals provided information and feedback at all stages of the consultancy and their efforts are gratefully acknowledged. The report represents the opinions of the authors and all remaining errors are ours.

## **Recommendations**

Each recommendation is numbered in the order in which it appears in the report, with the relevant chapter and section number in brackets.

### ***Definition (1.2)***

1. That the definition outlined in the executive summary be adopted as suitable for operational and funding purposes for HITH in Australia.

### ***Ownership (4.1)***

2. Ownership of HITH programs should be clearly defined and responsibility for a HITH program should be held by an identified legal entity within the health system.
3. There should be clear lines of medico-legal responsibility for HITH patients, equivalent to those for hospital inpatients.

### ***Procedures and Policies (4.1)***

4. HITH specific policies and procedures should be developed and used by all HITH programs. The responsibility for developing these should be with State/Territory Health Departments to ensure consistency within HITH programs.
5. The Commonwealth should consider providing support for a national clearinghouse for policies, procedures and clinical pathways to facilitate consistency in policies and procedures across Australia.

### ***Organisational Issues (4.2)***

6. HITH programs should ideally have high level support within hospital or health service management.
7. HITH programs should provide ongoing inservice programs and training programs for HITH staff, including GPs involved in the program.
8. Hospitals and health services establishing HITH programs should recognise the need for a wide range of health professionals including nursing, medical, allied health, pharmacy and others to be available to HITH patients.
9. Funders and managers should recognise that HITH can be provided in locations other than the patient's home.



### ***Patient Management (4.3)***

10. Clear admission criteria should be established for HITH to ensure that only suitable patients are admitted into HITH programs.
11. HITH programs should have established monitoring systems to ensure that there is adherence to admission criteria.
12. Appropriate discharge, referral and post discharge strategies should be established.
13. The State/Territory Health Departments should have responsibility for facilitating the development of admission criteria, policies and procedures for referral and discharge and for monitoring adherence to admission criteria.

### ***Patient Consent (4.3)***

14. Patients must be provided with an opportunity to make an informed choice.
15. Programs should have arrangements to ensure that the consent of the patient is based on explicit negotiation of the plan of care between the providers, patient and carer, with clear information about the rights and responsibilities of all parties. Given the specific nature of HITH, it may be appropriate for this to include a signed consent form for admission to HITH care.

### ***Communication (4.3)***

16. All care provided in a HITH episode should be recorded in the HITH medical record, by all care providers. This may be facilitated by keeping the medical record in the patient's home during the episode of care.
17. Mechanisms must be available for medical records to be incorporated in the hospital medical record if the program is hospital based. When the program is community based a mechanism needs to be established to securely store the record, and to make it available for the purposes of audits and retrieval to provide clinical information (for example, if the patient is admitted to hospital).
18. Systems for the permanent storage of HITH records must be established to ensure availability for future care, and for audit, evaluation and medico-legal purposes.

### ***Funding (4.5)***

19. There should be consistency in the funding arrangements for HITH and inpatient care to reduce incentives for cost-shifting.
20. To reduce incentives for cost-shifting, financial responsibility for HITH and inpatient care should rest with a single entity. Ideally this should be as close as possible to the level at which clinical decisions are made.
21. Funding arrangements should reflect the costs of service provision. This is particularly important where funding is throughput based.

22. Funding arrangements should be consistent across the public and private sectors. That is, access to HITH should not be constrained by differences in funding between the sectors, and patients should not have to change status to access HITH.
23. If incentive funding is provided, mechanisms should be put in place to ensure that resources freed up will be diverted to HITH in the longer term, to provide viable long term funding once the incentive program ends.
24. Incentive funding should be time-limited and should be linked to requirements to evaluate costs and outcomes of HITH.
25. Funding from different sources, such as hospital and community sectors, PBS, and MBS should be pooled in the provision of HITH, where all these components are involved in HITH. Thus all care and medications will be provided by HITH. In order that the appropriate funds be included in the pool for HITH, the following should be evaluated:
  - The quantum of public hospital, community services, MBS and PBS funds which could legitimately be pooled under a HITH program;
  - The impact of HITH in terms of costs to the health system as a whole and to both Commonwealth and States; and
  - The mechanisms for net savings, if any, between the Commonwealth and States.

Such an arrangement should be subject to clinical and economic evaluation before wider implementation.

26. Consideration should be given to creation of a Medical Benefits Schedule (MBS) item(s) and fee(s) that recognises additional components of care within HITH programs such as team conferences. Such a fee could be used as the basis for remunerating private medical providers involved in HITH programs, or, preferably, for pooling of funds for HITH care.

### **Monitoring (4.5)**

27. There is an urgent need for development of a minimum data set for HITH. Data should be collected which permit monitoring and evaluation of the inputs (including costs), processes (including the acuity level of patients) and outcomes of HITH care.
28. The Australian Council for Healthcare Standards (ACHS) guidelines and clinical indicators should be used as a starting point for the development of consistent HITH-specific standards of care.
29. A measure of acuity suitable for use in HITH programs should be developed. Consideration may be given to the tool currently under development at the Victorian Centre for Ambulatory Care Innovation (VCACI).
30. As part of patient/carer evaluation, HITH providers and programs should explore issues of information, choice and the positive and negative aspects of being a HITH patient/carer.

32. Indicators should be developed that:
- Enable comparison to hospital care for the same condition/ treatment
  - Enable comparison between HITH programs
  - Enable acuity differences across programs to be accounted for
  - Are able to be collected and recorded
31. A list of indicators, drawn from the literature and the survey responses, are recommended for consideration for benchmarking. These include:
- Transfers to the hospital while in HITH program
  - Readmissions (to HITH or hospital) - within 1 week and 1 month post discharge from HITH
  - Number of unplanned home visits
  - Unplanned GP or clinic visits
  - Adverse events – falls, medication errors, phlebitis
  - Complications - infections
  - Measurement of LOS – both the hospital and HITH portion of stays
  - Frequency of cases
  - Diagnosis (es)
  - Number of treatments provided
  - Number of visits
  - Type of care provided
  - Origin of referral
  - Costs – direct, overhead
  - Experience/evaluation of patients, carers, GPs and staff
  - Functional status measurements, functional level of patients at discharge (in rehabilitation HITH programs).

### ***Evaluation (4.6)***

33. HITH should be the subject of rigorous, well-designed evaluations that allow a comparison of HITH with inpatient care and between models of HITH care. This would be best achieved by a pragmatic multi-centre randomised controlled trial with prospective economic evaluation which should be:
- multi-centred to capture differences in costs and outcomes relating to different conditions for health service provision
  - comprehensive in assessment of costs, but provide full costing information to allow for sensitivity analysis (for example in terms of impact of scale and scope economies)
  - recognise a societal perspective
  - incorporate patient costs
  - comprehensive in its assessment of consequences, including patient and carer preferences

### ***Preferred Attributes (5.5)***

34. Individuals or organisations considering establishing a HITH program should critically evaluate whether the patient population warrants such a program and whether there is sufficient existing (or potential) clinical support available to sustain it.

35. Individuals or organisations considering establishing a HITH program should critically assess whether there are strong reasons to have a community rather than a hospital program. In general, hospital programs are more likely to be successful under current arrangements.
36. Commonwealth and State/Territory governments should work together with other agencies to identify ways in which financial and organisational arrangements could be modified to remove impediments to community-based HITH programs.
37. If a hospital program is the preferred model, it is important that the organisation ensures that a key senior individual is willing to champion and administer the program. In addition, the hospital must accept medico-legal responsibility for the patient (ie. ensuring the patient has the legal status of an inpatient). It should also provide resources to ensure community workers are consulted in the provision of HITH.
38. If a community program is the preferred model, it is important that the organisation ensures that the preferred features that arise in hospital models can be incorporated, particularly clarity of funding, clear lines of accountability and medico-legal responsibility and appropriate procedures and protocols.
39. Commonwealth and State governments should address mechanisms to coordinate funding arrangements for HITH. There is a strong argument for various levels of government involved in HITH related care to cooperate in identifying areas of overlap and considering mechanisms to pool funds to avoid cost-shifting.

## Chapter One – Introduction

### 1.1. Overview of Report

In July 1998, the Commonwealth Department of Health and Family Services commissioned the Centre for Health Economics Research and Evaluation (CHERE) to identify and document Hospital in the Home (HITH) care models nationally and internationally. The purpose of this consultancy was to examine the appropriateness of this form of care for acutely ill patients and to make recommendations about how to increase the utilisation and cost effectiveness of services. In this report, the outcomes of the consultancy are presented. Chapter One provides an overview of the report and a definition of HITH. For the purposes of this project, care provided to post-surgical, medical and rehabilitation patients was included in the definition of HITH thus excluding palliative care, obstetrics and psychiatric patients. In Chapter Two, the Australian and international literature on the clinical and cost-effectiveness of HITH is reviewed. Chapter Three consists of the results of two surveys about HITH and information gathered from consultations with stakeholders. In Chapter Four the issues and implications arising from this information are discussed. Chapter Five introduces six potential models of HITH care. These models are evaluated using a set of economic and non-economic criteria. The paper concludes with a set of recommendations on models of care.

#### 1.1.1. Rationale for the consultancy

This chapter fulfils a number of purposes. In the first part, the reasons for undertaking the consultancy are clarified. It is important to understand how the Australian health care system and HITH connect before examining the current status of HITH in Australia and assessing its potential for expansion. In the second part of the chapter, a definition of HITH is proposed.

The complexity of health services funding arrangements in Australia is well documented elsewhere<sup>(1, 2)</sup>. There are, however, a number of areas of overlap between jurisdictions and existing programs that are relevant to HITH.

Although the States/Territories are responsible for the delivery of hospital care, general practitioners, specialist services and pharmaceuticals used in the community are funded by the Commonwealth Government through the Medicare Benefits (MBS) and Pharmaceutical Benefits Schemes (PBS). Some medical and pharmaceutical services are provided through hospital outpatients. However, under the new Australian Health Care Agreements (AHCA), there are limited circumstances in which fees may be charged for services provided to public patients. For example, in relation to pharmaceuticals, a hospital can charge the patient the PBS co-payment upon discharge or if the patient is classified as a non-admitted patient.<sup>(3)</sup>

Currently about 42% of all hospital separations represent private patients treated in private or public hospitals<sup>(4)</sup>. Due to the lack of existing arrangements for HITH in the private sector, these patients have limited access to HITH programs except by changing their status and becoming public patients.

In Australia, self-insurance, health insurance funds and other third party insurance predominantly fund allied health services (primarily physiotherapy). Although limited, allied health services (physiotherapy, occupational therapy, speech pathology and dietetics) are available through hospital outpatients and community health services<sup>(4)</sup>. However, under the 1998 AHCA, hospitals may be able to charge for outpatient allied health services<sup>(3)</sup>.

The Department of Veterans Affairs (DVA) is responsible for the provision of health care services for veterans. This care is provided primarily in either public hospitals or private hospitals with which a contractual arrangement for the provision of care exists. The DVA compensates the hospitals for the provision of care to veterans and is also responsible for the funding and provision of necessary community care.

It is important to use clinical, economic and other evaluations of HITH as a basis for considering how it might be organised, funded and implemented in Australia. In Chapter Two, the clinical and economic literature is critically appraised. In addition, a number of evaluations recently undertaken in Australia are reviewed and their results summarised.

The development and implementation of HITH type care in Australia has had a variable course (see Chapter Three). In Victoria and South Australia, HITH has been adopted as a state wide program and financial incentives and other means of support have seen programs develop and expand rapidly. In other States and Territories, individual hospitals, community organisations and groups of providers (eg. Divisions of General Practice) have been allowed and/or encouraged to develop programs at a local level.

In the course of this consultancy, stakeholders identified important issues in a variety of different aspects of HITH. In Chapter Four these issues are clarified and discussed in some detail.

Six models of HITH are outlined in Chapter Five. They are based on models of care used in Australia and overseas. The models, range from one where a hospital “owns” the HITH program in its totality, to one where the community sector “owns” and operates the HITH program.

The models have been assessed using economic and non-economic criteria. There is overlap between some of the criteria and the assessment has been undertaken at a relatively general level. It is hoped that policymakers, planners and providers considering the introduction of HITH and its most appropriate form in a local context can use the models and assessment criteria to assist their decision making.

Because of the variable way in which the health system operates across different States of Australia and the geographical differences between urban, rural and remote Australia, no one model of HITH can be recommended. However, there are some preferred attributes or features of models which, if adopted, will ensure that the criteria of efficiency and equity, are likely to be met. In addition, some recommendations about optimal organisational and operational arrangements are made. These and the recommendations of this report are discussed in Chapter Five.

HITH as it exists today is primarily a public sector program but there is increasing interest in HITH from the private sector. Thus this report deals mainly with the public sector although a section of the report is devoted to issues pertinent to the private sector.

Data for this project was obtained from several sources including reviews of the clinical, economic and other evaluative literature. Consultations and discussions were held with stakeholders, including hospital and health service managers and administrators and providers of HITH. Two surveys were used to gather specific information about HITH in Australia. One was sent to the State/Territory Health Departments and another to hospitals and other organisations offering HITH type projects. The surveys requested information on types and volume of care provided and on organisational and quality issues. The Victorian Department of Human Services requested that HITH programs in Victoria not be surveyed as they had recently been audited. Information about Victorian HITH programs was obtained from a number of audits of their programs but the data is not always in the same format as the survey data.

In the initial stages of the consultancy, an Issues Paper was produced. This document canvassed the issues from economic, contextual, funding and organisational perspectives. It was used as the basis for discussions with stakeholders and provided the background to further assessment of how HITH is organised in Australia in both the public and private sectors. A Steering Committee and a Clinical Reference Group who provided valuable advice and feedback have supported the consultancy.

## 1.2. What is HITH?

It is necessary to clearly understand what HITH is before determining what programs exist in Australia and making any recommendations re the future of HITH. HITH covers a broad range of programs, settings of care, types of providers and organisational arrangements. Thus, an important first step in this project was to develop a definition that is both comprehensive and useful. Currently, there is no widespread agreement about the exact definition of HITH. However, it is generally agreed that HITH should be defined as a substitute for acute inpatient care, that it should be undertaken in a place of residence and that it should require the skills of health professionals.

After reviewing the literature and consulting the project's Steering Committee and Clinical Reference Group, a definition was proposed which is a modified version of that used by Shepherd and Ilffe in the Cochrane Review (1997) of the effectiveness of HITH<sup>(5)</sup>:

*Hospital in the home involves the provision of acute care interventions to patients in their place of residence. These interventions require health care professionals (ie. doctors, nurses) to take an active part in the patient's care. The place of residence may be permanent (own home) or a place of temporary residence such as with family or accommodation near the hospital.*

*Hospital in the home is a substitute for acute care provided in the hospital, thus if it did not exist the patient would be admitted to the hospital or have to remain in the hospital. The program must also have provision for an appropriate level of emergency back up.*

*Recommendation*

- 1. That the above definition be adopted as suitable for operational and funding purposes for HITH in Australia.*



## 2. Chapter 2 – The Evidence for HITH

In this chapter, a brief historical overview of HITH is followed by a review of the current evidence about the relative clinical and cost effectiveness of HITH. Australian and international literature in the form of peer-reviewed papers, published reviews, audits and evaluations of HITH were collected and reviewed. The clinical effectiveness and economic evaluation literature was critically appraised.

### 2.1. The development of HITH

Hospital in the Home is part of an international trend to move away from institutional provision of health care that has developed in the past two decades. Many of the factors that produced an emphasis on hospital care have more recently contributed to new ways of delivering acute care.

Since the 1950s, improvements in pharmaceuticals and surgical techniques, along with the development of management and organisational structures to provide care for large numbers of the sick, have led to the increased use of hospitals and the concomitant growth in the number of hospitals. The availability of effective and efficient care in hospitals, combined with the reluctance to provide care elsewhere led to the attitude that most health care for serious illness is best provided within the hospital setting.

In the 1980s and 1990s, these same factors have caused a shift to other settings. Developments in technology and changes in consumer preferences combined with a push for economic efficiency can be seen to have contributed to the shift to programs such as HITH. The development of infusion pumps safe for home use, new intravenous antibiotics that are administered only once or twice per day, advances in information technology and surgical techniques all permit earlier discharge from the hospital (and in some cases avoid admission altogether). In addition, the improvements in home sanitation, heating and availability of telephones provide settings which are amenable to care being provided in the home.

Perception of the limitations of hospitals has also influenced this trend. Hospitals may be impersonal and bureaucratic, have confused lines of authority and not facilitate communication between staff and between staff and patients. As well, there is increasing evidence of nosocomial infections especially in the very young, the old and those with a deficient immune system <sup>(6)</sup>. Changing demographic patterns of cities have also exposed new weaknesses – often hospitals are no longer located where need for them is the greatest as the populations have shifted to the outlying areas away from inner city locations of most major hospitals <sup>(7)</sup>.

When technological advances, shifting demographics, consumer preferences and changes in practice are combined with these perceived weaknesses of the hospital system, it is easy to understand why there has been a growing interest in care in the home. For example, there is a suggestion that maintaining the elderly in their homes as opposed to hospitals is beneficial both physically and psychologically <sup>(8)</sup>.

Increased demand for health care services by an ageing population combined with the

high cost of constructing and maintaining expensive hospitals means that alternative methods of providing acute health care may need to be found. HITH has often been prescribed as a method of providing care without the expensive infrastructure costs incurred by a hospital. Finally, individuals may have a general preference for receiving care in the comfort of their homes or at least value the choice of whether to receive some of their care in the home.

HITH is available in most countries with Western health care systems. In Australia, HITH has been developing throughout the 1990s, and is now wide, if not evenly spread, with some states such as Victoria promoting its use to a far greater extent than others.

## **2.2. How well does HITH work? What is the evidence?**

### **2.2.1. Review of the evidence of the clinical effectiveness of HITH**

Studies of HITH (which are summarised below with additional information in Appendix B) have established that this type of care is feasible and at least equally as effective as traditional hospital care for many diseases. There is limited evidence that patient satisfaction is improved with HITH treatment but there is little evidence that long term outcomes of HITH are different from those of traditional care. The effectiveness of HITH may vary with the illness treated<sup>(9, 10)</sup>, but questions as to the full potential of HITH remain unanswered<sup>(11)</sup>.

#### **Introduction and Methods**

Clinical trials of HITH are found in widely dispersed journals, which reflect the development of these programs from multiple sources. Conceptually HITH was defined a considerable time ago<sup>(12)</sup> and trialed with some success. However, the literature gives the impression of an interest prompted by development of technology and therapies coupled with concern to provide care that reduces or avoids inpatient hospital care. Thus, it is often assumed that HITH will reduce costs in the health care system.

**TABLE 1: CLASSIFICATION OF HITH STUDIES WITH LEVEL OF SUPPORTING EVIDENCE**

Condition / Treatment Studied	Evidence level #
Intravenous antibiotics	II
Deep venous thrombosis	II
Chemotherapy	III
Post surgical	II
Older medical patients	I
Rehabilitation: stroke, orthopaedic	I
Palliative Care	II*
Psychiatry	II*
Paediatric / cystic fibrosis	III
Obstetric	II
Home ventilation	IV*

# Level I evidence is strongest (see text)

\*Indicates three areas in which additional studies may be available which may clarify the situation.

The literature review was conducted systematically with a search of the Cochrane Library, Medline, Embase, and CINHALL (years 1990-1998). The following key words were used: hospital at home, hospital in the home, and home care in combination with one of the following terms - random controlled trials, trials, clinical outcomes, intravenous therapies, satisfaction and evaluations.

HITH programs were classified according to the condition treated or the organisational structure of the program. Table 1 provides details of the studies classified by type of condition and provides details of the quality of evidence available for each condition. The evidence levels are those specified by the National Health and Medical Research Council (NHMRC 1995). In summary, level 1 evidence is provided by a systematic review of all relevant randomised trials, level 2 evidence is based on at least one well conducted randomised trial and level 3 evidence defined by trials with a control group of another sort. The levels of evidence for the studies are noted in the table. There is a greater chance of bias as the number of the level of evidence increases.

### **Summary**

A Cochrane review, constituting Level I evidence was published in 1997<sup>(5)</sup>. Only 5 studies met the selection criteria for this study and the authors were cautious in drawing their conclusions. It was suggested that widespread adoption of HITH was unwarranted without further evidence of effectiveness. Concern was expressed that HITH programs can burden carers. The abstract of this important review is included as Appendix A.

Our review of the literature suggests that there is Level I evidence for the effectiveness of HITH for rehabilitation, stroke and care for older medical patients. The evidence for the clinical effectiveness of intravenous therapy, deep venous thrombosis, obstetrics, surgical, palliative care and psychiatry is less convincing but improving.

In conclusion, there is no evidence that HITH programs are harmful to patients and there is some evidence that it may be beneficial to at least some patients. However, caution must be exercised when considering whether HITH should be expanded to areas not yet evaluated.

### **2.2.2. Review of the evidence of the cost-effectiveness of HITH**

#### **Introduction**

This section reviews the evidence from the literature on the relative cost-effectiveness of HITH. There is very little information from well-designed evaluation studies that incorporate assessment of both outcomes and costs. The recent Cochrane Collaboration systematic review which is referred to in the clinical review<sup>(5)</sup>, found only one HITH study that met their review criteria and measured costs. In that study there were no significant differences in the overall net health care costs between HITH and hospital care. Since that review was published, two well-designed economic evaluations that would have met the review criteria have been published. However, these studies provide conflicting evidence about relative cost-effectiveness. Coast et al (1998)<sup>(13)</sup> found that HITH costs were lower than hospital costs from both the health and social services and

patients' perspective, but Shepperd et al<sup>(14)</sup> found that the costs of HITH were either the same as, or higher than hospital costs across four different groups of patients.

The criteria for the Cochrane review included the requirement that studies were randomised controlled trials (RCT). Given the paucity of data from RCT studies, it was decided to extend the literature review of economic evaluation evidence. The final set of studies which have been reviewed included international and Australian studies for which there appeared (on initial review) to be a comparator group and Australian studies which included any information on costs. A detailed critical appraisal was undertaken for the former group (including RCTs), while the latter group of studies was reviewed for relevant information on HITH in Australia.

The evaluation criteria used and the results of the critical appraisal are found in Appendices C and D. While there were a number of studies that suggested that HITH was cost-effective or cost saving in comparison to hospital care, most of these studies had serious methodological flaws. For example, Balinsky<sup>(15)</sup> reviewed the home antibiotic infusion literature and noted that all studies were limited in research design, had small sample sizes (unless aggregated over a number of years), included very few patients aged over 65, had a wide range of primary diagnoses and antibiotics, and measured charges rather than actual costs.

Very few studies are true cost-effectiveness analyses. Most take the form of cost-minimisation analysis, with clinical equivalence between HITH and hospital care assumed (sometimes with no measure of clinical effectiveness, and no comparator group). A few studies have demonstrated clinical equivalence through a randomised controlled trial design. However, many studies did not have an adequate comparator group for measurement of outcomes or resource use.

A number of studies measured costs for the HITH group but constructed hospital costs for the comparator group on the assumption that patients would have remained in hospital for the same number of days they were in HITH (that is, used a hypothetical comparator group)<sup>(16-21)</sup>. This does not provide any information on how differences in resource use between hospital and HITH admissions relates to practice patterns, admission criteria, readmission rates, hospital acquired illnesses or other differences that may arise because of the different location of care. It is also difficult to say, a priori, whether the relative costs of HITH would be increased or decreased if these factors were adequately taken into account.

A further problem with economic evaluation studies is that the perspective from which costs and consequences are measured and valued is often not clearly specified, or is narrowly specified. Very few studies include costs to patients and carers, or even identify these as relevant components of cost. Because of the nature of HITH, where informal care may be an important component of care, this is an important omission. A number of the studies that found HITH to be less costly than hospital care did not include informal care costs or out-of-pocket costs to patients. Relevant costs include purchase of medications or other supplies, out-of-pocket travel costs, travel time and loss of work time. In the studies included in this review, only five included patient costs<sup>(13, 14, 16, 19, 22)</sup>, and only two of these had an adequate comparator group<sup>(13, 14)</sup>. As noted above, these two studies provide conflicting evidence about the relative cost-effectiveness of HITH.

Tremarin <sup>(23)</sup> noted that the findings of their study would have been different if informal care costs had been included.

Another consideration when undertaking or reviewing cost-effectiveness studies is the impact on the total health system costs. This may include factors such as the flow on effects of not having to construct new health care facilities, possible increases in throughput and shifts in care provision (eg. from specialist to GP, from doctors to nurses).

## **Summary**

Thus, it is difficult to draw firm conclusions about the relative cost-effectiveness of HITH and hospital services from the existing economic evaluation studies. Further, it is clear from those studies that are well designed that the relative costs of HITH and hospital services are very context specific, varying not only across location and setting, but also across different clinical and population groups. While there is a need for more better designed evaluative studies, it is also clear that such studies are only part of the necessary information for assessing the value of HITH in the Australian context.

### **2.2.3. Australian evaluative studies**

Further information about the costs and consequences of HITH in the Australian context is available from the range of evaluations, reviews and audits which have been undertaken at the State/Territory and program level in the existing HITH programs. Many of these evaluations are subject to the same methodological problems as the studies discussed above (and indeed, most were not set up as economic evaluations), but they do provide important context specific information. In this section we have summarised the main points from these evaluations and reviews.

The ACT Department of Health commissioned an evaluation of the pilot HITH project <sup>(24)</sup>. This program, which commenced in July 1996, is operated by the Surgical Services in the Canberra Hospital and also provides care to patients from the Calvary Hospital. The evaluation was undertaken relatively early in the life of the project (one year after it was established) and was limited by small sample size. This study noted a number of key organisational issues for HITH, including:

- the importance of the enthusiasm and effort of a few key individuals to the project's early success;
- the tension between the necessary effort to develop policies and protocols, establish a referral base and develop services and the input required to provide the infrastructure to maintain the program;
- the difficulty of coordinating aspects of care across two facilities (with differing levels of staff satisfaction noted in the two facilities);
- ongoing difficulties and concern regarding communication and liaison, particularly with medical practitioners;
- Ongoing difficulties with the provision of medical coverage at home with data suggesting relatively few patients receive medical services once they leave hospital.

However, the study found that the admission criteria allowed for a broad range of patients to be included, and there were high rates of acceptance among patients. Readmission rates were low and patient and carer satisfaction was high.

Improvements in length of stay had not been achieved, but it is difficult to draw conclusions given the low patient numbers and the use of DRG based comparisons. The study examined differences in costs for hospital-only admissions and admissions with a HITH component. For Canberra Hospital patients the costs were similar, but for patients at the Calvary Hospital, HITH increased costs. This may relate to methodological issues such as use of DRG based information and small sample size, but may also relate to organisational issues.

As part of the establishment of the South Australia Ambulatory Unit, which co-ordinates ambulatory services across SA, the South Australian Health Commission has funded 28 ambulatory projects, which include a number of HITH type programs. Specific HITH evaluative projects undertaken in SA include a Comparative Costing Study (Marginal Bed Days) and an Early Supportive Discharge and Rehabilitation Trial in Stroke (ESPRIT)<sup>(25)</sup>. The Comparative Costing Study included the specific objective of measuring the differences in cost of providing the last few days of an episode of care in an acute care setting and in alternative settings (a nursing unit, the home or other ambulatory care setting). This study found that alternative models of care have been effective in achieving appropriate clinical outcomes, containing costs and meeting patient and provider expectations and satisfaction. It also noted that it is important to consider the profile of the target patient group, because cultural difference and differing views of health impact on how well alternative models of care are received. The ESPRIT program is an RCT comparing the costs and outcomes of home based rehabilitation.

In Victoria, the Department of Human Services commissioned audits of the HITH program in 1996, 1997 and 1998. The 1998 audit has just been completed, and results from all three reports are included in this report<sup>(26, 27, 28)</sup>. The initial report did include some detailed costing work but much of it involved programs with small caseloads. The second and third audits took the form of a service audit highlighting important organisational issues for HITH, including:

- Good documentation across programs of protocols and procedures, but inconsistent documentation of patient care;
- An improvement in non-compliance with acuity guidelines and the amount of inappropriate care being provided in the HITH program. In 1996/97, 16% percent of patients were found to be non-acute or receiving care which is not a substitute for hospital care, this improved to 6.7% in 1997/98;
- difficulties with recording of admissions;
- reclassification of private patients as public patients;
- inconsistent application of consent procedures;
- ongoing issues with respect to aspects of emergency backup, particularly prompt treatment and documentation of situations (although emergency backup was available for all patients); and

- Requirements for improvement in data recording, care planning and discharge planning in some hospitals.

