ACT Government | ACT Health

Our reference: **FOI20/20**

[redacted]

Dear [redacted]

DECISION ON YOUR ACCESS APPLICATION

I refer to your application under section 30 of the *Freedom of Information Act 2016* (FOI Act) received by ACT Health Directorate (ACTHD) on Thursday 4 June 2020.

This application requested access to:

> *"All reports relating to the 2017-18 detailed review and assessment of the Hospital in the Home (HITH) services delivered in the Territory."*

I am an Information Officer appointed by the Director-General of ACT Health Directorate (ACTHD) under section 18 of the FOI Act to deal with access applications made under Part 5 of the Act. ACTHD was required to provide a decision on your access application by **Friday 24 July 2020**.

I have identified two documents holding the information within the scope of your access application. This is outlined in the schedule of documents included at Attachment A to this decision letter.

Decisions

I have decided to:

- grant full access to one document; and
- grant part access to one document.

My access decisions are detailed further in the following statement of reasons and the documents released to you are provided as Attachment B to this letter.

In reaching my access decision, I have taken the following into account:

- The FOI Act;
- The contents of the documents that fall within the scope of your request; and
- The *Human Rights Act 2004*.

Full Access
I have decided to grant full access to one document at reference 1.

Partial Access
I have decided to grant partial access to one document at reference 2.

Public Interest Factors Favouring Disclosure
The following factors were considered relevant in favour of the disclosure of the documents:

- Schedule 2.1(a)(i) promote open discussion of public affairs and enhance the government's accountability;

Public Interest Factors Favouring Non-Disclosure
The following factors were considered relevant in favour of the non-disclosure of the documents:

- Schedule 2.2(a)(ii) prejudice the protection of an individual's right to privacy, or any other right under the *Human Rights Act 2004*.

The information that has been redacted is related to contact details of non-government third parties. On balance, I determined the information identified is contrary to the public interest and I have decided not to disclose this information.

Charges
Processing charges are not applicable to this request.

Disclosure Log
Under section 28 of the FOI Act, ACTHD maintains an online record of access applications called a disclosure log. The scope of your access application, my decision and documents released to you will be published in the disclosure log not less than three days but not more than 10 days after the date of this decision. Your personal contact details will not be published.

https://www.health.act.gov.au/about-our-health-system/freedom-information/disclosure-log.

Ombudsman review
My decision on your access request is a reviewable decision as identified in Schedule 3 of the FOI Act. You have the right to seek Ombudsman review of this outcome under section 73 of the Act within 20 working days from the day that my decision is published in ACT Health's disclosure log, or a longer period allowed by the Ombudsman.

If you wish to request a review of my decision you may write to the Ombudsman at:

The ACT Ombudsman
GPO Box 442
CANBERRA ACT 2601
Via email: ACTFOI@ombudsman.gov.au
Website: ombudsman.act.gov.au

ACT Civil and Administrative Tribunal (ACAT) review
Under section 84 of the Act, if a decision is made under section 82(1) on an Ombudsman review, you may apply to the ACAT for review of the Ombudsman decision. Further information may be obtained from the ACAT at:

ACT Civil and Administrative Tribunal
Level 4, 1 Moore St
GPO Box 370
Canberra City ACT 2601
Telephone: (02) 6207 1740
http://www.acat.act.gov.au/

Further assistance
Should you have any queries in relation to your request, please do not hesitate to contact the FOI Coordinator on (02) 5124 9831 or email HealthFOI@act.gov.au.

Yours sincerely

Jacinta George
Executive Group Manager
Health System Planning and Evaluation

24 July 2020

ACT Government | ACT Health

FREEDOM OF INFORMATION SCHEDULE OF DOCUMENTS

Please be aware that under the *Freedom of Information Act 2016*, some of the information provided to you will be released to the public through the ACT Government's Open Access Scheme. The Open Access release status column of the table below indicates what documents are intended for release online through open access.
Personal information or business affairs information will not be made available under this policy. If you think the content of your request would contain such information, please inform the contact officer immediately.
Information about what is published on open access is available online at: http://www.health.act.gov.au/public-information/consumers/freedom-information

APPLICANT NAME	WHAT ARE THE PARAMETERS OF THE REQUEST	FILE NUMBER
[redacted]	All reports relating to the 2017-18 detailed review and assessment of the Hospital in the Home (HITH) services delivered in the Territory.	FOI20/20

Ref Number	Page Number	Description	Date	Status Decision	Factor	Open Access release status
1.	1-36	Draft - Current State Analysis – ACT Hospital in the Home Services	December 2017	Full release		Yes
2.	37-88	Future State Options ACT Hospital in the Home Services	December 2017	Partial release	Schedule 2, 2.2(a)(ii) prejudice the protection of an individual's right to privacy or any other right under the *Human Rights Act 2004;*	Yes
Total Number of Documents						
2.						

KPMG

Draft Current State Analysis ACT Hospital in the Home Services

ACT Health Directorate

December 2017

Disclaimer

Inherent Limitations

This report has been prepared as outlined in the work order. The services provided in connection with this engagement comprise an advisory engagement, which is not subject to assurance or other standards issued by the Australian Auditing and Assurance Standards Board and, consequently no opinions or conclusions intended to convey assurance have been expressed. No warranty of completeness, accuracy or reliability is given in relation to the statements and representations made by, and the information and documentation provided by, ACT Health and personnel / stakeholders consulted as part of the process.

The findings in this report are based on a review of evidence provided by ACT Health. Any projection to the results obtained is subject to the level of bias in the method of sample selection. No warranty of completeness, accuracy or reliability is given in relation to the statements and representations made by, and the information and documentation provided by ACT Health management and stakeholders consulted as part of the process.

KPMG have indicated within this report the sources of the information provided. We have not sought to independently verify those sources unless otherwise noted within the report.

KPMG is under no obligation in any circumstance to update this report, in either oral or written form, for events, occurring after the report has been issued in final form.

The findings in this report have been formed on the above basis.

Third Party Reliance

This report is solely for the purpose set out in the work order and for the ACT Health Directorates information, and is not to be used for any other purpose or distributed to any other party without KPMG's prior written consent. This report has been prepared at the request of the ACT Health Directorate in accordance with the terms of the Work Order dated 7 November 2017. Other than our responsibility, neither KPMG nor any member or employee of KPMG undertakes responsibility arising in any way from reliance placed by a third party on this report. Any reliance placed is that party's sole responsibility.

Contents

Glossary of Terms

The glossary below sets out abbreviations, including those specific to ACT Health, to assist with a consistent approach throughout this report, ensuring continuity in the analysis and in the methodological approach.

The below definitions are the agreed definitions for the terms used throughout this report.

Term	Definition
CMO	Career Medical Officer
DRG	Diagnosis Related Group
ED	Emergency Department
EN	Enrolled Nurse
FTE	Full-time Equivalent
GP	General Practitioner
HITH	Hospital in the Home
ID	Infectious Diseases
JMO	Junior Medical Officer
MDU	Medical Day Unit
OOS	Occasions of Service
RACF	Residential Aged Care Facility
RN	Registered Nurse
TCH	The Canberra Hospital

Executive summary

The Hospital in the Home (HITH) service is an initiative that substitutes inpatient care in a hospital setting with the provision of individualised acute and sub-acute treatments by health care professionals in the patients' usual place of residence [1], allowing for a reduction or elimination of inpatient stay in a hospital facility. HITH also allows for greater patient choice and control, which aligns with broader patient-centred care reforms occurring in Australia.

Model of Care

In the ACT, two HITH programs operate out of each of the major hospitals; one at The Canberra Hospital (TCH), and the other at Calvary Hospital (Calvary). Similar HITH services are offered by each program, and the patient cohort is loosely determined by location, i.e. patients from North Canberra are admitted to the Calvary HITH and patients from South Canberra are admitted to TCH HITH.

At TCH, the HITH service encompasses a Medical Day Unit (MDU) and HITH Road Service (HITH). MDU provides a range of services, predominately infusion-based, for admitted day patients, whereas the HITH provides inpatient care and management with monitoring in the home setting. The TCH HITH service is run as a specialist model, with no dedicated HITH treating physicians. Therefore, medical governance remains the responsibility of the admitting specialist clinician for the total duration of the episode of care, with particular responsibility when the patient comes to the hospital for medical review at least once every seven days.

Conversely, Calvary HITH patients are admitted under the care of a dedicated HITH physician. It can be described therefore as a 'Generalist model'. Patients admitted to the Calvary HITH receive nursing care in their home, up to two times a day, and are required to attend the Calvary HITH clinic for medical review at least once every five days.

Currently, TCH and Calvary do not have the ability to offer medical review in the home. Consequently, the services are not considered to be delivering on the true intent of HITH, to deliver acute hospital care to patients in the home setting. Likewise, neither service have adequate arrangements with allied health professionals. TCH has access to a Pharmacist (0.5 FT) but no other allied health service, while Calvary has informal arrangements with Pharmacy and Occupational Therapy. This lack of available care options available to patients in their home prevents the realisation of the HITH service delivery intent.

Integration between the current HITH services and other ACT Health community based services is currently lacking. Options to better coordinate ACT Health services to support the HITH program would strengthen the existing program and will be further explored in the next phase of this review.

A high level jurisdictional sweep identified various HITH models of care and differences across programs. While most other jurisdictions adopt a model that sees patients treated as inpatients, some services have implemented alternative ways of delivering a HITH service. For example, WA has outsourced some components of their HITH service to a community service provider, SilverChain. This model has patients treated as out patients and employs a shared-care clinical governance approach, in that, patients are admitted under a hospital specialist, and remain under their care while in HITH, but after hours care is provided by SilverChain General Practitioners (GPs). The outsourced model addresses some of the funding complexities associated with the hospital-based model. The outsourced model addresses some of the funding complexities associated with the hospital-run model. However, it has complex clinical governance, with dispersed roles between the service provider and State Government.

Current service delivery

HITH program activity was analysed to understand current service delivery and the impact of different models operating within the ACT. The data reviewed was for the period 2012/13 to 2016/17. The analysis includes:

[1] Viney R, Van Gool K, Haas M 2001, Hospital in the Home in NSW, resource document for NSW Health, Centre for Health Economics Research and Evaluation, NSW.

- number of admissions;
- HITH admissions by age group;
- proportion of readmissions (within 28 days);
- incidence of the 10 most common Diagnosis Related Groups (DRG) for TCH per financial year; and
- average total cost and length of stay at home for a sample of DRGs admitted in 2015/16.

The analysis identified that there is significant variance in the average cost between TCH and Calvary for most DRGs, with TCH on average having a greater total cost. The average length of stay for a sample of DRGs at home is generally longer for TCH, which may explain some of the differences in average cost. The analysis also identified that Calvary experienced a higher proportion of readmissions (within 28 days) each financial year compared to TCH.

Stakeholder Consultation

Consultation with key stakeholders identified several themes regarding the two HITH services:

- lack of awareness of the HITH Model of Care, including how to refer patients into HITH;
- differences in Medical Governance, and the need to clarify the roles and responsibilities of the various treating physicians involved in HITH;
- uncertainty of how HITH interfaces with other service and funding models, particularly in relation to funding complexities;
- impact on continuity of patient care, including admission and discharge processes;
- scope of services and care provided by HITH, limiting the type of care currently provided;
- access to diagnostic services and other technology; and
- location of service provision, and the requirements for patients to attend at a hospital clinic for medical review.

There is a TCH and Calvary HITH network which meets regularly to provide a platform for the two programs to discuss mutual issues. To date, the success of this network has been limited. Whilst the two programs cover the breadth of ACT, there is currently no coordination of services that would assist in the maximum utilisation of the service.

HITH has been recognised as an enabler of greater patient choice and control which aligns with broader patient-centred care reforms occurring in Australia. Currently, the ACT HITH programs provide a good foundation for these reforms, however, a range of challenges remain a barrier to effective implementation in the ACT. It should be noted that these challenges identify exciting opportunities for the ACT to improve services and deliver on its commitment to provide patient-centred care. The identified barriers and opportunities have been summarised below.

Findings and opportunities

Table 1 below provides an outline of specific findings and associated opportunities. These findings and opportunities will be further explored in the future stages of this review.

Table 1: Findings and opportunities

Findings	Opportunities
• TCH and Calvary operate different HITH models, the most notable difference being the clinical governance structures. • The catchment area for both services has significant overlap.	• Option to develop a consolidated territory-wide HITH framework.
• Resourcing constraints in both services have resulted in a lack of capacity to offer medical	• Expand HITH teams (or create one team) to include a multidisciplinary skill mix of medical, nursing and allied health support.

Findings	Opportunities
and allied health care in the home environment.	
• Admission to HITH requires definitive diagnostics, yet there are currently no mobile diagnostic services currently available in the ACT.	• Explore options to allow for diagnostic services to be available in the home setting, including Residential Aged Care Facilities (RACFs).
• Current funding complexities between the State and Commonwealth can result in sub-optimal uptake of HITH services.	• Explore alternative service delivery options that may help alleviate some of the funding complexities, e.g. an outsourced model. • Consider alternative funding arrangements for HITH patients to include additional care needs such as personal care and meals (if required).
• There is currently a lack of awareness amongst physicians of the HITH service, resulting in sub-optimal utilisation the service. • Some physicians appear reluctant to refer into the service for fear or 'losing control' of their patient.	• Better integrate the HITH service with other hospital services to raise awareness and understanding of the service. • Consider implementing mandatory admission to HITH should a patient meet defined admission criteria. • Expand the HITH service of to include additional DRGs that would benefit from at-home care.
• There is a significant cost divergence between the TCH and Calvary HITH services.	• Consider options to consolidate the HITH services to improved efficiency across the ACT.

1. Introduction

1.1 Project background

ACT Health engaged KPMG to undertake an assessment of the current state of the HITH services and develop a set of options for a consolidated future state, Territory-wide HITH service that delivers on ACT Health Directorate's commitment to deliver patient-centred care. This report addresses the first phase of the project and provides an assessment of the current state of HITH services at Calvary and TCH, including:

- the current Models of Care, medical and clinical governance and inclusion and exclusion criteria;
- current cost drivers and data analysis; and
- gaps and barriers in the current service.

It also includes a brief overview of other HITH models across Australia to identify differences between these models and those operating in the ACT.

1.2 Structure of this report

This report is set out according to Table 2.

Table 2: Structure of the Current State Analysis Report

Chapter	Overview
Chapter 1: Introduction *(current chapter)*	This chapter provides an overview of the background of project.
Chapter 2: Hospital in the Home service in the ACT	This chapter provides information about the current HITH services provided in the ACT.
Chapter 3: Models of Care	This chapter provides an overview of the two HITH operating models in the ACT and identifies key similarities and differences in the services.
Chapter 4: Jurisdictional Comparison	This chapter highlights examples of HITH models in other jurisdictions across Australia and provides a high-level assessment of how the ACT service compares.
Chapter 5: Analysis of Current Service Delivery	This chapter analyses HITH program activity to understand current service delivery and the impact of different models operating within the ACT.
Chapter 6: Stakeholder consultation thematic findings	This chapter summarises the findings from stakeholder consultations and groups them into common themes.
Chapter 7: Interface between Calvary and TCH HITH	This chapter examines current interface between TCH and Calvary HITH services.
Chapter 8: Summary	This chapter summarises findings from Current State Analysis activities and outlines the key opportunities for ACT Health HITH services.
Appendices	The appendices include a stakeholder consultation list and additional data tables.

2. Hospital in the Home service in the ACT

HITH is a service that substitutes inpatient care in a hospital setting with the provision of individualised acute and sub-acute treatments by health care professionals in the patient's home environment[2]. The service allows for treatment in the patient's usual place of residence, reducing or eliminating inpatient stay in a hospital facility. The critical feature of HITH is that the care provided is a true substitute for acute inpatient care, with the patient still classified as an inpatient for treatment whilst receiving HITH.

Common conditions treated in HITH are relatively uncomplicated diagnoses with well-defined management that is safe to deliver in the home environment. In general, some of the conditions that are able to be managed by HITH include:

- cellulitis;
- pneumonia;
- urinary tract infection; and
- acute exacerbation of chronic obstructive pulmonary disease.

Evidence suggests that management of patients in their home environment through HITH results in improved patient outcomes when compared to those in the hospital environment[3]. In particular, HITH is associated with reduced length of stay in hospital, decreased mortality and readmission rate, and lower costs[4]. Patient and carer satisfaction is also increased in a HITH service as opposed to a hospital setting[5]. Furthermore, increasing evidence of nosocomial infection in vulnerable populations have been observed in the hospital settings[6], contributing to the support for more management of conditions within the home environment where possible. In addition, a drive toward economic efficiency resulting from increased demand for healthcare services and a desire to include patient preferences[7] have led to a growing number of HITH services in Australia and internationally.

Most Australian jurisdictions have established HITH programs. HITH is typically staffed by a mix of medical officers and registered nurses, who are highly experienced practitioners and deliver acute care seven days a week with an on call service overnight. They are supported by guidelines which determine a patient's eligibility into a HITH program, management once in HITH and also ensure the safety of the patient, their family and HITH staff.

The Australian Capital Territory (ACT) is serviced by two HITH programs, one of which is operated from The Canberra Hospital (TCH) and the second from Calvary Hospital. Details of these programs are outlined in the subsequent section.

---

[2] Viney R, Van Gool K, Haas M 2001, Hospital in the Home in NSW, resource document for NSW Health, Centre for Health Economics Research and Evaluation, NSW.

3 Hall J, Feldstein M, Fretwell M. Older patients' health status and satisfaction with medical care in an HMO population. Med Care 1990; Issue 28, pp. 261-270

[4] Shepperd S, Doll H, Angus RM, Clarke MJ, Iliffe S, Kalra L, Ricauda NA, Wilson AD 2008, 'Admission avoidance hospital at home', Cochrane Database of Systematic Reviews, Issue 4

[5] Leff B, Burton L, Mader S, et al. Satisfaction with hospital at home care. J Am Geriatr Soc 2006; 54: 1355-1363.

[6] Fretwell M. Acute hospital care for frail older patients. In: Hazzard W, Andres R, Bierman EJP, editors. Principles of geriatric medicine and gerontology 2nd edition. New York: McGraw-Hill; 1990. p. 247-253

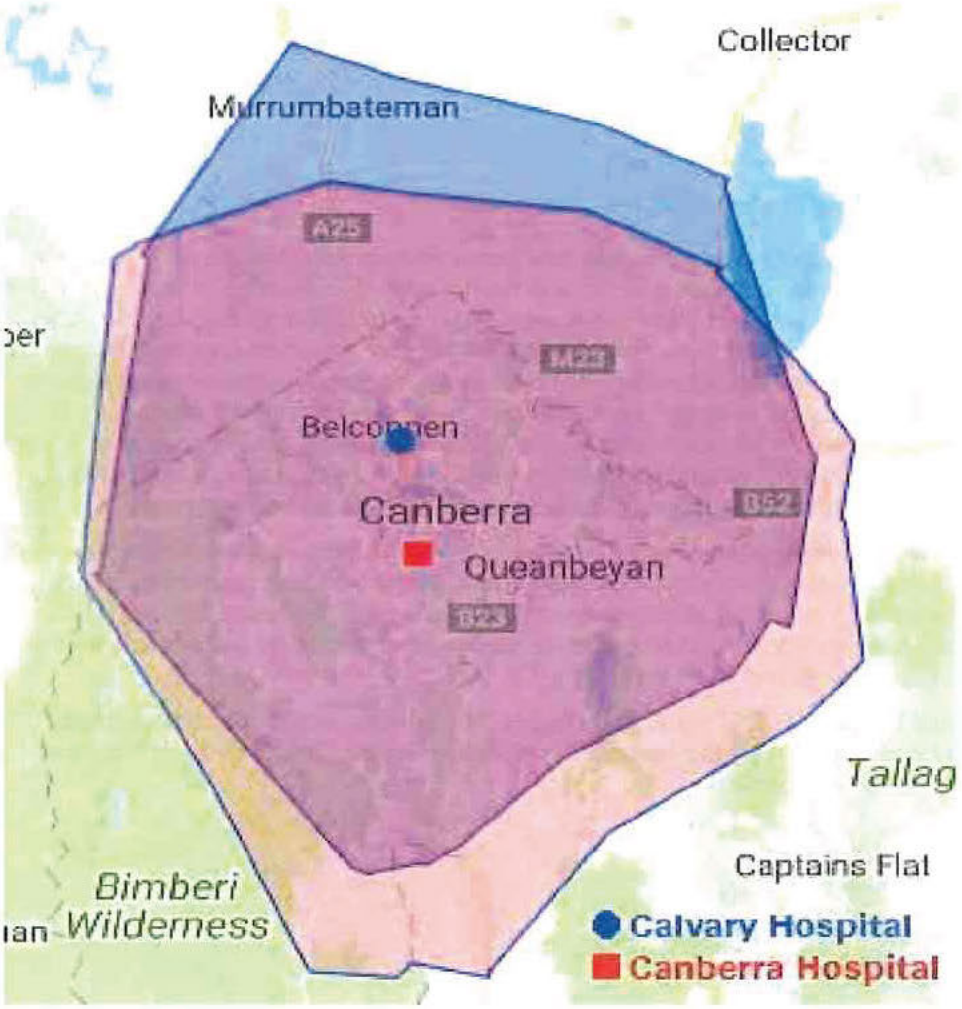
[7] Montalto M 2010, 'The 500 bed hospital that isn't there: the Victorian Department of Health review of the Hospital in the Home program', Medical Journal of Australia, 193(10): 598-601.