However, the audits found there had been a gradual improvement of the integration of HITH programs with the quality improvement process of hospitals. The 1997/98 audit also documented a 32% expansion in HITH separation between the two audit periods from 4260 to 11,277.

### **3. Chapter 3 – Report on survey findings and consultations**

In addition to the literature review described above, information was collected through surveys and consultations. In this chapter a summary of the results of the surveys, consultations and discussions is presented.

#### **3.1. State/Territory survey**

The first step was to survey each of the State/Territory health departments (State and facility surveys are in Appendices E and F). Here, information was requested about names and addresses of known HITH programs, funding mechanisms, whether funding was established or for a pilot project of HITH, whether there were criteria set for the establishment of a program and whether the programs or projects had undertaken any evaluations. In NSW we also sent the State survey to Area Health Services in order to obtain maximum information on programs in operation.

HITH programs operate at the interface between Commonwealth and State/Territory funded and provided services, and areas of overlap specific to HITH have not been explicitly addressed. In some programs, it is the responsibility of the agency providing HITH to meet the costs of all care including medical services. However, in other programs the potential for cost shifting exists. Differences in HITH programs relate to how hospital services are funded, to the level of commitment to the provision of HITH, and to the extent that HITH is integrated into the hospital and the community-based care sectors.

The organisational and funding arrangements for HITH services vary both across and within the States and Territories and this has led to considerable diversity in where and how HITH programs are provided in Australia. The following information was compiled from a survey sent to each State/Territory Department of Health.

#### ***Australian Capital Territory***

The ACT has an established HITH program with recurrent funding flowing from the ACT Department of Health and Community Care to the hospitals and then directly into the HITH program. The funding mechanism is a block grant with agreed volume and is designed to cover total program costs. Hospital in the home is offered to patients of two hospitals in Canberra, with the program managed by the Surgical Services team at The Canberra Hospital<sup>(24)</sup>. The aim of the HITH program is to provide acute care which was previously only offered in hospitals, under the continuing care of hospital-based specialists and prior to formal discharge from the hospitals. The patients remain the legal and financial responsibility of the hospitals until they are discharged from HITH.

#### ***New South Wales***

Currently in NSW there is not a state-wide HITH program. In 1998, the NSW Health Department provided one-off seeding funding for a number of rural hospitals to develop pilot HITH programs. The aim of the pilot project is to integrate the HITH program into the hospital's core business after which recurrent funding will be provided at the Area Health Service's discretion. The funding to the pilot programs is partial (ie. meant only



to cover the establishment costs). During the pilot projects, HITH patients are classified as if they were inpatients of an acute ward, with discharge from the hospital occurring once the patient is discharged from the HITH program. HITH programs are available to and targeted at both Public and Private patients, but it is necessary for the latter to change their status to public patients to access the program.

The NSW Health Department developed criteria for those hospitals wishing to be involved in HITH pilot programs. The Department required each pilot site to develop operational and clinical protocols. These protocols needed to be consistent with protocols developed for inpatient services but be specific to the HITH program. Hospitals were also required to develop admission criteria for screening potential patients including patient consent and discussions with carer/family.

Beyond the recently established pilot projects in the five rural sites, HITH programs are the responsibility of the Area Health Service (AHS). There exist a number of funding and organisational arrangements. Examples of arrangements include:

- Block funding of HITH programs by the AHS – either to the hospital, the community agency or to both
- Funding from within existing hospital budgets
- Commonwealth Medicare grants
- Cost and volume service contracts with the AHS or
- Full establishment and operational costs covered during the set up period with the understanding that the funding will be reviewed once the program is established.

### ***Northern Territory***

HITH care is provided in the Northern Territory from the Royal Darwin Hospital in conjunction with various community-health centres in Darwin. Care is organised on an individual case basis through general funding of both hospitals and community agencies. The funding is provided as non-specific HITH funding to the hospital and community sectors.

Currently there are developed procedures and policies pertaining to patient and staff-safety, and patient choice and work is ongoing in the area of clinical pathways for acute care.

### ***Queensland***

Currently Queensland has both pilot and established programs operating. The programs, which may be funded through Districts, hospitals or community agencies, are all allocated resources as part of general funding although the majority of programs were initially established under pilot project funding with Districts agreeing to sustain projects when pilot project funding ceased. HITH patients are considered to be admitted patients, must have a medical record or chart number and be under the care of a Senior Medical Officer who is responsible for the patient's care until discharge from the HITH program. Guidelines also state that the patient must satisfy the conditions of an acute episode of care as detailed in the Queensland health data dictionary. HITH patients are required to be formally discharged (with a discharge summary) when HITH treatment is complete.

## ***South Australia***

South Australia has a combination of established and pilot Hospital at Home (H@H)<sup>1</sup> programs. Established programs are casemix funded and the total episode of care includes both the inpatient and HITH stay. This funding model is used for HITH type cases regardless of whether the patient actually occupied a hospital bed or not. A Rehabilitation at Home (R@H) program, still under evaluation, is funded based on episodes of care with two different rates; one for home based stroke and the other for home based orthopaedic rehabilitation. The Rehabilitation at Home episode payment includes any hospital inpatient rehabilitation days.

The HITH programs have been established to provide sub-acute and post acute care that otherwise would have required hospital care. A full range of medical, nursing and allied health acute care services is included in the HITH programs. Staff must be fully skilled in the acute and post acute needs of patients. The HITH program is available on 24-hour basis. The Health Unit assumes medical supervision and duty of care responsibility of the patient while the patient is in the HITH program – an exception is if an agreement can be negotiated with the patient's GP to provide the care.

## ***Tasmania***

Tasmania currently has two established HITH programs that are funded as part of general hospital funding. The specific mechanism is DRG casemix based funding where the episode of care is based on the total length of stay both in hospital and in HITH. Incentive funding does not exist. However, the programs were initially established under the Medicare Incentive Scheme.

To date, this State has not undertaken or commissioned an evaluation however there is intent to evaluate HITH program. Individual hospitals have the responsibility to monitor, assess and evaluate their own programs

## ***Victoria***

HITH programs in Victoria are considered by the State to be established programs. Funding is provided to Hospitals or Health Care Networks based on casemix plus a per diem incentive. In the early years of HITH, many of the new programs received an incentive grant of \$50,000.

The Department of Human Services has specific goals for the HITH program. These are:

- To provide incentive funding for home based acute care;
- To facilitate home based acute care service development;
- To encourage the development of strategies for the sustainability of HITH; and
- To continue to refine home based acute care policy through program monitoring and learning from outcomes of funded service development projects and service audits.

Each hospital sets its target number for HITH patients, and is currently paid \$50.75/day for each patient (in addition to the casemix payment) within that target. If hospitals do not reach their targets, the money is redistributed to hospitals that exceed their target. As only those funds remaining in the pool are redistributed, hospitals are not guaranteed a

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<sup>1</sup> SA programs are referred to as Hospital at Home

full per diem incentive payment for HITH days over and above their target.

There are currently 42 public hospitals across the State offering HITH services. The criteria for any facility wishing to establish a HITH program are that it must be an acute hospital and the service provided must be an alternative to hospital-based care.

An important initiative was the establishment of the Victorian Centre for Ambulatory Care Innovation (VCACI) in 1997. Projects that VCACI has undertaken include:

- The development of clinical guidelines (ie. anaphylaxis and parenteral drug administration), clinical pathways (ie. hip replacement) and comprehensive review of cellulitis<sup>(29)</sup>.
- The development of a framework for the development of standards for HITH<sup>(29)</sup>;
- The development of a resource database and clearinghouse for policies and procedures<sup>(29)</sup>;
- The development of an acuity assessment tool which is to be trialed by hospitals in Victoria<sup>(28)</sup>.

Other projects have been undertaken using Service Development grants provided by the Victorian Department of Human Services. Some examples of the Service Development projects are:

- Establishment of a Carer Training Centre at The Alfred Hospital;
- Development of Clinical Indicators at Frankston Hospital;
- Development of a Hub and Spoke Service Model for Cystic Fibrosis, Febrile Neutropenia and overnight oximetry at the Royal Children's Hospital.
- Development of strategies to improve access and service responsiveness for patients from culturally and linguistically diverse communities at Western Hospital<sup>(30)</sup>

The Department of Human Services has also undertaken audits<sup>(26, 27, 28)</sup> of each HITH program in operation. A costing project was funded by the Department in 1998 and is being undertaken by the Clinical Epidemiology and Health Services Evaluation Unit at Royal Melbourne Hospital<sup>(31)</sup>. This project aims to undertake a comparative cost analysis of episodes of care and matched episodes in hospital.

### ***Western Australia***

A GP demonstration pilot project (called Homeward 2000) has been under way in Perth since November 1998. The program is a collaborative project between the General Practice Divisions of Western Australia (GPDWA), the Health Department of Western Australia, the Emergency Department of Sir Charles Gairdner Hospital and Access Home Care Division of Silver Chain Nursing, the Health Consumers Council, and the Osborne and Perth Central Coastal Division of General Practice. The GPDWA is the fund holder and will purchase the necessary services – allied health, home care, nursing and GP services. The initial goal of the program is admission avoidance for acutely ill patients, with patients being referred into the program primarily by GPs and through the emergency department.

During the two-year pilot project, funding will flow directly to the HITH program and is intended to cover the total costs of the program. There are currently no criteria developed

for other facilities wishing to establish HITH programs but the intent is that this model of care will be transferable to other urban and rural areas. This program will be evaluated by an external agency after 12 months.

In the pilot project the clinical team is to be led by a GP. The team is to provide acute care equivalent to hospital inpatient care. Nurses hired for the program must have demonstrated the necessary competencies. Work is ongoing to provide any necessary up skilling for GPs. GPs can either care for their own patients, have one of the acute care team GPs care for their patients or, share the on call hours with the acute care team.

As well as the Homeward 2000 program there are other hospital-based programs in WA.

### **3.2. Facility Survey Results**

In this section, the results of surveys received from facilities offering HITH are presented. Each facility identified as having a HITH program was sent a survey. Hospitals in Victoria were not surveyed at the request of the Victorian Department of Human Services as they had recently commissioned an audit of HITH programs. Results of previous audits have been used in compiling information for Victoria.

Information was received from 36 (69%) of the 52 facilities surveyed; seven facilities responded indicating that they did not have a program which they felt was within the definition of hospital in the home. Thus no information was received from nine facilities. Minimal information was received from 4 of the 36 facilities after a reminder phone call and facsimile. Multiple surveys were received from four facilities where more than one program was operating. In total, 43 programs completed some or all survey questions. The information presented in the following tables summarises some of the survey results, but readers should understand that this information does not represent data from all HITH programs in Australia. The survey results are supplemented by information on Victoria obtained from the various reports on HITH in Victoria.

#### **3.2.1. Programs**

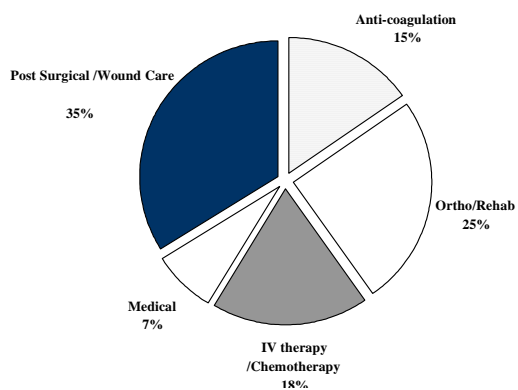
Table 2, is a summary table, that was created based on information received from completed surveys and data provided by Victoria Department of Human Services. A full list of all hospitals and facilities that completed a survey can be found in Appendix G; all 42 HITH programs in Victoria are also listed.

**Table 2: HITH programs per state/territory** (Non Victoria results as per survey response/ Victoria numbers from Department of Human Services)

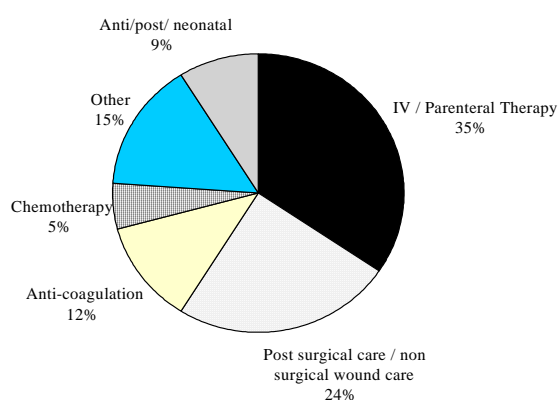
State	Number
Australian Capital Territory	1
New South Wales	19
Northern Territory	1
Queensland	4
South Australia	5
Tasmania	2
Victoria	42
Western Australia	3
Total	77

### 3.2.2. Categories of care

**Figure 1: Categories of Care in Australia (excluding Victoria)**



**Figure 2: Patient Treatments in HITH Care in Victoria (Compiled from Table 4.2 KPMG 1999)**



Figures 1 and 2 illustrate the types of care being provided in HITH programs across Australia. Care can be categorised in many ways: by illness or diagnosis, by the type of treatment provided, by who provides the care, where it is provided, whether the program is an intravenous therapy program or uses advanced technology in the provision of care. The types of care offered in HITH vary from highly specialised care using advanced technology such as mechanical ventilators, haemodialysis machines, and infusion pumps to care similar to that provided by community nurses. As different types of care require different skill levels and inputs from health care providers, the type of care offered will often influence other aspects of the program.

As the two figures illustrate, despite the use of slightly different categories, the mix of cases is fairly similar. Intravenous therapy, parenteral and chemotherapy account for 40% of cases in Victoria<sup>(28)</sup> and intravenous therapy and anti-coagulant therapy accounts for 33% of cases in the rest of Australia. A substantial proportion of care provided in both is post surgical and wound care.

In this report, HITH programs are categorised in the following way: intravenous and other drug therapies; accelerated discharge/admission avoidance, (includes programs which aim to shorten or avoid admissions such as medical, surgical programs and post-day surgery programs) and rehabilitation.

### ***Intravenous and other drug therapy***

As can be seen Appendix G most programs in Australia offer intravenous therapy. Such programs may involve the intravenous administration of antibiotics, chemotherapy, blood transfusions, fluid replacement, low molecular weight heparin, pain and other medications. Many programs are closely connected to departments such as infectious diseases, haematology and oncology.

The treatment of patients in an intravenous HITH program may require the use of high technology equipment. The range of technology has increased substantially and varies from infusion pumps such as elastomeric membrane pumps (disposable and easy for patients), to electronic ambulatory pumps for high frequency antibiotics, computer programmable pumps for chemotherapy, and pumps for administering pain medications that allow for bolus doses to be initiated by the patient<sup>(32)</sup>. Other technologies include dialysis machines, phototherapy for neonatal jaundice, mechanical ventilators, diagnostic and monitoring equipment including apnoea monitors, cardiac and foetal monitors. The advance of technology, including devices to assist personal care such as remote controllers of lights and doors allow some very ill individuals to remain in their homes.

Programs that offer high technology care may have specific staffing requirements. Necessary skills include dealing with venous access lines and other appropriate technology, assessing the clinical status of patients, and providing education to patient and family, in addition to coordinating care between providers and family. When the care is specialised (eg. chemotherapy) it is important to employ staff who have relevant experience in the field<sup>(32)</sup>. Similarly, if the program involves home renal dialysis or mechanical ventilation at home it is imperative that the nurses providing the care are experienced with the technology and the underlying condition.

### ***Accelerated discharge / admission avoidance***

This category is defined as any program that accelerates the patient's release from the hospital or avoids admission while providing substitute care in the home. Examples of programs may include, but are not limited to care for post-surgical care (including post-day surgery), chronic lung disease and cystic fibrosis patients.

Accelerated discharge type HITH programs create some specific issues related to defining the boundaries of the HITH program. Confusion exists over the use of the term 'discharged' when a HITH program is hospital administered and staffed and the patient remains the legal responsibility of the hospital. Patients in this setting are not considered

discharged until they are discharged from the HITH program.

It is also not clear what accelerated discharge actually means when lengths of stay (LOS) in hospital are already declining in isolation from organised programs such as HITH. Some reasons for the overall decline are changes in technology (ie. laparoscopic surgery), changes in practice patterns (ie. earlier mobilisation post-surgery), and new drugs (ie. shorter-acting anaesthetic agents). The natural decline in LOS is often erroneously referred to as early discharge. Accelerated discharge in the context of HITH occurs when a patient is recognised as still requiring acute hospital type care, albeit at a less intense level and is able to receive this care at home.

### **Rehabilitation**

HITH Rehabilitation programs usually offer rehabilitative care to post-stroke or post-orthopaedic surgery patients. Donald (1995)<sup>(33)</sup> offers an example of such a HITH scheme, involving nursing, physiotherapists, occupational therapists and rehabilitation therapists. The team continued rehabilitation, provided support, advice and education to the carers at home, and gave basic care. Patients remained in the scheme for up to 4 weeks if necessary. There are several examples of rehabilitation programs in Australia, including those in Adelaide, Perth and Sydney.

#### **3.2.3. Ownership**

The international literature provides many examples of different types of ownership<sup>(34-36)</sup>. Programs may be 'owned' by: a hospital (public or private), an organisation totally separate from the hospital (extramural hospitals, community sector, General Practice Division), by an Area/District/Regional Health Service, the State/Territory, any combination of the above; or by private enterprise.

A key message that emerged from the literature, the surveys and discussion with stakeholders was that regardless of who owns the program, a strong advocate for the program is required within the senior administration of the organisation. Reviews of HITH have reported that in order for the program to succeed there needs to be at least one committed person to be the driving force for the project<sup>(26)</sup>. This is often the case when any new program is established and continues as long as uncertainty about clinical effectiveness and safety remains.

**Table 3: What organisation operates the HITH programs** - Multiple answers were allowed; not all survey respondents completed all questions. Results for Victoria, unless otherwise indicated, were obtained from the various KPMG audits.

Organisation	ACT	NSW	Qld	SA	Tas	NT	WA	Total Survey response	Vic
Hospital	1	14*	3	2	2	1*	3	26	42
A community agency		4*				1*		5	
Other							1		

\* One program is joint community and hospital

In Victoria, all programs currently are operated by a hospital but in NSW and WA other agencies have set up HITH programs.

### 3.2.4. Classification of patients

How HITH patients are classified is closely related to ownership. Classification refers to whether patients are the responsibility of the hospital, community agency, GP, or the HITH program itself.

**Table 4: Classification of HITH patients** (not all survey respondents completed all questions).

Patient classification	ACT	NSW	Qld	SA	Tas	WA	Total Survey response	Vic
As hospital patients	1	9	1	1	2	3	17	42
As community agency patients		5					5	
HITH patients		7	2			1	10	
Other	1	2		1			4	

Several survey respondents commented that the lack of clarity as to who had ultimate medico-legal responsibility for patients in their HITH program was stressful for the staff.

Another important issue was the extent to which explicit patient consent to HITH was required. Although it is a requirement of the Victorian Department of Human Services that all HITH programs obtain patient consent, a recent audit of 922 medical records found that 62% had signed patient consent forms on the chart <sup>(28)</sup>. As Table 5 indicates 47% of programs in the rest of Australia require patients entering HITH to sign written HITH-specific consent. Only 12% of programs require that the carer should consent.

**TABLE 5: NUMBER OF HITH PROGRAMS REQUIRING SIGNED CONSENT FORMS (excluding Victoria)**

	Yes (%)	No (%)
Patient	16 (47)	18 (53)
Carer	4 (12)	30 (88)

### 3.2.5. Funding/payment

As is shown in Table 6, funding arrangements for HITH vary across Australia. This is largely determined by the differences in funding and organisational arrangements for hospital and community health services. In the ACT, South Australia, Tasmania and Victoria, HITH programs are primarily funded on a casemix basis (with the addition of some incentive funding in Victoria). In NSW, Queensland and Western Australia funding arrangements range across fee-for-service (payments per visit), block grants and service agreements and, in some instances, the funding for HITH programs is mainstreamed within the recurrent hospital budget. Some programs are or have been funded with Medicare incentive funding.



**TABLE 6: SOURCES OF FUNDING FOR HITH** (not all survey respondents completed all questions)

	ACT	NSW	Qld	Tas	SA	WA	Vic
Casemix				2	4	1	
Casemix and incentive			1				42
Per visit		2					
Block grant funding		8	1	1		2	
Service agreement, cost and volume	1	2	1			1	
Other – AHS, Medicare, Hospital funded, GP project grants		5	1			4	

The survey also asked questions about how doctors were reimbursed but this question was only occasionally answered. In the instances it was answered, the answers ranged from salaried, sessional, to fee-for-service paid both within the HITH program but more often outside of the program.

In order to understand whether HITH programs covered the total costs, we asked about the extent to which the programs covered prescribed medications. The responses indicate that a majority of programs require the patients to pay for at least a portion of their medications.

**TABLE 7: NUMBER OF HITH PROGRAMS COVERING COSTS OF PRESCRIPTION MEDICATIONS** (not all survey respondents completed all questions).

	ACT	NSW	Qld	SA	TAS	WA
Yes		5±	2	1	2	1
No	1♣	16♣	1	2♣		4†

Notes:

± some facilities qualified this statement in stating patients may pay a dispensing fee

♣ Despite the fact that most hospitals responded no to this question several qualified their answers. Some programs provide anti-coagulants and antibiotics sometimes, cover the medications administered by the program, cover newly introduced medications but the patients take their own normal medications, supply 3 or 5 days of administered medications, patients have to pay \$3.20 per script.

† Medications are charged to the wards (not the HITH program)

### 3.2.6. Delivery of care

As discussed above, a variety of administrative structures are employed for HITH. Separate from this is how the HITH program is staffed. Staff may be employed by hospital, community or independent agencies. Different combinations of staff may be used, depending on the type of care being offered and the way the program has been organised. HITH programs also vary in the extent to which care is provided solely in the home environment or by a combination of home care and clinic visits.

#### i) Whose staff?

The source of staff for HITH programs can range from totally hospital-based staff (see Table 8) to totally community or agency-based to private companies (as in the US). As

well, some programs draw staff from a combination of these sources.

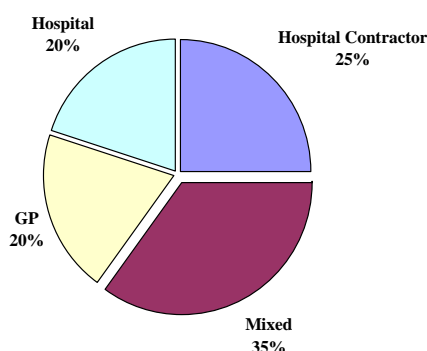
**TABLE 8: CARE PROVISION: WHAT ORGANISATION EMPLOYS STAFF?** (multiple responses accepted, not all survey respondents completed all questions)

Employer of staff	SA	NSW	Qld	WA	Tas	ACT	NT
Hospital staff	4	16	3	5	2	1	
Purchased Services							
District nurses		5					
General practitioners		2					
Non-hospital allied health		1					
Nursing agency		1	1				
Combination		1					
Other		3					
Community Nurses (not purchased)		3		1			1

Of those who replied to the hospital survey, most indicated that they employed their own staff to operate the program. However, a variety of other staff also provide HITH care, including Community and District Nurses.

In Victoria (Figure 3) the most common model of care was the mixed model (35%) followed by the hospital contractor model (25%). Twenty percent of the models employed only hospital staff. The GP model, that tended to use hospital-nursing staff, accounted for another 20%.

**Figure 3. Service Model by Program (Victoria) [KPMG, 1996]**



**ii) What care/staff?**

As Table 9 illustrates, survey data from Australian HITH programs and discussions with stakeholders indicate that nurses are the main care providers in HITH patients' homes (this reflects the findings in the international literature). Some programs rely on hospital-based doctors (18) while others use patients' own GPs to provide the care (12). The amount of input from different providers varied depending on the program. For example,

while programs offering intravenous antibiotics relied primarily on care provided by doctors, nurses and pharmacists, programs providing early post-stroke or post hip replacement rehabilitation required more input from physiotherapists and occupational therapists.

**TABLE 9: WHO PROVIDES THE CARE WITHIN THE PROGRAM?**

<b>Provider</b>	<b>Frequency (multiple responses accepted)</b>
Nurses	34
Therapists	10
Doctors	
Hospital based	18
Patients own GP	12
GP – not patient’s own	1
Home care workers	2
Patient (taught to provide own care)	20
Carer (taught to administer care)	21
Other (consulting rehab physician, pharmacist )	2

The survey responses suggest that it is relatively rare for doctors to routinely visit patients in their homes. Two exceptions to this are the Frankston (Victoria), and Prince of Wales Hospital (NSW) programs where regular visits by a doctor are a part of routine care<sup>(8, 37)</sup>. In a medical chart review conducted as part of the recent Victorian audit of HITH there was evidence in only 44% of the records of provision of medical care while in HITH with only 19% of these patients receiving this medical care in the home<sup>(28)</sup>.

In programs where medical care is provided in the home, GPs or medical registrars usually provide such care. In most programs, patients are required to attend outpatient clinics or consulting rooms for specialist medical consultations.

Among current programs, the extent to which a HITH patient’s GP is involved in care during HITH varies widely. In some models of care (eg. Homeward 2000 in Western Australia and at the Frankston Hospital<sup>(37)</sup>), GPs direct and operate the HITH program. In other programs GP involvement ranges from being asked to take primary medical responsibility for patients, to attending to care other than that directly connected with HITH. In some programs the GP is simply notified that their patient is in a HITH program. Most programs have procedures that require contact with the patient’s GP on discharge, as with any discharge from hospital. However, the extent to which such procedures are consistent with recommended “best practice” and/or always complied with may vary<sup>(27)</sup>.

### **iii) Where is care provided?**

Separate from how the program is structured and who is responsible for the care, is the issue of where care is provided. Some programs offer all necessary care in the home including the delivery of pharmaceuticals and supplies. At the other end of the spectrum, some programs only provide nursing care in the home but require the patient to attend the hospital for specialist consultations, physiotherapy or occupational therapy, and/or assume responsibility for obtaining medications. Some programs also provide HITH care in nursing homes, hostels or in a temporary place of residence.

### 3.2.7. The process of providing care in HITH

Although there are some aspects of the process of providing care in HITH that are generally agreed upon (eg. potentially suitable patients must be identified, assessed in some way as being eligible and ultimately discharged from HITH) there is considerable variation in approach to the process of care. The following sections highlight some of the important variations in how care is organised and delivered. Topics include referral sources, when patients are considered for admission to HITH, admission criteria, types of patient, home environment, discharge, continuity of care and communication. Also included here are some reported barriers to HITH, either in terms of allowing the program to reach its full potential or enabling an appropriate base for expansion.

#### Referrals

By definition HITH units depend upon referrals for their patients. Many programs spend time and effort in generating these referrals. For example, programs employ staff to identify patients, provide information sessions and written material for staff and use personal contacts to increase and maintain throughput.

Of the survey respondents most programs identified the inpatient departments as the major source of referrals to HITH. Seventeen respondents indicated that more than 80% of their referrals were via the inpatient program while nine indicated that between 40% and 80% of referrals were via this source. Although they account for a smaller proportion, the emergency and/or outpatient departments are recurrent sources of HITH referrals as are GPs, community nurses and other areas such as pre-admission clinics, oncology or geriatric departments and private medical specialists.

**TABLE 10: SOURCE OF REFERRALS** (based on survey responses)

Source of referrals	0-20%	21-40%	41-60%	61-80%	>80%	Victoria <sup>(26)</sup>
Emergency department	12	5	2			18%
Inpatient department	1	5	5	4	17	62%
Outpatient departments	17	1	2	1	1	6%
GP	6	1				13%
Community Nurse	3					
Other (pre-admission clinics, oncology, private specialists rooms, geriatricians)	8	3				1%

#### Assessment

All HITH programs follow a designated procedure for beginning the process of HITH with patients and/or carers. After a patient is referred to HITH, the process usually begins with an assessment of the patient, carer and the home environment. In a few instances respondents indicated that the home is assessed by a home visit, usually when there was some doubt about the suitability of the home. Criteria used in a typical assessment included evaluating the general layout of the home (including bathroom access), availability of telephone and carer support. A few programs require that the patient and/or carer demonstrate some necessary skills prior to HITH commencing. Responsibility for the final decision regarding eligibility or suitability for HITH varies

with each program but usually involves a combination of medical, HITH team and patient input.