3. Models of Care

This section provides an overview of the TCH and Calvary HITH models of care, including a high level comparison of the two services, to highlight the key similarities and differences.

TCH and Calvary both service a catchment area within 45 minutes' drive of the respective hospital base. This results in significant overlap of service area as depicted in Figure 1. This map has been created based on an average speed of 60km/h and a travel time of 45 minutes.

Figure 1: TCH and Calvary HITH catchment.



Source: https://www.freemaptools.com/how-far-can-i-travel.htm

3.1 The Canberra Hospital

In TCH, HITH provides care in the home setting, for acute conditions requiring medical treatment, monitoring and/or input that would otherwise require care and management in a traditional inpatient bed.[8] It encompasses a MDU and HITH. The MDU is a day-only admitted inpatient service, with patients admitted to receive a range of treatments, including intravenous infusions for chronic medical conditions. The review and analysis conducted for this report did not include the MDU services at TCH as it is understood that its affiliation with TCH HITH is historical and, for all intents and purposes, is not considered a HITH service by definition.

The TCH HITH service is a specialist model, with no dedicated treating HITH physicians. Admitting doctors belong to the treatment team under which the patient receives inpatient care.

3.1.1 Admission criteria

The HITH program within TCH is a 24x7 service offered to a cohort of patients meeting specified health and social criteria. An overview of the admission criteria, conditions treated/type of treatment provided is provided in Table 3.

Table 3: TCH Admissions criteria

Admission criteria	Conditions treated	Treatment types
• Be a high acuity patient who requires admission to a virtual bed that would be otherwise admitted to a traditional hospital bed. • Must be living within the ACT and surrounding NSW (other areas may be deemed eligible after discussion with HITH staff). • Be self-caring or have a carer. • Consents to treatment under tje HITH model. • Is safe to be treated in the home environment. • The treatment forms all or part of an episode of care for an admitted patient. • Must have access to a telephone.	• Cellulitis • Pneumonia • Osteomyelitis • Septic Arthritis • Bacteraemia • Urosepsis • Deep Venous Thrombosis • Pulmonary Embolus • Exacerbation of Congestive Cardiac Failure (CCF) • Exacerbation of Chronic Obstructive Pulmonary Disorder (COPD) • Surgical post-op care • Endocarditis	• Antibiotics administration (intravenous or intraperitoneal) • INR stabilisation • Complex wound care in conjunction with intravenous antibiotics • Total Parenteral Nutrition (TPN) • Other intravenous Infusions e.g. Methylprednisolone, Lasix • Post-Surgical Drain care

Source: Hospital in the Home TCH - Service Overview Notes, Canberra Hospital HITH Team, 2017.

3.1.2 Referral process

Referrals into the TCH HITH program can come from the Emergency Department (ED), TCH inpatient wards, GPs, day surgeries, the Pre-admission Clinic, Outpatient Department and other hospitals within the ACT and surrounding region. The patient must be formally assessed by a Registered Nurse (RN) from the HITH team using a formal checklist that ascertains their overall suitability for the program. This includes a risk assessment to ensure the home environment is safe for both the patient and HITH staff. The patient (and their treating physician) have to consent to care being provided through the HITH program before arrangements can be finalised.

[8]Hospital in The Home TCH - Service Overview Notes, Canberra Hospital HITH Team, 2017.

Prior to transfer of care, the following must occur:

- Documentation of the HITH assessment and acceptance/refusal of referral in the patient's progress notes;
- Ensuring that the patient has a venous access device to suit their treatment regimen and length of stay. Consideration of a PICC or CVC is also made prior to transfer, especially for intravenous treatment lasting more than 10-12 days; and
- Contacting the Resident Medical Officer to write up a new medication chart and confirming a medical review date/time.

The first dose of all new intravenous medications is required to be given in the hospital with a one hour post-administration observation time before the patient is transferred home. Should an after-hours referral into HITH occur, the patient must have a formal diagnosis (e.g. Deep Vein Thrombosis) and have been accepted by an admitting consultant. This criteria has been identified by some stakeholders as a barrier to HITH admission for after hour referrals and patients who are not currently an inpatient due to the lack of mobile diagnostic services in the community. Obtaining a formal diagnosis outside of the hospital environment can be difficult.

3.1.3 Program focus and capacity

The TCH focus on acute admitted care substitution may take the form of:

- **Total admission substitution** – patient admitted to a virtual ward on ACTPAS directly from the ED, Outpatient Department or GP to receive time limited active treatment by healthcare professionals that otherwise would require an acute hospital inpatient stay.
- **Early Transfer** – patient transferred from an acute ward to a virtual ward on ACTPAS to receive time limited active treatment by healthcare professionals that otherwise would require acute hospital inpatient care.

The TCH HITH program is primarily focused on acute admitted care substitution but from time to time accepts GP and Pre-admission Clinic referrals. This is different to other jurisdictions, such as New South Wales, where preventative HITH services aimed at non-admitted patients are also provided.[9]

The TCH HITH service is staffed with the following mixture of medical nursing and pharmacy staff.

Table 4: TCH HITH staffing overview

Medical		Nursing		Administrative	
General Medicine Advanced Trainee	1 FTE	Nursing Staff	22 FTE	Unit Medical Director	0.5 FTE
Junior Medical Officer	1 FTE				
Pharmacist	0.5 FTE				

Source: Hospital in The Home TCH - Service Overview Notes, Canberra Hospital HITH Team, 2017

TCH HITH works on an Occasions of Service (OOS) basis from a capacity perspective, where each OOS is 30 minutes in duration. Current HITH capacity is 35 OOS on a morning shift, whilst the evening shift capacity ranges from seven OOS in winter (with two nurses travelling together) to 1—12 OOS in summer with the benefit of daylight saving.

[9] NSW HITH Guideline, 2013

3.1.4 Medical governance and clinical management

Patients in the TCH HITH program remain the responsibility of the admitting physician/admitting hospital consultant throughout the entire episode of care (i.e. time as an acute inpatient in hospital plus time within the HITH program). The admitting clinician therefore has a responsibility to continue care to the patient, who must come into the hospital at set times for medical review under HITH.

Patient management at home for HITH patients is conducted by nursing staff. Medical review occurs at the HITH unit within the TCH at least weekly by the responsible specialist or their registrar. In practice this has, at times, proven difficult. The patient is required to attend the HITH clinic, which is understood to be logistically difficult for medical staff, as they need to coordinate consults around ward rounds and outpatient clinics. Anecdotally, it is understood that this can result in the patient having to wait for long periods of time to have their medical review.

The TCH HITH program allows for GPs to refer patients to HITH, but there are currently no arrangements for GPs to provide care to HITH patients.

HITH patients are encouraged not to access routine GP services whilst on the HITH program to ensure compliance with Medicare requirements.

Responsibility for HITH patient safety and quality of outcomes remains consistent with other clinical services and in line with the overall ACT Health Quality and Clinical Governance Framework. Patient safety incidents occurring for HITH patients are reported using the ACT Health incident management system and are dealt with in the same manner as those occurring within the hospital setting.

3.1.5 Outcome Measurement

The TCH HITH program performance is reviewed based on the measures outlined below:

- fewer unplanned re-admissions within 28 days (HITH versus non-HITH with the same DRG);
- total average length of stay is less than or equal to the average length of stay for the hospital admission (HITH versus non-HITH with the same DRG and HITH vs HITH with the same DRG);
- total number of unplanned transfers back to the acute facility while under the care of HITH (HITH vs HITH with the same DRG);
- total number of clinical and non-clinical incidents while under the care of HITH;
- reduced hospital adverse events (HITH versus non-HITH with the same DRG); and
- high level of positive experience of patients, clinicians, carers, GPs and health service providers.

3.2 Calvary Hospital

At Calvary Hospital, HITH admits patients from acute care and the admitting physician is a HITH consultant or HITH Career Medical Officer (CMO). This is a 'generalist' model of HITH care and varies from TCH which has the specialist consultant and admitting physician maintain responsibility for the patient throughout the stay in the HITH program.

3.2.1 Admission Criteria

To be admitted to HITH, patients must require medical and nursing care that is more intensive than could be supported by an outpatient clinic or the primary care setting. With direct admission responsibility under the HITH consultants at Calvary, patients in the HITH service receive medical input and coordination or care and medical review is considered to be logistically easier for the consultants as they are not managing competing priorities with ward patients.

The admission criteria ensure that patients are medically stable and able to be treated at home. A selected overview of the admissions criteria and conditions treated/type of treatment provided is provided in Table 5 below:

Table 5: Calvary Admission criteria

Admission criteria	Conditions treated	Treatment types
• Must be clinically stable. • Must be over the age of 16. • Patient or the Enduring Power of Attorney must consent to HITH admission. • Patient or carer must be able to partner in the delivery of care, i.e. communicate effectively and follow instructions. • Must be self-caring or supported at home for activities of daily living. • Must have access to operational home telephone (with exception of patients who are in a Residential Aged Care Facility).	• Cellulitis, superficial abscess (post drainage), postoperative wounds. • Mastitis. • Cystitis/Pyelonephritis/Epididymo-orchitis/Prostatitis. • Community Acquired Pneumonia • Bacterial endocarditis, bone and joint infections • Deep venous thrombosis/stable pulmonary embolus. • Atrial fibrillation. • Iron deficiency anaemia • Neurologic conditions • Diabetes • Urosepsis • Cellulitis • Osteomyelitis • Septic arthritis • Pulmonary Embolism • Post-operative treatment for surgical patients	• Antibiotics administration (intravenous or intraperitoneal) • Anticoagulant therapy • Complex wound care in conjunction with intravenous antibiotics • Total Parenteral • Nutrition (TPN) • Infusions e.g. immunoglobulin methylprednisolone, iron • Post-Surgical Drain care

Source: Calvary Hospital, Referral, Admission and Discharge from Hospital in the Home (HITH)

The Calvary HITH team will not accept patients into the service if their place of residence is considered unsafe for a lone health professional and if the patient is unable to attend the clinic. Eligibility for HITH includes being able to receive treatment as an Australian citizen under Medicare or with those countries that have reciprocal rights for treatment.

3.2.2 Referral process

Patients who meet the HITH criteria can be referred into the service via the following methods.

- Patients can be referred internally from a Calvary ward, via an external source such as a GP or from a Residential Aged Care Facility (RACF); which refers via the resident's GP, or a nurse practitioner.
- Potential HITH patients are generally requested to attend the HITH Clinic for a medical assessment. However, in the case of HITH patients from an RACF, a HITH medical officer may conduct a medical assessment in the RACF.
- If an after hours' referral is required, patients will be required to attend Calvary on the next business day for medical review by the HITH team.

3.2.3 Program focus and capacity

One of the primary objectives of the Calvary HITH service is to target unplanned presentations prior to, or at the point of, ED presentation and fast tracking these patients into home-based care.

The HITH Service operates 0700-1800 seven days per week for admitted patients, with medical and nursing staff on-call seven days per week after hours. HITH medical review clinics operate Monday – Friday or as required to meet operational need.

Clinical management and support is provided through a combination of medical staff and nursing staff. Medical staffing is provided by two HITH Consultants, currently both qualified Emergency Medicine Physicians (1.1 FTE) with the assistance of one CMO. The CMO provides the "day to day" medical care of the HITH patients. Nursing is provided through a mixture of RNs and Enrolled Nurses (EN) (five FTE), with ENs operating under the direction and supervision of the RN.

The HITH service has access to a Pharmacist to conduct medication reviews for patients, however there is no allied health FTE formally attached the Calvary HITH.

The Calvary HITH patient target is approximately 16 patients in total, however capacity fluctuates and can range from 10 patients to over 20 patients. RN staff provide up to approximately six patient OOS per shift, with reasonable dependence upon patient acuity, distance to location of home-visits, and complexity of treatment provided.

3.2.4 Governance and clinical management

The admitting doctor for HITH patients is generally the HITH medical consultant; however, patients referred from an inpatient ward may remain under the care of the ward consultant if considered clinically appropriate (it is understood that this particular model of patient care is rarely used by Calvary HITH).

As with the TCH model, all HITH patients are expected to present to the HITH unit at Calvary at least once every five days, for a medical review by the HITH consultant.

Similarly to the TCH HITH, the Calvary HITH program allows for GPs to refer patients to HITH but there are currently no arrangements for GPs to provide HITH services.

3.2.5 Outcome Measurement

The Calvary HITH program measures the following outcomes:

- morbidity and mortality reporting through the Clinical Review Executive and then through the Clinical Governance Committee;
- length of patient stay in HITH; and
- total number of clinical and non-clinical incidents while under the care of HITH.

3.2.6 TCH and Calvary HITH Service Comparison

There are similarities and differences with the two ACT HITH services which are further explored below. The most notable being:

- The primary difference between the two HITH services is the clinical governance, as described above. Medical governance at the Calvary HITH is provided by HITH consultants one of whom is the HITH unit director, the TCH unit director is solely administrative (despite the incumbent being a qualified ID physician). Leaders in the HITH space advocate for clinical involvement from HITH unit directors, a concept that will be explore further in the next phase of this review.
- Neither TCH nor Calvary have the ability to offer medical review in the home setting. Patients are required to come into the hospital clinic. Consequently, the services are not considered to be delivering on the true intent of HITH to deliver acute hospital care to patients in the home setting.
- Additionally, neither service have adequate arrangements with allied health professionals. TCH has access to a funded Pharmacist (0.5 FT) but no other allied health service, and Calvary has informal arrangements with Pharmacy and Occupational Therapy. It is understood that in both service models, review by physiotherapy, OT, dietetics etc. is undertaken on an ad hoc basis and is negotiated around availability of allied health staff who are often already managing a full patient load. This lack of available care options available to patients in their home, again, prevents the realisation of the HITH service delivery intent.

The table below highlights the key similarities and differences in the TCH and Calvary HITH models.

Table 6: TCH and Calvary HITH service comparison

Model	TCH	Calvary
Medical Governance	• Specialist	• Generalist/single HITH consultant
Allied Health	• 0.5 FTE Pharmacist • Limited informal access to other allied health on an ad hoc basis e.g. Physiotherapy, occupational therapy	• No FTE • Some informal arrangements with pharmacy and occupational therapy
Clinical Review	• Every five days	• Every seven days
Core Hours	• 7.30 am – 10 pm • (Monday to Friday)	• 7.30 am – 6 pm • (Monday to Friday)
Capacity	• 1 unit = 30 minutes of care • 7.30am–4 pm (Mon to Fri) 35 units • 1.30-10pm (Mon to Fri) 8 units in winter and 10-12 in summer	• Average 16 patients
After hours care	• RN on call • Clinician (admitting specialty registrar/JMO) • Review of patient in HITH clinic by RN after hours if necessary	• RNs and HITH physician on call • ED review patient with HITH coordination if necessary
Reporting	• Monthly Morbidity and mortality reports • Review of re-admission data	• Monthly Morbidity and mortality reports • Review of re-admission data
Catchment	• Up to 45 minute radius from Calvary	• Up to 45 minute radius from TCH
Patient cohort	• 3 months – 100 years	• Adult patients only
Services	• HITH • Medical Day unit	• HITH

4. Jurisdictional Comparison

There are currently multiple HITH operating models across Australia. The individual nuances of Australian jurisdictions and state health systems requires HITH models to be tailored to ensure they are fit for purpose and meet the needs of the community within which they operate.

A high level jurisdictional sweep identified various HITH models of care and differences across programs. An in-depth analysis is outlined in this section, including analysis of the gaps within the ACT services that will be included in the future state options report.

Of the jurisdictions reviewed, NSW, Queensland (Qld) and Victoria (Vic) all operate hospital-run HITH services and all HITH patients are considered to be admitted inpatients. This is the same as the ACT model. NSW and Qld operate somewhat similar models to the ACT, with the primary differences being, NSW and Qld:

- allow GPs to have admitting rights;
- utilise a hybrid care clinical governance model, in that patients may be admitted under a specialist, GP or both;
- have allied health services attached to the HITH unit and the allied health care is available in patients' homes;
- can provide medical assessment in the home setting.

Victoria (Epworth) operate a similar model to the Calvary HITH service in that all patients are admitted under a dedicated HITH consultant. The primary differences between the Epworth and ACT models are:

- Epworth have allied health services attached to the HITH unit and the allied health care is available in patients' homes;
- Epworth can provide medical assessment in the home setting.

However, one HITH model of note is the WA model. While most other jurisdictions adopt a model that involves treating patients as an inpatient, some services are trialling alternative ways of delivering a HITH service. For example, WA has outsourced some of their HITH delivery to a community service provider, SilverChain. This model has patients treated as outpatients and employs a shared-care clinical governance approach, in that, patients are admitted under a hospital specialist, and remain under their care while in HITH, but after hours care is provided by SilverChain GPs. The outsourced model addresses some of the funding complexities associated with the hospital-run model, however has its own complications associated with clinical governance and dissemination of roles between the service provider and State Government.

SilverChain is a large, not-for-profit provider of community health and care services across Australia. In WA, SilverChain provides a component of the HITH service. They offer medical, nursing and allied health services to HITH patients as required in partnership with WA Health.

An initial analysis of Australian jurisdictions' HITH models is summarised in Table 4 below.