### **Consideration for admission to HITH**

While inappropriate selection must be avoided, it is important that HITH be considered as a potential method of care as early as possible in the patient's episode of care. While many survey respondents indicated that patients are considered as potential candidates for HITH at pre-admission, pre-operatively or immediately after admission, a substantial number also delay consideration until just prior to transfer to HITH. Such delays may not maximise the potential for using HITH.

**TABLE 11: STAGE OF CARE WHEN HITH IS CONSIDERED** (not all survey respondents completed all questions).

<b>Assessment stage</b>	<b>Frequency (multiple responses accepted)</b>
Pre-admission clinic	23
Pre-operatively or immediately after admission	20
Immediately post-operatively	16
Just prior to discharge	27
Other – as an alternative to admission, medically stable but need LT medications, at the time of rehab consultation	7

The extent to which patients have a choice in being treated by HITH varies with the program. While most programs state that the alternative to HITH is in-hospital treatment, some survey respondents indicated that alternatives included transfer to a post-acute facility, discharge at the patient's own risk, to the care of their GP or to community agencies. In these cases, the extent to which the HITH program is a substitute for hospital care should be questioned.

### **Criteria for admission to HITH**

In Table 12, the admission criteria have been grouped into the following categories: geographical restrictions, limitations on patient's condition, care requirements, physical surroundings and patient/carer willingness. This table summarises the criteria and the full set of responses can be found in Appendix G, where the variation across programs can be seen.

**TABLE 12: SELECTED CONDITIONS FOR ADMISSION TO HITH PROGRAMS**

<b>Geographic limitations</b>	<b>Condition of patient</b>	<b>Care requirements</b>	<b>Physical surroundings</b>	<b>Patient/Carer willingness and ability</b>
<ul style="list-style-type: none"> <li>- Live within certain area (catchment area, Sydney metropolitan area, or LGD)</li> <li>- Live less than 20 (30) km from hospital</li> <li>- Live in a safe area</li> <li>- Live within a reasonable distance</li> </ul>	<ul style="list-style-type: none"> <li>- Medically stable, predictable</li> <li>- Clear prognosis</li> <li>- Speak English or live with someone who does</li> <li>- Be mentally competent</li> <li>- Must be acceptable to nursing and medical staff</li> <li>- Normally require hospitalisation</li> <li>- Positive blood culture and afebrile for 48 hours</li> <li>- Can toilet self without aids</li> <li>- Can transfer and mobilise self</li> </ul>	<ul style="list-style-type: none"> <li>- Care amenable to home environment</li> <li>- Not live alone</li> <li>- Have a carer available (if lives alone)</li> <li>- Has own GP</li> <li>- Requires acute care</li> <li>- Care is short term (7 days or 2 weeks)</li> <li>- Daily or BD treatment</li> <li>- Patient must have had an acute hospital admission</li> <li>- Medical officer must consent</li> <li>- Treatment not to exceed 60 minutes of nursing time per day</li> </ul>	<ul style="list-style-type: none"> <li>- Safe home environment</li> <li>- Phone available</li> <li>- Lives in home, hostel or nursing home</li> <li>- Discharge to private residence</li> </ul>	<ul style="list-style-type: none"> <li>- Patient consent</li> <li>- Be able to care for self or have willing carer</li> <li>- Carer demonstrates ability to care prior to discharge</li> <li>- Families are comfortable with managing care</li> <li>- Agree to enter program</li> <li>- Compliant with treatment</li> <li>- Patient agrees to be readmitted if complications necessitate readmission</li> <li>- Has a support network at home</li> <li>- Enter program voluntarily</li> </ul>

### **Discharge**

As with the decision to admit a patient, a decision regarding discharge is often a team decision. In many programs, the expected discharge date is set when the HITH treatment begins (eg. 7-10 days of IV antibiotics are prescribed) and is revised only if necessary. In other programs discharge is determined according to established pathways, criteria or clinical opinion. As when any patient is discharged from hospital a summary record similar to a discharge summary should be produced which would then be provided to the hospital, the GP and any other relevant parties.

### **Continuity**

Continuity of care and hours of care are an important consideration for all HITH programs. A traditional community care program, in which patients are admitted on discharge from hospital, may have no need to offer 24-hour care. In a HITH program, where care is a substitute for hospital care, the provision of ongoing, continuous care by qualified staff is an important consideration both from a patient safety perspective and in terms of clinical acceptance. However, the size of a HITH program (especially initially) may limit the extent to which care can be offered on a 24-hour basis.

Seven survey respondents said that nursing staff was not available 24 hours per day while

thirteen respondents said that nursing staff was available 24 hours per day. However several qualified this by saying patients must call or attend the Emergency Department (ED). The lack of familiarity with the patients by ED staff may be a limitation to the type of support that can be offered.

### **Communication between HITH providers**

Communication is important at a number of levels. Many programs have regular (ie. weekly) team meetings where the progress of all patients is discussed. Other programs rely on one to one communications between care providers and doctors.

One method of maintaining ongoing communication is the use of the medical record which is an important method of maintaining channels of communication and ensuring that appropriate procedures are followed.

**TABLE 13: EXAMPLES OF METHODS OF RECORD MAINTENANCE**

<b>Example</b>	<b>Main record</b>	<b>Progress Notes</b>	<b>Permanent Long term storage</b>	<b>Emergency Access</b>
Community	Main chart in locked HITH office	Progress notes at patient's home	Community Health Centre Office	ED staff must contact HITH staff (available 24 hours)
Rural Hospital	Main chart in locked filing cabinet in HITH department	Locked briefcase when visiting patient	Hospital medical records	ED staff have after hours access
Hospital	Maintained in patient home	Progress notes at patient's home	Hospital medical records	ED contacts HITH team member on call
Large urban hospital	Kept in HITH office	GPs keep own records	Hospital medical records (not GP notes)	ED department has access; daily list provided of patients in program
Community hospital / sector	Chart in office	Maintained on hand held computers	Hospital medical records	All staff have access to information as required
Psychiatric Hospital	Locked cabinet in locked office	Never leave hospital	Hospital	ED staff have access

Table 13, which presents some examples of record maintenance in a selection of facilities, provides some of the variation in methods of collecting and storing records. Innovative methods are needed to overcome such issues as immediate access by multiple team members, clerical staff and access by ED staff; long term access for quality assurance, research purposes and if the patient is readmitted to the hospital.

### **3.2.8. Program Capacity**

Based on survey responses it appears that most programs are operating at relatively high capacity (Table 14) (Program capacity is a more meaningful term for HITH programs than occupancy level, because HITH capacity is based on staffing levels, not beds). However, many respondents suggested that there was considerable potential for expansion. If HITH programs are to be viable and accepted as part of the spectrum of care for patients with acute conditions, they need to reach an acceptable level of throughput.

**TABLE 14: UTILISATION OF PROGRAM CAPACITY OF HITH PROGRAM** (not all survey respondents completed all questions)

Level of capacity utilisation	Frequency
25%	3 <sup>¶</sup>
50%	4
75%	14
100%	11

<sup>¶</sup> new programs – established in 1998

### 3.2.9. Barriers

Respondents identified barriers (Table 15) to the establishment and operation of HITH (these are very similar to those reported in the literature). Such barriers may contribute to low rates of throughput and lack of expansion.

**TABLE 15: BARRIERS TO EXPANSION**

Perceived barriers to expansion?	Frequency
Budgetary /lack of resources	20
Staffing (quantity and skill level)	12
Lack of referrals and/or lack of acceptance by medical or nursing staff	16
Reluctance to alter practice patterns	10
Other – duplication in service; legal implications, program needs to be formalised, patient resistance, fear of bed closures, geographical limitations	8
Lack of support from administration (or senior medical staff)	5
Turn over of medical staff on wards (information)	8

Commonly identified barriers include lack of support at a senior administrative and/or clinical level and a reluctance to change practice patterns. Also, survey respondents identified lack of resources, less than full “buy-in” by clinicians, geographical boundaries and legal issues as barriers to the expansion of HITH.

Lack of resources included the need for more skilled staff as well as the need for more dollars. Some respondents indicated that keeping beds open (rather than closing those replaced by HITH) meant that staff did not perceive the need for HITH. Other barriers to the expansion of HITH included the need for an influential advocate (usually a doctor) as the Director of the HITH program; lack of referrals or the ability to generate them; lack of understanding and clinical scepticism about the value of HITH (including the ability of HITH substitute for in-hospital care); reluctance to modify drug regimes which would facilitate HITH and concern over the closure of hospital beds.

From the senior hospital administrator’s viewpoint, the provision of HITH to all patients who use the hospital may be too complex and/or expensive. Large tertiary centres often have a patient load arising from a large catchment area, much of which may lie outside of the hospital or Area/District/Regional Health Service.

Recruitment of patients in sufficient numbers to ensure viability has been an issue for



many HITH programs. To some extent this relates to the reluctance of hospital-based medical practitioners to refer patients to HITH. From their perspective they may feel that admitted patients are an efficient way for them to deliver care.

Program barriers may also be a factor in appropriate referral. Often there are situations where either the patients or the doctor would like the patient to have HITH care, but the patient may not qualify because they require additional care such as offered in Post Acute Care (PAC) or community service programs. In some instances this may be a barrier to obtaining care from a HITH program.

A number of respondents provided ideas about the potential for expansion of HITH. These ranged from general statements about the large scope for expansion of HITH (providing the principles of safe practice are adhered to) to specific amounts by which the program could expand, or the need to evaluate pilot programs before this question could be considered. A small number of respondents listed definite plans for expansion.

### 3.3. Performance indicators

It is clear from the survey that there is currently no gold standard of indicators for monitoring HITH programs. The following is a summary list of performance indicators and outcome measures as reported by survey respondents.

**TABLE 16: PERFORMANCE AND OUTCOME MEASUREMENTS**

<b>Indicators</b>
<ul style="list-style-type: none"> <li>• Hospital does not have an information system in place to be able to capture any performance indicators</li> <li>• Transfers to the hospital while in HITH program</li> <li>• Readmissions (to HITH or hospital) – within 1 week and 1 month post discharge from HITH</li> <li>• Number of unplanned home visits</li> <li>• Unplanned GP or clinic visits</li> <li>• Adverse events – falls, drug errors, phlebitis</li> <li>• Complications – infections</li> <li>• Measurement of LOS – both the hospital and HITH portion of stays</li> <li>• Frequency of cases</li> <li>• Diagnosis (es)</li> <li>• Number of treatments provided</li> <li>• Number of visits</li> <li>• Type of care provided</li> <li>• Origin of referral</li> <li>• Costs – direct, overhead</li> <li>• Experience/evaluation of patients, carers, GPs and staff</li> <li>• Rehabilitation programs – Functional status measurements, functional level of patients at discharge</li> </ul>

Victoria currently has a minimum data (VIMD) set. Information (which must be collected for each patient in HITH) includes LOS in HITH and hospital, diagnosis, case mix weight, age, and sex. Recommendations of a previous audit of the Victorian

program were that indicators such as cost per treatment episode of HITH, source of referral, nature of services provided, referral to community services on discharge, be adverse clinical outcomes, availability of appropriate back-up be collected<sup>(27)</sup>.

Questions about whether and which quality-of-care standards were in place received a variable response from HITH programs. Table 17 lists some of the types of standards put in place by various programs. Many of these replicate the list in Table 16.

**TABLE 17: SUMMARY OF QUALITY OF CARE STANDARDS**

<b>Indicator</b>
<ul style="list-style-type: none"> <li>• Satisfaction surveys circulated, infection rates, readmission rates, number of unplanned home visits or visits to GP</li> <li>• As per hospital standards</li> <li>• Home care policies and procedures</li> <li>• Written guidelines for parent / carer ; generic care paths</li> <li>• Chemotherapy education written information and protocol for side-effects and for spills, written drug procedures</li> <li>• Each discipline has standards – maintained through staff meeting, treatment plans and satisfaction survey</li> <li>• Satisfaction surveys, clinical indicators</li> <li>• Examine whether patient completes their course of therapy, use of on call /call outs; development of complications, adverse drug events</li> <li>• HITH unit follows standards for nursing practice, hospital policies and procedures, EQuIP guidelines</li> <li>• As per hospital nursing policy and procedure manual</li> <li>• Incident report measuring, LOS estimates, detailed costing, patient satisfaction survey, readmission rates, unplanned home visits, emergencies</li> <li>• Required competency evaluations, procedure manual, patient satisfaction survey</li> </ul>

### **3.4. Provision of HITH in the private health sector**

The terms of reference for this project called for an exploration of the extension of HITH to private patients, of private sector issues and for comparisons of public and private sector models of care. The plan was to undertake this using data obtained from the Private Health Insurance pilot studies. However, data from the Private Health Insurance (PHI) pilots was not available within the timeframe of this project. Therefore, in conjunction with the Steering Committee, a decision was made that the project team would consult with individuals and groups from the private sector. In this section, a summary of the information obtained from consultations with hospital staff and private health insurance (PHI) companies is presented.

In Australia, private patients have little or no access to HITH. In some States/Territories, private patients in public hospitals can receive HITH if they relinquish their private

status. Patients in private facilities may also have access to HITH if they attend one of the hospitals that have organised a HITH program. There are very few such programs in Australia, although at this point it is very difficult to determine just how many.

There are a number of reasons that the private sector has developed only a small number of HITH programs. These reasons are outlined below, as are some of the other HITH-specific issues that pertain primarily to the private sector. It is clear that many of the issues raised in the section on HITH in the public sector such as quality of care, carer burden, importance of choice and efficiency are also pertinent to the private sector.

The following section is based on a number of discussions with individuals working in the private sector who are currently involved in providing HITH projects or who have expressed interest in developing HITH.

#### **3.4.1. Legislation**

The provision of private health care is covered under the *National Health Act 1953* and the *Health Insurance Act 1973*. Under the *National Health Act 1953* health insurance funds can only pay benefits from hospital tables for admitted patients. This means that health funds have only been able to offer HITH services to their members from their ancillary tables where these rebates are not eligible for inclusion in the reinsurance arrangements. The Governor-General however, has the power to make a regulation under Section 140(2) of the *National Health Act 1953* to permit specified health funds to pay benefits from their hospital tables, enabling rebates to be counted for reinsurance purposes. Subsection 140(2) of this Act makes provision to preclude or modify, by National Health Regulation, certain benefit arrangements to permit pilot or demonstration schemes which could lead to an enhancement of the health insurance industry.

The Commonwealth Department of Health and Aged Care currently has under way three pilot projects for the purposes of which they have obtained a regulation under Section 140 (2) of the *National Health Act 1953*. This allows the PHI funds involved in the pilots to claim reinsurance for HITH for the duration of the pilot projects. These projects will be evaluated at the conclusion of the pilot phase.

However, there is considerable disagreement on the interpretation of the existing *Act* as to whether or not hospital insurance tables can be used to pay for HITH care. Discussions with representatives of private health insurance funds have revealed different interpretations of the “spirit” of the *National Health Act 1953*. While several have chosen to interpret the Act such that payment for hospital type care in the home, ie. HITH, is permissible from hospital tables, others have interpreted it as meaning that they can only pay for out-of-hospital care under the Ancillary Table (most to a limit of around \$1000 per member).

Should the national evaluation of the current private sector HITH pilot programs provide support for HITH programs within the private sector, legislative amendments may be pursued to alter the definition of “hospital” and/or “hospital treatment”. This would enable greater flexibility in the delivery of health services within the private sector, as these services attract health insurance rebates that are eligible for inclusion in the reinsurance arrangements.

### **3.4.2. Why HITH in the Private Sector?**

High occupancy rates and long waiting lists make HITH an attractive proposition for the public health care system in Australia. In the private sector, however, where hospitals typically have lower occupancy rates than in the public sector there is not the same incentive to introduce HITH. Further, most care provided in private hospitals is paid on a per diem basis and, as this type of care is often perceived as additional rather than substitute for hospital care, there seem to be few reasons for the private sector to be supportive of a move to HITH.

Reasons offered for the development of HITH programs in the private sector include:

- Private hospitals may choose to offer HITH as they want to be seen to be innovators;
- Private hospitals are faced with a demand for HITH services from their clients (or clinicians) who observe that patients treated in public hospitals have access to HITH services;
- Private hospitals seek to fill a gap in care (waiting lists may be long for community-based programs such as those provided by HACC);
- Private hospitals see the increases in PHI costs and surmise that changes may be made in funding arrangements in the private sector to reflect changes in funding in the public sector;
- Private health insurers are moving towards episodic payment for a significant proportion of cases. This method of payment will permit (and perhaps encourage) care to be provided through a number of vehicles eg. Acute-hospital care, rehabilitation, and/or care provided in the home; and
- Faced with rising costs, the private health insurance industry may be using the shift to episodic funding as one way of controlling expenditure.

### **3.4.3. Funding / Payment**

Currently, most care delivered in the private sector is paid for on a per diem basis and only a small proportion of care is covered by episodic payment. However, several PHI funds are moving towards episodic payment for a substantial proportion (40-60%) of hospital cases. With a sustained shift to episodic payment, the incentive for private hospitals to provide alternative ways of delivering care may be stronger. Our informants noted that some individual hospitals wishing to organise and/or deliver HITH-type programs or projects have negotiated episodic payment with PHI funds but that this was often a difficult process. It has also been suggested that some PHI funds currently require every patient who wishes to receive HITH type care to be individually assessed by their PHI fund. As well as being resource intensive for the PHI fund, it does not allow the provider to plan care for groups of patients requiring similar care and is unlikely to advance the establishment of viable programs with experienced staff, procedures and protocols.

Another barrier to the use of HITH programs in the private sector is medical remuneration. Unlike the public sector, where some doctors are salaried, senior medical remuneration is primarily fee-for-service (FFS) based in the private sector. While payments for surgical are often episodic, clinicians normally charge for each visit to a medical patient. This may become an issue when patients are transferred to a HITH program. In HITH, clinicians may not see a patient frequently but are still responsible for

the management of their patients, spend considerable time consulting with the HITH team and supervising the patient's care. Under the current payment system they would not be allowed to claim for those services.

Within the Australian private sector context it is possible that an active role for private insurers may emerge in commissioning the care provision (eg home nursing services) for private HITH patients. However, this should be within a framework which ensures the care is a clear substitute for inpatient care, and have explicit lines of clinical accountability.

#### **3.4.4. Substitution for acute care**

In the current financial climate private hospitals are often faced with a need to decrease length of stays and increase throughput but they may not have the same pressure on beds as the public sector. Thus there may not be the necessity from the hospital's perspective to find a substitute for acute care provision. Therefore, PHI funds have been wary of HITH as they have not been convinced that its implementation would result in lower costs.

In some of the existing programs doctors are required to indicate the proposed length of stay in HITH, and provide medical authorisation that the care is a substitute for hospital care. With episodic payment, it is possible that this will become less of an issue for the PHI but the hospitals will find it necessary to monitor this closely. Like programs in the public sector, specific admission criteria will need to be developed and adhered to.

#### **3.4.5. Feasibility and viability**

Often, private hospitals have relatively small numbers of beds but relatively large catchment areas. The need to travel long distances to deliver care to small numbers of patients will make it difficult for a hospital to offer a viable program. However, there may be scope to purchase services from the public sector, especially from specialist or community-based programs.

#### **3.4.6. Provision of Care**

In the same way as the public sector, the private sector will be faced with the necessity to maintain standards, develop policies, procedures and pathways. Smaller facilities, and facilities with less incentive to offer a HITH type program may have low throughput levels, thus making it difficult to maintain the necessary skill levels among their staff. One option is to rotate hospital staff into the HITH program but, in view of the opinion among HITH providers that HITH staff need to develop specialist skills in their area of expertise, rotated staff are less likely to develop the specialist skills necessary to work in the community.

Several PHI informants suggested that they would be reluctant to use a third party (eg. private nursing agency) to provide HITH care as they felt that a third party provider may attempt to promote their services to the hospital clinicians. Thus, adherence to HITH admission guidelines may be ignored which may result in inappropriate patients being referred to the program.

### **3.4.7. Quality**

There are no issues regarding quality of HITH-type care that are especially pertinent to the private sector. It is worth noting, however, that, as well as improving patient choice and being innovative; informants from private hospitals regarded maintaining a high standard of care as an important motivator in considering and/or developing HITH programs.

## 4. Chapter 4 – Issues and implications for HITH in Australia

Chapter three described HITH and the current arrangements regarding its application in Australia. In this chapter, the issues and implications arising from how HITH is currently funded, organised and delivered in Australia are presented and discussed. Initially, the impact on HITH of overall health system arrangements in Australia is presented. Then program-specific issues and implications are considered, including issues regarding HITH that are pertinent to the private sector.

### 4.1. Ownership of programs and classification of patients

There are a number of issues that arise in relation to ownership of HITH programs:

- **The acceptance of HITH** – On the basis of information from the survey and consultations, there appears to be greater clinical acceptance of hospital-based HITH programs in Australia. Clinical acceptance is important to the viability of HITH programs in terms of ensuring sufficient referrals. This does not mean that Community Sector programs cannot be successful. However, it does suggest that community programs require strong liaison between the Community, the HITH program and the hospital.
- **Procedures and protocols** – The issue of ownership is important in terms of what procedures and protocols apply to HITH programs. It is unlikely that existing procedures and protocols for hospital-based or community-based care are appropriate to HITH programs. Thus, regardless of ownership, HITH-specific procedures and protocols need to be established. When programs are jointly owned (or operated), the case for new policies and procedures is even stronger to ensure conformity across all staff providing care in the home.
- **Specialist versus generalist HITH programs** – There is some debate within the health system about the merits of different HITH arrangements. One such debate centres on the qualities inherent in providing HITH as a specialist program (eg. for a group of patients with a specific diagnosis) versus its provision to patients who fulfil the criteria for HITH more generally. Although one type of provision is not intrinsically better than the other, facilities considering the introduction of HITH need to recognise that one may work better in their particular setting than another. For example, HITH programs operating out of a tertiary hospital may have the necessary links to providers of highly specialised care as well as having the patient load necessary to sustain such a program. Alternatively, in community, base and district hospitals it may be more feasible to operate as a generalist service.
- **Medico-legal responsibilities** – HITH patients by definition still require acute care equivalent to that which would be provided in a hospital. Thus, it is important that medico-legal responsibility for the patients is as clear as it would be if they were being treated in a hospital. In hospital-based programs, where the staff are generally employed by the hospital, responsibility clearly lies with the hospital. However, medico-legal responsibility is less clear for community-based

programs or for programs with combined responsibility. This can create uncertainty for staff at all levels as well as for the patient.

#### *Recommendations*

- 2. Ownership of HITH programs should be clearly defined and responsibility for a HITH program should be held by an identified legal entity within the health system.*
- 3. There should be clear lines of medico-legal responsibility, equivalent to those for hospital inpatients.*
- 4. HITH specific policies and procedures should be developed and used by all HITH programs. The responsibility for developing these should be with State/Territory Health Departments to ensure consistency within HITH programs.*
- 5. The Commonwealth should consider providing support for a national clearinghouse for policies, procedures and clinical pathways to facilitate consistency in policies and procedures across Australia.*

## **4.2. Organisation and delivery of care**

Some important themes regarding setting up, organising and delivering care emerged from the surveys and consultations. These have implications for future arrangements concerning HITH.

**Staffing** – The success of HITH relies on good relationships between the clinician referring patients to the program and the staff (including clinicians) providing HITH care. In addition, the referring clinician needs to be confident of the skills and qualifications of HITH staff, and particularly, that there are adequate arrangements for ensuring that skills are up-to-date. In current arrangements, hospital-based programs may more easily meet these conditions. As the skills necessary for HITH become more common and confidence in HITH programs becomes widespread, this issue may become less important.

- **Administrative support** – At least initially, HITH programs require strong management skills and high level support within the hospital system. Thus, regardless of where the program is based, the administrator must be able to command that support.
- **Program control** – Perverse incentives can arise if there is separation between the responsibility for accepting and discharging patients from the HITH program and responsibility for management of the resources of the program.
- **Nurses** – The set of skills necessary for nurses providing HITH is diverse. HITH nurses need sufficient expertise and experience to be able to justify their management of patients to other team members. Such skills necessitate the employment of relatively senior nursing staff and thus may increase average wage costs for the program. Nurses providing care in the community sectors have different skills from most hospital nurses, and, given that HITH is a combination of both community and hospital care, education programs are required to up skill the nurses. As well, in some programs the specialisation required might preclude a program being offered for a small volume of patients. This may be overcome if



hospital speciality staff are available to care for these patients or to consult on care planning. Considerable organisational effort and ongoing communication is necessary in establishing and maintaining such a program.

- **Therapists** – In some programs <sup>(38-41)</sup>, especially those focused on rehabilitation where care is provided by a multi-disciplinary team (eg. post-hip surgery, post-stroke patients) a physiotherapist or occupational therapist may be the care coordinator. In other programs (eg. IV therapy or post-surgical programs), therapists may be required to treat a small proportion of HITH patients at irregular intervals. In the case of the latter it may be difficult and expensive to maintain allied health support. In hospital programs this may be dealt with through a departmental rather than a clinical unit structure for allied health; the therapists provide services across a number of wards or clinical areas. However when this method of staffing is used for HITH, there may be conflicts between hospital and HITH demands. As well, those individuals who are only occasionally involved may not feel as if they are part of the regular HITH team.
- **Pharmacists** – Co-operation and coordination between pharmacists and doctors is essential. Recommendation of alternative antibiotics that require administration only once or twice a day, monitoring of laboratory values, and assessment for possible drug interactions are all key roles for pharmacists in programs which involve the home administration of any pharmaceuticals<sup>(32)</sup>. In addition, pharmacists may be key advisers to the HITH program regarding newly released drugs and equipment.
- **Doctors** – As discussed previously, a key issue with respect to doctors' involvement in HITH is clarifying who has the responsibility (including the legal responsibility) for the patient's care. This includes ensuring there are clear lines of accountability (given there may be a number of hospital and non-hospital doctors involved in the patient's care).

An important barrier to HITH that was raised in consultations was the fact that the practice of HITH is not consistent with doctors' usual practice arrangements, such as where they see patients and how they manage their time. This is especially true for hospital-based specialists.

Such issues should not preclude non-hospital-based doctors from becoming involved in HITH provision. In some programs patients are monitored by GPs (either the patient's own or one from a list provided by the hospital) under the supervision of the Director of the HITH program. In either situation, the GP should be accredited by the hospital<sup>(42)</sup>. In many instances, GPs may welcome involvement in HITH as they see this as a way of expanding their own skill levels. In order for this involvement to be successful, there must be good communication between the GP and other HITH providers as well as ongoing education programs. In WA, a program coordinated by a Division of General Practice offers its participating GPs a support system that allows access to a more experienced GP.

However, GPs may be reluctant to become involved in HITH because of issues such as the requirement to provide 24 hour care, the need to visit patients in the home, and concern that they have little control of the medical management of the patient. GPs may also feel that they do not have the necessary skills to monitor

and treat HITH patients. A further issue is that even when the GP is not directly involved in the HITH program, he/she may be indirectly involved if a patient calls upon his/her GP to supplement HITH support. If a HITH program is to operate using GPs as the providers of medical care, then appropriate arrangements must be made for patients who do not have a GP or whose GP is not willing to participate.

GPs sometimes express feelings of frustration towards hospitals and the health care system in general. GPs are primary care physicians and see one of their important roles as adding value to HITH by providing input to care from an early stage (ie. prior to discharge from a hospital bed). GPs often have a unique understanding of the psychosocial and emotional needs of patients and their families. This is particularly true in a traditional family practice where GPs are able to provide input into establishing continuing care for the patient in the community. Thus, HITH programs that do not involve the GP may be seen as an encroachment into commonly perceived areas of GP expertise. On the other hand, hospital-based specialists may feel as if they lose control over patients when care is being provided in the home by a GP.

In rural settings where bed shortages may not be an issue, but doctor shortages are, there may not be any incentive for doctors to be interested in HITH programs if it means taking the time to visit the patient in the home. This simply may not be good time management.

**Location of care** – One of the difficulties in offering a program such as HITH is defining what it really is, and preventing expansion into non-acute care. It is questionable that the care being provided in HITH is a true substitute for acute inpatient care if patients are required to travel to the hospital or clinics for treatment.

Some programs have initiated HITH in alternative places of residence (eg. nursing homes and hostels) either by providing care themselves or acting as a resource for nursing home staff. The scope for the location of care should not be limited to the home as long as the necessary support can be provided to the staff and patient.