Table 7: High level jurisdictional comparison of HITH models

	NSW	ACT	QLD	VIC (Epworth)*	WA
Nature of model	Hospital-run HITH	Hospital-run HITH	Hospital-run HITH	Hospital-run HITH	Hybrid model (outsourced and hospital-run)
GP involvement	GPs allowed to refer patients into the HITH program Models for GP involvement include: • permitting GPs with admitting rights to care for HITH patients (with LHD/hospital support including nursing, allied health and pharmacy) • use of brokerage (e.g. through Primary Health Networks) to buy GP services to support HITH	GPs allowed to refer patients into the HITH program No contractual arrangements in place with GPs to provide HITH services on behalf of the hospitals (both TCH and Calvary)	GPs allowed to refer patients into the HITH program GP with admitting rights permitted to be an authorised practitioner and care can be transferred by the inpatient admitting team to an authorised practitioner for HITH if in alignment with their scope of practice	GPs allowed to refer patients into the HITH program if they have private health insurance	Silver Chain GPs sit within multidisciplinary teams across the Hospital Care and Home Hospital programs: • as the clinical governance lead for a cohort of their patients • to lead clinical care within the program (although this is generally not accepted by the hospitals). Rehab in the Home (RITH) is a hospital substitution service and is run similarly to HITH services and referrals are accepted from medical, allied health and nursing staff at public hospitals only. The RITH team will work closely with the patient's GP if issues of concern arise.
Coverage (admitted only, admitted and non-admitted patients)	Admitted (known as daily HITH) and non-admitted patients (known as intermittent HITH)	Admitted patients only	Admitted patients only	Admitted patients only	SilverChain - Non-admitted patients only RITH – Admitted patients only
Clinical responsibility	Can be a specialist, GP, a shared care arrangement (specialist/GP mix) or a HITH integrated team	TCH- with the admitting medical officer Calvary with the HITH-specific medical specialist (unless otherwise specified)	Can be an inpatient admitting specialist, another authorised practitioner or a blended model of both	Admitted under a HITH consultant. Involvement from sub-speciality consultant as needed.	SilverChain – shared care between hospital specialists and SilverChain GPs. Admitting physician is the hospital specialist RITH - medical governance provided by the referring specialist or is transferred to the RITH Geriatrician.

	NSW	ACT	QLD	VIC (Epworth)*	WA
Non-hospital medical review	Yes	No (TCH) No (Calvary)	Yes	Yes	Yes
Access to allied health	Yes	limited Informal and access on a case-by-case basis (Calvary) 0.5 FTE Pharmacist (TCH)	Yes	Yes	Yes

**Epsworth is a privately run hospital in Victoria with an Emergency Department*

5. Analysis of Current Service Delivery

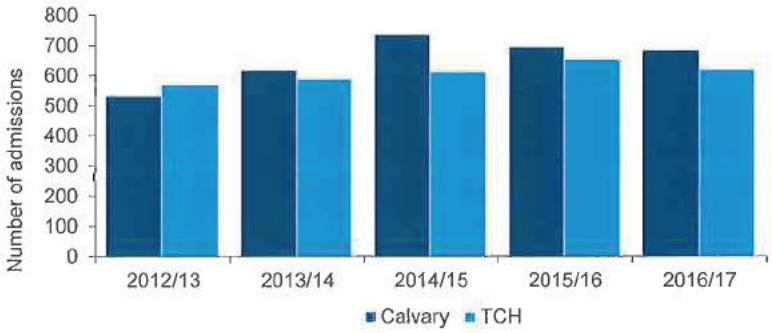
The current state of service delivery for HITH was analysed for Calvary and TCH. The data reviewed was for the period 2012/13 to 2016/17. The review of the current service delivery includes:

- number of admissions;
- HITH admissions by age group;
- proportion of readmissions (within 28 days);
- incidence of the 10 most common DRGs for TCH per financial year; and
- average total cost and length of stay at home for a sample of DRGs admitted in 2015/16.

5.1 Analysis

The number of HITH admissions per financial year for Calvary and TCH is illustrated in Figure 2. TCH experienced a gradual increase in the number of admissions over this period, with a slight decrease in 2016/17. Calvary experienced the greatest number of admissions in 2014/15, however this has since declined, in a similar pattern to TCH.

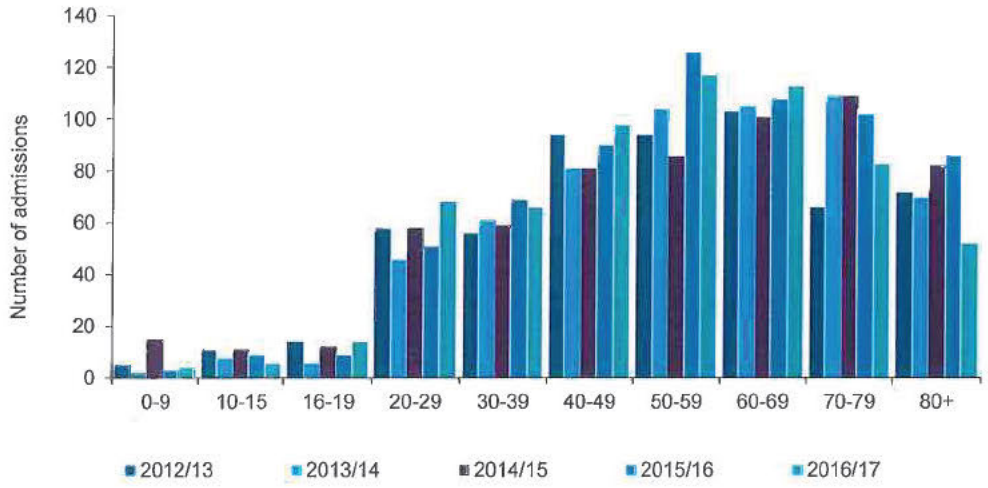
Figure 2: Hospital in the Home admissions for Calvary and TCH, per financial year



Source: ACT Health

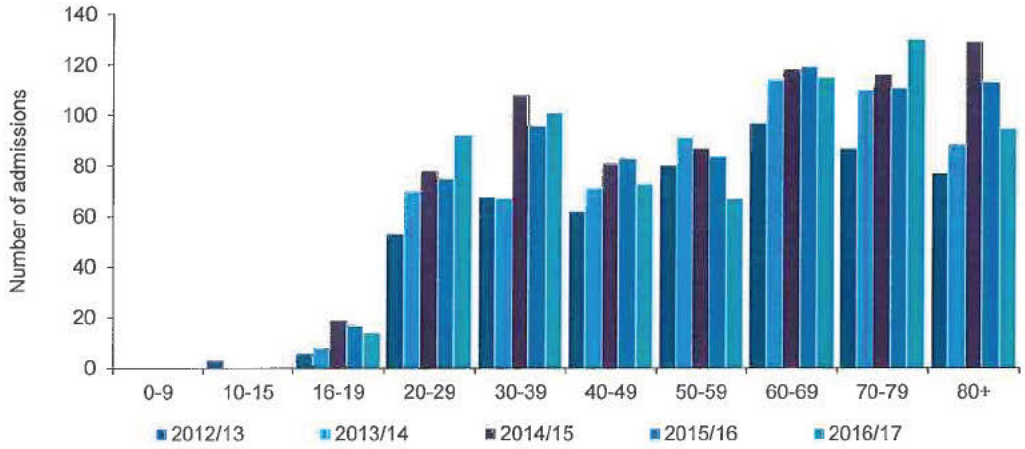
As illustrated in Figure 3 and Figure 4, the majority of TCH HITH patients admitted between 2012/13 and 2016/17 were in the 50-69 age group, whereas the majority of Calvary HITH patients were in the 60-79 age group. The number of admissions per age group has on average shown a steady increase over the period reviewed, with the 70-79 age group at Calvary experiencing the largest increase in admissions.

Figure 3: HITH admissions per age group for TCH, 2012/13 to 2016/17



Source: ACT Health

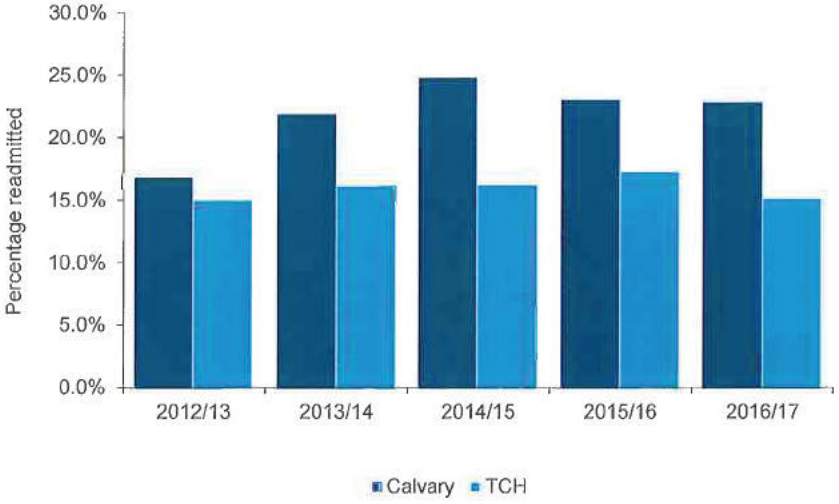
Figure 4: HITH admissions per age group for Calvary, per financial year



Source: ACT Health

Figure 5 illustrates that Calvary had a higher proportion of readmissions (within 28 days) each financial year compared to TCH. The hospital identified refers to the hospital where the patient was initially admitted, noting the readmission presentation can be different to the initial presentation.

Figure 5: Percentage of HITH patients readmitted to Calvary and TCH, per financial year

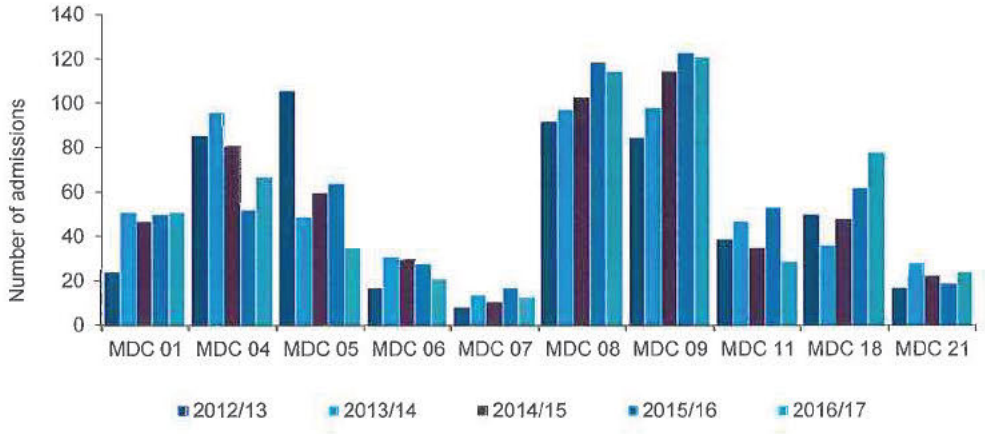


Source: ACT Health

5.2 DRG profile

Figure 6 illustrates the incidence of the 10 most common DRGs for TCH per financial year. A description of DRG codes is provided in Appendix B. There was a decrease in cases of MDC 04 and MDC 05. However, the majority of the DRGs reviewed experienced an increase in incidences or illustrate that the number of incidences have remained relatively stable. In particular, MCD 08, MCD 09 and MCD 18 experienced a large increase in the number of admissions.

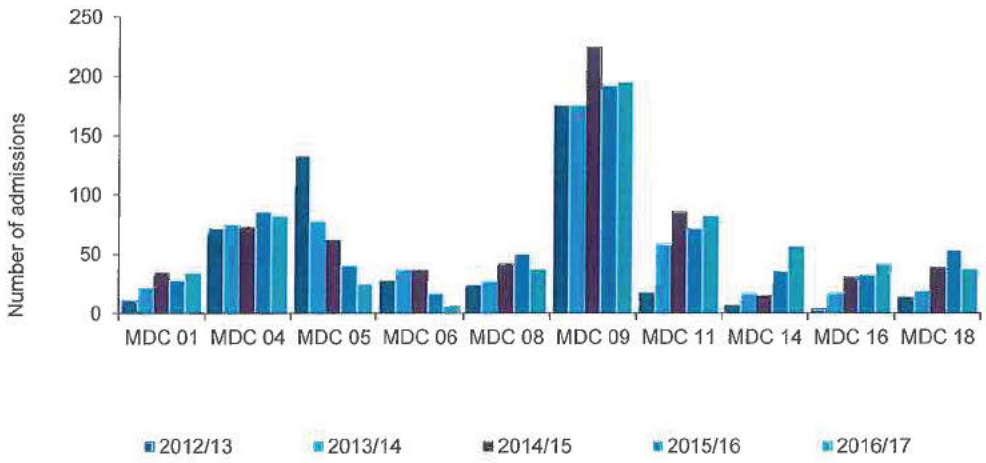
Figure 6: Incidence of the ten most common DRGs at TCH per financial year



Source: ACT Health

As illustrated in Figure 7, the number of admissions for MDC 05 and MDC 06 has decreased, however there has been an increase in the majority of the other DRGs.

Figure 7: Incidence of the ten most common DRGs at Calvary per financial year



Source: ACT Health

Table 8 and Table 9 report HITH admissions by DRG for TCH and Calvary for the 2015/16 financial year (the latest year for which clinical costing data is available). Results suggest that there is significant variance in the average cost between TCH and Calvary for most DRGs. The average 'home' component also differs significantly by most DRGs, which may explain some but not all of the differences in average cost.

Table 8: Length of stay and costing information at TCH for the DRGs for 2015/16

DRG	Admissions	Ward LOS (Days)	Home LOS (Days)		Total Direct cost	Total Indirect cost	Total Cost	Average HIH (days)	Average cost
MDC 09	123	347	792		377,266	121,320	498,586	6.4	4,054
MDC 08	119	1,292	2,240		1,033,768	332,436	1,366,204	18.8	11,481
MDC 05	64	392	833		407,008	130,884	537,892	13.0	8,405
MDC 18	62	563	794		384,239	123,562	507,801	12.8	8,190
MDC 11	53	289	400		187,788	60,388	248,176	7.6	4,683
MDC 04	52	218	545		266,323	85,643	351,966	10.5	6,769
MDC 01	50	278	516		241,471	77,651	319,123	10.3	6,382
MDC 06	28	207	210		102,751	33,042	135,793	7.5	4,850
MDC 21	19	88	228		105,797	34,022	139,819	12.0	7,359
MDC 07	17	148	249		106,365	34,204	140,569	14.7	8,269
MDC 03	11	27	199		80,956	26,033	106,989	18.1	9,726
MDC 14	8	12	58		28,218	9,074	37,293	7.2	4,662
MDC 12	7	22	40		19,563	6,291	25,854	5.7	3,693
MDC 23	7	6	50		24,365	7,835	32,201	7.1	4,600
MDC 10	7	114	179		81,748	26,288	108,036	25.5	15,434
MDC 16	6	37	62		30,412	9,780	40,192	10.4	6,699
Unrelated OR DRGs	6	117	40		16,492	5,303	21,795	6.7	3,632
MDC 02	6	6	30		14,657	4,713	19,371	5.0	3,228
MDC 17	3	36	30		14,851	4,776	19,626	10.1	6,542
Pre-MDC	2	34	14		6,897	2,218	9,115	7.1	4,557
MDC 19	2	215	27		11,963	3,847	15,810	13.3	7,905
Error DRGs	1	2	24		11,653	3,747	15,401	23.9	15,401
Total	**653**	**4,451**	**7,561**		**3,554,549**	**1,143,060**	**4,697,609**	**11.6**	**7,194**

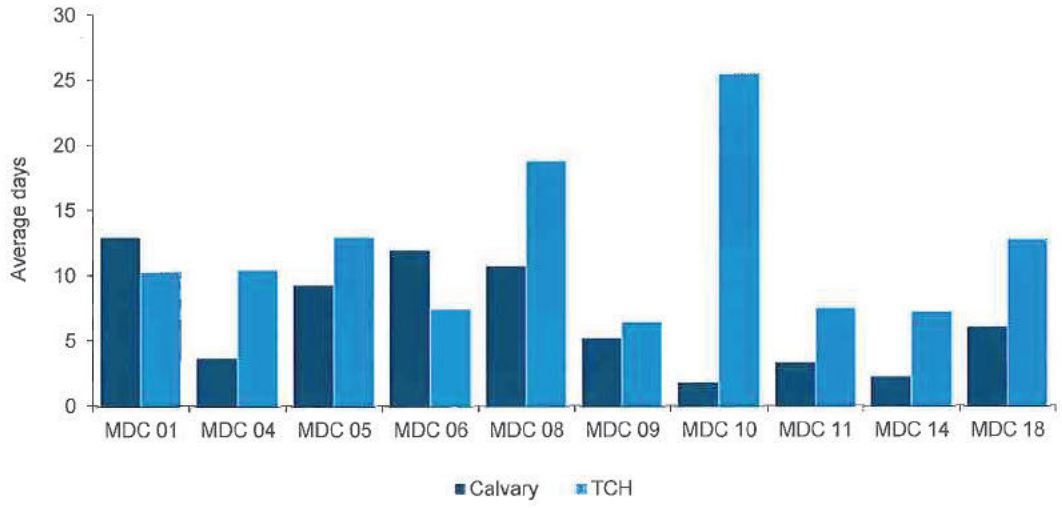
Source: ACT Health

Table 9: Length of stay and costing information at Calvary for the DRGs for 2015/16

DRG	Admissions	Ward LOS (Days)	Home LOS (Days)	Total Direct cost	Total Indirect cost	Total Cost	Average HIH (days)	Average cost
MDC 09	192	176	1,013	136,874	103,541	240,415	5.3	1,252
MDC 04	86	171	319	42,531	32,174	74,705	3.7	869
MDC 11	72	84	243	32,789	24,804	57,592	3.4	800
MDC 18	53	219	323	41,220	31,181	72,401	6.1	1,366
MDC 08	50	303	538	63,040	47,688	110,727	10.8	2,215
MDC 05	41	86	380	51,360	38,852	90,212	9.3	2,200
MDC 14	36	19	83	10,653	8,058	18,711	2.3	520
MDC 10	36	38	65	7,111	5,379	12,490	1.8	347
MDC 16	33	24	47	6,308	4,772	11,079	1.4	336
MDC 01	28	46	365	47,494	35,928	83,422	13.0	2,979
MDC 06	17	58	203	27,486	20,793	48,279	12.0	2,840
MDC 21	15	22	109	14,692	11,114	25,806	7.2	1,720
MDC 03	12	21	54	7,243	5,479	12,722	4.5	1,060
MDC 23	10	-	13	1,727	1,307	3,034	1.3	303
MDC 07	6	14	19	2,595	1,963	4,558	3.2	760
MDC 13	5	3	27	3,709	2,806	6,515	5.5	1,303
MDC 19	3	-	2	318	240	558	0.8	186
MDC 02	2	0	3	377	285	662	1.4	331
MDC 12	1	-	0	37	28	64	0.3	64
Grand Total	**698**	**1,286**	**3,807**	**497,563**	**376,390**	**873,953**	**5.5**	**1,252**

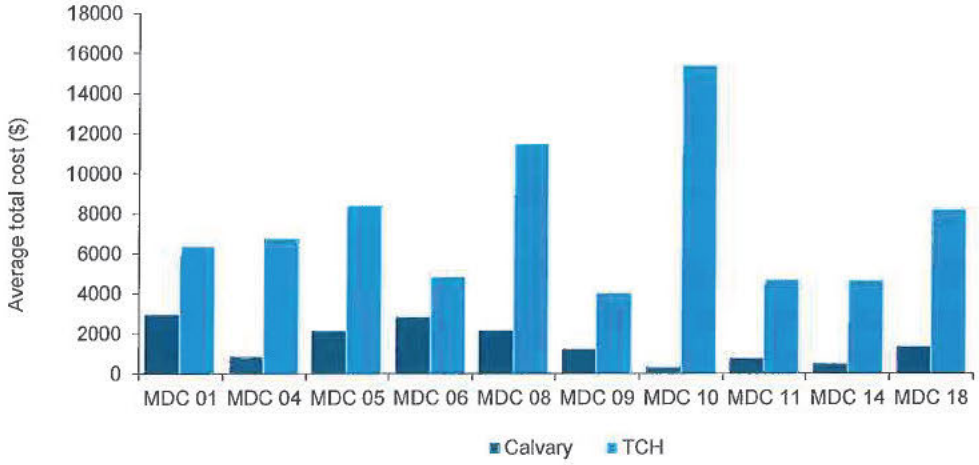
Source: ACT Health

Figure 8: Average HITH days for the 10 most common DRGs admitted in 2015/16, for Calvary and TCH



Source: ACT Health

Figure 9: Average total cost for the 10 most common DRGs admitted in 2015/16, for Calvary and TCH



Source: ACT Health

Figure 8 and Figure 9 compare the average length of stay at home and the average total cost respectively for Calvary and TCH, for the 10 most common DRGs admitted in 2015/16. Figure 8 illustrates that the average length of stay at home is greater for TCH than Calvary for eight out of the 10 DRGs. As illustrated in Figure 9, the average total cost per patient in HITH is significantly higher for TCH than Calvary, for all 10 DRGs. In particular, for MDC 10 (endocrine, nutritional and metabolic diseases and disorders), TCH has a significantly longer average length of stay at home and total cost.

The analysis of HITH at Calvary and TCH identified some differences in the current state of service delivery, including:

- there was significant variance in the average cost between TCH and Calvary for most DRGs in 2015/16, with TCH on average having a larger total cost;
- the average length of stay for a sample of DRGs at home in 2015/16 was generally longer for TCH, which may explain some of the differences in average cost; and
- Calvary experienced a higher proportion of readmissions (within 28 days) each financial year compared to TCH.

6. Stakeholder consultation thematic findings

Consultations were held with the HITH staff for both TCH and Calvary Hospital, clinical leads for TCH, clinicians providing referrals to HITH Calvary, the Capital Health Network and HITH providers in other jurisdictions. A detailed list of stakeholders is included at Appendix A.

A range of themes emerged during these consultations that were consistent across the two HITH services. These findings are detailed below, focusing on how they impact on the current provision of service, patient flow and outcomes. These findings include the barriers that currently exist for both services and provide the basis for identifying the gaps that will need to be addressed in establishing a Territory-wide HITH framework.

The themes identified during the consultation were:

- lack of awareness of the HITH Model of Care;
- differences in Medical Governance;
- uncertainty of how HITH interfaces with other service and funding models;
- impact on continuity of patient care;
- scope of services and care provided by HITH;
- access to diagnostic services and other technology;
- location of service provision; and
- consideration of patient preference.

6.1 Consideration of patient preference

Many stakeholders reported positive patient experiences with HITH at both Calvary and TCH. These anecdotal patient satisfaction reports with the HITH service is consistent with the literature which suggests that patients have a distinct preference for being managed in their own home when compared with an inpatient ward setting. It was reported that patients experienced increased quality of sleep, better nutrition and increased support of families or carers leading to better psycho-social outcomes.

Several stakeholders noted that there is evidence of improved patient outcomes in the current literature, patient preference and high satisfaction measures which should be considered foremost in developing an ACT-wide HITH Model of Care.

6.2 Lack of awareness of HITH Model of Care

At both Calvary and TCH, stakeholders reported that many clinicians (ranging from junior medical staff through to consultants) within the hospital were unaware of the HITH service, or the details of how to refer appropriately to the service. Calvary HITH staff reported that they were required, at times, to "market" their services internally to obtain referrals. This lack of awareness, with respect to both HITH services, was seen as their biggest barrier to establishing a sustainable HITH model at both hospitals.

The consistent theme of consultations with stakeholders was that HITH in both settings operates via a "pull" system. That is, that the HITH team are required to identify clinicians with patient cohorts suitable for HITH treatment, and continually inform, invite and assist these clinicians in making referrals into the program.

The admission process was described as not intuitive, lengthy and administratively burdensome and not "worth the effort". For example, if a patient is only needing 1-2 days of extra inpatient care and the admission is delayed or laborious, there is "little point" in referring the patient to HITH.

Some stakeholders described the admission criteria for HITH as inflexible and overly focused on administrative areas such as catchment area, family support and safety of the premises, instead of suitability for the service based on clinical criteria. Other stakeholders were unaware of the admission criteria for referral to HITH.

Established and perceived differences between the two hospitals were noted during discussion. TCH is a tertiary treating hospital, whereas Calvary is a secondary care facility operating under a different provider (the Little Company of Mary – Australia). There is also a suggestion that some staff consider Calvary as not being able to treat acute patients, and that this embedded thinking impacts negatively on referrals into HITH.

There is an established reporting protocol for clinicians within the hospital setting. While Consultants carry the ultimate responsibility for patient care, most patients are visited on a daily basis by Junior Medical Officers, including Residents, Registrars and Interns. In this environment, it would be necessary for the Junior Medical Officer to identify that the patient is suitable for HITH referral and then make this recommendation to the Consultant. It was suggested during consultation that culturally, Junior Medical Officers may be reluctant to make this recommendation to the Consultant, especially if the Consultant rarely uses the HITH service.

Instead of the current "pull" system that operates in ACT HITH programs, other HITH programs leverage off an independent "push" system where the wards identify HITH-appropriate patients and pro-actively refer them into the service. Apart from the positive impact on patient satisfaction that occurs with HITH, the result of a "push" system is that patients are identified as being suitable for HITH by the ward, thus reducing occupied beds within the hospital setting, which stakeholders responsible for patient flow and those in the post-operative wards identified as a priority for ACT Health.

6.3 Differences in Medical Governance

The TCH HITH program operates under a specialist care model, providing greater scope for continuity of patient care from the ward to the home. However, one physician challenge with this model is that the clinician who admits the patient into HITH is responsible for the entire treatment of the patient, and this in itself may limit referrals into the program as they remain responsible for patient care yet have no regular contact with the patient. This was a particular challenge for post-operative patients, where surgeons often appeared more comfortable in conducting a review of the patient the next day on the ward, instead of referring to HITH. The surgeons were not available during consultation, and therefore this needs to be validated further.

A non-surgical referring clinician noted that he was reluctant to refer into HITH at TCH because he was responsible for the whole-of-patient care and he lost a "sense of control" when the patient went home under HITH. He displayed a strong preference for the Generalist model of Calvary HITH where HITH clinicians take the medical responsibility for patient care.

In general however, the key theme that emerged during discussions was the need to clarify the roles and responsibilities of the various treating physicians involved in HITH. Additionally, the differences in Medical Governance between the programs and how it impacts on whether clinicians feel comfortable to refer into HITH needs to be explored further and each model analysed on its individual merits.

6.4 Uncertainty of how HITH interfaces with other service and funding models

Many stakeholders expressed frustration at the inability to leverage other services for the delivery of a HITH service to the patient at home. During consultations, many other services were identified as also being provided in the home or community setting, including Community Care Program, Transition Care Program, Rehab at Home, Rapid Assessment of the Deteriorating Aged at Risk (RADAR) and aged care home services funded by the Commonwealth Government.

The funding complexities around these multiple services, and the inability of patients being able to access services whilst under HITH, was considered to be an administrative barrier and did not put the patient at the centre of care. One stakeholder advised that the patient is the centre of care and the necessary services need to "wrap around the patient". An example of uncertainty leading to lower

levels of patient care during HITH admission was given by the TCH HITH team that advised that patients were technically unable to access their HCP whilst under their care. If a patient was having personal hygiene visits prior to admission these would be unable to continue under HITH, or alternatively needed to be provided by the HITH team. These funding complexities need further investigation and analysis around types of patient care available under various admission models for any future HITH program.

Another point that was consistently made was that HITH is unable to provide allied health support at home, for example physiotherapy for patients with Chronic Obstructive Pulmonary Disease (COPD). In addition to limiting referrals into HITH and scope of treatment, it was seen as illogical to not be able to leverage off currently existing home based and community services to provide patient care. Physiotherapists are employed by ACT Health and operate in 12 community centres in the Territory, and the inability of HITH to access these resources was seen by clinicians as illogical. However, it is noted that, from a funding perspective, this arrangement is appropriate, given that HITH patients are considered inpatients. Should the ACT continue with a hospital-based model, resourcing the HITH unit with dedicated allied health FTE would be a suitable way to address the gap. It was suggested that opportunities also exist to utilise the 24 hour/7 day nursing care provided by the Chronic Care Program at TCH, as well as establishing a single intake point for patients as opposed to the fragmented intake that currently occurs. In essence, it was seen that these programs operate in silos with no co-ordination and multiple instances of duplication of effort, or significant gaps in service delivery from a holistic patient care perspective.

6.5 Impact on continuity of patient care

In addition to the continuity of patient care from the ward to HITH, several stakeholders noted that HITH isolates patients from the care given by the usual GP. As an inpatient of HITH, patients are unable to access their GP for rebateable visits and the HITH admitting physician will carry primary responsibility for their care. A model where GPs are able to admit to HITH was suggested by some stakeholders. This was seen as improving continuity of patient care. There was, however, a difference of stakeholder opinion about whether patients should be cared for by their GP during HITH admission. HITH patients were seen by the hospital setting as "still acute and needing access to hospital resources", whereas the GP stakeholders advised that "if patients are clinically safe to stay at home then GPs would be able to manage patient care".

Consensus opinion was that communication mechanisms with providers in the primary care setting was in need of improvement during both the admission and discharge process. A lack of discharge planning services provided by HITH was seen as a barrier to effective transition of the patient out of the inpatient HITH setting. A suggestion was made that GPs could receive an interim Discharge Summary when their patient is transferred or referred into HITH.

Current Discharge Summaries of HITH patients at Calvary were seen to be of a higher quality than the discharge summaries from other areas as they were drafted by the HITH clinicians and were an improvement on the normal process that occurs on the ward.

6.6 Scope of services and care provided by HITH

Stakeholders identified the hours of care provided by HITH as a barrier to patient treatment and the type of care that could realistically be provided by the service. A particular example was the number of visits per day in available HITH service hours and the subsequent limit on treatment regimen. For example, Calvary HITH is able to visit up to twice a day to provide IV infusion and TCH HITH are able to conduct infusions up to three times a day. Some stakeholders noted that if a patient is on a four hourly regimen then they would be deemed unsuitable for HITH. However, if possible an alternative drug may be able to be chosen to allow HITH to deliver the care.

The after-hours care is similar in both services in that an RN and on call clinician is available 24 hours/7 days a week. The Calvary HITH service uses the ED resourcing should a patient require support for both life threatening and other care out of hours, whereas TCH HITH is able to conduct

nursing review in their rooms for non-life threatening episodes. It was noted that a larger service is able to provide a greater scope of out of hours care.

6.7 Supporting technology

Both Calvary and TCH HITH programs operate a paper-based system with patient notes available in the clinic area, or with the nursing team seeing the patient at home. This is consistent with the patient notes used on the wards in the hospital. However, for a home based network service it was seen as limiting the care, scope of practice and communication between the mobile and home-based HITH team.

In addition to patient notes, many stakeholders expressed a desire to incorporate tele-health technology into their practice routinely to increase patient access to clinicians, improve oversight of patient care as well as allowing the programs to extend their current catchment areas. TCH HITH does operate a self-HITH program for suitable patients outside of their standard catchment area that utilises some technology.

Clinicians admitting patients to HITH require access to diagnostic services both prior and during admission. Many examples were given of patients being sent to ED from, in particular, Residential Aged Care Facilities to allow a diagnosis to be made before admission to HITH resulting in the patient then being sent straight back. This is often distressing and unsettling for patients especially those in the geriatric population, and also increases the burden on the ED. It also results more often than not, in inpatients being admitted to the ward, rather than HITH. Access to mobile diagnostics was seen as overcoming this barrier to HITH admission and enabling better patient care.

6.8 Location of service provision

The final theme that emerged during consultation was the location of care that is conducted by the HITH teams. It was seen as an anomaly that a home-based service would require patients to attend at a hospital clinic for medical review. Whilst some patients may prefer to attend the clinic, an assumption was made that the majority would rather have the review conducted at home and it would reduce the burden on family or carers to transport the patient.

Allied health care, including physiotherapy was noted as being able to be conducted in the home setting and the stakeholders advised that most patients would have the necessary equipment required to conduct the treatment. Medication review is currently conducted by both HITH services via a pharmacist located in the hospital. This was seen as a barrier to conducting a comprehensive review in the home where patients may have access to other medications and is an opportunity missed by the current HITH service.

As noted in thematic finding 7, implementation of a tele-health capability could improve patient access to the clinical and allied health members of the HITH team.

7. Interface between Calvary and TCH HITH

There is a Calvary and TCH HITH network. This informal arrangement involves meeting several times a year. It was noted during discussion with HITH teams that attendance at the meetings is sporadic. The HITH teams noted that the interface between the two services was a "work in progress" and "not working well" due to the lack of stakeholder buy in.

A current three month trial of cross-referral between the services is due to finish on 31 December 2017. This trial focused on two patient cohorts – cystitis and pyelonephritis identified via the Emergency Department and medical assessment unit, and provided a mechanism by which patients could be cared for by the HITH team located closest to their home. There has been one referral only during this trial. Calvary advised that they have initiated some referrals to TCH which have not been able to be finalised due to capacity restraints of the TCH HITH program.

There are no other areas where the two services interface other than the HITH network and trial noted above.

8. Summary

The Calvary and the TCH HITH off the ACT community an important inpatient substitution service.

This current state analysis, which primarily relied on information provided by the respective HITH teams and wider stakeholder group (as identified in Appendix A), has mapped the key similarities and differences in the two models of care and identified perceived barriers to uptake of the services. The HITH service in the ACT is currently an underutilised resource for acute and sub-acute inpatient care. There appears to be limited awareness amongst the medical community of the HITH programs. Stakeholder consultation highlighted that there some resistance to refer in to the services which is attributable to a range of factors, including concerns regarding continuity of care, confusion around the scope of care provided by HITH, funding complexities, lack of access to allied health, and absence of diagnostic services in the home setting.

The suboptimal utilisation of HITH in the ACT and the barriers to admission, whether perceived or otherwise, create significant opportunities for the Territory to improve services and relieve the demands on Calvary and TCH EDs and other services and meet the needs of the patient. The key findings and identified opportunities of this report are summarised below.

Findings	Opportunities
• TCH and Calvary operate different HITH models, the most notable difference being the clinical governance structures. • The catchment area for both services has significant overlap.	• Option to develop a consolidated territory-wide HITH framework.
• Resourcing constraints in both services have resulted in a lack of capacity to offer medical and allied health care in the home environment;	• Expand HITH teams (or create one team) to include a multidisciplinary skill mix of medical, nursing and allied health support
• Admission to HITH requires a definitive diagnostics, yet there is currently no mobile diagnostic services currently available in the ACT.	• Explore options to allow for diagnostic services to be available in the home setting, including Residential Aged Care Facilities (RACFs).
• Current funding complexities between the State and Commonwealth can result in sub-optimal uptake of HITH services.	• Explore alternative service delivery options that may help alleviate some of the funding complexities, e.g. an outsourced model. • Consider alternative funding arrangements for HITH patients to include additional care needs such as personal care and meals (if required).
• There is currently a lack of awareness amongst physicians of the HITH service, resulting in suboptimal utilisation the service. • Some physicians appear reluctant to refer into the service for fear or 'losing control' of their patient.	• Better integrate the HITH service with other hospital services to raise awareness and understanding of the service. • Consider implementing mandatory admission to HITH should a patient meet defined admission criteria. • Expand the HITH service of the service to include additional DRGs that would benefit from at home care.
• There is a significant cost divergence between the TCH and Calvary HITH services.	• Consider options to consolidate the HITH services to improved efficiency across the Territory.

The next phase of this project will identify option for a future state HITH service to address the gaps and barriers identified in this report and ensure the Territory is able to deliver an efficient and sustainable patient-centric HITH service.

Appendix A: Stakeholder Consultation List

Name	Designation
Dr Karyn Cuthbert	Director of HITH for Calvary hospital
Dr Anil Paramadhathil	Unit Director, Geriatrician
Prof Walter Abhayaratna	Public Cardiologist, Canberra Hospital
Wendy Mossman	ADON, Ambulatory Services
Kerry Boyd	Director of Allied Health
Dr Julie Carr	GP Liaison Unit (Calvary)
Morag McNair	CNC, GP Liaison Unit (Calvary)
Nick Coatsworth	Unit Director Infectious Diseases
Stuart Schembri	Unit Director Respiratory and Sleep Medicine
Chris Nolan	Unit Director Diabetes/Endocrinology
Ashwin Swaminathan	Unit Director General Medicine
Paul Dugdale	Unit Director Chronic Disease Management
Kellie Noffke	Director of Nursing
Louisa Andrews	CNC, HITH
Sanjaya Senanayake	Unit Director, HITH
Tami Murrells	Critical Care Clinical Stream Nursing Director
Ms Vicki Kelly	Health at Home CNC
Julie Andrew	Clinical Development Nurse, HITH
Margot Green	Director Physio Acute Support
Beth (Elizabeth) Forbes	CNC Chronic Care Program
Jillian Davies	Assistant Director of Nursing Surgery and Oral Health
Deanne Cole	CNC EDSU
Maxine Scicluna	Director Community Care Program
Lynne O'Connell	ADON bed management
Chong Wei	Infectious Diseases, Consultant
Julie Porritt	Capital Health Network
Anais Le Gall	Capital Health Network

Appendix B: Additional data tables

Table 10: DRG list

Error DRGs
MDC 01 - Diseases and disorders of the nervous system
MDC 02 - Diseases and disorders of the eye
MDC 03 - Diseases and disorders of the ear, nose, mouth and throat
MDC 04 - Diseases and disorders of the respiratory system
MDC 05 - Diseases and disorders of the circulatory system
MDC 06 - Diseases and disorders of the digestive system
MDC 07 - Diseases and disorders of the hepatobiliary system and pancreas
MDC 08 - Diseases and disorders of the musculoskeletal system and connective tissue
MDC 09 - Diseases and disorders of the skin, subcutaneous tissue and breast
MDC 10 - Endocrine, nutritional and metabolic diseases and disorders
MDC 11 - Diseases and disorders of the kidney and urinary tract
MDC 12 - Diseases and disorders of the male reproductive system
MDC 13 - Diseases and disorders of the female reproductive system
MDC 14 - Pregnancy, childbirth and the puerperium
MDC 15 - Newborns and other neonates
MDC 16 - Diseases and disorders of the blood and blood forming organs and immunological disorders
MDC 17 - Neoplastic disorders (haematological and solid neoplasms)
MDC 18 - Infectious and parasitic diseases
MDC 19 - Mental diseases and disorders
MDC 20 - Alcohol/drug use and alcohol/drug induced organic mental disorders
MDC 21 - Injuries, poisoning and toxic effects of drugs
MDC 22 - Burns
MDC 23 - Factors influencing health status and other contacts with health services
Pre-MDC
Unrelated OR DRGs

Table 11: HITH admissions by DRG, hospital and financial year

DRG	Calvary 2012/13	2013/14	2014/15	2015/16	2016/17	Calvary Total	TCH 2012/13	2013/14	2014/15	2015/16	2016/17	TCH Total	Total
Error DRGs					14	14				1	15	16	30
MDC 01 - Diseases and disorders of the nervous system	12	22	35	28	35	132	24	51	47	50	51	223	355
MDC 02 - Diseases and disorders of the eye	3		18	2	1	24	2	3	4	6	9	24	48
MDC 03 - Diseases and disorders of the ear, nose, mouth and throat	6	20	13	12	9	60	9	8	17	11	8	53	113
MDC 04 - Diseases and disorders of the respiratory system	72	75	73	86	82	388	86	96	81	52	67	382	770
MDC 05 - Diseases and disorders of the circulatory system	133	78	63	41	25	340	106	49	60	64	35	314	654
MDC 06 - Diseases and disorders of the digestive system	28	37	37	17	7	126	17	31	30	28	21	127	253
MDC 07 - Diseases and disorders of the hepatobiliary system and pancreas	8	18	18	6	6	56	8	14	11	17	13	63	119
MDC 08 - Diseases and disorders of the musculoskeletal system and connective tissue	24	27	42	50	38	181	92	97	103	119	115	526	707
MDC 09 - Diseases and disorders of the skin, subcutaneous tissue and breast	176	176	225	192	195	964	85	98	115	123	121	542	1,506
MDC 10 - Endocrine, nutritional and metabolic diseases and disorders		10	13	36	27	86	7	6	11	7	8	39	125
MDC 11 - Diseases and disorders of the kidney and urinary tract	18	59	86	72	82	317	39	47	35	53	29	203	520
MDC 12 - Diseases and disorders of the male reproductive system		3	6	1	2	12	2	2	5	7	9	25	37
MDC 13 - Diseases and disorders of the female reproductive system	2	6		5	1	14	7	1	1			9	23
MDC 14 - Pregnancy, childbirth and the puerperium	8	17	15	36	57	133	6	8	5	8	7	34	167
MDC 15 - Newborns and other neonates									2		1	3	3
MDC 16 - Diseases and disorders of the blood and blood forming organs and immunological disorders	4	17	31	33	42	127	5	6	9	6	6	32	159
MDC 17 - Neoplastic disorders (haematological and solid neoplasms)	1	1	1			3	1	6	1	3		11	14
MDC 18 - Infectious and parasitic diseases	14	19	39	53	38	163	50	36	48	62	78	274	437
MDC 19 - Mental diseases and disorders		4		3		7			2	2	3	7	14
MDC 20 - Alcohol/drug use and alcohol/drug induced organic mental disorders		1				1							1

DRG	Calvary 2012/13	2013/14	2014/15	2015/16	2016/17	Calvary Total	TCH 2012/13	2013/14	2014/15	2015/16	2016/17	TCH Total	Total
MDC 21 - Injuries, poisoning and toxic effects of drugs	15	14	8	15	13	65	17	28	22	19	24	110	175
MDC 22 - Burns	1					1							1
MDC 23 - Factors influencing health status and other contacts with health services	8	15	12	10	13	58	7	2	1	7	1	18	76
Pre-MDC								3	2	2		7	7
Unrelated OR DRGs			1			1	3		2	6		11	12
Total	533	619	736	698	687	3,273	573	592	614	653	621	3,053	6,326

Source: ACT Health

KPMG

Future State Options

ACT Hospital in the Home Services

ACT Health Directorate

December 2017

Disclaimer

Inherent Limitations

This report has been prepared as outlined in the work order. The services provided in connection with this engagement comprise an advisory engagement, which is not subject to assurance or other standards issued by the Australian Auditing and Assurance Standards Board and, consequently no opinions or conclusions intended to convey assurance have been expressed. No warranty of completeness, accuracy or reliability is given in relation to the statements and representations made by, and the information and documentation provided by, ACT Health and personnel / stakeholders consulted as part of the process.