**Carers** – In this modality of care, consideration needs to be given to possible impacts on carers who play a vital role in the provision of HITH. There may be both positive and negative aspects to being a carer in HITH. For example, the family may receive intangible, psychological and financial benefits in caring for the patient at home. However, care may also impose considerable burdens. These may be of a financial nature (ie. time lost from work, paying for medications or supplies) or of a psychological nature (ie. stress and anxiety). The latter may be minimised by careful selection of patients/carers and the provision of education and support. Education such as that provided by Carer Training Centre at The Alfred Hospital in Victoria has shown to be beneficial (personal communication, Lexie Clayton, 1999).

**Staff safety** – Staff safety was given considerable attention by the facilities completing the survey. At a minimum, care providers carry mobile phones, most programs have developed written protocols and several have detailed procedures to follow when making visits. Other arrangements include a requirement that two staff members attend a home visit, or having security personnel accompany staff if a home situation causes concern.

*Recommendations*

6. *HITH programs should ideally have high level support within hospital or health service management.*
7. *HITH programs should provide ongoing inservice and training programs for HITH staff, including GPs involved in the program.*
8. *Hospital and health services establishing HITH programs should recognise the need for a wide range of health professionals, including nursing, medical, allied health, pharmacy and others to be available to HITH patients.*
9. *Funders and managers should recognise that HITH can be provided in locations other than the patients' home.*

### 4.3. Patient Management

**Criteria for admission to HITH** — There are two important aspects of criteria for admission: determining which patients are appropriate and determining when in a patient's stay they should be considered for HITH. Not all conditions and not all patients with a given condition will be suitable for HITH. One of the most crucial factors in operating a successful HITH program is patient selection. This requires that patients and their situations be assessed using a set of criteria. This should include assessment of the suitability of the patient's environment or family support, and patient and carer preferences for the location of care.

It is also important that criteria are used to ensure that HITH is used as a substitute for in-hospital care. Some survey responses indicated that the only alternative to HITH was for patients to go home with no support. This suggests that HITH is sometimes acting as an addition rather than a substitute for hospital care. While HITH programs generally aim to provide substitute care, this rarely translates into specific criteria for admission to HITH. Such criteria could be developed by assessing HITH admission criteria against the usual discharge criteria for patients with this condition. In addition, to ensure that HITH programs attract all appropriate patients, admission criteria for patients should be clearly stated, available to all appropriate health care providers (both hospital and community) and be evaluated on a regular basis.

*Recommendations*

10. *Clear admission criteria should be established for HITH to ensure that only suitable patients are admitted into HITH programs.*
11. *HITH programs should have established monitoring systems to ensure that there is adherence to admission criteria.*

**Discharge from HITH** — Questions remain about whether HITH patients are more likely to have longer lengths of stay (LOS) than non-HITH patients and whether such differences are connected with characteristics of the program or with those of the patient. Appropriate policies are necessary to ensure that patients are discharged from HITH judiciously. Strategies may include: a requirement that specific approval must be

provided for LOS longer than estimated; the use of clinical pathways; and the inclusion of active assessment of continuing care versus discharge at regular team meetings. Such strategies should also include mechanisms for referrals to other services to ensure that patients do not continue to be treated by HITH when a less intensive community-based service may be more appropriate.

#### *Recommendations*

*12. Appropriate discharge, referral and post discharge strategies should be established*

*13. State/Territory Health Departments should have responsibility for facilitating the development of admission criteria, policies and procedures for referral and discharge and for monitoring adherence to admission criteria.*

**Continuity of care** — Continuity of care and hours of care are important considerations for all HITH programs. A traditional community care program, to which patients are admitted on discharge from hospital, may have no need to provide 24-hour care. In a HITH program, where care is a substitute for acute hospital care, the provision of ongoing, continuous care by qualified staff is an important consideration both from a patient safety perspective and in terms of clinical acceptance. However, a small HITH program may have limited capacity to offer access to 24-hour care. Many programs rely on a hospital Emergency Department (ED) for after-hours patient care. The ED staff may lack familiarity with patients and their lack of access to records may be a disincentive to referrals. Failure to provide 24-hour back up care – either in person or by telephone – may lead to reduced levels of acceptance on the part of patients and carers.

The transition between previous providers and the HITH team must be managed carefully. While staff in both community and hospital sectors are familiar with patient transfers, additional care must be taken with the timing and arrangements for transfers of acutely ill patients to a place of residence other than a hospital.

**Patient and carer education** – A Carer Training Centre (CTC) has been established at The Alfred Hospital in Victoria following initial research which found that the provision of care-specific technical information and training is important for the development and maintenance of patient and carer confidence (Lexie Clayton, personal communication, 1999). The CTC is available to all hospitals in Victoria undertaking HITH projects. The centre addresses specific carer needs including:

- Training and support in coping skills for carers;
- Empowering patients and carers to assume responsibility for self management;
- Providing a 24-hour Carer Helpline to respond to questions and emergencies; and
- Providing access to a variety of educational/instructional packages including brochures, video tapes and computer based instruction packages<sup>(28)</sup>.

Further evaluation will be necessary to assess the extent to which carer training programs contribute to increasing the acceptability of HITH to consumers and their impact on carer and patient understanding of their role in the provision of HITH care.

**Choice** – The choice between HITH or hospital care should involve informed consent to

ensure that patients are informed of benefits and risks of the HITH program and that they are aware of the differences between the two modes of care. Further, it is important to recognise that often the patient understands her/his situation better than health care professionals and thus, should feel that choice is truly available.

A second issue with respect to choice is that of clinical resistance. If acceptance of HITH among referring clinicians is low, patients who have the potential to benefit from HITH may not be offered a choice. Finally, there is choice once a patient is admitted to HITH. As far as possible, arrangements for HITH should be flexible, for example, allow for variable visiting time according to patient preferences. As far as possible, HITH programs should also make arrangements to deliver drugs and other supplies to patients and avoid the necessity for patients to attend the hospital for medical or allied health consultations.

**Consent forms** – Programs should have arrangements to ensure that the consent of the patient is based on explicit negotiation of the plan of care between the providers, patient and carer, with clear information about the rights and responsibilities of all parties. Given the specific nature of HITH, it may be appropriate for this to include signed consent forms for admission to HITH care. HITH is different in a number of respects from hospital inpatient care. In agreeing to be admitted to hospital, patients give implied consent to care which they can withdraw by leaving the hospital. It is unlikely that patients can leave their homes in the same way. A HITH consent form also provides proof that the patient has given permission for providers to enter their home. Thus consent forms may be as much for the benefit of the provider as for the patient.

**Communication** – Good communication is important in providing seamless, high quality acute care in the home. HITH providers need clear lines of communication to community services and non-HITH clinicians, as well as within the HITH program. If the program is a community-based program, the communication links into the hospitals are crucial. The literature points to some problems in establishing working relationships and protocols between hospitals and HITH programs. This may result in insufficient throughput in HITH programs to realise economies of scale.

Good communication also requires the establishment of consultation mechanisms between specialists and general practitioners involved in HITH. Similarly, where several doctors are involved in a program, each providing care to some patients, there must be communication mechanisms between doctors and other care providers in the program.

**Medical records** – The medical record is a critical communication vehicle in HITH programs. Thus it is essential that all providers contribute meticulously to the record, even where they may choose to duplicate the record themselves (for example, if the patient's own GP is providing HITH care). Consideration needs to be given to who has access to the record, how the record is updated and what happens when there are multiple team members visiting the patient. This raises the issue of the appropriate location of the record during the episode. There are strong arguments for the record to be securely stored in the patient's home during the episode for the purposes of easy access by all providers. However, it is also important to have mechanisms for the HITH medical record to be available or incorporated in the hospital medical record if the patient is transferred to hospital (and for future admissions).

Particularly in the case of community-based programs, the issue of where records should be permanently stored must be considered. The record must be stored in such a way that it is available for future related hospital episodes, and for the purposes of audit and evaluation.

#### *Recommendations*

- 14. Patients must be provided with an opportunity to make an informed choice.*
- 15. Programs should have arrangements to ensure that the consent of the patient is based on explicit negotiation of the plan of care between the providers, patient and carer, with clear information about the rights and responsibilities of all parties. Given the specific nature of HITH, it may be appropriate for this to include signed consent forms for admission to HITH care.*
- 16. All care provided in a HITH episode should be recorded in the HITH medical record, by all care providers. This may be facilitated by keeping the medical record in the patient's home during the episode of care.*
- 17. Mechanisms must be available for medical records to be incorporated in the hospital medical record if the program is hospital based. When the program is community based, a mechanism needs to be established to securely store the record, and to make it available for the purposes of audit and retrieval to provide clinical information (for example, if the patient is admitted to hospital).*
- 18. Systems for the permanent storage of HITH records must be established to ensure availability for future care, and for audit and evaluation.*

#### **4.4. Funding/payment**

Funding arrangements for health services in Australia vary considerably across States and Territories and between programs. Thus, it is difficult to define a single set of appropriate funding arrangements for HITH which will be compatible with other health services funding in that jurisdiction and/or program. However, it is useful to identify the range of possible funding arrangements that exist or could exist in the Australian context, as a basis for considering the implications of different funding arrangements. This will be discussed in more detail in Chapter Five (evaluation of the models).

- 1) **Mainstream funding** – under this funding arrangement, specific funding is provided for HITH services. HITH services are funded as part of the global hospital budget and it is a hospital level decision how the budget is allocated across HITH and other inpatient services.
- 2) **Block grant** – specific funding is provided for HITH services as a separate component of the hospital budget. The funding does not specify the level of provision of HITH services, and there may be no arrangements for savings arising from inpatient services to be redirected to HITH. Such a model may arise where there is or has been pilot project funding, or where HITH is funded from a different source from the mainstream hospital budget.

- 3) **Service agreements** – under this arrangement, specific funding is provided for HITH services as a separate component of the hospital budget, but the funding agreement specifies the level of provision of HITH services. This may be in the form of a cost-and-volume contract, and may specify that some funding comes from the main hospital budget.
- 4) **Casemix based funding** – where hospital services are funded on a casemix basis, the funding arrangement for HITH may also be on a casemix basis. A number of different casemix funding arrangements are possible, although the most usual in the Australian context is that the hospital is allocated the full casemix payment for the episode of care, regardless of whether it is entirely HITH, HITH and inpatient or an inpatient episode only. Another possibility is the development of a separate cost-weight for HITH episodes, but for this to occur, appropriate cost weights need to be developed.
- 5) **Incentive funding** – This funding arrangement generally operates in conjunction with another (eg. casemix funding or mainstream funding) and involves the provision of an additional payment, for example on a per diem or per case basis, for the provision of services through a HITH program. Such a funding arrangement recognises the higher establishment and running costs of new programs and also the need to encourage innovation. In Victoria a per diem incentive funding arrangement exists, but both the per diem payment and the total incentive funding pool is capped, and thus, the level of incentive payment to programs varies.
- 6) **Per Diem:** This involves a payment for each day of care provided in a HITH program. Such a funding arrangement might be capped overall, or per episode.
- 7) **Fee-for-service:** This involves a payment for each service provided by the HITH program. Again, this arrangement may be capped overall, or per episode.

It needs to be noted in this outline of possible funding arrangements that these funding arrangements are not mutually exclusive, and one or more funding arrangements might exist for a specific HITH program. For example, within a block grant or service agreement arrangement, there may be fee-for-service for certain components of the program, such as medical practitioner visits.

Although funding arrangements will be assessed in the context of the models, there are a number of general issues that should be noted.

- As is the case for other health programs, there is interaction between the method of funding HITH programs, the source of funding and how the programs are organised. For example, block grant, service agreement and incentive based funding arrangements generally exist where there is designated funding for HITH at a program level. Service agreement arrangements are more likely to arise for HITH services that are based outside of the hospital, for example, in a community agency. A related point is that the funding arrangement for HITH might be determined by the funding arrangements for other sources, and the potential to access funds for HITH from these sources.

- It is important to distinguish between the funding arrangement at the hospital or community agency level and how the services are actually paid for. A casemix based funding arrangement at the hospital level may translate to a fixed budget at the level of the HITH program within the hospital, and then at the level of the program, it may be necessary to pay some providers on a fee-for-service basis. Thus, describing the full range of alternative funding arrangements and the incentives that arise from them becomes very complex.
- HITH may be substituting for a range of different services which would normally be funded from different sources (medical services funded under the MBS and from hospital budgets, pharmaceutical services funded under the PBS and from hospital budgets and nursing services funded from community health and hospital budgets). As yet, there has been no attempt to recognise these different sources of funding and identify the appropriate pool from which HITH should be funded. This is made more complex by the fact that strictly, HITH should be a substitute for hospital services, but in practice, the overlap with hospital and community services is blurred.
- Because HITH programs in Australia are funded from different sources using various funding mechanisms, payment for some aspects of HITH (eg. medical remuneration, medications, supplies) varies between States/Territories and between programs. For example, in Victoria, where HITH is defined as an inpatient substitute, arrangements are such that each program covers costs such as payments to doctors and the costs of drugs and supplies as if the patient was in the hospital. In other states there is little or no direction in this matter and costs may be shifted to the patient, the PBS or the MBS.
- There are several possible funding mechanisms for medical remuneration within HITH. One possibility is to have the HITH program budget cover all medical costs associated with the episode of care, as would be the situation if the patient were a public patient in a public hospital. Another possibility is to arrange for the MBS to remunerate doctors. A third possibility is a combination of the two types of arrangements. Each of these scenarios can be found in Australia today. If the first situation were to become policy, each program would need to establish a contract for service provision for all non-hospital paid doctors. This is an issue for GPs and all medical care provided in a HITH program to private patients. If, on the other hand, the MBS were to be used to pay for the care of public patients, hospital costs (ie. State responsibilities) would be shifted to the Commonwealth. It is also important to consider appropriate payments for time spent by doctors in team conferences, in responding to phone calls and in travel time when undertaking home visits. The Commonwealth government has recognised the need to remunerate GPs and work is currently in progress to introduce a fee structure that allows medical practitioners to charge for case conferencing.
- It is important to consider the relative advantages and disadvantages of funding HITH as a separate program, with specific funding arrangements compared with funding it in the same way as other hospital services. If HITH is funded in the same way as other hospital services, the incentive for hospital managers to assess the most efficient ways of providing the service are increased. For example, this



would be truer under mainstream funding (where hospitals are funded on a global budget basis) or casemix funding (where hospitals are funded on a casemix basis). With different funding arrangements such as a separate pool of funding for HITH services, there may be incentives to increase the use of HITH services to access this pool of funds.

- There are particular risks where there is any throughput based funding for HITH combined with a global budget for other hospital services.
- It should also be noted that the incentives to assess the relative costs of HITH and inpatient care are increased if the responsibility for paying for these services rests within a single administrative unit (ie. a single unit is responsible financially for all of a patient's care). This may be either at the hospital level or at the level of a clinical division where the incentives are likely to be stronger.
- However, there is a potential trade-off between funding arrangements which encourage the health service manager/provider to assess only the relative costs of HITH and inpatient services and ignore other factors such as patient preferences, health outcomes and benefits from innovation.
- Although the promotion of appropriate utilisation and the management of demand may be the drivers for introducing casemix funding, it may also provide the hospital with an incentive to increase throughput. However without quotas, HITH may have an additional impact of raising overall health system costs if throughput increases across the system. In a mainstream funding arrangement, HITH may lower the costs of specific episodes of care, but there is no direct incentive to use it as a basis to increase throughput.
- The provision of casemix funding for HITH may provide incentives for weaker admission criteria for HITH. Further, there are difficulties with establishing the appropriate cost-weights for HITH and inpatient components of care (and whether the cost-weight for an episode that involves both should be different from that for a similar episode that is HITH-only or inpatient-only).
- In Australia currently, there are few existing arrangements for funding of HITH for private patients in private hospitals and none for private patients in public hospitals unless they change their status to public. The major issue for the private provision of HITH relates to payment. While there is still disagreement about whether the *National Health Act (1953)* can be interpreted as allowing HITH to be paid for from private health insurance hospital tables, a more important issue is that of encouraging episodic rather than per diem payments for HITH. Episodic payment will provide better incentives for private health insurers and providers of private health care to deliver HITH as a substitute for acute care.
- A number of programs in Australia are supported in part by incentive funding and there are very few cases where savings created by a funded pilot HITH program have been directed towards continued funding of the program. This raises the issue of whether the program would be sustainable without incentive funding. In some cases the program would be sustainable if appropriate resource shifts were made from other services (eg. inpatient care), but, often, this does not happen.

This is a common problem with innovative programs that potentially reduce length of stay and free up resources from inpatient services. If there are waiting lists in the area of service provision, it is more likely that the freed-up resources are directed to provision of additional services. Potentially successful HITH programs may not continue to be funded at the hospital or community agency level if designated funding is not available. This is particularly the case for community-based programs, where the resources freed up are located in other (hospital) services. This threatens the long-term viability of the HITH program. However, it may also be the case that a program simply would not be sustainable without incentive funding. There is a risk that provision of incentive funding masks the true resource costs of HITH. Thus, it is important that incentive and pilot programs are rigorously evaluated to assess the relative costs and outcomes when compared with inpatient care.

- Whatever funding arrangements are adopted, it needs to be recognised that HITH programs will incur establishment costs. These will occur as a result of set-up costs and higher average costs initially due to low throughput.

Decisions about introducing HITH should not only be based on financial considerations but also take into account potential benefits such as the role of innovative programs in changing clinical practice, lowering hospital costs and improving patient outcomes in the longer term.

#### *Recommendations*

- 19. There should be consistency in the funding arrangements for HITH and inpatient care to reduce incentives for cost-shifting.*
- 20. To reduce incentives for cost-shifting, financial responsibility for HITH and inpatient care should rest with a single entity. Ideally, this should be as close as possible to the level at which clinical decisions are made.*
- 21. Funding arrangements should reflect the costs of service provision. This is particularly important where funding is throughput based.*
- 22. Funding arrangements should be consistent across public and private sectors. That is, access to HITH should not be constrained by differences in funding between the sectors, and patients should not have to change status to access HITH.*
- 23. If incentive funding is provided, mechanisms should be put in place to ensure that resources freed up will be diverted to HITH in the longer term, to provide viable long term funding once the incentive program ends.*
- 24. Incentive funding should be time-limited and should be linked to requirements to evaluate costs and outcomes of HITH.*
- 25. Funding from different sources, such as hospital and community sectors, PBS, and MBS should be pooled in the provision of HITH, where all these components are involved in HITH. Thus all care and medications will be provided by HITH. In*

*order that the appropriate funds be included in the pool for HITH, the following should be evaluated:*

- *The quantum of public hospital, community services, MBS and PBS funds which could legitimately be pooled under a HITH program;*
- *The impact of HITH in terms of costs to the health system as a whole and to both Commonwealth and States; and*
- *The mechanisms for net savings, if any, between the Commonwealth and States*

*26. Consideration should be given to creation of a MBS item(s) and fee(s) that recognises additional components of care within HITH programs such as team conferences. Such a fee could be used as the basis for remunerating private medical providers involved in HITH programs, or, preferably, for pooling of funds for HITH care.*

#### **4.5. Monitoring HITH**

Monitoring the standards and quality of HITH care, and ensuring that patients, carers and staff are satisfied with HITH, were among the most frequent issues raised by survey respondents and other stakeholders. Thus, indicators are needed which will measure inputs, processes and outcomes of HITH. It is important that these include measures of acuity and of the impact of HITH from the perspective of patients and carers. Such indicators can also be used to benchmark HITH programs against each other and against hospital care.

##### **Quality of care**

It is important that the quality of care in HITH should meet the appropriate established inpatient care standards for a given condition. The Australian Council on Healthcare Standards<sup>(43)</sup> has set out guidelines for care in the home in their Evaluation and Quality Improvement Program. Such guidelines represent a good starting point for the establishment of a high quality program. The ACHS guidelines cover issues such as the continuum of care, leadership and management, human resources management, information management and ensuring safe practice and environment. In addition, the ACHS and AHOITA have recommended that the following clinical indicators be incorporated into hospital quality improvement programs for HITH.

- Unexpected telephone calls
- Unscheduled staff call outs
- Unplanned return to hospital<sup>(44)</sup>

At a recent seminar on HITH held at the Prince of Wales Hospital a 2-hour brainstorming session with service providers and funders took place with a wide range of factors discussed. These included staff, client and carer safety, support for carers, outcome measures such as efficiency, satisfaction, function, adverse events, compliance, inappropriate use, and provider feedback<sup>(45)</sup>. This suggests that a wider range of indicators may need to be considered.

### *Recommendations*

27. *There is an urgent need for development of a minimum data set for HITH. Data should be collected which permit monitoring and evaluation of the inputs (including costs), processes (including the acuity level of patients) and outcomes of HITH care.*

28. *The ACHS guidelines and clinical indicators should be used as a starting point for the development of consistent HITH-specific standards of care.*

### **Acuity**

A measure of acuity is necessary to assist programs in determining which patients are suitable for HITH as well as determining expected resource use and permitting comparisons across programs. Difficulty in determining appropriate acuity levels of patients is not unique to HITH. In Victoria, despite several years' experience and three audits, in 1997/98, 6.7% of patients in HITH programs were not eligible for HITH. Although this is a considerable improvement from the 1996-97 audit which indicated that 16% of patients were ineligible for HITH care<sup>(28)</sup>, it suggests that ensuring true substitution is a difficult and time consuming process that could be aided by an acuity indicator.

AN-DRGs, which were developed for the purposes of monitoring resources utilised in episodes of hospitalisation for acute conditions, are not good indicators of acuity in HITH. For example, a patient who is transferred into HITH following uncomplicated post open-heart surgery (classified as a high resource DRG) may require daily skilled nursing assessments for a few days but may not need medications or complex dressings. On the other hand, a patient with osteomyelitis may require 6 weeks of expensive antibiotics administered two or three times per day. Thus, a measure of acuity needs to be developed which combines diagnosis and type and quantity of treatment provided with expected length of stay.

There are a number of classification methods available for assessing the acuity of hospital patients, two of which are InterQual<sup>(46)</sup> and the Appropriateness Evaluation Protocol (AEP). The latter was adapted for use in an audit of the Victorian HITH program<sup>(27)</sup>. The report of the audit notes that:

- Acuity of care is more likely to be assured if the HITH unit is located as part of a clinical unit (or has a designated medical director).
- There is a higher risk of longer lengths of stay if the HITH unit is located with the ambulatory care section of the hospital.
- Patients are less likely to be of an appropriate level of acuity if the project utilises GPs extensively.

A measure of acuity specifically designed for HITH, (Hospital in the Home Load), has been developed jointly by the Frankston Hospital in the Home unit and the ACHS<sup>(44)</sup>. This measure is calculated by multiplying the proportion of an individual's episode of

care spent in HITH by the proportion of the number of cases that are intravenous therapy or low-molecular weight heparin. The use of this method has been justified by two arguments. The earlier a patient is transferred to a HITH unit the more unwell or unstable (ie. acute) the condition is likely to be. Administration of intravenous therapy and low-molecular weight heparin are both substitutes for inpatient care that technically are the most difficult form of therapy to administer in a HITH program<sup>(44)</sup>.

As mentioned elsewhere, in this report an acuity measure has been developed by VCACI and is currently available for trialing in Victoria<sup>(28)</sup>.

It is not clear which (if any) of the measures discussed above is the most appropriate for HITH, but it seems sensible to develop a standardised indicator of the level of acuity.

#### *Recommendation*

*29. A measure of acuity suitable for use in HITH programs should be developed. Consideration may be given to the tool currently under development at the VCACI.*

#### **Patient and carer satisfaction with HITH**

Overall satisfaction with hospital care (as measured by patient satisfaction surveys) has been reported to be between 70%-90%. There have been few specific evaluations of satisfaction with HITH reported in the literature, but those that have been<sup>(47, 48)</sup> have reported high levels of satisfaction. Generally the feedback from the patients and carers has been positive<sup>(9, 10, 49)</sup>.

In addition to written surveys, closed and open-ended surveys, either face-to-face<sup>(50)</sup> or via telephone<sup>(49)</sup> have also evaluated satisfaction with HITH. Although both studies found a high level of positive responses to HITH, patients and carers were also able to express concerns regarding HITH, including specific problems encountered and recommend changes. In this way, patients and carers were able to make what Williams<sup>(51)</sup>, calls “value descriptions” of their experiences. For example, Montalto<sup>(52)</sup> found that patients’ and carers’ responses to a series of open ended questions about HITH enabled clarification of the characteristics of HITH that patients and carers valued and which, therefore, should be in place. These were:

- A uniform and consistent approach to treatment by HITH and non-HITH staff;
- The provision of education and reassurance about the processes of care;
- Access to 24 hour emergency back-up;
- A requirement that a separate consent to HITH be signed by patient and carer

Other authors have also described aspects of HITH care mentioned as important by patients/ carers,<sup>(48, 50, 53, 54)</sup>. The concept and measurement of patient satisfaction has been challenged from both a methodological and conceptual viewpoint. Williams<sup>(51)</sup> has suggested that there is no way that all the potential satisfying/dissatisfying characteristics of health care can be incorporated into a survey format. Moreover, results from surveys and more qualitative studies are at odds over what patients’ opinions are. Thus, caution

should be exercised in using a patient satisfaction survey as the only way of understanding what patients and carers think is important and what their preferences are.

As an alternative to a survey, Williams <sup>(51, 55)</sup> suggests that patients asked to describe their experiences (rather than evaluate a program) will not be affected to the same extent as survey respondents by bias factors which may tend to make respondents less frank in their opinion. Examples of such biases include the desire not to make trouble, hesitancy in negatively evaluating care providers and the framing and wording of survey items. Thus the development of an open-ended survey asking patients and carers to describe their experiences of particular aspects of HITH may be the most appropriate way to examine patients/carers views on a program.

#### *Recommendation*

*30. As part of patient/carer evaluation, HITH providers and programs should explore issues of information, choice and the positive and negative aspects of being a HITH patient/carer.*

#### **Benchmarking**

A benchmark is a point of reference against which other items can be judged. Benchmarking is one of the uses to which routinely collected data about the performance of health care services can be put. It can be characterised as a system of standards monitoring which allows comparisons to be made. In the case of HITH, the comparisons can be made between HITH programs and between HITH and hospital care for specific types of patients or care. Therefore, it can be used as part of the evaluation of care. Items which are measured for the purposes of benchmarking are often called indicators. The outcome of benchmarking should allow managers to determine how they are performing relative to other HITH programs and to assist health care managers and providers in making changes to improve their services, thus encouraging accountability and quality improvement. Benchmarks can also be used to provide information about different facilities to assist patients or consumers to make decisions about their preferences. They should be used in conjunction with a minimum data to assist in the ongoing evaluation of HITH.

There exist several impediments to benchmarking HITH. In setting benchmarks, it is necessary to assume that one is dealing with a homogenous group (ie. to be able to compare like with like). HITH programs in Australia are not currently homogenous. They range across a wide number of services, diagnoses, treatments, providers, and funders. They may also have different objectives: some aims include avoiding hospitalisation, shortening hospital stays and bridging the gaps between community and hospital care.

Therefore, it is important to establish the purpose of undertaking a benchmarking process. It is also necessary to ascertain whether one set of common indicators will suffice for all HITH programs, or whether separate indicators are required for different types of programs such as those providing intravenous therapy, rehabilitation or post-surgical care. If a single group of indicators is deemed sufficient, it will be necessary to devise a

method of assessing and taking into account variations in acuity levels of different groups of patients. (See discussion of acuity measures for HITH above).

The process of determining the final list of indicators and the ultimate purpose and levels for each benchmark are decisions that should be made by involved stakeholders. A set of steps for setting benchmarks, collecting relevant data and using these data as guides to monitoring and evaluating is set out in the Box.

**TABLE 18: PROCESS OF DEVELOPING BENCHMARKS (Australian Manufacturing Council, 1994)**

<p>1. First determine:              What to benchmark; and              Who or what to benchmark against</p> <p>2. Comparisons that may include the following activities:              Data collection              Data manipulation, construction of indicators, etc. and              Comparison of results with benchmarking partners</p> <p>3. Investigation, that is, identification of practices and processes that result in superior performance</p> <p>4. Implementation, in which best practices are adapted and/or adopted</p> <p>5. Evaluation, where new practices are monitored to ensure continuous improvement, and, if necessary the whole cycle is repeated</p>
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Benchmarks should consist of both input and output indicators. While output indicators such as number of readmissions within a given time period, adverse events, and mortality rates are important for monitoring standards, it is also important to be able to track inputs such as nursing/therapy hours, costs, time travelled and types of care provided. Consideration should also be given as to whether any of the selected indicators are easy to game otherwise the process may result in a perverse incentive structure. Decisions about which indicators to collect should be made on the basis that the information thus provided will make a contribution to the knowledge base and help determine whether a health innovation, in this case HITH, is feasible and, on the whole, beneficial.