The findings in this report are based on a review of evidence provided by ACT Health. Any projection to the results obtained is subject to the level of bias in the method of sample selection. No warranty of completeness, accuracy or reliability is given in relation to the statements and representations made by, and the information and documentation provided by ACT Health management and stakeholders consulted as part of the process.

KPMG have indicated within this report the sources of the information provided. We have not sought to independently verify those sources unless otherwise noted within the report.

KPMG is under no obligation in any circumstance to update this report, in either oral or written form, for events, occurring after the report has been issued in final form.

The findings in this report have been formed on the above basis.

Third Party Reliance

This report is solely for the purpose set out in the work order and for the ACT Health Directorates information, and is not to be used for any other purpose or distributed to any other party without KPMG's prior written consent. This report has been prepared at the request of the ACT Health Directorate in accordance with the terms of the Work Order dated 7 November 2017. Other than our responsibility, neither KPMG nor any member or employee of KPMG undertakes responsibility arising in any way from reliance placed by a third party on this report. Any reliance placed is that party's sole responsibility.

KPMG

Contents

Glossary of terms

The glossary below sets out abbreviations, including those specific to ACT Health, to assist with a consistent approach throughout this report, ensuring continuity in the analysis and in the methodological approach.

The below definitions are the agreed definitions for the terms used throughout this report.

Term	Definition
ACT	Australian Capital Territory
CMO	Career Medical Officer
DRG	Diagnosis Related Group
ED	Emergency Department
EN	Enrolled Nurse
FTE	Full-time Equivalent
GP	General Practitioner
HITH	Hospital in the Home
ID	Infectious Diseases
JMO	Junior Medical Officer
LoS	Length of Stay
MDU	Medical Day Unit
RACF	Residential Aged Care Facility
RITH	Rehabilitation in the Home
RN	Registered Nurse
TCH	The Canberra Hospital

KPMG

Executive summary

Hospital in the Home (HITH) is a service that substitutes inpatient care in a hospital setting with the provision of individualised acute treatments by health care professionals in the patient's home environment[1]. The service allows for treatment in the patient's usual place of residence, reducing or eliminating an inpatient stay in a hospital facility. The critical feature of HITH is that the care provided is a true substitute for acute and sub-acute inpatient care, with the patient still classified as an inpatient for treatment whilst receiving HITH.

ACT Health engaged KPMG to undertake an assessment of the current state of HITH services delivered in the Territory for the purposes of developing a set of options for a future state Territory-wide HITH service. Such a service is key in assisting ACT Health in continuing to deliver on its commitment to patient-centred care. The scope of the review included the HITH service at both The Canberra Hospital (TCH) as well as Calvary.

In the ACT, currently two HITH programs operate out of each of the major hospitals; one at TCH, and the other at Calvary Hospital (Calvary). Similar HITH services are offered by each program, and the patient cohort is loosely determined by location, i.e. patients from North Canberra are admitted to the Calvary HITH and patients from South Canberra are admitted to TCH HITH.

Stakeholders identified that a HITH service within the ACT is required to deliver three objectives:

- Substitution of acute and sub-acute admission;
- Avoidance of hospital (ward) admissions; and
- Reduction in readmissions.

As part of the current state assessment, a desk top review was undertaken, supported by stakeholder consultations. The analysis identified several key opportunities to enhance services provided to patients by HITH and allow ACT Health to better deliver on their primary objectives for a HITH service.

Following the analysis of the current state, stakeholders were asked to develop a set of design principles that reflected HITH objectives in the Territory. The agreed design principles for a future HITH service were that the service needed to be:

- patient centred;
- fit for purpose;
- cognisant of health funding frameworks;
- accessible;
- adaptive; and
- accountable.

These design principles informed 10 key assessment criteria which were utilised by stakeholders at a series of workshops to assist with prioritisation of the five potential future state options for a Territory-wide HITH service. The options for a future HITH service in the ACT were developed by KPMG based on the findings and opportunities identified in the current state analysis.

Initial assessment against the criteria resulted in a short list of three models for consideration, namely the Enhanced Status Quo, the HITH Centre, and the outsourced model. The three options were presented at a validation workshop for discussion with key stakeholders, and participants were asked to consider the key benefits, challenges and implementation considerations of each model.

[1] Viney R, Van Gool K, Haas M 2001, Hospital in the Home in NSW, resource document for NSW Health, Centre for Health Economics Research and Evaluation, NSW.

Enhanced Status Quo

An Enhanced Status Quo HITH service in the ACT would allow TCH and Calvary to continue to operate independent HITH services. However, considerable work needs to be undertaken to ensure that, where possible, services are able to align.

The enhanced status quo model addresses some of the major gaps and deficiencies in the current services as identified through the current state analysis and aligns several elements of the service to ensure consistency across the Territory. Some of the opportunities to deliver a patient-centred HITH service via this model include:

- alignment of operating hours (including nursing hours);
- introduction of allied health review and treatment;
- alignment of admission criteria, where possible;
- provide access to point of care diagnostic services;
- better coordinate services across catchment areas; and
- continue to improve the interface, including communication, between the TCH and Calvary services.

The successful implementation of the Enhanced Status Quo model relies heavily on a robust and efficient cross referral process between the two HITH services. To enable effective cross referral, each HITH service needs to operate under the shared policies, including admission criteria; as well as a sharing of equipment, resourcing and technology. Incremental gain in outcome will be made with more elements of the two models of care being aligned.

There is a range of risks with the Enhanced Status Quo HITH model. Consideration of these risks needs to be made prior to implementation. The risks identified during analysis and workshop discussion include:

- There is a risk that this model will not be as cost effective as some other options identified, noting for example the continued duplication of some services that overlap in geographies.
- A change in medical governance may result in a loss of trust in HITH, albeit temporarily, leading to sub-optimal referral into the service by clinicians and potentially reduced access for the community.
- Inadequate training of HITH staff to provide patient care via Telehealth technology which may lead to adverse patient outcomes and potential readmission into hospital.
- Unless electronic patient medical records are available hospital-wide, there is a risk that the treating HITH team will not have access to important patient information and thus be unable to provide optimal patient care in the home setting.
- Without clear processes, policies and defined referral pathways, there continues to be a risk that the duplication and inefficiency of the current system remains in the Enhanced Status Quo model.
- Inability to recruit dedicated medical, nursing and allied health professionals may result in an inability to fully implement the Enhanced Status Quo model.
- Potential inability of patients to access other services while an inpatient, for example Medicare eligible GP visits.

HITH Centre

The HITH Centre model involves a centralised 'HITH hub' that is the home of HITH in the ACT. The HITH service would be provided by ACT Health without specific attachment to either hospital. The medical governance team would be centralised and include various specialities to ensure appropriate coverage of the HITH DRGs. This team would be supported by a mix of nursing staff, allied health and Junior Medical Officers (JMOs).

Some example components of this model include:

- both hospitals would fund a set number of 'beds', based on service need forecasting, within the HITH centre that would make up the combined capacity of the facility;

- complete consolidation of the TCH and Calvary HITH delivery, with the centre drawing on the combined HITH staffing capabilities of the two organisations;
- patients continue to be admitted patients under either TCH or Calvary;
- the capacity will be shared between the two organisations depending on demand/supply available;
- ability to consider a range of options for physical location of the HITH service, including review of patients;
- a dedicated medical governance team, which may include an Infectious diseases physician and possibly a general medicine specialist, emergency medicine specialist and a geriatrician, to oversee the delivery of HITH services to the ACT community; and
- access to point of care diagnostics.

The proposed model also aligns to ACT Health's proposed Centres of Excellence structure, which is currently in the consultation phase, and will be implemented in July 2018.

The distinct advantage of this model is provided by joint medical governance across a range of physician specialties. This model would also allow registrars from the Emergency Department (ED) and the physician training programs to be able to rotate through HITH. This has the added benefit of exposing future medical staff to HITH and increasing general awareness of the service across the two hospitals.

A flexible, medical governance model is essential to the successful implementation of a HITH Centre. Certain patient cohorts have specific needs with respect to medical governance. For example, surgical patients may be more appropriate to remain under the care of the referring surgeon given the nature of the patient's needs. Conversely, the HITH Centre should have the capacity to admit surgical (or other) patients under a dedicated HITH consultant, if clinically appropriate to do so.

Implementation of this model requires a significant change in the way the ACT HITH service is currently run, including a shift in several elements of the current models of care. Stakeholders noted during the review that initiatives similar to the 'HITH Centre' concept have been trialled in the past which had unique associated challenges due to the dual hospital system in place in the ACT for example, a consolidated surgical waitlist. Prior to proceeding with implementation of this model, it is strongly advised that ACT Health consider the learnings from that and similar projects in order to identify common risks to the establishment of a HITH centre.

A range of risks have been identified during review, consultation and analysis that require consideration prior to implementation, should this be the model with which ACT Health proceeds Some of the risks are similar to those identified in the Status Quo HITH model. The risks include:

- The establishment of the entity of a HITH Centre, separate from TCH and Calvary, could lead to:
  - Inability in providing cover when staff are on leave;
  - Inconsistent education, training, clinical supervision; and
  - Unable to adjust capacity to meet demand within HITH service.
- Administrative governance complexities involved in running a single HITH entity with two governing bodies (ACT Health and the Little Company of Mary) could lead to breakdown in services reducing the quality and timeliness of patient care.
- Staff may be inadequately trained to provide patient care via Telehealth technology which may lead to adverse patient outcomes and potential readmission into hospital.
- Unless electronic patient medical records are available hospital-wide, there is a risk that the treating HITH team will not have access to important patient information and thus be unable to provide optimal patient care in the home setting.
- Without defined and well communicated referral pathways, there is a risk that there will be sub-optimal utilisation of HITH amongst referring physicians, especially if the Centre sits outside of TCH and Calvary.
- Potential inability of patients to access other services while an inpatient, for example Medicare eligible GP visits.

Outsourced

The fully outsourced model involves ACT Health procuring and funding a third party service provider to provide the entire HITH service to the ACT community. Some example components of this model include:

- ACT Health in a contract management role;
- consolidated HITH model;
- patients are considered non-admitted;
- medical governance is provided by the third party, examples of this model use GPs for their medical governance; and
- medical, nursing and allied health services would be provided by the third party.

As with all models, there are many considerations that should be given appropriate consideration prior to implementation. One significant consideration with the outsourcing model is, given the size of ACT as a jurisdiction, there are potential workforce risks associated with outsourcing a HITH service as it increases competition in the employment market. If this outsourced model provides conditions that are competitive with those of the public sector, there is a risk that workforce supply will come from the public sector and therefore impact on the service provided at either or both hospitals. This could be problematic in a jurisdiction in which stakeholders report difficulty in attracting and retaining health professionals.

Summary of findings

Each of the three options have individual benefits and challenges. The table below summarises the findings of the current state analysis and which options address those gaps.

Findings	Enhanced Status Quo	HITH Centre	Outsourced
TCH and Calvary operate different HITH models, the most notable difference being the clinical governance structures.	□	✓	✓*
The catchment area for both services has significant overlap.	□	✓	✓
Resourcing constraints in both services have resulted in a lack of capacity to offer medical and allied health care in the home environment.	✓	✓	✓
Admission to HITH requires definitive diagnostics, yet there are currently no point of care diagnostics services available in the ACT.	✓	✓	×
Current funding complexities between the State and Commonwealth can result in sub-optimal uptake of HITH services.	×	×	✓
There is currently a lack of awareness amongst physicians of the HITH service, resulting in sub-optimal utilisation the service. Some physicians appear reluctant to refer into the service for fear or 'losing control' of their patient.	✓	✓	×
There is a significant cost divergence between the TCH and Calvary HITH services.	×	✓	✓
* will result in one governance structure, however the structure in an outsourced model has greater risk within the governance framework.			
□ partly addresses			

All three options have addressed a significant number of the gaps in the current HITH service provided in the ACT. They each provide a range of benefits for patients in the Territory, and deliver a range of challenges, implementation and risk considerations going forward for ACT Health.

Cognisant of this outcome and what is considered agreed best practice, it is recommended that ACT Health undertake a staged approach to support implementation of a HITH Centre, governed at a Territory-wide level.

This recommendation has been made considering the risks, benefits, complexity of and time to implement each future state HITH model. The Fully outsourced model is not recommended due to the challenges and risks identified earlier in this report. If ACT Health decide to accept this recommendation, there are several short-term considerations that need to be given appropriate consideration, such as:

- gaining access to allied health;
- analysis of currently treated DRGs at both hospitals (admitted to hospital and HITH), to assist in identifying the types of conditions that should be treated in HITH, and develop pathways to support their transfer to HITH;
- arranging for more timely and point of care diagnostics.

There are seven subsequent recommendations to enable this change:

- establishment of a HITH working group;
- development of a comprehensive Model of Care for the HITH Centre;
- commencement of work to establish the HITH Centre;
- design, conduct and evaluation of the pilot program;
- development of program logic;
- establishment of a HITH Centre; and
- conduct a HITH evaluation.

1 Introduction

HITH is a service that substitutes inpatient care in a hospital setting with the provision of individualised acute and sub-acute treatments by health care professionals in the patient's home environment[2]. The service allows for treatment in the patient's usual place of residence, reducing or eliminating the inpatient stay in a hospital facility. The critical feature of HITH is that the care provided is a true substitute for acute and sub-acute inpatient care, with the patient still classified as an inpatient for treatment whilst receiving HITH.

1.1 Project overview

ACT Health engaged KPMG to undertake an assessment of the current state of HITH services delivered in the Territory for the purposes of developing a set of options for a future state Territory-wide HITH service. Such a service is key in assisting ACT Health in continuing to deliver on its commitment to patient-centred care. The scope of the review included the HITH service at both The Canberra Hospital (TCH) and Calvary Hospital in Bruce (Calvary). Out of scope was the Medical Day Unit at Canberra Hospital and Health Services.

The HITH service within the ACT is required to deliver three objectives:

- Substitution of acute and sub-acute admission;
- Avoidance of hospital (ward) admissions; and
- Reduction in readmissions.

Chronic disease management is out of scope for both the current and future models of care, although noting that there are opportunities to support acute exacerbations of chronic disease in HITH.

This project included analysis of the current state of the HITH service in the ACT, including consultation with key stakeholders at TCH and Calvary, the Capital Health Network and Health Care Consumers Association. It also included consultation with Western Australian and Victoria (Epworth) HITH services. As part of the current state assessment, a desk top review was undertaken supported by stakeholder consultations. The analysis identified several key opportunities to enhance services provided to patients by HITH and to allow ACT Health to better deliver on their primary objectives for a HITH service. An overview of the current state analysis, including findings and opportunities, are provided at Chapter 2 in this report.

Following the analysis of the current state, stakeholders were asked to develop a set of design principles that reflected HITH objectives in the Territory.

These design principles informed 10 key assessment criteria which were utilised by stakeholders at a series of workshops to assist with prioritisation of the five potential future state options for a Territory-wide HITH service. These options for a future HITH service in the ACT were developed by KPMG based on the findings and opportunities identified in the current state analysis. Detail of the method is included at Chapter 3 in this report.

Initial assessment against the criteria resulted in a short list of three models for consideration, namely the Enhanced Status Quo, the HITH Centre, and the outsourced model.

These three options were presented at a validation workshop for discussion with key stakeholders, and participants were asked to consider the key benefits, challenges and implementation considerations of each model. The outputs from this workshop form the basis of the future state model and preferred option presented in this report.

---

[2] Viney R, Van Gool K, Haas M 2001, Hospital in the Home in NSW, resource document for NSW Health, Centre for Health Economics Research and Evaluation, NSW.

1.2 Scope of this document

This report follows on from the *Current State Analysis* report which describes the current HITH models at TCH and Calvary and identifies key gaps in the service and subsequent opportunities for improvement. This report builds on that analysis and describes three models for consideration that will best address the gaps identified in the current service. This report includes:

- a high level overview of the current state of the HITH service;
- identification of three models for a future state HITH service;
- an overview of each model, including the benefits, challenges and implementation considerations of each option; and
- the preferred option for the future state HITH service in the ACT.

1.3 Structure of this document

This report is set out according to the following:

Chapter	Chapter
1: Introduction	Provides an overview of the project.
2: Current state analysis	Outlines the current HITH services provided in the ACT.
3: Options for a future state HITH service	Explores the three potential options for a future state HITH service in the ACT.
4: Options summary	Summarises the options and how they addresses the findings from the current state analysis.
5: Recommendations	Outlines recommendations, including a preferred option for the ACT HITH service.
Appendices	The appendices include a stakeholder consultation list, further detail regarding HITH in the ACT and the assessment outcome of the options presented for consideration.

2 Current state analysis

2.1 Overview of HITH in the ACT

In the ACT, currently two HITH programs operate out of each of the major hospitals; one at The Canberra Hospital (TCH), and the other at Calvary Hospital (Calvary). Similar HITH services are offered by each program, and the patient cohort is loosely determined by location, i.e. patients from North Canberra are admitted to the Calvary HITH and patients from South Canberra are admitted to TCH HITH.

The table below highlights the key similarities and differences in the TCH and Calvary HITH models. For further information regarding the current state ACT HITH service see Appendix 3.

Table 1: TCH and Calvary HITH service comparison

Model	TCH	Calvary
Medical Governance	• Specialist	• Generalist/single HITH consultant
Allied Health	• 0.5 FTE Pharmacist • Limited informal access to other allied health on an ad hoc basis e.g. Physiotherapy, occupational therapy	• No FTE • Some informal arrangements with pharmacy and occupational therapy
Medical Review	• At least every five days	• At least every seven days
Core Hours	• 7.30 am – 10 pm • (Monday to Friday)	• 7.30 am – 6 pm • (Monday to Friday)
Capacity	• 1 unit = 30 minutes of care • 7.30am–4 pm (Mon to Fri) 35 units • 1.30-10pm (Mon to Fri) 8 units in winter and 10-12 in summer	• Average 16 patients
After hours care	• RN on call • Clinician (admitting specialty registrar/JMO) • Review of patient in HITH clinic by RN after hours if necessary	• RNs and HITH physician on call • Emergency department (ED) review patient with HITH coordination if necessary
Reporting	• Monthly morbidity and mortality reports • Review of re-admission data	• Monthly morbidity and mortality reports • Review of re-admission data
Catchment	• Up to 45 minute radius from TCH	• Up to 45 minute radius from Calvary
Patient cohort	• 3 months – 100 years	• Adult patients only
Services	• HITH • Medical Day unit	• HITH

Source: KPMG

The HITH service in the ACT is currently an under-utilised resource for acute and sub-acute inpatient care. The current state analysis revealed limited awareness amongst the medical community of the HITH programs. Additionally, there appears to be resistance to refer into the services which is attributable to a range of factors, including concerns regarding continuity of care, confusion around the scope of care provided by HITH, funding complexities, lack of access to allied health, and absence of diagnostic services in the home setting.

The sub-optimal utilisation of HITH in the ACT and the barriers to admission, whether perceived or otherwise, create significant opportunities for the Territory to improve services and relieve the demands on Calvary and TCH EDs and inpatient services, and to meet the needs of the patient.

2.2 Findings and opportunities

Table 2 below provides a summary of specific findings and associated opportunities resulting from the current state analysis. These findings and opportunities provide the foundations for the future state options outlined in this report.

Table 2: Findings and opportunities

Findings	Opportunities
• TCH and Calvary operate different HITH models, the most notable difference being the clinical governance structures. • The catchment area for both services has significant overlap.	• Option to develop a consolidated territory-wide HITH framework.
• Resourcing constraints in both services have resulted in a lack of capacity to offer medical and allied health care in the home environment.	• Expand HITH teams (or create one team) to include a multidisciplinary skill mix of medical, nursing and allied health support.
• Admission to HITH requires definitive diagnostics, yet there are currently no mobile diagnostic services available in the ACT.	• Explore options to allow for diagnostic services to be available in the home setting, including Residential Aged Care Facilities (RACFs).
• Current funding complexities between the State and Commonwealth can result in sub-optimal uptake of HITH services.	• Explore alternative service delivery options that may help alleviate some of the funding complexities, e.g. an outsourced model. • Consider alternative funding arrangements for HITH patients to include additional care needs such as personal care and meals (if required).
• There is currently a lack of awareness amongst physicians of the HITH service, resulting in sub-optimal utilisation the service. • Some physicians appear reluctant to refer into the service for fear or 'losing control' of their patient.	• Better integrate the HITH service with other hospital services to raise awareness and understanding of the service. • Consider implementing mandatory admission to HITH should a patient meet defined admission criteria. • Expand the HITH service to include additional Diagnosis Related Groups (DRGs) that would benefit from at-home care. • Develop pathways to support seamless transitions into HITH.
• There is a significant cost divergence between the TCH and Calvary HITH services.	• Consider options to consolidate the HITH services to improve efficiency across the ACT.

Source: KPMG

3 Options for a future state HITH service

The following chapter details the method used to arrive at a defined set of future options for a future state ACT HITH service. A description of each model is included along with discussion of the associated benefits, challenges and implementation considerations.

3.1 Method

In determining the options for the future state of the ACT HITH service, KPMG undertook a series of workshops which were iterative in nature and designed to ensure that any future state models were designed in a collaborative environment with input from key stakeholders.

KPMG presented a list of potential future HITH models for discussion and prioritisation by workshop participants. These options were developed via analysis undertaken of information obtained during desktop research and stakeholder consultation. The five potential HITH models were:

1. Status quo;
2. Enhanced Status Quo;
3. HITH Centre;
4. Hybrid model (some components outsourced and some provided by ACT Health); and
5. Fully outsourced.

To allow assessment of these future HITH models, prioritisation and assessment criteria were developed and validated with workshop participants. These criteria were based on a framework designed to assess whether an option aligns with strategic priorities, the likelihood of successful delivery based on stakeholder support, risks and implementation, and whether they are economically viable within the funding environment. The assessment process was objectives-driven to assess the 'worth' of each option. The weighted assessment criteria and assessment outcome are detailed below.

Table 3: Agreed assessment criteria and weighting

No	Criteria	Weighting
1	The ACT community has access to a territory-wide model	3
2	The HITH service delivers safe and patient centered care	3
3	Continuance of clinically appropriate treatment	3
4	The HITH services allows for clear referral pathways and smooth transitions in and out	2
5	Cost Effective	2
6	Sustainable	2
7	Integrated and coordinated service	1
8	Supports innovation	1
9	Simple governance framework	2
10	Ease of implementation	2

Weight	Description
3	Critical importance
2	Moderate to high importance
1	'Nice to have'

Source: KPMG

Results of the assessment conducted by workshop participants determined the order of priority of each model. This priority, from highest to lowest was:

1. HITH Centre
2. Enhanced Status Quo
3. Fully outsourced
4. Hybrid model
5. Status Quo

The individual results of the two workshops is included at Appendix 4.

Noting the limited timeframe associated with this review and in the absence of comprehensive stakeholder input, some assumptions have been made within each model. In most circumstances, stakeholder consultation and workshop discussion informed gaps in information, for example, the element 'patient status', presented two options, admitted (inpatient) or non-admitted (outpatient). Stakeholder preference was overwhelmingly in favour of 'admitted'. The rationale for this decision was that inpatient status allowed improved patient access to additional hospital services, such as diagnostics, clear transition/pathway to a ward if required and clear medical governance of the patient. It should be noted that when admitted, a patient is unable to access any Medicare Benefits Scheme or Pharmaceutical Benefits Scheme funding.

Consequently, the benefits, challenges and implementation of an admitted patient status was then further examined, except in the outsourced model where an outpatient status is more appropriate from a medical governance perspective.

Where it was not possible to obtain input in other elements of a future state model, KPMG identified the option that best aligned with ACT Health's intended outcome of this project (a Territory-wide HITH service) and the design principles of the project.

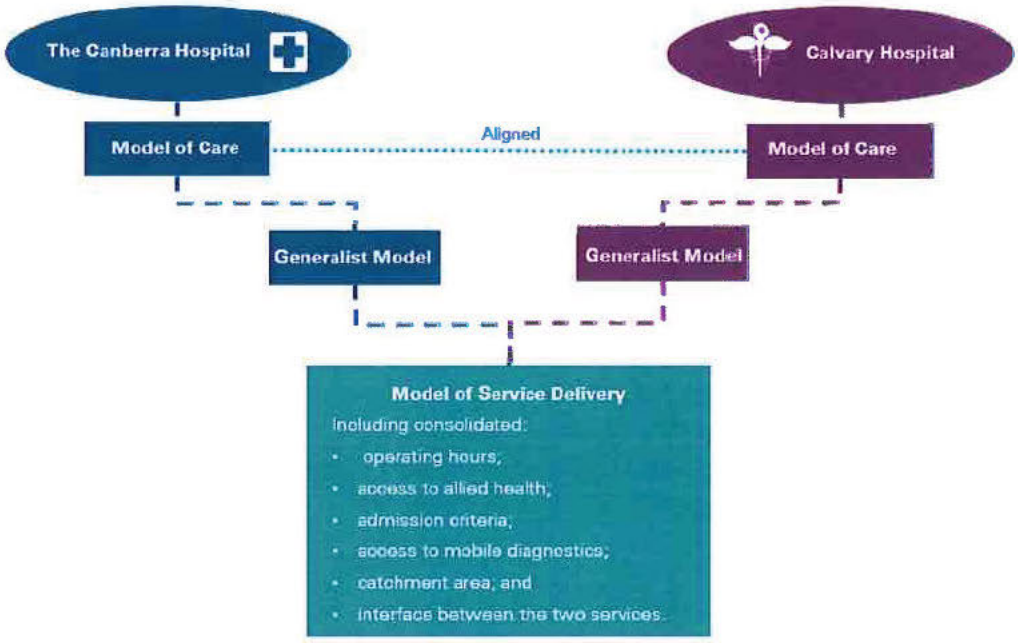
3.2 Enhanced Status Quo

3.2.1 Overview

The Enhanced Status Quo model would address some of the major gaps and deficiencies in the current services as identified through the current state analysis and would align several elements of the service to ensure consistency across the Territory.

Figure 1 below provides an overview of a possible Enhanced Status Quo structure.

Figure 1: Enhanced Status Quo structure



Source: KPMG

An Enhanced Status Quo model will leverage the current state of the HITH service, however it will align various elements so that the status quo can be enhanced to improve patient outcomes. An Enhanced Status Quo HITH service in the ACT allows TCH and Calvary to continue to operate independent HITH services. However, work would be undertaken to ensure that, where possible, services are able to align.

An Enhanced Status Quo HITH service in the ACT would allow TCH and Calvary to continue to operate independent HITH services. However, considerable work needs to be undertaken to ensure that, where possible, services are able to align.

Some of the opportunities to deliver a patient-centred HITH service via this model include:

- alignment of operating hours (including nursing hours);
- introduction of allied health review and treatment;
- alignment of admission criteria, where possible;
- provision of access to point of care diagnostic services;
- better coordination of services across catchment areas; and
- continued improvement to the interface, including communication, between the TCH and Calvary services.

A key factor to ensuring success with this model is commitment to a cross-referral process from both HITH services. To facilitate efficient cross referrals, the biggest change required would be for the medical governance of the services to be aligned, i.e. both services would operate a 'generalist' model, with dedicated HITH physicians. Whilst Calvary currently operates under a 'generalist' model, TCH will need to establish a new, shared medical governance structure, with a combination of dedicated HITH physicians taking on some patients and specialist physicians retaining responsibility for some patients.

Formal involvement of allied health services and the ability to conduct medical (and allied health) reviews in the home and community setting is a critical element of this future state model. Information from stakeholder and good practice models of HITH services suggest that medical and allied health review of patients in the home not only improves patient satisfaction but also serves to deliver on the core objectives of HITH. A high-level structure of the Enhanced Status Quo model is outlined below.

3.2.2 Benefits, challenges and implementation considerations

The model was analysed to determine key benefits and challenges associated with its introduction as well as consideration given to implementation. Overall, the Enhanced Status Quo potentially will result in a better coordinated, less fragmented streamlined service for patients, the HITH team and referring physicians. However, it should be noted that in this model, TCH and Calvary will continue to operate separate services, therefore, this issue will not fully be addressed.

The successful implementation of the Enhanced Status Quo model relies heavily on a robust and efficient cross referral process between the two HITH services. To enable effective cross referral, each HITH service needs to operate under the shared policies, including admission criteria, as well as a sharing of equipment, resourcing and technology. Incremental gain in outcome will be made when more elements of the two models of care are aligned. These elements, along with their associated benefits, challenges and implementation considerations are further explored in Table 4 below.

Table 4 below provides an overview of some of the elements that will potentially change in the Enhanced Status Quo model.

Table 4: Overview of the key elements, benefits, challenges and implementation considerations associated with the Enhanced Status Quo

Element of Model	Description	Benefits	Challenges	Implementation Considerations
Patient status	Inpatient (admitted) is the preferred option	• Improve patient access to additional hospital services, such as diagnostics. • Clear transition/pathway to a ward if required. • Medical governance of the patient is clear. • ED avoidance (TCH model)	• Funding complexities, as inpatients cannot access various funding packages such as Medicare eligible GP visits. • This could lead to exclusion of patients from HITH (if they lose other 'at home' care services). Further clarification of the interface between other services will need to be conducted, and for those provided by ACT Health, opportunity exists for greater coordination of services and hence patient care. •	• Ensure that staff and patients understand the funding interface between the Medical Benefits Schedule funded inpatient and other Commonwealth and State/Territory funded services. • Explore options for ACT Health to provide at-home care packages to HITH patients on a needs basis.
Medical governance	To be similar across both services, with TCH governance model including dedicated HITH consultants i.e. move towards the 'generalist' Calvary model of medical governance.	• Both services will be operating similar governance models, leading to less confusion for HITH staff, patients and referring physicians. • Supports easier referral process and generation of referrals • Allow for easier cross referral between the services with dedicated HITH physicians. • Improved transition of care for the patient. • The shared model will allow for admission of patients with more complex medical needs as there is an on-call HITH consultant but patients will still have the option to stay with treating physician when appropriate.	• Potential difficulties in obtaining sub-speciality input for HITH patients. • The TCH HITH medical governance model is established and understood. The change in governance may result in temporary reduction in trust or referral into the service.	• Funding dedicated for HITH physicians within TCH. • Establishing clear and appropriate pathways for HITH physicians (at TCH and Calvary) to seek input from sub-speciality physicians as required. • Consideration should be given to educating referring physicians about the new medical governance structure at TCH.

Element of Model	Description	Benefits	Challenges	Implementation Considerations
Access to allied health	Both services need dedicated allied health FTE, including (at a minimum): • Physiotherapy; • Occupational Therapy; and • Social Work.	• Patients will have access to appropriate care in their home environment, thus TCH and Calvary would meet the true intent of a HITH service. • That this improves the issue of not being able to access allied health services whilst on HITH.	• Attracting and recruiting allied health staff to positions (previous physiotherapist recruitment rounds have not resulted in sufficient applicants). • Finding appropriate medical, nursing and allied health coverage for occasions when the HITH staff are on leave could be difficult.	• Funding dedicated HITH allied health staff. • Surge capacity planning, for occasions where the case load is in excess of the allied health capacity.
Home review/care	Both services have the capacity to provide medical, nursing and allied health care in the home setting	• Reduced travel time for patients. • Delivers a services that is patient centric. • Accommodates for patient preference to be treated at home.	• Moving a service that is largely hospital based (with the exception of nursing) to home based will be logistically difficult noting the number of reviews that can happen in a day will decrease. • Some patients prefer to be seen in a hospital environment so this should also be accommodated.	• Consider providing the HITH services access to technology that assists in scheduling/rostering. • Provide HITH clinics at hospital campuses for those patients who prefer to have medical review at the hospital.
Access to technology	Access to Telehealth, electronic medical records, and Skype will facilitate a functional HITH service for TCH and Calvary.	• Access to this technology will support the services being provided in the home environment. • These services will also facilitate the transition from the current state HITH services to the Enhanced Status Quo model by allowing medical and allied health professions to provide information/undertake review of patients remotely, until these services can physically occur in the home.	• Staff may not currently have the skills to use the telehealth technology. • Not all patients will be able to utilise these services. • Electronic medical records are not available at TCH or Calvary.	• Funding to provide these mechanisms. • Provide training to all HITH staff in the safe an appropriate use of these technologies. • Electronic medical records would need to be a hospital-wide (TCH and Calvary) consideration, not just for HITH.
Point of care diagnostics	Access to point of care diagnostics (pathology and radiology) would facilitate the Enhanced Status Quo model.	• Allow for definitive diagnosis in the home setting (including residential aged care facilities). This will facilitate admission to	• Lack of capacity to offer this service within ACT Health. • Lack of interest from third parties to provide a mobile diagnostic service.	• Developing a pathway to access diagnostics in a timely manner in the community. • Consider creating financial incentives for third parties to

Element of Model	Description	Benefits	Challenges	Implementation Considerations
		HITH without attending the ED or hospital ward.		establish a mobile diagnostic service in the ACT.
Admission Criteria	Consolidated admission criteria (where possible).	• Consistent process across the two HITH services.	• The two hospitals offer different services. TCH provides tertiary care service whereas Calvary provides general acute care. This creates complexity with completely aligning DRGs and admission criteria.	• Aligning medical governance models (as outlined above) will assist in addressing the complexity associated with aligning the admission criteria as the 'generalist' physicians will be able to accept similar DRGs across both services. • Similarly, establishing access pathways to sub-specialities for TCH and Calvary will also assist in alleviating some of the complexity. • Undertake a piece of work to identify which DRGs currently have a longer Length of Stay (LoS) and how HITH may support a reduction in this LoS.
Operating hours	Consolidation medical, nursing and allied health operating hours. Likely that Calvary would need to align with TCH operating times.	• Consistent operating hours would facilitate the cross referral process. • Staff cover in the event of staff absence.	• Attracting and retaining staff to cover the additional hours at Calvary.	• Funding additional nursing staff and Calvary. • Consolidated operating hours should be cognisant of available resourcing, HITH capacity, community needs etc.

Source: KPMG

3.2.3 Risks

A range of risks with the Enhanced Status Quo HITH model. Consideration of these risks needs to be made prior to implementation. The risks identified during analysis and workshop discussion include:

- There is a risk that this model will not be as cost effective as some other options identified noting for example the continued duplication of some services that overlap in geographies.
- A change in medical governance may result in a loss of trust in HITH, albeit temporarily, leading to sub-optimal referral into the service by clinicians and potentially reduced access for the community.
- Inadequate training of HITH staff to provide patient care via Telehealth technology which may lead to adverse patient outcomes and potential readmission into hospital.
- Unless electronic patient medical records are available hospital-wide, there is a risk that the treating HITH team will not have access to important patient information and thus be unable to provide optimal patient care in the home setting.
- Without clear processes, policies and defined referral pathways, there continues to be a risk that the duplication and inefficiency of the current system remains in the Enhanced Status Quo model.
- Inability to recruit dedicated medical, nursing and allied health professionals may result in an inability to fully implement the Enhanced Status Quo model.
- Potential inability of patients to access other services while an inpatient, for example Medicare eligible GP visits.

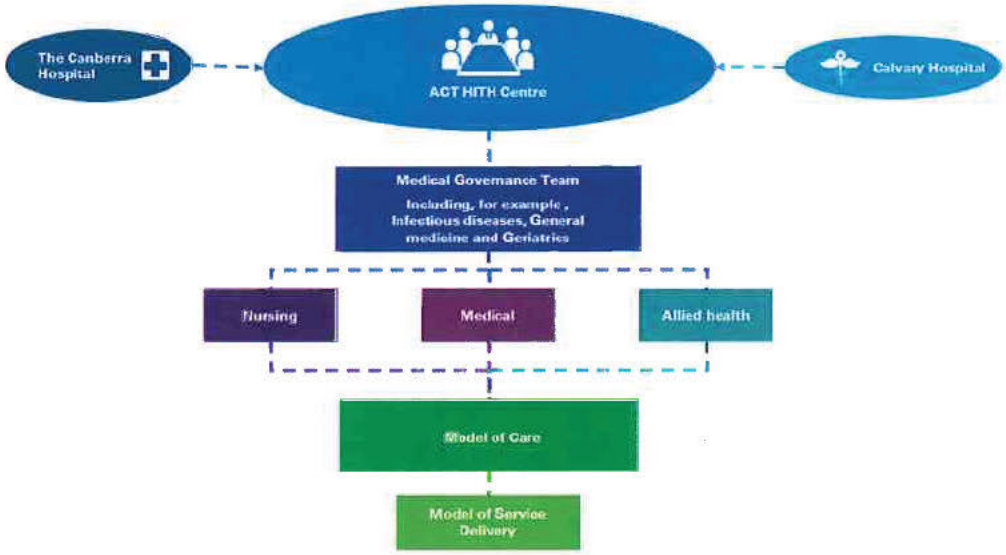
3.3 The HITH Centre

3.3.1 Overview

The HITH Centre model involves a centralised 'HITH hub' that is the home of HITH in the ACT. The HITH service would be provided by ACT Health without specific attachment to either hospital. The medical governance team would be centralised and include various specialities to ensure appropriate coverage of the HITH DRGs. The medical governance team would be supported by a mix of nursing staff, allied health and junior medical officer/(s).