In the survey of facilities undertaken for this project it was clear that many HITH programs do not currently collect, in a standard way, the basic statistics necessary to monitor activity and performance in HITH. It was common for respondents to report that their facility did not have an information system in place that was capable of capturing the data requested as part of the survey.

*Previous work on clinical indicators* – As discussed in the section on Quality of Care Frankston Hospital in the Home Unit and the ACHS have collaborated in developing a set of clinical indicators suitable for collection as part of the evaluation of HITH Services. They are also recommended by AHOITA. The report suggests that high levels of these indicators (unexpected telephone calls, unscheduled staff call outs, unplanned return to hospital) may signify insufficient time in education prior to transfer to HITH, anxiety through perception of pressure to accept HITH, and ineligibility for HITH<sup>(44)</sup>.

While these indicators may enable quality of care to be monitored within programs they do not allow comparisons of HITH with traditional hospital care. Moreover, it is unclear how a high rate of telephone calls might be perceived as indicating poor service at the

same time that HITH units may be actively encouraging patients and carers to contact the HITH unit for guidance and reassurance about any aspect of care. If this indicator is adopted, there is a possibility that staff will not encourage calls. Another possibility is that staff may not count some calls if they are deemed not to be important.

It is important to note that the Frankston/ACHS indicators were developed in conjunction with a hospital minimum data set now collected by all hospitals in Victoria. Some of the indicators recommended by this report (see below) are routinely collected by Victorian HITH programs.

An alternative approach to indicator development was taken by Caplan et al<sup>(8)</sup> in an RCT of HITH where the majority of patients were aged over 65 years of age. In the trial, measures such as geriatric complications, adverse events and mortality rates were used as indicators. While these more traditional indicators allow comparisons between HITH and hospital, the occurrences were fairly low. This suggests that there is a need for additional indicators that will allow comparison between HITH units as well as with hospitals.

#### *Recommendation*

*31. The following list of indicators, which are drawn from the literature and the survey responses, are recommended for consideration for benchmarking purposes*

- Transfers to the hospital while in HITH program*
- Readmissions (to HITH or hospital) - within 1 week and 1 month post discharge from HITH*
- Number of unplanned home visits*
- Unplanned GP or clinic visits*
- Adverse events – falls, drug errors, phlebitis*
- Complications - infections*
- Measurement of length of stay (LOS) – both the hospital and HITH portion of stays*
- Case frequency*
- Diagnosis (es)*
- Number of treatments provided*
- Number of visits*
- Type of care provided*
- Origin of referral*
- Costs – direct, overhead*
- Experience/evaluation of patients, carers, GPs and staff*
- Functional status measurements, functional level of patients at discharge (in rehabilitation HITH programs).*

It is recognised that some of the indicators listed above may represent rare events (eg. unplanned home visits, adverse events and complications). However, it is considered worthwhile to collect these data as, no matter how infrequently they occur, they are likely to be relatively resource intensive. It should be noted that currently, HITH days are not considered to be inpatient hospital days in the National Minimum Data set. This means that those hospitals that use HITH will likely have shorter lengths of hospital stays despite the fact that they may use more days when HITH days are included.

Although there are no specific issues for the private sector regarding the organisation and delivery of care, it is important that issues of quality of care and monitoring and



evaluating care are seen as being as important to private providers as they are to public providers.

*Recommendation*

32. *Indicators should be developed that:*

- *Enable comparison to hospital care for the same condition/ treatment*
- *Enable comparison between HITH programs*
- *Enable acuity differences across programs to be accounted for*
- *Are able to be collected and recorded*

#### **4.6. Evaluation of the costs and outcomes of HITH**

From the review of the literature, it is evident that the necessary information to fully assess the potential value of HITH in the Australian setting is not available. There is evidence of the clinical safety and efficacy of HITH from a variety of settings, but this is rarely linked to information about costs. Where costs and outcomes are considered together, and with carefully designed comparisons between HITH and hospital services, the conclusions are mixed. In studies from other countries, it is clear that the relative efficiency of HITH is highly context specific and driven by local factors. Some Australian studies have been undertaken, but while these provide important information about the context and how HITH has been implemented in Australia, they have generally not taken the form of detailed evaluations incorporating comparison of costs and outcomes across the two settings.

Three issues emerge from this. First, there is a need for information from well-designed Australian evaluative studies which take into account how services are structured and paid for, as well as geographical and population characteristics. This would include a greater reporting of cost and outcome information from programs currently operating. Second, the methods for identifying, measuring and valuing the costs and outcomes of HITH compared with hospital care are complex, and there are a number of issues which need to be clarified. Third, given the importance of local factors, and the fact that those studies which have assessed costs and outcomes give equivocal results, it must be recognised that the such evaluative studies only provide part of the information necessary for health service managers and decision makers. Even more important is a framework for prospectively assessing the likely costs and outcomes of HITH for a given hospital/health service.

In this section we summarise the issues which must be addressed in undertaking a well-designed evaluative study, in interpreting evidence from evaluative studies and in assessing the potential value of HITH at the local level.

- It is important to understand that evaluative studies of new health services programs provide only limited information about the potential costs and effects of the program if more widely implemented. This is not simply a matter of small sample sizes, but also that when such programs are in a pilot phase the production function and cost structure is quite different from those of an established program.

The comparison that is made between HITH and hospital care is a comparison of a small new program with a large established program. In most evaluative studies of HITH, throughput is low, and particularly in the early stages of programs, few patients are referred who meet the strict admission criteria. This means that fixed costs are often a higher proportion of overall costs than would be expected in the longer run. There is little information on which to base estimates of the costs of HITH if it is more widely implemented.

- A related issue is that in making comparisons between HITH and hospital care, where the boundaries between the two are by definition blurred, it is often difficult to interpret results from particular programs. There is potential for HITH to be treated as an addition, rather than a substitution for hospital care. It is difficult to define the appropriate comparison group of within-hospital patients. In the early stages of a program, admission criteria may be much tighter (because of caution in relation to a new program) or looser (to ensure sufficient throughput).
- Even more complex is the issue of what costs should be included in the comparison. It is not clear how the establishment costs of HITH programs should be treated, as it is likely that these costs will be relatively high when the programs are new and not widespread. Further, it is not clear what components of hospital overheads should be included in a comparison of HITH and inpatient care: it is unlikely that HITH will substantially affect hospital overheads until the program is large scale. Similarly, in the long run, HITH may reduce the need for new capital expenditure, but it is not clear how this should be treated in an assessment of costs. The principle that should drive these decisions is that of trying to measure and value the opportunity cost of resources but this depends on the scale of the program and the timeframe. There are differences in the relationship between costs and outputs for HITH and inpatient care.
- Costs and outcomes should be considered from a broad perspective, which includes consideration of costs to patients and carers.

*Recommendation*

*33. HITH should be the subject of rigorous, well-designed evaluations that allow a comparison of HITH with inpatient care and between models of HITH care. This would be best achieved by a pragmatic multi-centre randomised controlled trial with prospective economic evaluation which should be:*

- *multi-centred to capture differences in costs and outcomes relating to different conditions for health service provision)*
- *comprehensive in its assessment of costs, but provide full costing information to allow for sensitivity analysis (for example in terms of impact of scale and scope economies)*
- *recognise a societal perspective*
- *incorporate patient costs*
- *comprehensive in its assessment of consequences, including patient and carer preferences*

## **5. Chapter 5 Models, evaluation criteria and application**

### **5.1. Models**

Given the variation in attributes across programs, there are potentially a large number of models for HITH. However, for the purposes of this report, rather than attempting to encompass every possible variation, we have constructed six basic models (see Table 19) to which evaluation criteria will be applied. It is important to note that these are generic models and no specific program is being identified. Thus some issues being discussed in the models may not arise in actual practice.

In Australia, a large proportion of HITH programs are hospital-based but the international experience provides several examples of programs based either in the community or provided by an independent agency. The models presented draw on both the Australian and international literature.

#### **Model A**

Model A is a hospital-based program. In this model patients remain the responsibility of the hospital, that is, they have the same status as actual inpatients of the hospital. Funding is State based, usually casemix funded with or without incentive payments. In this model the staff is primarily the hospital's own staff (although when there are small caseloads here may be some reliance on non-hospital staff for 24-hour coverage).

Staff mix depends on the types of care being provided but tends to be predominantly nurses, allied health staff and either medical specialists or HITH program GPs. Medical care is paid for from the HITH budget. Care is provided primarily in the home, although, if a specialist physician provides medical care, the patient is often required to attend the outpatient department or clinic.

Model A may be either a specialist program or a general program, that is, it may be a specific specialty or a hospital wide program covering a number of speciality areas.

#### **Model B**

This model of care is similar to A, except that care is provided by a mixture of hospital and community-based staff. Such a model may include arrangements whereby the hospital has an agreement with an independent nursing organisation for the provision of care, or a cooperative program between hospital and a community agency may be utilised with some programs relying on the patient's GP to provide medical support.

This model more likely to be a generalist program than a specialist program. HITH programs in Victoria and South Australia are based on the characteristics described in either Model A or Model B. These programs have successfully delivered a wide range of HITH care including IV therapy, chemotherapy, wound care and rehabilitation.

**TABLE 19: POSSIBLE MODELS OF HITH**

	<b>Model A</b>	<b>Model B</b>	<b>Model C</b>	<b>Model D</b>	<b>Model E</b>	<b>Model F</b>
<b>Ownership</b>	Hospital	Hospital	Hospital	Extra-mural Hospital	Division of GPs	Community
<b>Patient classification</b>	Inpatient	Inpatient	HITH	HITH	HITH	Community
<b>Funding source</b>	- State	- State	-Hospital, AHS, Division	-State	-State	AHS/ Division, Community Sector
<b>Medical remuneration</b>	-HITH program	-HITH program	-HITH or MBS	-MBS	-MBS	MBS
<b>Funding method</b>	Casemix	Casemix	Block Grant	Block Grant	Block Grant	Block Funding
<b>Provision of Care</b>						
<b>Whose staff</b>	Hospital	Mixed – Hospital and Community	Hospital with Community backup	Extra-mural Hospital staff	Community	Community
<b>What staff</b>	Nurses, GPs, Allied Health	Nurses, Specialists	Nurses, GPs	Nurses, Allied Health, GPs, Specialists	GPs, Nurses, Allied Health, Pharmacy	Nurses, Allied Health, GPs, Specialists

### **Model C**

In Model C, the line of responsibility for the HITH program and the patients is less clear. The model depicted is a hospital-based program but the patients are defined as HITH patients (as distinct from having inpatient status). The most common sources of funding for this model are hospitals, Divisions or Area Health Services with GPs being reimbursed by MBS. The most common method of funding is via a block grant. Staff, primarily nurses, allied health and GPs, can be either hospital or hospital and community based. Care is provided in the home, unless a visit to a specialist is required.

There are hospital-based programs in New South Wales and Queensland currently providing HITH programs of the type represented by Model C. Although not as well established as the Victorian and South Australian programs, HITH programs in these States also provide a wide range of services for acute patients, including IV therapy, post surgical wound care and rehabilitation.

### **Model D Extra-mural hospital**

This model is based on extra-mural hospitals (EMH) in New Brunswick, Canada<sup>(34, 56-58)</sup>. The EMH has the legal status of a hospital and is a freestanding provider of acute hospital levels of care in the home, and is not tied to one hospital<sup>(36)</sup>. The New Brunswick system, which is a single provincial wide system, operates out of a number of local units around the province. This program was designed to provide many of the same services as a conventional hospital, and subject to availability of resources and suitability, the patient is admitted, treated and discharged by her or his own physician. The medical billing system has been altered to include specific billing codes for this purpose. The provincial health department provides funding for the program. Each EMH unit contains different professional services providing comprehensive care to the population of a geographical area. As the program has the rights and duties of hospitals, New Brunswick has created an institution of equal status and negotiating rights. The EMH also draws patients from a larger geographical area, providing possible economies of scale. This model of care provides all types of HITH care. EMHs may also provide more specialised care than the UK district nursing programs<sup>(12)</sup>. There are currently no HITH programs based on Model D operating in Australia.

### **Model E**

This model operates using the Division of General Practice as the fundholder. Patients are the responsibility of the HITH program and their GP, with care provided in the home by an independent nursing service. Care is often aimed at avoiding admission and most patients are referred by their own General Practitioner. However, the GP providing the care may not be the patient's own GP as all GPs may not have the required skills or may not be interested in being involved in the program. Only a small number of HITH services based on this model are currently operating in Australia. Currently there is a pilot program under way in Western Australia that fits into this model of care.

## **Model F**

This is a community-based program. The funding source is AHS/Division or Community Health sector and tends to utilise a block-funding method with MBS for medical remuneration. The program is based primarily in the community, drawing on hospital staff where necessary for expertise. A team that may include nurses, physiotherapists, occupational therapists and social workers usually provides care. Primarily medical care is provided by the patient's GP with support from hospital specialists. Internationally, there is the suggestion that this model tends to provide care at a lower level of acuity<sup>(26)</sup>.

## **5.2. Evaluation Criteria**

In this section, a set of evaluation criteria is described and in the following section, these criteria will be applied to each model. In the application of these criteria we are not attempting to determine the 'best' model for HITH but instead aim to provide a set of criteria by which each of the models can be assessed in various contexts. The ultimate outcome of this exercise is a set of principles that can be used to guide the development and implementation of the most appropriate and feasible HITH programs in a particular context.

The evaluation criteria have been grouped into two sets, economic and non-economic. Each criterion is briefly described below with a series of questions posed for each criterion.

### **5.2.1. Economic criteria**

#### **Technical efficiency**

Technical efficiency is defined as using the least costly quantity and mix of inputs to achieve the desired output. Questions to be considered include:

- Does the model encourage substitution from more resource intensive to less resource intensive models of care delivery?
- Does the model encourage substitution rather than expansion of services (ie. increased LOS, provision of HITH care to patients who would otherwise have community services or no care)?
- Is the capacity for throughput so low that overhead costs represent a significant proportion of total HITH costs?
- Have higher unit costs for resources been considered (eg. more expensive antibiotics, senior nursing staff)?

#### **Allocative Efficiency**

Allocative efficiency refers to the mix of goods and service produced – are the right goods being produced (ie. right care for right patients)?

- Does a given model encourage appropriate choices about which patients and which programs should be included in the HITH program?
- Does it encourage substitution to services that improve the quality of health care?
- Does the existence of a HITH program change the allocation of resources within the hospital in a way that was not predicted?

## **Equity**

Equity may refer to equity of health, equity of health outcomes or equity of access. In this context we are referring to the latter. That is:

- Does the model improve or worsen access to hospital services?
- Does the model allow for expansion of services where there are identified gaps in service provision?
- Does the model require the patient to pay for medications or supplies thus increasing inequities in the system?
- Does it place an unfair burden on any one group in society?

## **Appropriate financial incentives**

An important consideration for policy makers and planners is whether one type of model allows or encourages inappropriate use of the system more than another type of model.

- Does the model encourage inappropriate classification of HITH patients (eg. re-classifying transfers as re-admissions or reclassifying private patients as public patients in order to access HITH care)?
- Does the model encourage inappropriate admissions to HITH (ie. are patients admitted to HITH who did not actually require that level of care) in order to generate a payment?
- Does the model lead to a shift in the responsibility for payment for medications or other supplies?

### **5.2.2. Non Economic Criteria**

#### **Acuity and appropriateness of patient selection**

The definition of HITH requires that it be a substitute for acute care. Therefore, some means of determining that patients admitted to HITH are acutely ill is necessary. Questions which help to elucidate this include:

- Is there a requirement that the program utilises rigorous admission criteria?
- Are regular assessments by a doctor part of the routine care?
- Are all the people who would benefit from and only those offered HITH?
- Does the model have 24-hour nursing coverage, permitting more acutely ill patients to be cared for?

#### **Choice**

When examining choice it is important to move beyond the simple consideration of whether patients, once considered for HITH, have a choice between HITH and alternative care. Questions that are important to address include:

- Is clinical resistance to this model high (implying that many individuals who might benefit substantially are not even offered a choice between HITH and staying in the hospital)?
- Is the HITH program required to offer the patient a choice between HITH and alternatives (eg. inpatient care)? Is there an informed written consent that ensures patients are aware of benefits and risks of the HITH?
- What option does the model offer the patient if he/she does not want HITH?

- How flexible are the HITH arrangements? Do visit times vary according to patient preferences (where possible)? Do patients or families have to collect drugs and other supplies, or visit the hospital for medical services?
- Do carers and patients understand what is expected of them once HITH is initiated?

### **Quality**

At a minimum, a new program or model of care must offer a standard of care at least as good as that existing for inpatient care. Among the issues that should be addressed when considering quality of care are: performance measures, clinical protocols, clinical management pathways, service delivery, staff skill levels, 24-hour medical and nursing services, and availability of emergency backup. Questions pertaining to these issues include:

- Does the model encourage and facilitate routine monitoring, accountability and evaluation?
- Does the model ensure that the quality of care provided meets the standard that consumers demand?
- Does the model offer 24-hour medical and nursing services?
- Are procedures and protocols fully developed? If care is being provided by both hospital and community-based staff, are they using the same protocols?
- Are the necessary tools for ensuring standards, qualifications of nurses, continuing education programs established?
- Does this model promote established communication channels between the HITH team and the necessary specialist support?

### **Staff Safety**

- Is this model more likely than others to ensure staff safety?

### **Feasibility**

An important consideration is the long-term feasibility of a program. Questions that address this issue are:

- Is a given type of model more likely to be able to start, to expand, to get the right patients, to provide the best treatment, to be innovative and to be successful?
- Is the catchment area large enough to support the program?
- Are available health care professionals so over committed that it is not feasible to offer such a program?

### **Impact on carers and the wider community?**

Issues that need to be considered are:

- Do patients and carers express confidence in the quality of staff? Does the model have a clear mechanism for the carer to voice concerns in such a way that they are confident will not jeopardise the care received?
- Does HITH disrupt the routine in the home? Do the patient/carer have any input in such matters as time of visit? Has the issue of the general inconvenience of having to be at home been raised by carers? Are carers required to take time off work to provide this care? Are wages lost? Is it necessary for carers to be available 24-hours a day?
- Are there training/education programs (tools) for the carers?



### 5.3. Applying the Evaluation Criteria

The above mentioned criteria were applied to a general HITH model and then to the various models outlined in Section 5.1. The table below summarises the key points from this application. The full application of the criteria can be found in Appendix J. As indicated elsewhere, many of the characteristics of the models are program specific so not all of the statements made below will apply to all programs that share many of the same characteristics.

### 5.4. Strengths and weaknesses of HITH models

Model	Strengths	Weaknesses
General	<ul style="list-style-type: none"> <li>- Allow patient to be cared for in home environment</li> <li>- May improve access to care (increase in hospital throughput, decrease waiting times)</li> <li>- Less demand on hospital infrastructure</li> <li>- May increase choices available to patients and lead to less disruption to patients /carers/families.</li> <li>- Clinically advantageous in some circumstances</li> <li>- Decrease in hospital acquired illnesses and infections, less confusion in the elderly</li> <li>- Is cost-effective in certain circumstances</li> </ul>	<ul style="list-style-type: none"> <li>- May be less efficient (eg in utilisation of staff time etc)</li> <li>- May increase out-of-pocket costs for patients</li> <li>- May increase burden on elderly/women as carers</li> <li>- May result in longer episodes of care</li> <li>- May cause increased anxiety for some patients/families</li> </ul>
A	<ul style="list-style-type: none"> <li>- Tends to have higher level of acceptance by doctors than other models</li> <li>- Standards generally appropriate and in place</li> <li>- True substitution encouraged</li> <li>- LOS limited by casemix payment</li> <li>- Good access to hospital if necessary (24-hour cover)</li> <li>- Good continuity of care within episode of care</li> </ul>	<ul style="list-style-type: none"> <li>- Volume needs to be reasonable for efficient use of staff</li> <li>- May be used to discharge “quicker and sicker”</li> <li>- Gaming a possibility (new episode for re-admissions)</li> <li>- Community issues may not be well recognised</li> <li>- May increase pressure on patients to accept if beds are under pressure</li> </ul>
B	<ul style="list-style-type: none"> <li>- As for A</li> <li>- Mixed staffing flexibility may increase efficiency</li> <li>- Better continuity of care when D/C from HITH</li> <li>- Good awareness of community issues</li> <li>- Good awareness of staff safety issues</li> </ul>	<ul style="list-style-type: none"> <li>- As for A</li> <li>- Possible lack of acceptance of community staff</li> <li>- Increased likelihood of decreased continuity of care within episode</li> </ul>

C	<ul style="list-style-type: none"> <li>- As for B</li> <li>- In large programs 24 hour care may be more feasible</li> </ul>	<ul style="list-style-type: none"> <li>- Efficiency &gt; A, &lt;B in terms of staff time</li> <li>- May 'game' by shifting costs to MBS/PBS/patients</li> <li>- As HITH patients move to different program, may not be continuity of care</li> <li>- A challenge to develop and maintain standards of care between hospital and community sectors</li> </ul>
D	<ul style="list-style-type: none"> <li>- More likely to be allocatively efficient</li> <li>- Ability to treat acute patients while still having good understanding of community issues</li> <li>- Able to cover large area and keep patient volume high</li> <li>- Decreased risk of cost-shifting</li> <li>- True substitution encouraged</li> <li>- If well-known, very acceptable to patients</li> </ul>	<ul style="list-style-type: none"> <li>- In Australian context, is unlikely to be feasible</li> <li>- Gaming may occur if costs able to be shifted to MBS/PBS/patients</li> <li>- Staff down time may be issue if patient volume not sufficiently large</li> <li>- Lack of hospital connections may hamper development of program</li> </ul>
E	<ul style="list-style-type: none"> <li>- If contract staff, may have improved efficiency</li> <li>- Less likely to game as doctors paid MBS or agreed rate</li> <li>- May increase level of admission avoidance</li> <li>- Patients may approve of GP involvement</li> <li>- GPs likely to only recommend suitable patients</li> <li>- - Increased ability to provide care to complex patients and those with social problems</li> </ul>	<ul style="list-style-type: none"> <li>- Level of true substitution may be decreased</li> <li>- Access to hospital services for emergency or admission may be problematical</li> <li>- Require upgrading of skills for doctors and nurses</li> <li>- Policies/procedures/documentation may be more of an issue</li> <li>- If GP recommends, patients /family may feel pressure to agree</li> <li>- May shift costs to PBS and patient (non-PBS portion)</li> <li>- Need to obtain GP support to get patient volume</li> </ul>
F	<ul style="list-style-type: none"> <li>- Staff flexibility may be an advantage</li> <li>- Overhead costs may be decreased</li> <li>- Good awareness of community issues</li> <li>- May increase admission avoidance</li> <li>- Good continuity of care once patient discharged from HITH</li> <li>- Good awareness of staff safety issues</li> <li>- 24 hour care – see C</li> </ul>	<ul style="list-style-type: none"> <li>- May not be true substitute for acute hospital care</li> <li>- May shift costs to PBS/patients</li> <li>- May restrict patient choice if GP not willing or not member of Division</li> <li>- Clinical skills may need upgrading</li> <li>- Policies/procedures/documentation may be more of an issue</li> <li>- Increased resistance from hospital</li> <li>- Access to hospital services for emergency or admission may be problematical</li> </ul>

## 5.5. Preferred Attributes

It is clear from the evaluation of the models, and the summary of strengths and weaknesses that there is no single preferred model for HITH in Australia. However, under current arrangements, hospital-based models have some advantages over

community-based models. Hospitals are more likely to have clear lines of accountability and medico-legal responsibility, and the establishment of procedures and protocols for acute care is facilitated by a hospital setting. Because hospitals are the traditional providers of acute care, hospital staff may currently be more equipped to provide HITH, and clinical acceptance of care in the home may be greater when the program is hospital based. Because of historical institutional and funding arrangements, hospital-based models provide less opportunity for inappropriate cost shifting. Managers of hospital-based programs may be more aware of the overall resource implications of HITH becoming additional, rather than substitute care, and there may be greater scope for the appropriate resource shifts to occur.

This should not imply that future HITH programs should only be set up as hospital based, because there may be many longer-term benefits of community-based programs. There may be greater flexibility in community-based programs, because of greater experience in providing care in the home. Community-based providers will have greater awareness of the issues faced by people who are coping with ill health in the home. In addition, the cost structure of community care may ultimately mean that it is a less expensive way to provide HITH although comparisons of the cost differences between the programs have not yet been undertaken. Many of the overhead costs such as the cost of cars may be able to be shared with existing community services. A community-based program may be able to cover a much larger geographical area than a hospital-based program. Thus, there are strong arguments for Commonwealth and State/Territory governments, and other relevant agencies to examine ways in which financial and organisational arrangements could be modified to remove impediments to community-based HITH programs.

#### *Recommendations*

- 34. Individuals or organisations considering establishing a HITH program should critically evaluate whether the patient population warrants it and whether there is sufficient existing (or potential) clinical support available to sustain a program.*
- 35. Individuals or organisations considering establishing a HITH program should critically assess whether there are strong reasons to have a community rather than a hospital program. In general, hospital programs are more likely to be successful under current arrangements.*
- 36. Commonwealth and State/Territory governments should work together with other agencies to identify ways in which financial and organisational arrangements could be modified to remove impediments to community-based HITH programs.*
- 37. If a hospital program is the preferred model, it is important that the organisation ensures that a key senior individual is willing to administer and champion the program. In addition, the hospital must accept medico-legal responsibility for the patient (ie. ensuring the patient has the legal status of an inpatient). It should also provide resources to ensure community workers are consulted in the provision of HITH*
- 38. If a community program is the preferred model, it is important that the organisation ensures that the preferred features that arise in hospital models can be incorporated, particularly clarity of funding, clear lines of accountability and medico-legal responsibility and appropriate procedures and protocols.*

*39. Commonwealth and State/Territory governments should address mechanisms to coordinate funding arrangements for HITH. There is a strong argument for various levels of government involved in HITH-related care to cooperate in identifying areas of overlap and considering mechanisms to pool funds to avoid cost-shifting.*

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## Appendices

Appendix A: Abstract of Cochrane Collaboration Review of Home Hospital .....	80
Appendix B: Literature Review of Clinical Effectiveness .....	82
Appendix C: Guidelines for evaluating articles.....	87
Appendix D: Economic Evaluation Articles.....	90
Appendix E: State/ Territory Survey .....	95
Appendix F: Hospital /Community Sector Survey .....	98
Appendix G: Hospitals and Facilities providing HITH .....	108
Appendix H: Selection Criteria by Facility.....	113
Appendix I: Quality / Standards (ACHS) .....	117
Appendix J: Application of Criteria to Models.....	119
References .....	133

### Appendix A: Abstract of Cochrane Collaboration Review of Home Hospital

**Hospital at home: Effectiveness of hospital at home compared to in-patient hospital care** Shepperd S, Iliffe S (1997)

Date of most recent substantive amendment: 18 November 1997

Objectives: To determine the effectiveness of managing patients in hospital at home compared with in-patient hospital care. Search strategy: Relevant studies were identified using Medline, Embase, Social Science Citation Index, Cinahl, EconLit, PsychLit, SIGLE, Medical Care supplement on economic literature, and the EPOC register.

Selection criteria: Study design: randomised controlled trials (RCTs). Comparisons: all studies that compare hospital at home care with acute hospital in-patient care.

Participants: patients aged 18 years and over. Patients with long term care needs, paediatric and obstetric patients, and those requiring mental health services are excluded. Intervention: hospital at home has to offer a specific service to patients in their home which requires health care professionals to take an active part in the patients' care. If hospital at home did not exist then the patient would be admitted to hospital. Outcomes: mortality, clinical complications, re-admissions, cost: to the patient and family, to general practice, to the hospital and to the community, hospital days saved from the provision of hospital at home, discharge destination from hospital at home, general and disease specific health status, functional status, psychological well-being, patient satisfaction, carer satisfaction, carer burden, staff views (including the satisfaction of doctors working in primary care). Studies were only considered for inclusion in the review if standardised validated instruments were used to measure subjective outcomes.



Data collection and analysis: Data analysis and quality assessment were undertaken independently by two reviewers using a data checklist, following standard methods described by the EPOC group (see METHODS USED IN REVIEWS under EDITORIAL INFORMATION in GROUP DETAILS). Five studies met all the inclusion criteria.

Studies are grouped according to type of intervention: early discharge of elderly medical patients; early discharge of surgical patients; and care of terminally ill patients.

Main results: Five trials were included in the review, all are small and lack power. No statistically significant differences were detected for patient health outcomes. Patients discharged early from hospital to hospital at home following elective surgery expressed greater satisfaction with care than those who remained in hospital. Carers however expressed less satisfaction with hospital at home compared with hospital care. Only one trial, which recruited patients requiring terminal care, formally tested for a difference in cost. No statistically significant difference was detected for overall net health care costs.

Conclusions: This review does not support the widespread adoption of hospital at home or discontinuing existing schemes for elderly medical patients, patients who have had elective surgery, or those with a terminal illness. There is insufficient evidence to determine the effect of hospital at home on patient outcomes, or cost to the health service. All the trials included in this review had methodological limitations. Given the heterogeneity of what is included in hospital at home and the uncertainty surrounding the effects of this form of care future research should clearly specify the type of service being provided, both at home and at hospital, and the specific patient groups. Patient health outcomes, patient and carer satisfaction, and costs should be measured, and studies should include a formal, planned economic analysis. Studies should be large enough to detect important differences and to ensure generalisability of the results.

## **Appendix B: Literature Review of Clinical Effectiveness**

### *Summary*

Studies of HITH (which are summarised below with additional information found in Appendix A) have established that this type of treatment is feasible and at least equally as effective as traditional hospital care for many diagnoses. There is limited evidence that patient satisfaction is improved with HITH treatment but there is little evidence that long term outcomes of HITH are different from those of traditional care. The effectiveness of HITH may vary with the illness treated; (1, 2) but many questions remain unanswered (3).

### *Introduction and Methods*

The clinical trials of HITH are found in widely dispersed journals, which reflect the development of these programs from multiple sources. Conceptually HITH was defined a considerable time ago (4) and trialed with some success. However, the literature gives the impression of an interest prompted by development of technology and therapies overlying a concern to provide care that reduces or avoids inpatient hospital care, which is often seen as a method of reducing cost to the health care system.

The literature review was conducted systematically with a search of the Cochrane Library, Medline, Embase, and CINHALL (years 1990-1998). The following key words were used: hospital at home, hospital in the home, and home care in combination with one of the following terms - random controlled trials, trials, clinical outcomes, intravenous therapies, satisfaction and evaluations. HITH experts were also consulted to identify additional relevant trials. Reports identified from the searches were screened. If the study was a controlled trial of HITH (definition as stated elsewhere in this report) it was reviewed by one of three reviewers (MS, MH, IC) using a standardised data extraction sheet (see Appendix C). Data from these sheets (supplemented with reference to the original paper where necessary) were used to write this review which examines the clinical outcomes achieved by HITH programs.

HITH programs can be classified according to the condition treated or the organisational structure of the program. The research reports usually consider specific treatments and this method of classification will be used. Table 2 provides details of the studies classified by type of condition and provides details of the quality of evidence available for each condition. The evidence levels are those specified by the National Health and Medical Research Council (NHMRC 1995). In summary, level 1 evidence is provided by a systematic review of all relevant randomised trials, level II evidence is based on at least one well conducted randomised trial and level III evidence defined by trials with a control group of another sort. The levels of evidence are noted as there is a greater chance of bias in studies with an evidence level of III or IV.

**Table B1: Classification of HITH studies with level of supporting evidence**

Condition / Treatment Studied	Evidence level
Intravenous antibiotics	II
Deep venous thrombosis	II
Chemotherapy	III-3
Post surgical	II
Older medical patients	I
Rehabilitation: stroke, orthopaedic	I
Palliative Care	II*
Psychiatry	II*
Paediatric / cystic fibrosis	III-3
Obstetric	II
Home ventilation	IV*

\*Indicates three areas which there may be additional studies available which may clarify the situation further.

The rating of level of evidence is based on the review of each study report and critical appraisal. It is acknowledged that this process is somewhat subjective and also that other studies will exist that have not been identified by the literature review. Details of studies in each of these areas will be discussed in following paragraphs. An overall impression is that the studies aimed to show that HITH was feasible for the conditions listed with no deterioration in outcomes for patients treated by the HITH program when compared with conventional hospital treatment.

Most of the programs developed as an outgrowth of hospital services. Those programs that were established as an initiative from community based services tend to be more general in their focus (for example (2, 5)). These programs usually admit patients with a range of diagnoses.

#### *Cochrane Collaboration systematic review*

This carefully conducted systemic review examined home hospital treatment and constitutes level I evidence (6). It was published in late 1997 and identified five studies that met inclusion criteria. These studies had mixed populations including early medical patients, post surgery and palliative care. The authors were cautious in their conclusions and suggested widespread adoption if HITH was unwarranted without further research evidence of effectiveness. Concern was expressed that HITH programs can burden carers.

#### *Intravenous antibiotics*

The feasibility of use of intravenous antibiotics at home as a method of reducing duration of hospitalisation has been extensively studied. For example, an Australian randomised trial (7) established the efficacy and safety of a once daily dose of antibiotic for moderate to severe cellulitis. Descriptive studies have suggested that home based intravenous antibiotics can be used for a variety of indications (8-15).

*Deep venous thrombosis*

There is compelling evidence that treatment of deep venous thrombosis with low molecular weight heparin is an effective and safe therapy when provided at home. Two large scale randomised trials have been (16, 17). An Australian audit study has also supported use of this treatment regime (18).

*Chemotherapy*

A retrospective audit of an Australian home chemotherapy program for cancer patients has suggested that the program is safe (19).

*Post surgical*

Studies in this category are a mixed group. Two recently reported British studies, that were well conducted randomised trials, included patients after joint replacement along with patients with other diagnoses in trials of HITH. These studies (1, 2) demonstrated patient preference for care at home with no major differences in clinical outcomes. Another randomised trial (20) compared short stay surgery with general practitioner or outpatient aftercare and a conventional hospital admission. Patients preferred to recover at home and had significantly shorter stays in hospital. They were most satisfied with aftercare by the general practitioner. There was no difference in recovery time or major complications. More professional contacts occurred with the early discharge groups. An Australian study (21) demonstrated a shorter length of hospital stay for patients following hernia repair or laparoscopic cholecystectomy with a HITH program. Patients in the intervention group had higher levels of satisfaction and fewer wound infections. Following transurethral resection of the prostate a Canadian study of early discharge showed no difference in use of health care services but an increase in assistance required at home (22).

*Older medical patients*

There is some evidence that HITH outcomes may be improve for this group. There are numerous studies of "geriatric evaluation" in which health services attempt to address a wide variety of medical, social, functional and psychological needs of older people (23). Some of these programs operate as HITH type programs and one of these (24) met the criteria for the review. It confirmed that the approach is feasible, produced some short-term gains for patients but did not improve long-term outcome. Other studies have focussed on re-establishment at home with maximal level of independence for older patients with a variety of medical diagnoses (1, 2, 25). Three of these were well designed (1, 2, 69) and showed some benefits.

*Rehabilitation: stroke and hip fracture*

HITH rehabilitation programs usually offer rehabilitative care to post stroke or post orthopaedic surgery patients. Research studies have been published evaluating rehabilitation HITH care after hip fracture (26-34), stroke (35, 36) or with a mixed caseload (2). These studies demonstrate that HITH rehabilitation programs are feasible, reduce inpatient length of stay, and may lead to an increased number of patients returning to live permanently in their own homes. These programs have been both hospital and community-based.

It should be noted that only a selected group of patients with stroke or hip fracture are suitable for HITH rehabilitation programs. Patients with severe disability require

considerable assistance with mobility, bathing, dressing, toileting and other activities of daily living. This assistance is difficult to provide in the home setting. Rehabilitation HITH programs generally require patients to be able to mobilise (if necessary with a walking frame or stick) to some extent. Patients with severe disability may have an initial inpatient rehabilitation program and then transfer to a HITH rehabilitation program for the latter portion of the episode of care.

Donald<sup>(37)</sup> offers an example of a rehabilitation HITH scheme, involving nurses, physiotherapists, occupational therapists and rehabilitation therapists. These staff continued the rehabilitation program, provided support, advice and education to the carers at home and gave basic care. Patients remained in the scheme for up to 4 weeks if necessary.

### *Psychiatry*

A randomised trial of home based and standard hospital care for patients with severe psychiatric illness was conducted in the United Kingdom <sup>(38)</sup>. There was no major improvement in clinical outcomes. However, including home term follow-up, this study appeared to reduce the demand for inpatient beds with favourable consumer and carer satisfaction <sup>(39)</sup>. Burns<sup>(40)</sup> conducted a large randomised trial of a home based acute psychiatric service. Unfortunately 48% of participants were excluded after randomisation which seriously compromised the study.

### *Paediatric / cystic fibrosis*

Four non-randomised trials <sup>(41-44)</sup> of paediatric and adult patients with cystic fibrosis demonstrated that home treatment is possible in this condition however, there remains some debate in this area.

### *Obstetric*

Studies of domiciliary antenatal monitoring and treatment have shown no major improvement in clinical outcomes <sup>(45, 46)</sup> although one randomised trial showed a reduction in hospital bed utilisation <sup>(47)</sup>. A randomised trial of early discharge and home follow-up after Caesarean birth established that this type of care appeared safe and effective <sup>(48)</sup>.

### *Home ventilation*

The review of home ventilation <sup>(49)</sup> does not strictly meet the criteria for the review but has been included as it provides useful observations on the technology and clinical appropriateness of home ventilation in a variety of conditions. It demonstrates that home ventilation is possible in some circumstances but poses challenging ethical and practical issues inpatients who have progressive incurable conditions.

**Table B2: Excluded clinical studies**

<b>Reference and subject</b>	<b>Reason for exclusion</b>
Unplanned readmissions and out of hospital death <sup>(50)</sup>	The program was not a substitute for hospital care
Cystic fibrosis <sup>(44)</sup>	Summary, no comparative data
Home heparin therapy <sup>(51)</sup>	Editorial
Inotropic therapy at home <sup>(52)</sup>	Description of treatment with no data
Home treatment for severe disability including palliative care <sup>(53)</sup>	The program was not a substitute for hospital care
Home infusion therapy <sup>(54)</sup>	Description of techniques
Rehab <sup>(55)</sup>	The programs were not a substitute for inpatient hospital care

## Appendix C: Guidelines for evaluating articles

### Clinical

Based on How to read clinical journals: V: To distinguish useful from useless or even harmful therapy (56).

Rules 1 & 6 deal with validity (are the results likely to be true?)

Rules 2, 3, & 5 deal with applicability (are the results likely to be useful?)

Rule 4 deals with validity and applicability

Authors \_\_\_\_\_  
 Title of Article \_\_\_\_\_  
 Journal \_\_\_\_\_  
 Date \_\_\_\_\_  
 HITH No. \_\_\_\_\_

#### 1. Was the assignment of patients to treatments really randomised?

#### 2. Were all clinically relevant outcomes reported?

- Were the criteria stated explicitly?
- Were the application of the criteria done by observers who are blind to whether the patient was in the active treatment group

#### 3. Were the study patients recognisably similar to your own?

- Are the study patients recognisable?
- Are the clinical and socio-economic and demographic characteristics described sufficiently?

#### 4. Were both statistical and clinical significance considered?

- Is the clinical difference important?
- Is the clinical difference statistically different?

#### 5. Is the therapeutic manoeuvre feasible in your practice?

- Has it been described in sufficient detail that it is replicable?
- Is it clinically and biologically sensible?
- Is it available?
- Was there contamination or co-intervention throughout the study?
- Is this generalisable to the Australian Health Care setting?

#### 6. Were all patients who entered the study accounted for at the conclusion?

### Economic: Critical assessment of economic evaluation

A check-list for assessing economic evaluations (57)

#### 1. Was a well-defined question posed in answerable form?

- Did the study examine both costs and effects of the service(s) or programme(s)?
- Did the study involve a comparison of alternatives?
- Was a viewpoint for the analysis stated and was the study placed in any particular decision-making context?

2. **Was a comprehensive description of the competing alternatives given (i.e. can you tell who did what to whom, where, and how often)?**
  - Were any important alternatives omitted?
  - Was a *do-nothing* alternative considered?
  
3. **Was the effectiveness of the programmes or services established?**
  - Was this done through a randomised, controlled clinical trial? If so, did the trial protocol reflect what would happen in regular practice?
  - Was effectiveness established through an overview of clinical studies?
  - Were observational data or assumptions used to establish effectiveness? If so, what are the potential biases in results?
  
4. **Were all the important and relevant costs and consequences for each alternative identified?**
  - Was the range wide enough for the research question at hand?
  - Did it cover all relevant viewpoints? (Possible viewpoints include the community or social viewpoint, and those of patients and third-party payers. Other viewpoints may also be relevant depending upon the particular analysis.)
  - Were capital costs, as well as operating costs, included?
  
5. **Were costs and consequences measured accurately in appropriate physical units (eg. hours of nursing time, number of physician visits, lost work-days, gained life-years)**
  - Were any of the identified items omitted from measurement? If so, does this mean that they carried no weight in the subsequent analysis?
  - Were there any special circumstances (e.g. joint use of resources) that made measurement difficult? Were these circumstances handled appropriately?
  
6. **Were costs and consequences valued credibly?**
  - Were the sources of all values clearly identified? (Possible sources include market values, patient or client preferences and views, policy-makers' views and health professionals' judgements.)
  - Were market values employed for changes involving resources gained or depleted?
  - Where market values were absent (eg. volunteer labour), or market values did not reflect actual values (such as clinic space donated at a reduced rate), were adjustments made to approximate market values?
  - Was the valuation of consequences appropriate for the question posed (ie. has the appropriate type or types of analysis - cost-effectiveness, cost benefit, cost-utility - been selected)?
  
7. **Were costs and consequences adjusted for differential timing?**
  - Were costs and consequences which occur in the future 'discounted' to their present values?
  - Was any justification given for the discount rate used?
  
8. **Was an incremental analysis of costs and consequences of alternatives performed?**



- Were the additional (incremental) costs generated by one alternative over another compared to the additional effects, benefits, or utilities generated?

**9. Was allowance made for uncertainty in the estimates of costs and consequences?**

- If data on costs or consequences were stochastic, were appropriate statistical analyses performed?
- If a sensitivity analysis was employed, was justification provided for the ranges of values (for key study parameters)?
- Were study results sensitive to changes in the values (within the assumed range for sensitivity analysis, or within the confidence interval around the ratio of costs to consequences)?

**10. Did the presentation and discussion of study results include all issues of concern to users?**

- Were the conclusions of the analysis based on some overall index or ratio of costs to consequences (eg. cost-effectiveness ratio)? If so, was the index interpreted intelligently or in a mechanistic fashion?
- Were the results compared with those of others who have investigated the same question? If so, were allowances made for potential differences in study methodology?
- Did the study discuss the generalisability of the results to other settings and patient/client groups?
- Did the study allude to, or take account of, other important factors in the choice or decision under consideration (eg. distribution of costs and consequences, or relevant ethical issues)?
- Did the study discuss issues of implementation, such as the feasibility of adopting the 'preferred' program given existing financial or other constraints, and whether any freed resources could be redeployed to other worthwhile programs?

## Appendix D: Economic Evaluation Articles

Article	What question is posed?	Is there a comparator group?	What type of program is being evaluated?	Are consequences / outcomes identified?	What is the method of economic evaluation?	What perspective is taken?	What costs are identified?	Size of Study	Findings	Country and year of study
Coast et al. (58)	What are the relative costs of early discharge into HITH versus continued care in acute beds?	Yes – selected using pragmatic RCT- HITH group versus continued care in hospital	Medical care for elderly patients – nursing +/- rehab	Yes – mortality, functional outcome, quality of life, satisfaction	CMA – compared average costs	Health system, social services and patients	Patient specific or ward costs; unit costs for community services, cost per hour of service for HITH, includes contact and non contact, patient costs	241 (2:1) HITH to hospital	HITH costs lower than continued hospital costs from both health and social services and patients perspective	UK 1995 - 96
Donati MA. (43)	Compare the efficacy and benefits of hospital and home treatment of CF	Yes a controlled prospective study	Home treatment for Cystic Fibrosis	Yes – clinical outcome – lung function, hospitalisation. Rates	CMA	Health care system	Itemised charges for treatment including, hospitalisations, diagnostics and drugs	82	Clinical outcomes equivalent, home care charges were less, 63% of home group worked or attended school	US
Eisenburg, J. and Kitz,(59)	Comparison of costs of conventional inpatient costs with early discharge IV therapy	Compared estimated costs for inpatient versus early discharged patients	IV antibiotics for Osteomyelitis	Yes- used aggregated data from clinical trials	CMA	Health, social – includes lost income, and direct personal costs	Hospital costs, physician visits, -5 different sources; assumed resource use for EPD including non-medical costs, morbidity costs calculated Labour stats		- Savings of \$510 per patient for EDP. - Potential savings estimated of \$43 million at national - not a comparison of two groups of patients	US 1982 data

Article	What question is posed?	Is there a comparator group?	What type of program is being evaluated?	Are consequences / outcomes identified?	What is the method of economic evaluation?	What perspective is taken?	What costs are identified?	Size of Study	Findings	Country and year of study
Ferris, .D et al. (60)	Compare the costs of managing narcotic infusions for cancer patients	Yes a retrospective, non-randomised comparison of home versus hospital	Intravenous infusion of narcotics	Encounter data, safety and effectiveness from the literature	CMA	Health care system	Hospital costs – average costs, fee schedules for doctors, ambulance, published data for home care, drug costs times frequency and doses	253	Outpatient costs initially more expensive but breaks even at 6 patients per year (analysis is at program level not by patient level)	Canada 1988
Gardulf, A. et al. (61)	To estimate and compare the patient borne costs of life long therapy at home	No, compares ongoing hospital costs with change to training and home therapy	Home treatment with Gamma Globulin – lifelong therapy	No – assumed equivalent	Estimation of costs	Health system and patient costs	Equipment, training costs, hospital costs, travel, treatment time	30	-Mean patient costs with home therapy were on average 1/7 of hospital based costs over a 1 year period; employment status, own car, distance to travel were NB factors in variation in costs	Sweden, 1987-1991
Grayson, ML et al (61)	To assess the practicality, safety and cost-effectiveness of intravenous antibiotics at home	No	Antibiotic therapy to patients with serious bacterial infections	Patient free of infection, LOS, complications, patient preference, use of hospital bed days	Determination of costs (no true comparator group)	Department of Human Services	Costs of home visit – time, drugs, supplies, time, estimated comparable costs for hospital stay assuming admission to hospital	20	HITH costs – mean daily \$147; estimated hospital costs \$259 (no comparator group)	Australia.

Article	What question is posed?	Is there a comparator group?	What type of program is being evaluated?	Are consequences / outcomes identified?	What is the method of economic evaluation?	What perspective is taken?	What costs are identified?	Size of Study	Findings	Country and year of study
Hensher, M et al. 1996(62)	Does HITH have better outcomes, quality and lower costs	Traditional hospital versus early discharge; hospital group not defined	EDP post hip surgery – 3 different programs No	No	CMA	NHS	Hospital costs - average ward costs (theatre costs were excluded), travel, transport, supplies,	854 in HITH	In two hospitals the cost per day in HITH is less expensive, but LOS is greater for HITH group – therefore costs are greater for HITH	UK 1994-95
Holdsworth M.T. et al. (63)	To examine the economic impact of a home chemotherapy program	No control group	Home chemotherapy program for paediatric oncology patients	Rates of complications and readmission	CMA	Patient and third party payer	Used charges (2 sources), actual resource use in home setting	44	Found home therapy to be less expensive but did not have a control group	US 1991-1994
Hollingworth W et al. (32)	To ascertain the economic impact of early discharge program for hip patients	Population based – those who had HITH and those who did not	EDP Post hip surgery	Utilisation and readmission rates	CMA	Health care costs	Overhead averaged, actual theatre costs, nursing costs actual, estimates of drugs and supplies, diagnostics	1104	HITH decreases hospital stay; direct costs of care lower for HITH group, readmission rates higher for HITH group	UK 1991-92
Hughes S.L. (64)	Comparison of hospital care with care in the home for terminally ill patients	Randomised on admission to hospital for hospital care or home care	Home care for the terminally ill	Survival time, patient ADL, patient & carer morale and satisfaction	Cost consequences	Hospital	Hospital costs – average accounting costs (per day), Home care costs from previous survey (confirmed by experts)	171	Functional outcomes, satisfaction and morale were similar; Additional home care costs were offset by hospital cost	US

Article	What question is posed?	Is there a comparator group?	What type of program is being evaluated?	Are consequences / outcomes identified?	What is the method of economic evaluation?	What perspective is taken?	What costs are identified?	Size of Study	Findings	Country and year of study
Lownethal R, (19)	Comparison of cost differential between home chemotherapy and day unit			Assumes equal effectiveness	CMA – uses marginal costs	Health care system	Clinical costing and cost modelling for hospital and home		Home care less expensive	Australia
Naef RW. Et al. (45)	To determine whether home treatment for hyperemesis gravidarum is safe, efficacious and CE.	Yes – retrospective matches control group	Home treatment for hyperemesis gravidarum	Yes – weight loss, time in treatment, other nutritional support, readmission rates	Cost consequences	Hospital	Home visits and supplies, average hospital charges per day	50	Home care treatment less expensive even with readmission costs	US (two year study)
O’Cathain, A. (28)	Evaluation of a EDP for fractured neck of femur	Prospective comparison of HITH patients and traditional hospital care	EDP hip surgery	Mental test scores, satisfaction levels, and the Nottingham Health Profile	Comparison of staff costs	Health care costs	Based on reported charges by hospitals and staff costs for HITH	110	Both groups had same LOS, same reported level of satisfaction, estimate savings of £770 per patient (note costing exercise is not complete or based on actual resource use)	UK 1990
Richards D.M. and Irving M.H.(65)	To measure the Cost Utility of HPN, is current practice the most efficient for treatment of intestinal failure	No –states there is no viable alternative – yet states the proposed treatment is CE	Total parenteral nutrition in the home for intestinal failure	- does not suggest that hospital TPN is an option therefore death is the alternative	Cost Utility – utility scores using EuroQol Health Status Q; marginal costs of hospital costs,	NHS	Costs of resources for hospital and home	64 – all in home TPN group	- savings from HTN is £142,089 over 4 years – not clear how comparison determined	UK

Article	What question is posed?	Is there a comparator group?	What type of program is being evaluated?	Are consequences / outcomes identified?	What is the method of economic evaluation?	What perspective is taken?	What costs are identified?	Size of Study	Findings	Country and year of study
Shepperd et al. (5)	Does the use of HITH:  - decrease costs to health services  - increase costs to GPs  - increase costs to patients	Yes – selected using RCT - HITH versus inpatient hospital care	Hip replacements, knee replacements, hysterectomy, elderly medical patients, COPD	ALOS, readmissions	CMA – marginal costs hospital costs	Health system and patients	Hospital costs, patient dependency scores to weight each day, HITH – staffing and non-staffing costs, depreciated capital, carer costs, GP costs	Hip (86), knee (86), hysterectomy (238), elderly medical patients (96), COPD (32)	No difference in costs in total health care costs in hip or knee group; hysterectomy and COPD groups had higher health care costs; GP costs were higher for elderly medical and COPD groups	UK, activity 1993-94; costs 1994-95
Stiever, H.G. et al. (66)	Costing of provision of IV antibiotic in home	No	IV therapy	No	None	Ministry of Health	Documents home costs, used per diem for hospital costs	95	States cost beneficial – no measurement of benefits	Canada
Ting, S.B (18)	Examines use of Dalteparin in the home	No – estimates costs if patient had remained in hospital	Home program for Dalteparin			Health system				
Tremanin A. et al. (67)	Economic evaluation of home care – Pilot	Randomised - home or hospital, several in control did not meet treatment criteria	Home care assistance for AIDS patients	Quality of life	Cost utility – uses WB scale	Health system costs (results may have been different if informal care costs included)	Hospital costs general ledger, overhead, top down method; home care has patient specific costs	42	Cost per person in home group is less than hospital group per person-year; cost may be more affected by socio-economic situation	Italy, 1990

## Appendix E: State/ Territory Survey

The Centre for Health Economics Research and Evaluation (CHERE) is undertaking a consultancy for the Commonwealth Department of Health and Family Services on hospital in the home. The purpose of the consultancy is to identify and document Hospital in the Home (HITH) care models nationally with a view to improving treatment options for patients and cost-effectiveness of services through increasing the utilisation and acuity of HITH services, where appropriate. One of the first steps in undertaking this project is to gather information on policies that pertain to HITH in each State/Territory.

We would really appreciate your help in filling out the following questions as they pertain to the definition below. For the purposes of this consultancy we are interested in all programs that fall within the definition. We recognise that this definition may apply to programs not classified in your AHS as Hospital in the Home, for example they may be Early Discharge Programs or may be referred to by another name, such as Hospital at Home.

*‘Hospital in the Home’ involves the provision of acute care interventions to patients in their place of residence. These interventions require health care professionals (i.e. doctors, nurses) to take an active part in the patient’s care. The place of residence may be permanent (own home) or a place of temporary residence such as with family or accommodation near the hospital.*

*Hospital in the home is a substitute for acute care provided in the hospital, thus if it did not exist the patient would be admitted to the hospital or have to remain in the hospital. The program must also have provision for an appropriate level of emergency back up.*

State \_\_\_\_\_

Address \_\_\_\_\_

Name of person completing survey \_\_\_\_\_

Telephone \_\_\_\_\_

Fascimile \_\_\_\_\_

### Type of HITH program

Are the programs established or pilot programs? Please circle correct response

*Established                      Pilot                      Both*

Please provide the names of hospitals in your State/ Territory and a contact individual at each hospital offering a HITH program. If you have already provided us with this information, please disregard this question.

### **Funding**

We are interested in understanding how HITH programs are funded, and whether the funding is part of general funding or is direct HITH program funding. For your HITH programs, does the funding flow to: *(Please tick **all** appropriate boxes and explain/comment as necessary)*

#### *Hospitals*

As part of general funding \_\_\_\_\_

Directly to HITH program \_\_\_\_\_

Community Agencies

As part of general funding \_\_\_\_\_

Directly to HITH program \_\_\_\_\_

Other (please specify) \_\_\_\_\_

Is the current funding arrangement for HITH in your AHS in the form of incentive funding or recurrent funding? Please circle correct response.

*Incentive*                      *Recurrent*                      *Both*

Does the HITH funding cover total HITH program costs or partial costs i.e. set-up and establishment costs? Please explain.

Does the AHS fund HITH based on any or all of the following. *Please tick **all** appropriate boxes and explain/comment as necessary.*

Casemix Only– Total episode- (hospital plus HITH)

Casemix with incentive funding for HITH portion

Per diems (payment per day of care)

Per visit (payment per contact)

Total episode of care (e.g. one payment for series of chemotherapy treatments)

Block grant funding

Service agreement, cost and volume contract

Other (please specify)



### **Establishment Criteria**

Does the AHS have criteria for any facility wishing to establish a HITH program? Please circle correct response.

*Yes*    *No*    If yes, please provide details. If insufficient room provided please attach.

### **Evaluation**

Has the AHS undertaken or commissioned an evaluation of any HITH program? Please circle correct response.

*Yes*            *No*    If yes, please reference report(s).

Has the AHS required HITH programs to undertake an evaluation of their program? Please circle correct response.

*Yes*            *No*    If yes, which programs?

Has the AHS set specific objectives for the HITH programs? Examples of specific objectives may include clear definition of the eligibility of patients for HITH, demonstration of cost effective care at the patient level. Please indicate the objectives for your State or Territory, if insufficient room provided please attach a list.

Are there specific performance indicators for HITH programs? E.g. ALOS of HITH (including hospital portion) versus hospital ALOS, nature of care provided, clinical outcomes etc. Please list the performance indicators for your State or Territory, if insufficient room provided please attach a list.

### **Policies and Procedures**

Are there specific policies and procedures for HITH? Please circle correct response.

*Yes*            *No*

If yes, are there policies relating to the following? Please tick all appropriate responses and if possible, please attach a copy of specific policies.