Figure 3 below provides an overview of a possible HITH Centre Structure.

Figure 2: Possible HITH Centre Structure



Source: KPMG

Some example components of this model (which are further discussed on page 15) include:

- both hospitals would fund a set number of 'beds', based on service need forecasting, within the HITH centre that would make up the combined capacity of the facility;
- complete consolidation of the TCH and Calvary HITH delivery, with the centre drawing on the combined HITH staffing capabilities of the two hospitals;
- patients continue to be admitted patients under either TCH or Calvary;
- the capacity will be shared between the two hospitals depending on demand/supply availability;
- ability to consider a range of options for physical location of HITH service, including review of patients;
- a dedicated medical governance team, which may include an infectious diseases physician and possibly a general medicine specialist, emergency medicine physicians and a geriatrician, to oversee the delivery of HITH services to the ACT community; and
- access to point of care diagnostic services.

3.3.2 Benefits, challenges and implementation considerations

The proposed model also aligns to ACT Health's proposed Centres of Excellence structure, which is currently in the consultation phase, and will be implemented in July 2018.

The distinct advantage of this model is provided by the joint medical governance across a range of physician specialties. This model would also allow registrars from the ED and the physician training programs to be able to rotate through HITH as well as facilitate knowledge sharing from various physicians rotating through the service. This has the added benefit of exposing future medical staff to HITH and increasing general awareness of the service across the two hospitals.

Implementation of this model will require a significant change in the way the ACT HITH service is currently run, including a shift in several elements of the current models of care. Stakeholders noted during the review that initiatives similar to the 'HITH Centre' concept have been trialled in the past and which had unique challenges associated due to the duel hospital system in place in the ACT, for example a consolidated surgical waitlist. Prior to proceeding with implementation of this model, it is strongly advised that ACT Health consider the learnings from that and similar projects to identify common risks to the establishment of a HITH centre.

A flexible, medical governance model is essential to the successful implementation of a HITH Centre. Certain patient cohorts have specific needs with respect to medical governance. For example, surgical patients may be more appropriate to remain under the care of the referring surgeon given the nature of their needs. However, the HITH Centre should also have the capacity to admit surgical (or other) patients under a dedicated HITH consultant if clinically appropriate to do so. Providing options for medical governance will aid to increase trust and numbers of referrals into the service. Allowing referring physicians to maintain control over the patient should increase the likelihood of some physicians to referrer into the service, while providing HITH consultants to manage some patients will assist to reduce the burden on hospital physicians and will support the admission of more complex cases into HITH.

Consideration needs to be given to the ability to redeploy resources, including services such as allied health, to meet the needs of the patient. Currently if the HITH service has a short-term increase in demand, capacity across the allied health service can be reviewed and adapted to meet the current area of demand. It is assumed under this model that the HITH Centre is separate from ACT Health there is no ability to reassign resourcing from elsewhere in either hospital system.

The key elements of the proposed HITH Centre, along with their associated benefits, challenges and implementation considerations, are further explored in Table 5 below. These elements will need to be thoroughly tested prior to implementation of this model.

Table 5: Overview of the key elements, benefits, challenges and implementation considerations associated with the HITH Centre

Element of Model	Description	Benefits	Challenges	Implementation Considerations
Patient status	Inpatient (admitted)	• Medical governance of the patient is clear. • Improve patient access to additional hospital services, such as diagnostics. • Clear transition/pathway to a ward if required. •	• Continuance of funding complexities, as inpatients cannot access various funding packages such as rebatable GP visits. • This could lead to exclusion of patients from HITH (if they lose other 'at home' care services). Further clarification of the interface between other services will need to be conducted, and for those provided by ACT Health, opportunity exists for greater coordination of services and hence patient care. • HITH patients will not have access to other ACT Health funded services such as community physiotherapy.	• Ensure that staff and patients understand the funding interface between the MBS funded inpatient and other commonwealth and state funded services.
HITH Centre Structure	• The HITH Centre will be an ACT Health entity but not attached to either hospital. • The Governance of the HITH Centre will be separate from the ACT Health and Calvary executive. • There will be a multi-speciality medical governance team supported by nursing, allied health and junior medical staff.	• Reduced administrative resourcing requirements. • Consolidated, medical, nursing and allied health team all operating under the one model of care leading to decreased duplication of services. • The HITH team will have the skills and capacity to manage the majority of HITH patients without requiring additional input from other specialities or services. • supports the sustainable growth of the HITH service.	• Attracting and retaining resources for all disciplines may be difficult. • Logistics around running a Single HITH centre will be challenging with two operators (ACT Health and Little Company of Mary). • Complexity around junior doctor rotation in and out of HITH, if it's a separate entity. • Organisation of accreditation will be difficult if the HITH Centre is not part of TCH or Calvary hospital.	• Consideration should be given to the skill mix of the medical governance team. This should be considered in light of the DRGs to be treated and forecasted demands of the ACT (i.e. will the governance team include ID physicians, General Medicine physicians, Emergency Medicine physicians, Geriatricians, General Practitioners). • Skill mix of allied health and nursing should also be considered: - Identify numbers of registered nurses vs enrolled nurses; - consideration of breakdown of physiotherapists, occupational therapists, social workers etc. • Identification of skills required of board members that will oversee the HITH Centre, development of robust Terms or Reference is key.

Element of Model	Description	Benefits	Challenges	Implementation Considerations
				• Consider the broader implications of a separate entity, including hospital accreditation processes and quality assurance frameworks.
Capacity	TCH and Calvary fund a set number of beds based on forecasted needs that make up the capacity of the HITH Centre	• Funding beds will drive TCH and Calvary to ensure that those beds are utilised as much as possible, i.e. it will drive identification of patients appropriate for HITH and referral by physicians. • Forecasting requirements should ensure that there are adequate beds available to meet the needs of the ACT. • Allows increased patient numbers	• Funding the beds may hinder the HITH Centre's ability to cope with a surge in demand, i.e. an influenza outbreak in an Aged Care Facility.	• Ensure robust and tested capacity forecasting is undertaken for each hospital prior to agreeing how many beds will be funded. • This forecasting should take into account provision of services to residents in aged care facilities. • Consideration should be given as to how the service can flex during times of increased need. • Consideration should be given to flexible bed arrangements in that bed numbers are reduced over January and February and then flex up for winter demand. • Undertake a piece of work to identify which DRGs currently have a longer Length of Stay (LoS) and how HITH may support a reduction in this LoS.
Home review/care	All medical, nursing and allied health care can be provided in the home setting	• Reduced travel time for patients. • Delivers a service that is patient centric. • Accommodates for patient preference to be treated at home.	• Moving a service that is largely hospital based (with the exception of nursing) to home based will be logistically difficult noting the number of reviews that can happen in a day will decrease. • Some patients prefer to be seen in a hospital environment so this should also be accommodated.	• Consider providing the HITH services access to technology that assists in scheduling/rostering. • Provide HITH clinics at hospital campuses for those patients who prefer to have medical review at the hospital.
Access to technology	• Access to Telehealth, electronic medical records, Youtube	• Access to this technology will support the services being provided in the home environment.	• Staff may not currently have the skills to use the Telehealth technology. • Not all patients will be able to utilise these services.	• Funding to provide these mechanisms.

Element of Model	Description	Benefits	Challenges	Implementation Considerations
	and Skype will facilitate a functional HITH service for TCH and Calvary.	• These services will also facilitate the transition from the current state HITH serviced to the Enhanced Status Quo model by allowing medical and allied health professions to provide information/undertake review of patients remotely, until these services can physically happen in the home.	• Electronic medical records are not available at TCH or Calvary.	• Provide training to all HITH staff in the safe an appropriate use of these technologies. • Electronic medical records would need to be a hospital-wide (TCH and Calvary) consideration, not just for HITH.
Point of care diagnostics	• Access to point of care diagnostics (pathology and radiology) would facilitate the Enhanced Status Quo model.	• Allow for definitive diagnosis in the home setting (including residential aged care facilities). This will facilitate admission to HITH without attending the ED or hospital ward.	• Lack of capacity to offer this service within ACT Health, • Lack of interest from third parties to provide a mobile diagnostic service.	• Funding for a mobile diagnostic services within ACT Health. • Consider creating financial incentives for third parties to establish a mobile diagnostic service in the ACT.

3.3.3 Risks

A range of risks have been identified during review, consultation and analysis that require consideration prior to implementation, should this be the model with which ACT Health proceeds. Some of the risks are similar to those identified in the Status Quo HITH model and have been repeated here for completeness. The risks include:

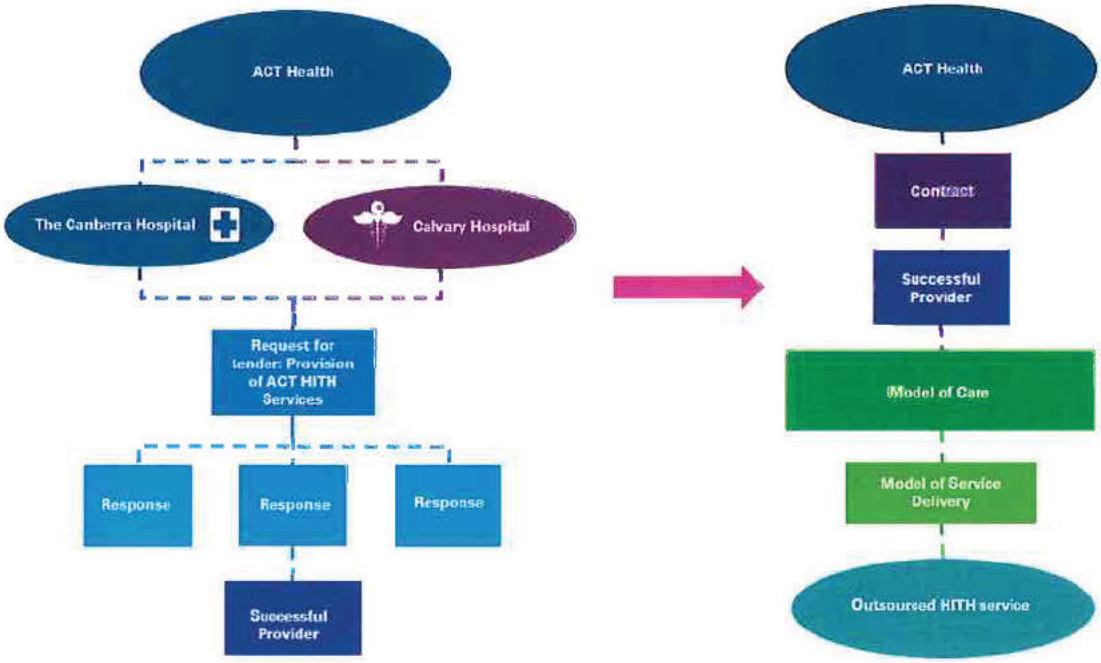
- The establishment of the entity of a HITH Centre, separate from TCH and Calvary, could lead to:
  - inability in providing cover when staff are on leave;
  - inconsistent education, training, clinical supervision; and
  - unable to adjust capacity to meet demand within the HITH service.
- Administrative governance complexities involved in running a single HITH entity with two governing bodies (ACT Health and the Little Company of Mary) could lead to a breakdown in services, reducing the quality and timeliness of patient care.
- Staff may be inadequately trained to provide patient care via Telehealth technology which may lead to adverse patient outcomes and potential readmission into hospital.
- Unless electronic patient medical records are available hospital-wide, there is a risk that the treating HITH team will not have access to important patient information and thus be unable to provide optimal patient care in the home setting.
- Without defined and well communicated referral pathways, there is a risk that there will be sub-optimal utilisation of HITH amongst referring physicians, especially if the Centre sits outside of TCH and Calvary.
- Potential inability of patients to access other services while an inpatient, for example Medicare eligible GP visits.

3.4 Fully Outsourced

3.4.1 Overview

The fully outsourced model involves ACT Health procuring and funding a third party service provider to provide the entire HITH service to the ACT community.

Figure 3: Example model of an outsourced HITH service



Source: KPMG

Some example components of this model include:

- ACT Health in a contract management role;
- consolidated HITH model;
- patients are considered non-admitted;
- medical governance is provided by the third party; and
- medical, nursing and allied health services would be provided by the third party.

3.4.2 Benefits, challenges and implementation consideration

The model was analysed to determine the key benefits and challenges as well as to detail what needs to be considered for implementation. Outsourcing of a HITH service draws a unique set of benefits and challenges. WA has outsourced some components of their HITH service to a community service provider, SilverChain. Under this model, patients are treated as outpatients and a shared-care clinical governance exists with patients admitted under a hospital specialist, where they remain under the hospital specialist's care while in HITH, but after hours care is provided by SilverChain GPs. The outsourced model addresses some of the funding complexities associated with the hospital-based model. The outsourced model addresses some of the funding complexities associated with the hospital-run model. However, it has complex clinical governance, with dispersed roles between the service provider and State Government.

As with all models, there are many considerations that should be given appropriate thought prior to implementation. One significant consideration with the outsourcing model is that, given the size of ACT as a jurisdiction, there are potential workforce risks associated with outsourcing a HITH service as it increases competition in the employment market. If this outsourced model provide conditions that are competitive with those of the public sector, there is a risk that workforce supply will come from the public sector and therefore impact on the service provided at either or both hospitals. This could be problematic in a jurisdiction in which stakeholders report difficulty in attracting and retaining health professionals.

To implement a successful outsourced HITH model, ACT Health would need to execute a detailed contract that considers patient safety, quality assurance, funding arrangement and performance measures that are integral to service delivery. The unique elements of an outsourced ACT HITH service, including their associated benefits, challenges and implementation considerations, is summarised in Table 6 below.

Table 6: Overview of the key elements, benefits, challenges and implementation considerations associated with an outsourced HITH service

Element of Model	Description	Benefits	Challenges	Implementation Considerations
Delineation of responsibility	ACT Health assumes a contract management role and the third party is responsible for all other aspects of the delivery of HITH in the ACT.	• ACT does not take on the burden of resourcing a HITH service, including recruitment, staff training and patient care. Current HITH resources can be utilised elsewhere in the ACT Health system.	• ACT Health has limited control and oversight as to the safety, quality and delivery of the service. • Reactivity is compromised because of the need to negotiate contract changes • There would be a need to restart the process of building trust. • Difficulties will remain with driving patient numbers in HITH and ACT Health will have little ability to assist in addressing this in an outsourced model.	• In drafting a contract ACT Health should be cognisant of including specifics in the contract to ensure the HITH service is delivered as intended and is achieving desired patient outcomes.
HITH Medical Governance	ACT Health can specify requirements for medical skill mix and governance arrangements in the contract.	• ACT Health can control, through a contract, the skill mix and qualifications of the medical governance team.	• ACT Health has limited control over the quality or execution of the medical governance. • There could be overlap/confusion regarding medical governance if a patient requires access to hospital services while an outpatient of HITH.	• In drafting a contract ACT Health should specify the skill mix and structure of medical governance based on forecasted need and predominant DRGs. • Ensure, via a contract, that the medical governance is such that there is one physician responsible for the patient care for the duration of their stay in HITH. • Define clear and accessible pathways for outpatients of the HITH service to access hospital specialities as needed.
Patient Status	Non-admitted	• Reduces complexities associated with accessing funding outside the hospital that would exist for patients considered to be inpatients. • Decrease length of stay for inpatients of the hospital (given that they will be	• Difficulty accessing hospital services when required. • The HITH service may have difficulty accessing input from subspecialties as required. • Medical governance can become complex, pending the model established	• Define clear pathways for access to hospital services as required. • Specify a desired medical governance structure in the contract.

Element of Model	Description	Benefits	Challenges	Implementation Considerations
		discharged and considered outpatients for the duration of their stay in HITH.	by the third party. For example if they only employ GPs but the patients need specialist care, there may be a question over who will have overall responsibility for the patient.	

Source: KPMG

3.4.3 Risks

The primary risk to outsourcing any health service is the fundamental loss of control. This, along with reputational damage to the engaging party, ACT Health, would need to be considered should this model be progressed.

A primary component of a HITH service is the ability to react quickly in the case of an emergency, endemic/pandemic or to address evolving patient needs. ACT Health would lose its ability to react in a way that addresses immediate need under an outsourced model. It is assumed that any change to service provision would require a contract amendment, and whilst clauses could be negotiated to facilitate ongoing change, an increase in time to adapt or react would be expected.

Creating a competitive health workforce is also a risk associated with outsourcing a HITH service, especially noting the size of the ACT and the current difficulties ACT Health is facing attracting and retaining health professionals.

A specialised skillset is required to develop, execute and manage a complex contract similar to that which would be required to outsource a HITH contract. There is a risk of having a sub-par HITH program if the required skills are not available within ACT Health.

3.5 Cost considerations

Consultation with key stakeholders from TCH and Calvary indicated that medical, nursing and allied health resourcing requirements for the Enhanced Status Quo and the HITH Centre would be similar. We have undertaken a preliminary staff costing of these two models. Further cost modelling should be undertaken to understand the resourcing requirements of the Enhanced Status Quo and HITH Centre models. Due to the risk and complexity associated with the outsourced model and the need to thoroughly market test the model prior to implementation, no costing has been undertaken for this model.

Table 7 reports the current resourcing mix compared with the Enhanced Status Quo and HITH Centre options, while the proposed options have the same resourcing requirements for medical, nursing and allied health, that is, the patient facing services. The shared administration and governance of the HITH Centre presents a potential opportunity to decrease costs compared to the Enhanced Status Quo. Both options represent a significantly higher investment in the HITH service than the current resource model. This is linked to increases nursing, allied health and medical resources.