Appropriate clinical indicators for patient selection criteria for HITH

Patient safety

Staff safety

Home inspections

Specific care protocols for HITH

Patient choice (if HITH is available and appropriate, then does the patient always have a choice to obtain care in the hospital or at home)? Please explain.

Have clinical pathways been developed specifically for the HITH programs? Please circle the correct response.

*Yes* *No*

If yes, please specify for which clinical conditions \_\_\_\_\_

Is the AHS currently promoting the development of clinical pathways for HITH? Please circle correct response.    *Yes*    *No*

## Appendix F: Hospital /Community Sector Survey

The Centre for Health Economics Research and Evaluation (CHERE) is undertaking a consultancy on hospital in the home for the Commonwealth Department of Health and Family Services. The purpose of the consultancy is to identify and document Hospital in the Home (HITH) care models nationally with a view to improving treatment options for patients and cost effectiveness of services through increasing the utilisation and acuity of HITH services, where appropriate. One of the first steps is to survey hospitals that have programs that may qualify as HITH programs. The information gathered would be available to those who are interested in HITH.

Please complete the following questions as they pertain to **all** programs offered in your facility that meets the definition below. We recognise that the definition may apply to programs not classified as Hospital in the Home, for example they may be Early Discharge Programs or may be referred to by another name, such as Hospital at Home.

Please complete the following information and then answer the questions on the following pages.

Name of contact person \_\_\_\_\_

Name of Facility \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Telephone Number \_\_\_\_\_

Facsimile Number \_\_\_\_\_

### Definition of Hospital in the Home

*Hospital in the home involves the provision of acute care interventions to patients in their place of residence. These interventions require health care professionals (i.e. doctors, nurses) to take an active part in the patient's care. The place of residence may be permanent (own home) or a place of temporary residence such as with family or accommodation near the hospital.*

*Hospital in the home is a substitute for acute care provided in the hospital, thus if it did not exist the patient would be admitted to the hospital or have to remain in the hospital. The program must also have provision for an appropriate level of emergency back up.*

### Existence of HITH Program

Do you have Hospital in the Home (HITH) project(s) that meets the definition above? If yes, please complete the following survey.

*Yes* If the answer to Question 1 is **YES** please complete the following questions. If you have any questions please feel free to contact Marian Shanahan, Project Manager, HITH Consultancy, CHERE at (02) 9351 0913.

*No* If the answer to Question 1 is **NO** please fax pages 1 and 2 of this survey to Marian Shanahan at (02) 9351 0930.

- 1) Please list the type of care provided in HITH programs and briefly describe (e.g. Intravenous therapy – antibiotics, anti-coagulants, fluid replacement; post surgery - hip replacement and open-heart surgery patients).

<b>Program</b>	<b>Description</b>

The following two tables will enable us to quantify the volume of care provided by HITH programs in your facility. Table 3(a) refers to cases that received all of their care in the HITH program, that is they were not inpatients of the hospital. Table 3(b) refers to patients who received care in both the hospital and in the HITH program.

- 2) What is the volume of care provided to HITH patients who received only HITH care, that is they were NOT INPATIENTS. Please provide for most recent year available.

<b>HITH Program (type of care provided)</b>	<b>Cases (episodes of care)</b>	<b>Average Length of Stay (ALOS)</b>	<b>Days (total)</b>
IV therapy			
Post-surgery			
HIV-AIDS			
Chemotherapy			
Non-surgical wound care			
Rehabilitation			
Other – please specify			

- 3) What is the volume of care provided to HITH patients who received both inpatient and HITH care, that is they were INPATIENTS before admission into HITH program. Please provide for most recent year available.

<b>HITH Program (type of care provided)</b>	<b>Hospital Portion Only</b>			<b>HITH Portion Only</b>		
	<b>Cases</b>	<b>Average Length of Stay (ALOS)</b>	<b>Days (total)</b>	<b>Cases</b>	<b>Average Length of Stay (ALOS)</b>	<b>Days (total)</b>
IV therapy						
Post-surgery						
HIV-AIDs						
Chemotherapy						
Non-surgical wound care						

Rehabilitation						
Other						

4) What is the total volume of care provided by your facility?

Total Separations including HITH	Total Days (bed days) including HITH	Overall Average Length of Stay

5) Common diagnosis - What are the 10 most common AN- DRGs treated in all HITH programs offered by your facility?

AN- DRG	Frequency (number of HITH Patients)

6) Age and gender distribution – this information is to illustrate which age group(s) uses HITH and whether this utilisation is similar to overall hospital use for all patients.

Age Category	Days of HITH care		Days of care (all hospital patients)	
	Female	Male	Female	Male
0 – 14				
15 – 34				
35-49				
50-64				
65-74				
75+				
<b>Total</b>				

## Administrative

- 7) How are HITH patients classified while in the HITH program? *Please tick all appropriate boxes.*
- (i) As hospital patients
  - (ii) As community agency clients
  - (iii) HITH patients (separate from either hospital or community)
  - (iv) Other – please specify \_\_\_\_\_
- 8) Are the HITH programs which your hospital is involved in operated by (*please tick all appropriate boxes*)
- (i) your hospital
  - (ii) another hospital
  - (iii) a community agency - please specify \_\_\_\_\_
  - (iv) other – please specify \_\_\_\_\_

- 9) Are your HITH programs established or pilot programs?

Program	Established (start date)	Pilot (projected duration)
Eg. Chemotherapy		Yes, 2 years (1995-1997)

- 10) Care Provision – What organisation employs the staff who provide the care for the HITH home patients? *Please tick appropriate response and when information available please indicate full time equivalent staff (FTE).*

- (i) Own Hospital staff \_\_\_\_\_ FTEs
- (ii) Purchased Services
  - 1. District Nurses \_\_\_\_\_ FTEs
  - 2. General Practitioners \_\_\_\_\_ FTEs

3. Non-hospital allied health care providers \_\_\_\_\_ FTEs
4. Nursing Agencies (nursing service) \_\_\_\_\_ FTEs
- (iii) A combination of hospital staff and contract employees. Please specify  
 \_\_\_\_\_ FTEs
- (iv) Other, please specify \_\_\_\_\_ FTEs

11) Who provides the direct care in your program(s)? *Please tick **all** appropriate boxes.*

- (i) Nurses
- (ii) Therapists
- (iii) Doctors
1. Hospital-based doctors
2. Patient's own GP
3. GP – not patient's own
- (iv) Home care workers
- (v) Patient (taught to administer own care)
- (vi) Carer (taught to administer care)
- (vii) Other (please specify) \_\_\_\_\_

12) Program Potential

- (a) Given the staff currently employed in the HITH program(s), is your HITH program operating at full capacity?  
*Yes No*
- (b) At what level do you estimate you are currently operating? (occupancy rate of the HITH program as currently staffed )
- 25%
- 50%
- 75%
- 100%

Are the HITH staff deployed elsewhere in the facility when not required for the HITH program? *Yes No*

What is the scope for expansion, i.e. how many additional patients could be managed in the program?

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What barriers are there, if any to expansion of the program?

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Are there plans to expand your facility's HITH program?

*Yes No* Please provide details.

13) Referrals

(a) – Approximately what percentage (%) of patient referrals come from the following sources?

(i) Emergency department \_\_\_\_\_

(ii) Inpatient departments \_\_\_\_\_

(iii) Outpatient departments \_\_\_\_\_

(iv) GP \_\_\_\_\_

(v) Community nurse \_\_\_\_\_

(vi) Other – Please specify \_\_\_\_\_

(b) Has the program experienced any difficulties in achieving the expected referral rate? *Yes No* Please explain

\_\_\_\_\_

How is HITH promoted within your facility, i.e. information sessions,

(c) dedicated staff, informal contacts, or written materials? \_\_\_\_\_

(d) What are specific criteria for entry into the HITH program?

---

14) What is the process for determining eligibility for entry in the HITH program?

For example, assessment of patient, carer and home situation.

---

15) What are the alternatives if patients or their carers choose not to participate in the HITH program?

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16) Who makes the final decision re eligibility?

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17) Who is responsible for discharging the patient from the program?

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18) If the patient is an inpatient, when in the stay is the patient considered as a potential candidate for HITH?

- (a) Pre-admission clinic
- (b) Pre-operatively or immediately after admission
- (c) Immediately post-operatively
- (d) Prior to discharge
- (e) Other, please specify \_\_\_\_\_

19) Home Assessment

- (i) Is the home situation assessed before to admission into the program?  
Yes                      No
- (ii) If yes, who assesses the home situation?  
\_\_\_\_\_
- (iii) Is the assessment made by visiting the home?  
Yes    No
- (iv) What are the assessment criteria?  
\_\_\_\_\_

20) While in the HITH program, does the patient need to leave home to receive care from any of the following? *Please tick **all** appropriate boxes.*

- (i) The doctor
- (ii) The nurses
- (iii) Therapists
- (iv) Outpatient department
- (v) Other, please specify

21) Continuity of Care

- (a) Is there any provision for HITH staff to assess patients before admission into HITH program? If so, please describe

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- (b) Is patient's own GP involved with HITH care while patient is in HITH?

Yes                      No                      If yes, please explain

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---

- (c) If no, what communication is made with the GP when patient is discharged from HITH?



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22) Evaluation of program – Have there been any evaluations of the HITH program(s) undertaken at your facility? *Please tick all appropriate responses.*

An economic evaluation of the HITH program

A clinical effectiveness evaluation

A satisfaction survey

Other (Please specify) \_\_\_\_\_

Please describe briefly any evaluation that has been done on the HITH program(s) offered by your facility. Please reference any published reports.

---

**B.** Funding / Payment – this question is designed to allow us to understand the various funding and payment arrangements for HITH operating throughout the country.

1) What is/are the source(s) of funding for your HITH program(s)? *Please tick all appropriate responses.*

(a) Casemix (AN-DRG)

(b) Casemix and incentive funding

(c) Per visit

(d) Block grant funding

(e) Service agreement, cost and volume contract

(f) Other (please specify) \_\_\_\_\_

2) How are doctors in the HITH program reimbursed?

(a) Salary

(b) Sessional Payments

(c) Fee for Service - MBS

(d) Fee for Service – other

(e) Other (please specify) \_\_\_\_\_

3) Does the HITH program cover the cost of **all** prescription medications for patients in the HITH program? *Yes* \_\_\_\_\_ *No* \_\_\_\_\_ If no, are there certain types of medications that are covered by the HITH program?

---



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**C.** Legal / Ethical questions

1) Are there specific medico-legal issues that pertain to the provision of care to HITH patients that are different from the care of inpatients? If so, please

describe these issues.

---

- |   |            |           |
|---|------------|-----------|
| 2) Does each patient sign a consent form? | <i>Yes</i> | <i>No</i> |
| 3) Does the carer sign a consent form?    | <i>Yes</i> | <i>No</i> |

**D.** Safety – In this section we are interested in mechanisms that have been set **up to** deal with patient and staff safety.

- 1) What provisions have been made for 24-hour emergency care for HITH patients?
- 

- |  |            |           |
|--|------------|-----------|
| 2) Are nursing staff available 24 hours per day?     | <i>Yes</i> | <i>No</i> |
| 3) Is a doctor available 24 hours per day?           | <i>Yes</i> | <i>No</i> |
| 4) Do the patients have an emergency number to call? | <i>Yes</i> | <i>No</i> |

- 5) Is the patient required to go by ambulance to the Emergency department if they require after hours emergency care? *Yes*      *No*

- 6) What mechanisms have been set up for staff security/safety? *Please tick all appropriate boxes.*

(a) written protocols (please attach)

(b) mobile phones

(c) escort

(d) other (please specify) \_\_\_\_\_

**E.** Staff education and monitoring of standards

- 1) Are there staff development/education programs for the team that provides the HITH care?
- 

- 2) What quality of care standards have been developed for HITH?
- 

- 3) Have specific clinical pathways been developed for use in HITH programs?

*Yes*      *No*

If yes, please specify for which clinical conditions.

---

**F.** Policies, protocols and procedures

- 1) Does the HITH program have specific program objectives? Examples of specific objectives may include clear definition of the eligibility of patients for HITH, demonstration of cost effective care at the patient level. Please indicate

the objectives for your facility. (If insufficient room provided, please attach a list).

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- 2) Are there specific performance indicators for HITH programs? Eg. ALOS of HITH (including hospital portion) versus hospital ALOS, nature of care provided, clinical outcomes etc. Please list the performance indicators for your facility. If insufficient room please attach a list.

## Appendix G: Hospitals and Facilities providing HITH

### Hospital in the Home Programs in Australia (excluding Victoria)

Hospital	Address	Types of programs or care provided
The Canberra Hospital	Woden, ACT	IV therapies (antibiotics, inotropes, anti-coagulants, anti-migraine etc.); post orthopaedic surgery; clinical pathway driven elective surgery; chemotherapy
Albury Community Health Services	Albury, NSW	Intravenous antibiotics; anticoagulants; complex dressings and drains
Bankstown Health Service, Ambulatory Care Unit	Bankstown, NSW	IV therapies, Low molecular weight heparin and other parenteral agents
Bega Hospital	Bega, NSW	Post acute surgical care, IV antibiotics, IV infusions, post acute medicine
Broken Hill Hospital and Health Service	Broken Hill, NSW	IV therapy, anticoagulant therapy, wound management, monitoring and education
Camden Hospital, NSW	Camden, NSW	IV therapy, post surgery, non-wound care, education, monitoring vital signs
Central Sydney Area Health Service	Camperdown, NSW	IV therapy, anti-coagulation, major dressings
Fairfield Hospital	Wetherill Park, NSW	Domiciliary Midwives program – post natal; Ambulatory Care – Intravenous therapy; respiratory care, education and support; monitoring central lines; vital signs
John Hunter Hospital	Hunter Region, NSW	Out and about IV therapy - Predominantly intravenous antibiotics; <i>Sleep at home program</i> - EDP post hysterectomy
Hornsby Kuringai Hospital	Hornsby, NSW	Rehabilitation Discharge Team
Moruya Hospital	Moruya, NSW	IV therapy (antibiotics, fluid replacement, blood transfusions); anti-coagulation; post surgery (mastectomy, burns, hysterectomy, plastic surgery), home TPN, paediatrics (croup, asthma, renal failure, cystic fibrosis)
Newcastle Mater	Waratah, NSW	Mater Acute Care Community Service (MACCS) post acute and acute care - IV therapy, anticoagulant therapy, general monitoring, education, wound care, referrals from oncology
New Children's Hospital	Westmead, NSW	Home Intravenous therapy – cystic fibrosis patients; Palliative care, IV antibiotics and chemotherapy; Home Traction & Case management program – for developmental dysplasia of hip and EDP fractured femur; Burns, wounds, plastics - dressings, management and, education
Northern Sydney Division of General Practice – Royal North Shore Hospital	St. Leonards, NSW	Home based rehabilitation – fractured neck of femur, stroke, amputation lower limbs and joint replacement

Prince of Wales Hospital	Randwick, NSW	HITH – Intravenous antibiotics, anticoagulants, blood transfusions Orthogeriatric Service – rehab and treatment post surgery General Surgery – rehab and treatment post surgery Post acute respiratory Outreach Service – antibiotics, chest physio
Royal Newcastle Hospital-	Newcastle, NSW	PACC - Post orthopaedics: home traction; assisted discharge; IV antibiotics; DVT
Tweed Heads District Hospital	Tweed Heads, NSW	IV therapy; anticoagulants; Early Obstetric Discharge program; post surgery care; wound infections
Western Sydney Area Health Service – Post Acute Community Care	Westmead, NSW	IV therapy, pre and post surgery care, non-surgical wound care; rehabilitation; anticoagulants
Wingecarribee Health Services	Bowral, NSW	Transitional Care Program – intravenous therapy, post surgical care, hospital avoidance, anti-coagulation therapy
Wollongong, Institute of Maternity and Paediatrics	Wollongong, NSW	Antenatal – foetal and BP monitoring, drawing blood Post natal – visits and follow-up, drawing blood from jaundiced babies; follow-up of high risk mothers and neonates ; removal of sutures and clips
Royal Darwin Hospital	Darwin, NT	Intravenous Therapy, Anti-coagulation Therapy
Bundaberg Health Service – Community Health	Bundaberg, Qld.	Transitional Care – advanced wound care, intravenous antibiotics, anticoagulant therapy, pathology, education post surgery,
Gold Coast Hospital	Southport Qld.	Parenteral therapy – intravenous, intramuscular and subcutaneous
Princess Alexandra Hospital	Woolloongabba, Qld	Transitional care – Wound care, s/c, IM medications, patient and carer education. IDC/ SPC changes Alternate Site Infusion Service – IV antibiotics
Toowoomba Health Services	Toowoomba, Qld.	Intravenous therapy, anticoagulants, fluid monitoring in hyperemesis
Flinders Medical Centre	Bedford Park, SA	Wound care; transitional support; cellulitis; DVT, IV antibiotics; blood transfusion, education (sc. interferon, diabetes) day surgery support; INR monitoring post valve replacement
Lyell McEwin Hospital	Elizabeth Vale, SA.	Post surgical care, hospital avoidance, anti-coagulation therapy
The Queen Elizabeth Hospital	Woodville, SA	Intravenous therapy; anticoagulant therapy; respiratory management; pain management; wound care (specialised and drains); post day surgery; urology program, breast care program (pre and post surgery); physiotherapy;
Women’s & Children’s Hospital	North Adelaide, SA	Domiciliary Midwife; Home Enteral Nutrition Service (HENS); New Palliative Care Service
Repatriation General Hospital**	Adelaide, SA	Rehabilitation – stroke and orthopaedic

Launceston General Hospital	Launceston, Tas	Intravenous Therapy (Antibiotics, methyl-prednisone); Wound care, Anticoagulants, complex patients pre Community Nursing, Lap Cholecystectomy (same day surgery);
Royal Hobart Hospital	Hobart, Tas	IV Antibiotics, Anticoagulant Therapy, Drain management, complex dressings, TPN, Ileostomy care, blood tests, bilateral fracture colles, post surgery pain management
Fremantle Hospital	Fremantle, WA	Intravenous Antibiotics; pre and post procedure anti-coagulation; post surgery care (drains, tubes etc.); complicated wound care (acute only); anti-coagulation.
Homeward 2000**	Perth	Hospital Avoidance
Sir Charles Gairdner	Nedlands, WA	The Domiciliary Rehabilitation and Support Program (proximal femoral fractures); Homeward Bound Program (strokes, fractures, neurological disorders); Post Acute Care Domiciliary Nursing Program (IV antibiotics; wound/drain management, stoma therapy, teaching/support; pre-op education)
Royal Perth Hospital	Perth, WA	Domiciliary Bone marrow transplant service. HANDS – Intravenous antibiotics; low molecular weight heparin; wound care; drain care; phlebotomy for Warfarin titration, X-match for transfusion. <i>Home Based Rehabilitation Services</i> Burns Domiciliary Service

**\*\* These two facilities did not complete a survey but information was gained in discussions with staff**

## 1997-98 Victoria Hospital in the Home Program, Summary of Activity

This table was generated from information provided by the Victorian Department of Human Services. The content of the table is different from the previous table but does include information on length of stay and number of patients by HITH program. This type of information was also requested in our surveys but was not provided with sufficient consistency to allow presentation.

<b>Hospital / Network</b>	<b>Bed –day target</b>	<b>Bed-day actual</b>	<b>Separations</b>	<b>Average LOS</b>	<b>Total LOS (including HITH)</b>
<i>Barwon South Western Region</i>					
Colac	806	662	78	8.5	940
Geelong Campus – Barwon Health	6,458	4,435	749	5.9	6,469
Hamilton	600	883	79	11.2	1,256
Portland	482	253	49	5.2	422
Warmambool	2,263	1,398	148	9.4	1,885
<i>Grampians Region</i>					
Djerriwarrh HS (Bacchus Msh & M) *	70	111	20	5.6	174
Ballarat	2,500	1,105	72	15.3	1,769
East Grampians (Ararat)	154	223	39	5.7	314
Stawell	420	240	24	10.0	392
West Wimmera (Nhill)	715	414	24	17.3	435
Wimmera Health Care Group (Horsham)	350	304	16	19.0	367
<i>Lodden Mallee Region</i>					
Bendigo	480	762	93	8.2	1,159
Echuca	560	494	94	5.3	773
Kyneton	208	62	26	2.4	63
Mildura Base	1,200	1,519	298	5.1	2,203
Swan Hill	82	267	61	4.4	363
<i>Hume Region</i>					
Benalla	547	460	155	3.0	587
Goulburn Valley Base	500	369	65	5.7	521
Wangaratta	838	986	286	3.4	1,625
Wodonga	1,944	2,284	465	4.9	3,357
<i>Gippsland Region</i>					
Bairnsdale RHS *	130	74	7	10.6	79
Central Wellington *	150	135	13	10.4	314
Latrobe Regional (Moe)	1,565	1,763	70	25.2	2,063
West Gippsland (Warragul)	250	505	95	5.3	711
<i>Women's &amp; Children's Health Care Network</i>					
Royal Children's	1,290	1,377	267	5.2	3,722
Royal Women's	692	526	197	2.7	2,876
<i>Austin &amp; Repatriation Medical Centre</i>					
Austin & Repatriation Medical Centre	3,917	4,317	591	7.3	8,875
<i>Mercy Hospitals Inc.</i>					

Mercy Hospital - E Melb Campus	914	808	66	12.2	6,249
Mercy Werribee	595	729	320	2.3	1,610
<i>North Western Health Care Network</i>					
The Northern Hospital	1,630	1,229	241	5.1	1,900
Royal Melbourne	4,000	3,883	758	5.1	8,746
Western Hospital	1,000	2,078	307	6.8	3,521
Williamstown	424	144	74	1.9	302
<i>Inner &amp; Eastern Health Care Network</i>					
Alfred, The	4,500	4,753	343	13.9	8,121
Angliss, The	4,000	3,718	1,406	2.6	6,019
Box Hill	1,400	1,380	484	2.9	3,004
Maroondah	1,900	1,942	639	3.0	3,230
Peter MacCallum Cancer Institute	2,000	915	889	1.0	925
<i>St. Vincent's Hospital</i>					
St. Vincent's	9,700	8,649	601	14.4	11,298
<i>Southern Health Care Network</i>					
Dandenong	1,714	1,610	237	6.8	1,868
Monash Medical Centre Clayton	3,198	2,789	432	6.5	5,006
<i>Peninsula Health Care Network</i>					
Frankston Hospital	1,424	1,746	281	6.2	2,341
<b>Totals</b>	<b>67,570</b>	<b>62,301</b>	<b>11,159</b>	<b>5.6</b>	<b>107,854</b>

\*

New HITH program in 1997-98

Source: Victoria Department of Human Services



## Appendix H: Selection Criteria by Facility

Selection criteria by hospital, each line represents the selection criteria for a different hospital. The research team grouped the criteria under the major headings used in the table. All the responses are shown here to give those attempting to set up a program some examples of criteria for various facilities.

<b>Geographic Limitations</b>	<b>Condition of patient</b>	<b>Care Requirements</b>	<b>Physical Surroundings</b>	<b>Patient/ Carer Willingness and ability</b>
Lives in region	Medically stable / predictable		Safe for staff Safe for physio and OT	Willing to participate
Resides less than 20 km from hospital	Medically stable with clear prognosis Medical and nursing consent	Care amenable to home environment	Telephone Home environment safe	Patient consent Support person at home
Must live in safe area	Must speak English or live with someone who does Must be mentally competent Must be acceptable to nursing staff	Must not live alone (IV antibiotics)		
	Stable medically and surgically Normally require hospitalisation Medical officer approval Independent to bathroom or with carer assistance		Telephone access Suitable and safe home environment	
Resides in local government area	Stable medical status Able to manage pre-admission ADLs Over 12	Has own GP	Access to phone	Patient has the ability to participate Compliant with treatment
	Medically stable Care can be managed by HITH staff			Patient willing to participate
Live in local government area	Have a diagnosis Have GP support		Telephone in home	Have family support
Live within reasonable distance of clinic	Have a condition requiring IV therapy Have adequate IV access Be clinically stable Have transport to enable follow-up visits	First dose of IV medication has been administered in supervised environment	Suitable home environment - telephone and refrigerator	Provide informed consent Carer available as necessary

<b>Geographic Limitations</b>	<b>Condition of patient</b>	<b>Care Requirements</b>	<b>Physical Surroundings</b>	<b>Patient/ Carer Willingness and ability</b>
	Patient would otherwise be an inpatient Public patient Definite diagnosis Medical consent	Requires acute care service	Suitable home assessment	Patient consent
Within catchment area	Must otherwise require admission to hospital Have a definite diagnosis Stable condition Patient and carers must be acceptable to Nursing Staff		Reside in suitable residence	Be able to care for self or have suitable carer
	Condition stable		Clean safe environment Telephone	Carer has ability to demonstrate procedure prior to discharge Carer able to understand education material
Lives within 25 km of hospital			Safe home situation	Families, carers are comfortable with managing care
Family reside in Sydney metropolitan area	Age – under 6 months for home traction Nursing medical staff consent		Adequate home situation	Parental /carer consent Ability to demonstrate adequate skills of care
	Positive blood culture and afebrile for 48 hours, Sensitive to Teicoplanin, non-platelet dependent patients post MT		Have telephone access	Patients / family willing to learn procedure or CNC to provide at home
Live in the area	Can toilet themselves with aids	Require care	Home is suitable	Agree to enter the program
Lives within geographic area	Medical consent Reliable to follow instructions Diagnosis is clear Patient is stable	Care is short term, Does not need frequent tests or Care not duplication of community based service Hours of care available from project	Safe home environment	Patient and carer willing

<b>Geographic Limitations</b>	<b>Condition of patient</b>	<b>Care Requirements</b>	<b>Physical Surroundings</b>	<b>Patient/ Carer Willingness and ability</b>
	Doctor consent	Daily or BD treatment	Phone	Consent of patient Carer or else patient is very dependent
Live in designated area	Medical officer designated to provide medical care	Care can be safely provided in home environment	Lives in home, hostel, nursing home Adequate physical surroundings	Client wants to participate
Must live within 20 km of the city		Patient must have had a acute hospital admission Medical officer must give consent	Must have access to telephone	Must have suitable carer at home
Must live within designated boundaries		Suitable access device		Suitable carer / adequate social support Must give consent
Lives within 20 minutes drive from hospital	Have a medical diagnosis Stable	First dose of medications given with no complications	Telephone accessible	Carer preferred
	Patient is able to transfer and mobilise safely	Post acute care required for up to 7 days		Patient is willing to be cared for at home Patient agrees to be readmitted if complications necessitate readmission
Lives within designated area	Patient is alert, oriented and low safety risk Physically and haemodynamically stable GP willing to manage care	Treatment is not expected to exceed 60 minutes of nursing time Length of care not expected to exceed 7-10 days	Discharge to private residence	Resides with a carer or has a carer within easy access Patient must be agreeable to service and prepared to work with team
	Need for treatment must be established, medically stable Must be alert and oriented, compliant Must be able to manage self care of canuala Good venous access No history of drug abuse	Anticipated length of treatment not > 10 days (negotiable) Documentation of allergies or other drug reactions	Home environment must be suitable with refrigeration Access to telephone essential	Family support

<b>Geographic Limitations</b>	<b>Condition of patient</b>	<b>Care Requirements</b>	<b>Physical Surroundings</b>	<b>Patient/ Carer Willingness and ability</b>
Live within 20 minutes from hospital	Has a clear diagnosis Stable condition Has medical request for transfer	Requires acute care but not 24 hour per day Clearly defined requirements	Home is safe, accessible, hygienic, no potential obstacles Has access to telephone	Has a support network at home Enters program voluntarily
Live within 20 minutes from hospital	Medically stable	Have suitable IV access in place	Have phone	Have access to transport Can administer own oral medications
	Assessed as clinically stable and referred by medical staff Condition is assessed by HITH staff and confirmed as appropriate		Home environment suitable	Patient agrees and accepts program care
Live within 25 km radius of hospital	Patients of RPH Referral by medical staff Has non acute medical or surgical needs Has manageable continence	Staff able to meet required needs	Telephone access Suitable home environment	Patient and carer agreement
	Medically stable	Requires domiciliary rehab or support		Has appropriate home support
Lives within the referral zone	Medical consent	Requires short term post acute care Needs visiting to a maximum of twice per day	Safe home environment	Patient and carer consent Patient is compliant with treatment

## Appendix I: Quality / Standards (ACHS)

There are many issues to raise with respect to quality and standards of care in the community. A first responsibility is to determine who is responsible for the development and the maintenance of standards and quality of care. Is it the responsibility of the State/Territory Department of Health, the hospital or the program manager? Is it different in the private sector from the public sector? Once the answers to these questions have been determined, as in any health care setting, multiple procedures and policies are required.

While not specifically addressing HITH, the Australian Council on Healthcare Standards (ACHS) set out guidelines<sup>(68)</sup> for care in the home. These guidelines as well as additional information on standards and criteria are available from ACHS. It is not necessary to reproduce them here but instead we highlight some of the criteria that the ACHS believe are essential to an well-organised and safe program.

- Continuum of care:
  - does the program meet the needs of the community?
  - are operating times for the program suitable and is the information disseminated?
  - do patients know where they should go in an emergency?
  - are staff sensitive to client's sensitivity about strangers entering their home?
  - are there clear guidelines as to how is communication between care providers is handled?
  - is there informed consent by the client?
  - care planning – is the care co-ordinated with the client and family?
  - is the care delivered in a timely, appropriate manner in a safe, comfortable environment?
  - Planning for separation from HITH should begin on entry to the organisation.
- Leadership and management:
  - ensuring there are effective clinical managers, adequate resources to ensure care is provided according to best practices;
  - ensuring the development of policies, procedures and protocols;
  - an evaluation of service outcomes within a quality improvement framework should be conducted;
  - ethical issues such as medico-legal issues, application of legislative regulations, duty of care versus clients rights, prioritisation of service provision are documented and available to staff.
- Human resources management:
  - adequate provision is made for travel;
  - staff carry identification and are aware of the legal implications of visits;
  - appointments are made with clients/carers;
  - staff competencies are assessed with respect to equipment, safety, educating the client/carers.

- Information Management – data must be collected for planning, delivering, monitoring and improving services. How data is collected and managed has implications for communication between all team members.
- Safe practice and environment – when care is provided in the client’s home, consideration must be given to hygiene, cleanliness, sterility, fire, communication during emergencies, safe handling of pharmaceuticals in the home, disposal of medical wastes.

Standards and protocols should also include clear clinical criteria for acceptance into HITH care, criteria for discharge (including when transfer to community care should occur) and performance indicators. Consumer feedback should be incorporated into regular assessment of any program.

## Appendix J: Application of Criteria to Models

### General HITH Model

Technical Efficiency	Allocative Efficiency	Equity of access to health services	Gaming	Acuity and patient selection	Choice	Quality	Staff safety	Feasibility	Impact on carers /family
<ul style="list-style-type: none"> <li>- HITH programs require experienced nursing staff (thus more expensive), on the other hand there may be less supervision required</li> <li>- HITH may have lower overhead cost and hotel type costs but start up costs for HITH may be substantial – vehicles, mobile phones etc.</li> <li>- In HITH the ability of staff</li> </ul>	<ul style="list-style-type: none"> <li>- No evidence that HITH is disadvantageous to health outcomes. Evidence suggests HITH is at least equally effective for some care</li> <li>- May be the possibility that the care may be “add on” rather than “substitute” for hospital care.</li> <li>- Budget holder may affect referral</li> </ul>	<ul style="list-style-type: none"> <li>- Increased risk of patients bearing the pharmaceutical (and other supplies) costs (ii)</li> <li>- May increase the burden on carers (especially the older people and women)</li> <li>- May increase the financial burden on families with possibility of significant effects on</li> </ul>	<ul style="list-style-type: none"> <li>- Inclusion of inappropriate patients to maintain patient numbers in program</li> <li>- Depending upon who holds the budget there may be an incentive to shift patients to HITH inappropriately (iii)</li> </ul>	<ul style="list-style-type: none"> <li>- In any HITH program there is the possibility that the care may be “add on” rather than “substitute” for hospital care.</li> <li>- Admission criteria need to be developed and utilised to ensure appropriate patients are selected.</li> <li>- Referral patterns need to be established</li> <li>- Process for medical</li> </ul>	<ul style="list-style-type: none"> <li>- Patients’ choices may be limited (iv):</li> </ul>	<p>To maintain quality programs must:</p> <ul style="list-style-type: none"> <li>- Ensure necessary skills and qualifications of staff</li> <li>- Have criteria for assessing patient, carer and home suitability</li> <li>- Ensure that HITH patient has access to suitable health care</li> <li>- Ensure that HITH professionals members as diversity in</li> </ul>	<ul style="list-style-type: none"> <li>- Specific policies and procedures for ensuring the protection of staff in the community are required</li> </ul>	<ul style="list-style-type: none"> <li>- Need for senior manager to advocate for the program.</li> <li>- Requires start up budget and recognition that start-up may take time and resources</li> <li>- Acuity of patients often increases as acceptance increases</li> </ul>	<ul style="list-style-type: none"> <li>- Potential increase risk of burden</li> <li>- Potential decrease in burdens by decreasing travel and involving family in care</li> <li>- Can be rewarding experience when adequate education and ongoing support provided</li> <li>- Carer should be assured that patient can return to</li> </ul>

<p>being able to monitor more than one patient at a time is lost</p> <ul style="list-style-type: none"> <li>- Travel cost may be substantial</li> <li>- Drugs may be more expensive (i)</li> <li>- How the budget is held may affect the level of efficiency, the incentives may not be there to provide care in least costly way (ii)</li> <li>- Substitution must occur as HITH program expands hospital beds must close unless there has been a decision made to increase throughput</li> </ul>	<p>patterns and 'wrong' patients may be referred (ii).</p>	<p>those of lower SES</p> <ul style="list-style-type: none"> <li>- Private patients less likely to have access to HITH under current arrangements</li> </ul>		<p>supervision of patient needs to be established</p> <ul style="list-style-type: none"> <li>- When initially establishing a program there is a risk of accepting patients either not acute enough or too acute for HITH in order to sustain the program</li> <li>- Risk that 24 hour coverage not equal to that received as an inpatient</li> </ul>		<p>patients may necessitate diversity in providers</p> <ul style="list-style-type: none"> <li>- Have specific HITH standards, procedures and protocols</li> <li>- Programs with higher volume are more likely to be able to offer 24 hour cover (iv)</li> <li>- Written consents should be established</li> <li>- Documentation and data collection (see 4.XX for further discussion)</li> <li>- Good communication channels need to be established</li> </ul>			<p>hospital if necessary</p>
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- i) Use of later generation antibiotics may increase overall drug costs
- ii) Although the Medicare Agreement does not permit admitted inpatients to be charged for pharmaceuticals not all HITH programs classify patients as inpatients.



- iii) There are at least three ways in which the budgets may be held, these are:
  - a) that the money follows the patient – that is a program, (eg. an Orthopaedic program) is responsible both clinically and financially for the patient through both inpatient and HITH care
  - b) the budgets are held within the same facility, but within different departments for the inpatient care and HITH care; and
  - c) The budgets are held in two different organisations – ie. the hospital and a community-based organisationIn a) there is a greater incentive to provide care for the patient in the most cost-effective way because there is no opportunity to shift costs. The incentive for cost shifting is greatest in c).
- iv) Is there actually a choice once HITH is offered, is HITH offered to all who may want or benefit from HITH, is there a choice in care in the home ie. visit times?
- v) If the care being provided is true substitute care there must be allowances made for 24-hour provision of care. Some programs do not provide 24-hour cover and rely on Emergency Department services if the patient requires after hours care. If this is the practice, then consideration must be given to allow access to the patient's chart (may be difficult if kept at patients home) and how assistance will be provided. The practice of using busy Emergency Department may cause the patient and carer to refrain from calling for advice or reassurance.

## Model A

*Ownership:* Hospital; *Patient's Status:* as an inpatient; *Funding:* case mix based; State/Territory (HITH pays all medical remuneration including GPs); *Staff:* Hospital staff, specialists (and occasionally GPs)

Technical Efficiency	Allocative Efficiency	Equity of access to health care services	Gaming	Acuity and patient selection	Choice	Quality	Staff safety	Feasibility	Impact on Carers
<ul style="list-style-type: none"> <li>- If staffing arrangements are not flexible this model may result in unused staffing resources</li> <li>- Larger, more flexible, programs may be able to provide more visits</li> <li>- Case mix funding may encourage shorter LOS</li> <li>- There may be the potential for either one large or several small programs. The latter may</li> </ul>	<ul style="list-style-type: none"> <li>- In order to occupy staff fully there may be tendency to accept all patients (including those better served by community services); this could be exacerbated by how the budgets are held (see general model)</li> <li>- Compared to community programs an increased opportunity to substitute</li> </ul>	<ul style="list-style-type: none"> <li>- Potential to increase access to care by increasing throughput</li> <li>- Quicker adoption of technology (higher awareness)</li> <li>- Gaps in care at the community level less obvious</li> <li>- Relative to community programs less possibility of drug costs being shifted to the patient and PBS</li> <li>- Better</li> </ul>	<ul style="list-style-type: none"> <li>- Risk of return to hospital being classified as a new episode rather than a transfer</li> <li>- Decreased possibility of shifting costs to patient, MBS or PBS relative to community programs.</li> <li>- Risk of cost shifting between departments (See general model)</li> </ul>	<ul style="list-style-type: none"> <li>- If increased pressure on hospital beds there may be a tendency of less rigorous application of admission criteria.</li> <li>- May disadvantage older people if only admitting condition is considered (as co-morbidities or social isolation may mitigate against HITH)</li> <li>- Increased chance of access to higher acuity patients</li> <li>- May increase</li> </ul>	<ul style="list-style-type: none"> <li>- May have a tendency to select “wrong” patients if need to increase volume</li> <li>- There may be less staff effort required for the patient to access HITH</li> <li>- Patients know they can be readmitted to hospital if necessary</li> <li>- However, may perceive less choice if they feel pressured by the hospital</li> </ul>	<ul style="list-style-type: none"> <li>- Decreased continuity of care at the discharge end of HITH compared to a community program with GP involvement (i)</li> <li>- Improvement of within episode continuity of care</li> <li>- Possibility of increased access to 24-hour cover (ED often used)</li> <li>- Hospital standardised policies and procedures may be more</li> </ul>	<ul style="list-style-type: none"> <li>- Less experience in dealing with issues related to staff safety in the community</li> </ul>	<ul style="list-style-type: none"> <li>- Increased possibility of starting a program and expanding as hospital may provide funds</li> <li>- The catchment area may be very large and this may have implications for the feasibility of running the program.</li> <li>- Hospital more likely to have a powerful advocate for HITH program</li> </ul>	<ul style="list-style-type: none"> <li>- Possibility that carers feel compelled to accept HITH especially if motivation for program is to increase hospital throughput</li> <li>- Higher acuity patients may lead to increased burden of care for carers</li> <li>- Decreased likelihood of financial burden related to drugs and medical fees.</li> </ul>

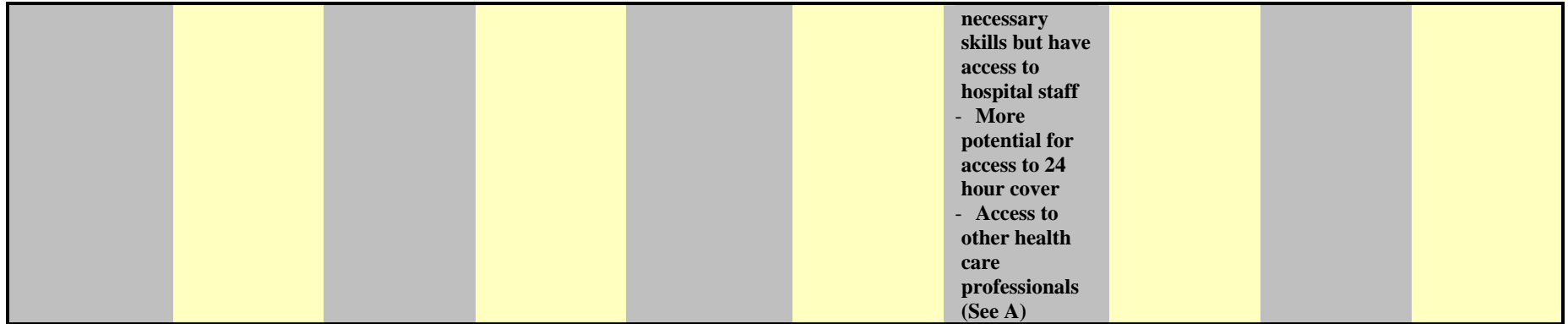
<p>result in duplication of administration and management staff. Hospital programs may find the amount of hospital overhead they are required to absorb is substantial.</p>	<p>care. - Hospital personnel may focus on clinical rather than clinical and social issues. - Hospital programs may be perceived as promoting the ‘quicker and sicker’ discharge philosophy.</p>	<p>access to hospitals if patient needs to return (patient status is unchanged)</p>		<p>the opportunity for follow-up by specialists relative to community or GP models</p>	<p>staff</p>	<p>amenable to adoption of acute HITH care - Increased ability (and confidence) in managing acute patients - Decreased ability to manage at home those with complex co-morbidities and complex psychosocial issues - Increased access to specialists - Increased opportunity for consultation with other health care professionals - Wider range of expertise likely to exist within the hospital system</p>		<p>- Hospital staff’s familiarity with HITH team may lead to increased acceptance by clinicians.</p>	
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i) This lack of continuity of care is an issue for inpatient discharges as well

## Model B

*Ownership:* hospital; *Patient's Status:* as inpatient; *Funding:* case mix based, state/territory; *Staff:* mixed hospital and community or contract, specialists, specialists and GPs

Technical Efficiency	Allocative Efficiency	Equity of access to health care services	Gaming	Acuity and patient selection	Choice	Quality	Staff safety	Feasibility	Impact on Carers
<ul style="list-style-type: none"> <li>- Mixed staffing models allow contracts on as-needed basis – may have less staff down time</li> <li>- May permit a larger referral area</li> <li>- LOS effects– (See A)</li> <li>- Clinician acceptance – (See A)</li> <li>- Impact of larger programs – (See A)</li> <li>- High overhead (See A)</li> </ul>	<ul style="list-style-type: none"> <li>- Opportunity for substitution – (See A)</li> <li>- “sicker and quicker” (See A)</li> <li>- ‘wrong’ patients accepted because of budget holder (see General Model)</li> </ul>	<ul style="list-style-type: none"> <li>- Having team members from the community and hospital there is more potential to understand gaps in care</li> <li>- Increased throughput potential</li> <li>- Minimal risk for shifting costs</li> <li>- Access to hospital (See A)</li> </ul>	<ul style="list-style-type: none"> <li>- Potential for return to hospital classified as readmission (See A)</li> <li>- Decreased potential for shifts to PBS and MBS (See A)</li> <li>- Risk of cost shifting between departments (See general model)</li> </ul>	<ul style="list-style-type: none"> <li>- Potential to attract more acute patients (See A)</li> <li>- Follow-up by specialists more likely than community models</li> <li>- Bed pressures (See A)</li> <li>- Depending on mix of staff there may be the capacity to deal with patients with multiple co-morbidities and social isolation.</li> </ul>	<ul style="list-style-type: none"> <li>- Less effort to readmit (See A)</li> <li>- Tendency to accept ‘wrong patients’ (See A)</li> <li>- Patients may perceive less choice (See A)</li> </ul>	<ul style="list-style-type: none"> <li>- Maintains continuity of care with medical staff during episode however there may be coordination issues with multiple providers</li> <li>- Achieving and maintaining skill levels, accountability, procedures and protocols across two organisations may be difficult</li> <li>- Community-based nurses may initially not have</li> </ul>	<ul style="list-style-type: none"> <li>- Additional experience in safety in community</li> </ul>	<ul style="list-style-type: none"> <li>- Potential for development and expansion (See A)</li> <li>- May be difficulties with specialty staff liaising with community nurses</li> </ul>	<ul style="list-style-type: none"> <li>- Burden on carers (See A)</li> <li>- Association with community care providers may increase access to non-health care services that lessen the burden on providers.</li> <li>- Financial burden related to medications, fees may be minimal</li> </ul>

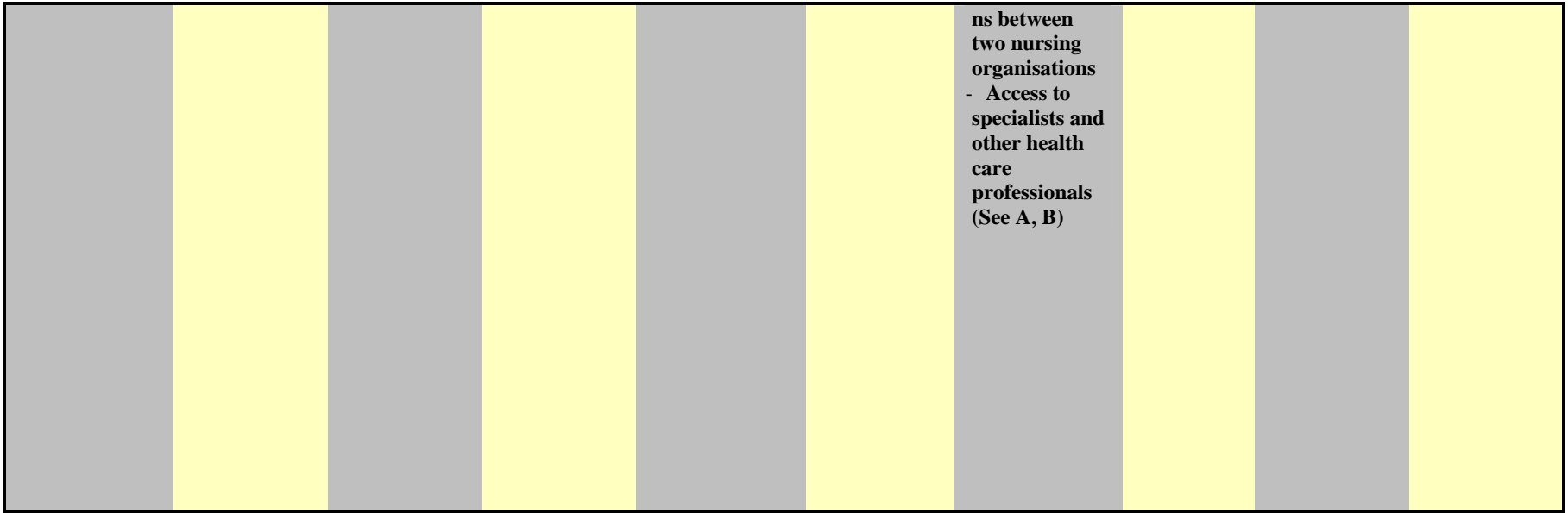


Notes: The model will function differently depending whether the Community-based nurses are contracted from existing community health services and part of the staff or whether they function more as agency nurses.

### Model C

*Ownership:* hospital; *Patient's Status:* uncertain; *Funding:* Block funded, AHS, Division, medical remuneration HITH or MBS; *Staff:* hospital with community back-up (after hours and weekends)

Technical Efficiency	Allocative Efficiency	Equity	Gaming	Acuity and patient selection	Choice	Quality	Staff safety	Feasibility	Impact on Carers
<ul style="list-style-type: none"> <li>- Flexibility with staffing levels likely greater than Model A but less than a mixed model as in B</li> <li>- Without casemix funding incentives there may be less incentive to maintaining appropriate LOS</li> <li>- High overhead (See A)</li> <li>- Clinician acceptance (See A)</li> <li>- Impact of larger program (See A)</li> </ul>	- See B	<ul style="list-style-type: none"> <li>- Awareness of community issues (See B)</li> <li>- Access to hospital and increased throughput (See A)</li> <li>- Potential for financial burden to patient if non-hospital doctors provide HITH care</li> </ul>	<ul style="list-style-type: none"> <li>- Increased potential shifting of expenditures to PBS, MBS, and the patient</li> <li>- Less incentive than A &amp; B but potential exists for any return to hospital being classified as a new admission</li> <li>- Risk of cost shifting between departments (See general model)</li> </ul>	- See A & B	- See A & B	<ul style="list-style-type: none"> <li>- As patient is considered a HITH patient (separate from hospital) it may be unclear as to where medico-legal responsibilities rest</li> <li>- Opportunity for improved weekend and evening coverage maintaining 24-hour nursing cover</li> <li>- Continuity of care may be an issue as in A</li> <li>- May be difficult to maintain standards of care and communication</li> </ul>	- See B	<ul style="list-style-type: none"> <li>- Large community programs may be more likely to be able to provide 24-hour care</li> <li>- Potential for development and expansion (See A)</li> </ul>	<ul style="list-style-type: none"> <li>- Community nurses attuned to broader issues (see B)</li> <li>- Possibility of increased financial burden related to medications and medical fees</li> </ul>



Notes: Whether medical remuneration is paid by the HITH program or by MBS may create important differences in incentives. If medical funding for the HITH program is from MBS there may be increased pressure to shift patients to HITH in order to free up time and resources for other patients in hospitals.

## Model D

*Ownership:* Extra-mural hospital; *Patient's Status:* patient of Extra-mural hospital. *Funding:* global funding, block grant, MBS ; *Staff:* Extra-mural staff, own GP and specialist as required.

Technical Efficiency	Allocative Efficiency	Equity	Gaming	Acuity and patient selection	Choice	Quality	Staff safety	Feasibility	Impact on Carers
<ul style="list-style-type: none"> <li>- Staff down time may be high if patient load not adequate for staffing</li> <li>- Possible to cover very large area thus achieves larger volumes of patients. However, without a large patient load may result in high travel costs.</li> </ul>	<ul style="list-style-type: none"> <li>- Control of expenditures, patient selection and acuity, and staff levels</li> </ul>	<ul style="list-style-type: none"> <li>- Potential for addressing community care issues while remaining an acute care program</li> <li>- Decreased risk of cost shifting (doctors, drugs and supplies included in program) to the patient</li> <li>- Possibly decreased access to hospital beds compared to hospital-based programs</li> </ul>	<ul style="list-style-type: none"> <li>- Possible increased risk of cost shifting between HITH and other acute health care sectors (See general model)</li> </ul>	<ul style="list-style-type: none"> <li>- Able to accept high acuity patients as has a developed infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>- As a widely accepted program with a broad structure it may be able to allow the patient more choice within the program</li> </ul>	<ul style="list-style-type: none"> <li>- Will have well developed standards and procedures as providing this care is its prime business</li> </ul>	<ul style="list-style-type: none"> <li>- Well developed</li> </ul>	<ul style="list-style-type: none"> <li>- In the Australian context the MBS and PBS, State and Commonwealth agreements may hamper the development of such a program</li> <li>- No existing Australian model and this might be a barrier to development</li> <li>- Without strong ties to the hospital referrals may be difficult to</li> </ul>	<ul style="list-style-type: none"> <li>- Community-based nurses attune to broader issues (see B)</li> </ul>



		- Likely early access to new technology (See A)						obtain	
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**Model E**

*Ownership:* Division of GPs; *Patient's Status:* responsibility of GP; *Funding:* Block grant funded, State/Territory ; *Staff:* community or agency nursing staff, GP

Technical Efficiency	Allocative Efficiency	Equity	Gaming	Acuity and patient selection	Choice	Quality	Staff safety	Feasibility	Impact on Carers
<ul style="list-style-type: none"> <li>- If nursing staff is contract based then efficiency issues related to low throughput may not be an issue</li> <li>- May permit larger areas if several Divisions of GP working together alternatively if small Divisions the throughput may be low</li> </ul>	<ul style="list-style-type: none"> <li>- No hospital base, if only GP referrals therefore an possibility of not recruiting appropriate patients</li> </ul>	<ul style="list-style-type: none"> <li>- Possible decreased access to hospital services</li> <li>- Patients may have to pay for medications (non-PBS portion) and medical fees (non-MBS portion)</li> <li>- If community nurses there may be increased understanding of community issues</li> <li>- Possibly decreased awareness of new technologies</li> </ul>	<ul style="list-style-type: none"> <li>- Less of an issue for hospital avoidance programs</li> <li>- Programs that operate in conjunction with hospitals may be affected by hospitals attempting to shift patients perceived as 'difficult'</li> <li>- Possibility of shifting costs to PBS and MBS</li> </ul>	<ul style="list-style-type: none"> <li>- Possibly less access to higher acuity patients</li> <li>- Potentially advantageous as an admissions avoidance program</li> </ul>	<ul style="list-style-type: none"> <li>- Patients may not feel as if they have a choice if GP is recommending however GP may be more aware if suitable for patient's circumstances</li> </ul>	<ul style="list-style-type: none"> <li>- If use of agency nurses there may be issues re skill levels of staff</li> <li>- Need to build new teams</li> <li>- Skill levels of GP – may not be sufficient to provide hospital substitute care</li> <li>- education programs need to be established</li> <li>- Continuity of care -there is the potential for this to be good (especially if own GP providing care)</li> <li>- Increased ability to provide holistic</li> </ul>	<ul style="list-style-type: none"> <li>- With independent contractors there may be less attention paid to safety issues however a large long established agency may have very good safety measures in place.</li> </ul>	<ul style="list-style-type: none"> <li>- Need to obtain outside funding for start-up</li> <li>- Need wide support of GPs in order to have a large enough catchment area to support OH and nursing</li> <li>- Links with hospitals and specialists will take time and resources to establish and maintain</li> <li>- May need support of a financial and consultative nature to develop program protocols and</li> </ul>	<ul style="list-style-type: none"> <li>- GP instigated, family may feel pressured however own GP may be more aware of family situation</li> <li>- Financial burden (see C)</li> </ul>

						<p>care to patients especially those with complex social or chronic problems</p> <ul style="list-style-type: none"> <li>- Patients more likely to receive home visits from medical practitioners than in a hospital-based specialist program or a program where GPs are paid by MBS.</li> <li>- Need to develop own policies and procedures</li> <li>- Potential decreased access to specialists and other health care professionals (project needs to establish strong links)</li> </ul>		<p>monitoring procedures.</p>	
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## Model F

*Ownership:* Community Sector; *Patient's Status:* uncertain; *Funding:* State or AHS/Division, MBS, Block funded; *Staff:* community staff, GP

Technical Efficiency	Allocative Efficiency	Equity	Gaming	Acuity and patient selection	Choice	Quality	Staff safety	Feasibility	Impact on Carers
<ul style="list-style-type: none"> <li>- Depending upon the arrangements there may be more flexibility in staffing leading to less down time</li> <li>- In urban areas this may provide for considerable flexibility – community-based programs may receive referrals from large number of hospitals for patients that live in given area</li> <li>- Overheads may be allocated between acute and non-acute community programs</li> <li>- Possibility of a single large program versus multiple small programs may lead to efficiencies</li> </ul>	<ul style="list-style-type: none"> <li>- Requires establishing strong, ongoing links with hospital staff to ensure referrals of correct patients continue</li> <li>- Budget incentive may exist for hospitals to refer the “wrong” patients (See General Model)</li> </ul>	- (see E)	<ul style="list-style-type: none"> <li>- Risk of cost shifting between hospital and community sector (See general model)</li> </ul>	<ul style="list-style-type: none"> <li>- There may be difficulty in achieving a high level of acuity until specialists develop confidence in HITH staff thus there may be a tendency to accept less acute patients</li> <li>- Less access to sicker patients</li> <li>- May be difficult to differentiate between HITH and community patients</li> <li>- Potentially attractive for admission avoidance programs (See F)</li> <li>- Decreased opportunity for follow up with specialists</li> </ul>	<ul style="list-style-type: none"> <li>- Only patients with GP willing to be involved in HITH get a choice</li> <li>- The perception of increased effort to admit patients to hospital may be a deterrent</li> <li>- Likely to be less pressure for patient to accept program (versus hospital program with pressure on beds)</li> </ul>	<ul style="list-style-type: none"> <li>- As patient is considered a HITH patient (separate from hospital) it may be unclear as to where medico-legal responsibilities rest</li> <li>- May require significant up-skilling of existing staff in order to manage acute patients</li> <li>- Possible lack of access to specialised staff (medical and nursing)</li> <li>- Existing community procedures and policies likely to need development and revision</li> </ul>	- See C	<ul style="list-style-type: none"> <li>- Difficult to establish without close ties to hospital</li> <li>- May encounter resistance from hospital staff</li> <li>- Potential to cover very large areas</li> <li>- In collaboration with community care may have increased potential for 24-hour care (see C)</li> </ul>	<ul style="list-style-type: none"> <li>- GP instigated, family may feel pressured however own GP may be more conscious of impact on carers</li> <li>- Association with community care providers may increase access to non-health care services that lessen the burden on providers.</li> <li>- Association with community care providers may increase access to non-health care services that lessen the burden on providers.</li> </ul>

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