Table 7: Current resource mix compared with alternative options

	Current model		Enhanced Status Quo and HITH Centre	
Staff	TCH	Calvary	TCH	Calvary
Pharmacy	64,260	25,704	64,260	64,260
Nursing	2,622,667	562,349	3,547,855	2,191,473
Medical	251,670	368,643	854,804	711,547
Allied Health	64,260	25,704	570,966	319,069
Admin			118,805	
Total	3,002,857	982,400	5,156,690	3,286,350

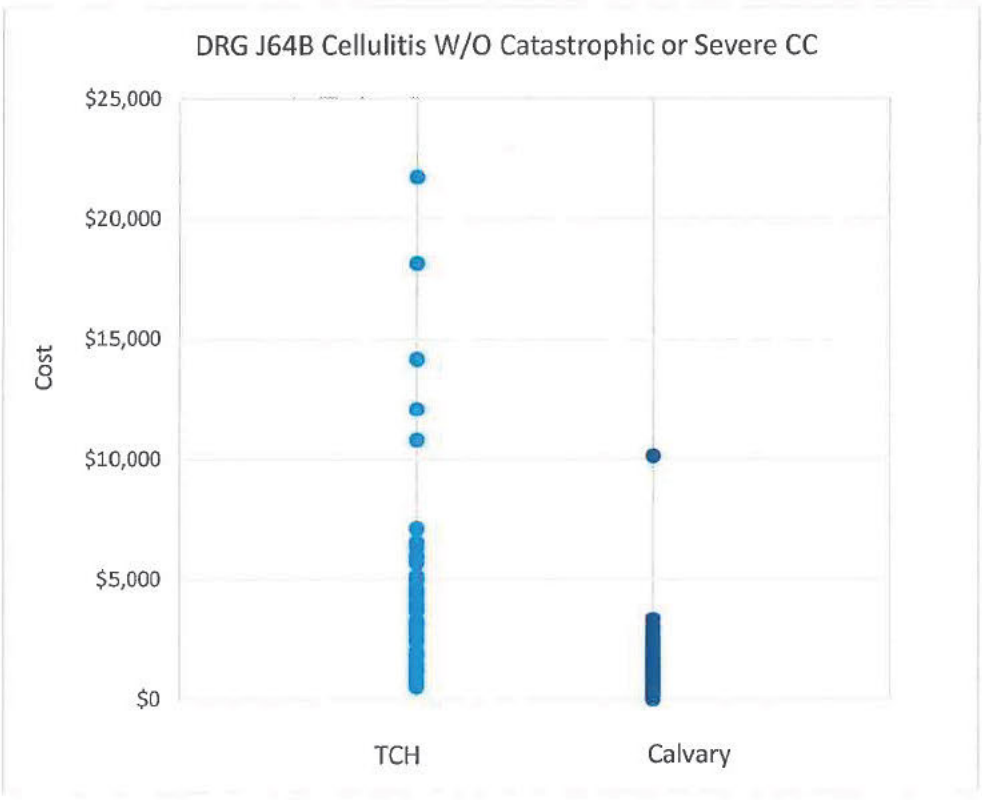
Source: ACT Treasury on-cost model (2017-18 rates)

Table 8: Resourcing by profession

Enhanced Status Quo and HITH Centre		
Resourcing	**TCH (FTE)**	**Calvary (FTE)**
Medical		
Consultant/ Staff Specialist	2	1.5
Registrar	1	1
JMO	2	2
Nursing		
RN1	15	7
RN2	10	7
EN	5	6
Allied Health		
Pharmacist	1	0.5
Physiotherapy	1	0.5
Occupational Therapy	1	0.5
Social Work	1	0.5
Dietetics	0.2	0.2
Speech Pathologist	0.2	0.2

While the proposed options represent an increased investment by ACT Health in HITH service delivery, there are opportunities to improve the cost effectiveness of current services at the DRG level. For example, Figure 5 illustrates the differences in cost for a common DRG across TCH and Calvary. One of the key benefits of the Enhanced Status Quo and HITH Centre options is improved consistency in how HITH services are delivered, through the implementation of a simpler governance framework and more streamlined referral pathways. This may also lead to increased throughput and hospital diversion, leading to better cost outcomes.

Figure 4: Differences in cost for DRG J64B at TCH and Calvary, 2015-16



Source: ACT Health	TCH	Calvary
Separations	82	142
Average cost	$3,799	$1,155

DRG profile

Analysis of separations by DRG for 2016-17 indicate that there were 241 different DRGs across both hospitals which had a component of HITH service. Of this, 108 DRGs had one or less associated separations. TCH had a much more diverse range of DRGs (193 versus 126). A full list of DRGs and separations by hospital is provided in Appendix 5.

Referral source

Table 9 reports the number source of referral by hospital. Approximately two-thirds of referrals are via the emergency department at both campuses. At Calvary, the remaining third of referrals (31 per cent) are via a medical practitioner. At TCH, the balance of referrals are through medical practitioner (18 per cent) and The Canberra Hospital (8 per cent).

Table 9: Source of referral by hospital, 2016-17

	Calvary		TCH		Total	
Referral source	**#**	**%**	**#**	**%**	**#**	**%**
Calvary Private Hospital	5	1%	2	0%	7	1%
Calvary Public Hospital	17	2%	10	2%	27	2%
Community Health Centre or Service	2	0%		0%	2	0%
Emergency Department	439	64%	406	65%	845	65%
John James Memorial Hospital		0%	7	1%	7	1%
Medical Practitioner	212	31%	114	18%	326	25%
Non-ACT Hospital		0%	1	0%	1	0%
NSW hospital		0%	7	1%	7	1%
Other ACT Hospital		0%	7	1%	7	1%
Self, family, friend, neighbour	1	0%	3	0%	4	0%
The Canberra Hospital	10	1%	47	8%	57	4%
The National Capital Private Hospital	1	0%	15	2%	16	1%
Unknown / not stated		0%	2	0%	2	0%
Grand Total	**687**	**100.00%**	**621**	**100.00%**	**1308**	**100.00%**

4 Options summary

As outlined in the previous chapter, each of the three options have individual benefits and challenges. The table below summarises the findings of the current state analysis and which options address those gaps.

Table 10: Summary of findings and options

Findings	Enhanced Status Quo	HITH Centre	Outsourced
TCH and Calvary operate different HITH models, the most notable difference being the clinical governance structures.	□	✓	✓*
The catchment area for both services has significant overlap.	□	✓	✓
Resourcing constraints in both services have resulted in a lack of capacity to offer medical and allied health care in the home environment.	✓	✓	✓
Admission to HITH requires definitive diagnostics, yet there are currently no point of care diagnostic services available in the ACT.	✓	✓	×
Current funding complexities between the State and Commonwealth can result in sub-optimal uptake of HITH services.	×	×	✓
There is currently a lack of awareness amongst physicians of the HITH service, resulting in sub-optimal utilisation the service. Some physicians appear reluctant to refer into the service for fear or 'losing control' of their patient.	✓	✓	×
There is a significant cost divergence between the TCH and Calvary HITH services.	×	✓	✓
* will result in one governance structure, however the structure in an outsourced model has greater risk within the governance framework.			
□ partly addresses			

Source: KPNG

All three options have addressed a significant number of the gaps in the current HITH service provided in the ACT. Each provide a range of benefits for patients in the Territory, and deliver a range of challenges, implementation and risk considerations going forward for ACT Health. On balance, the HITH Centre is considered the preferred option, noting that if fully implemented, it will most efficiently address the objectives of the ACT HITH service and will lead to a streamlined Territory-wide service.

5 Recommendations

During consultation and workshop validation, participants from TCH, Calvary and ACT Health prioritised three future-state HITH models, in order from highest to lowest:

1. HITH Centre
2. Enhanced Status Quo
3. Fully outsourced

Cognisant of this outcome and what is considered agreed best practice, it is recommended that ACT Health undertake a staged approach to improving the ACT HITH service.

It is recommended that ACT Health undertake additional planning and analysis to support implementation of a HITH Centre, governed at a Territory-wide level.

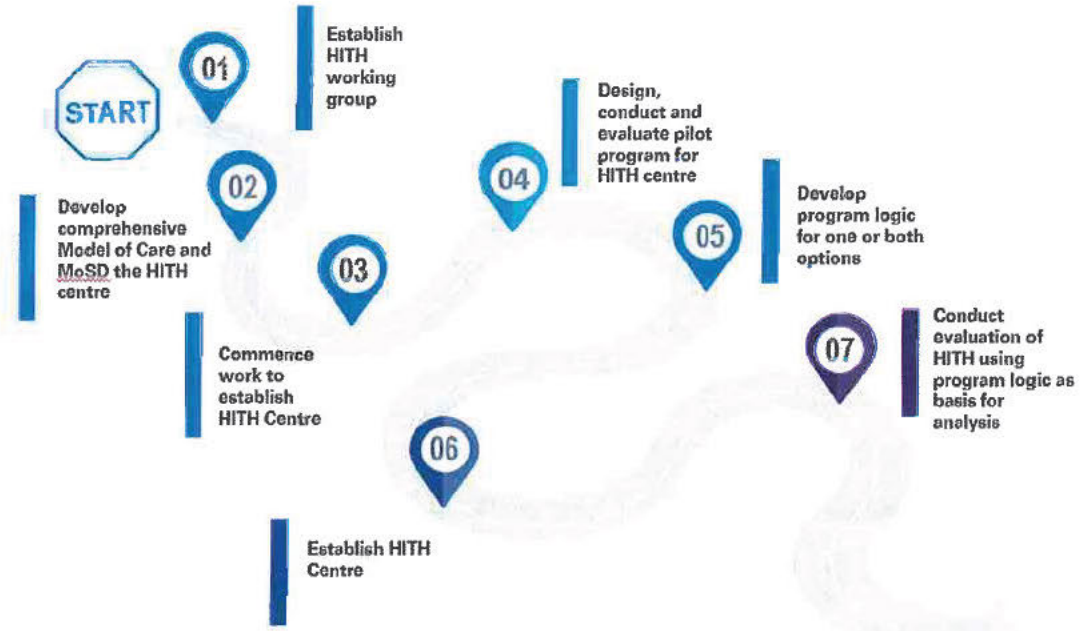
This recommendation has been made considering the risks, benefits, complexity of and time to implement each future state HITH model. The Fully outsourced model is not recommended due to the challenges and risks identified earlier in this report. If ACT Health decide to accept this recommendation, there are several short-term considerations that need to be given appropriate consideration, such as:

- gaining access to allied health;
- analysis of currently treated DRGs at both hospitals (admitted to hospital and HITH), to assist in identifying the types of conditions that should be treated in HITH, and develop pathways to support their transfer to HITH;
- arranging for more timely and point of care diagnostics.

The purpose of this report is to provide a high-level overview of each model. Further research and analysis will need to be conducted to inform the design of a comprehensive Model for the HITH Centre. It is also recommended that an implementation plan is developed along with a plan to pilot the preferred option and a program logic tool to evaluate its impact and success.

A roadmap of the phased in approach to a future state HITH centre is included at Figure 6 and include several key activities which have been identified and are discussed in detail below.

Figure 5: Proposed implementation roadmap



Source: KPMG

Utilising the recommended HITH Working Group, ACT Health should consider an implementation plan that looks establishing a HITH Centre model for the ACT within the next 6 to 12 months. This approach will address several of the current gaps in the HITH service while creating a foundation for a streamlined HITH Centre for the future.

5.1.1 Establish a HITH working group

Noting the significant amount of work that needs to be undertaken to further explore and analyse the three potential options and their individual elements, it is recommended that ACT Health establish a HITH Working Group, whose scope would include analysis of the resourcing and implementation requirements of a future HITH model. The Working Group should include TCH and Calvary HITH representatives as well as other stakeholders, ideally who have been involved in this project. The working group would guide and advise the analysis, planning and implementation of a future state HITH service.

5.1.2 Develop a comprehensive Model of Care for a HITH Centre.

Conduct a comprehensive analysis and review to inform an operational Model of Care and Model of Service Delivery for a HITH Centre. This work needs to expand on the high-level detail provided in this report and enable the establishment of a HITH model with clear governance, description of service, detail of resourcing and complete costing of each model. This needs to also include analysis of existing and future throughput by individual DRG level. This work should aim to identify the DRGs that are currently not flowing through the HITH service and thus identify opportunities for ACT Health to reduce the LoS of those DRGs. This report in conjunction with the *Current State Analysis* identifies the initial 'case for change' and quantifies the extent of the issue, inefficiencies of continuing business as usual and proposes a model for improved service. However the is additional work that needs to be undertaken prior to implementation. Figure 7 below provides an overview of the follow-on activities to be undertaken in order to develop a comprehensive model of care for ACT HITH.

Figure 6: Follow on activities to develop a HITH Model of Care

Source: KPMG

5.1.3 Commence work to establish HITH Centre

It is recommended that the HITH Working group commence work on the structure and implementation plan for the HITH centre as soon as possible given the complexities identified as part of this review. Table 11 below outlines the suggested activities to implement the HITH Centre.

Table 11: Proposed HITH Centre implementation activities

Recommendation	Related activity/activities and link to pilot (if applicable)
Establishment of a HITH Centre	1. Establish a working group to drive the implementation of the HITH Centre pilot program.
	2. Undertake a mapping exercise of current HITH support and coordination functions that should be convened through the HITH Centre.
	3. Identify and confirm additional services that need to be supported/coordinated via the HITH Centre for the purposes of the pilot (based on feasibility, potential for most improvement and cost impact).
	4. For the pilot program, identify an existing resource base / function, e.g. the status quo resourcing to act as the HITH Centre.
	5. Based on the assessment of services to be provided through the HITH Centre and existing capacity within the chosen resource / function acting as the HITH Centre, provide additional support as required, e.g. additional resourcing, access to specialists.
	6. Develop a HITH governance and management framework between all parties utilising its services for the purposes of the pilot. This will include a set of localised protocols (based on existing Health Pathways information) to support referral, shared care and discharge planning for HITH patients, which will also include details on the role of the HITH Centre in supporting these activities.
	7. Develop and implement a change management strategy to assist pilot participants in understanding the function of the HITH Centre and how to utilise its capabilities.
	8. Evaluate the impact of the HITH Centre, identify potential strengths / weaknesses following the pilot including a cost / benefit analysis (considering the health system as well as individual implications).

Source: KPMG

5.1.4 Design, conduct and evaluate pilot program

ACT Health should consider conducting a formal pilot of the HITH Centre limited to a small range of DRGs or patient cohort to allow elements of the model to be tested prior to complete roll-out. The working group would provide the governance for this pilot, evaluate the outcomes and use these to inform the elements of the future HITH Centre.

5.1.5 Develop program logic

Incorporating program logic into the overall HITH project will provide ACT Health with an explicit, upfront tool for evaluation of the overall success of the program.

5.1.6 Establish HITH Centre

This stage of the implementation plan is when a joint-governed HITH Centre is established that delivers enhanced patient care and meets the objectives of HITH as identified by stakeholders during this review and the broader objectives of ACT Health.

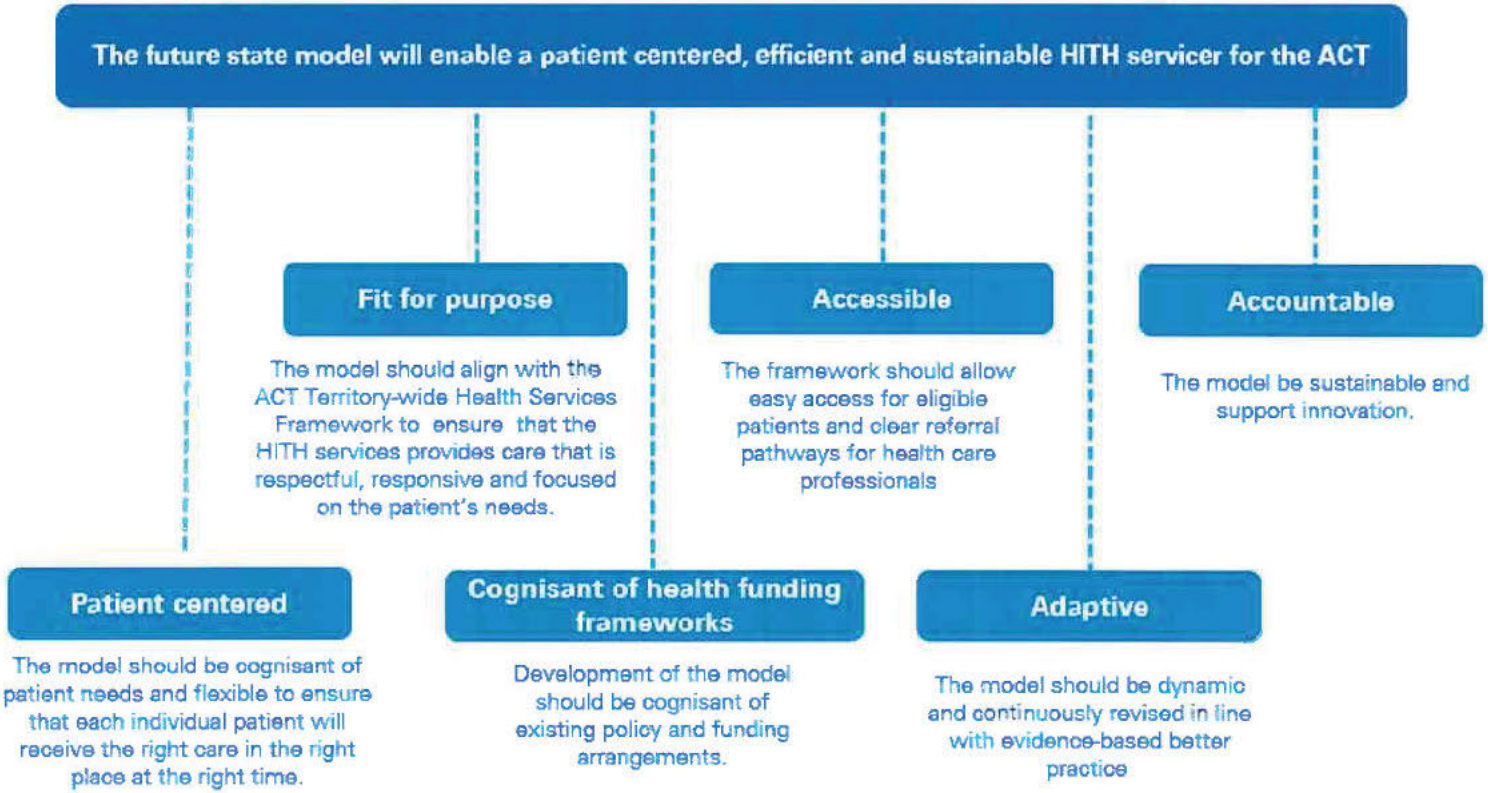
5.1.7 Conduct evaluation of HITH program

Evaluation of the new Models of Care for HITH needs to be incorporated in the implementation plan from the beginning of the project. This will ensure that, at a set point in time, a review is conducted that the objectives identified have been met and that any gaps will inform adjustment to the model of care.

Appendix 1 - Stakeholder consultation list

Name	Designation
Dr Karyn Cuthbert	Director of HITH for Calvary hospital
Dr Anil Paramadhathil	Unit Director, Geriatrician
Prof Walter Abhayaratna	Public Cardiologist, Canberra Hospital
Wendy Mossman	ADON, Ambulatory Services
Kerry Boyd	Director of Allied Health
Dr Julie Carr	GP Liaison Unit (Calvary)
Morag McNair	CNC, GP Liaison Unit (Calvary)
Nick Coatsworth	Unit Director Infectious Diseases
Stuart Schembri	Unit Director Respiratory and Sleep Medicine
Chris Nolan	Unit Director Diabetes/Endocrinology
Ashwin Swaminathan	Unit Director General Medicine
Paul Dugdale	Unit Director Chronic Disease Management
Kellie Noffke	Director of Nursing
Louisa Andrews	CNC, HITH
Sanjaya Senanayake	Unit Director, HITH
Tami Murrells	Critical Care Clinical Stream Nursing Director
Ms Vicki Kelly	Health at Home CNC
Julie Andrew	Clinical Development Nurse, HITH
Margot Green	Director Physio Acute Support
Beth (Elizabeth) Forbes	CNC Chronic Care Program
Jillian Davies	Assistant Director of Nursing Surgery and Oral Health
Deanne Cole	CNC EDSU
Maxine Scicluna	Director Community Care Program
Lynne O'Connell	ADON bed management
Chong Wei	Infectious Diseases, Consultant
Julie Porritt	Capital Health Network
Anais Le Gall	Capital Health Network
Kate Gorman	Health Care Consumers Association
Sally Deacon	Health Care Consumers Association
Dr Lisa Bell	HITH Consultant Calvary

Appendix 2 - Design principles



Appendix 3 - HITH in the ACT

Typically, conditions treated in HITH are relatively uncomplicated diagnoses with well-defined management that is safe to deliver in the home environment. In general, some of the conditions that are able to be managed by HITH include:

- cellulitis;
- pneumonia;
- urinary tract infection; and
- acute exacerbation of chronic obstructive pulmonary disease.

Evidence suggests that management of patients in their home environment through HITH results in improved patient outcomes when compared to those in the hospital environment[3]. In particular, HITH is associated with reduced length of stay in hospital, decreased mortality and readmission rate, and lower costs[4]. Patient and carer satisfaction is also increased in a HITH service as opposed to a hospital setting[5]. Furthermore, increasing evidence of nosocomial infection in vulnerable populations have been observed in the hospital settings[6], contributing to the support for more management of conditions within the home environment where possible. In addition, a drive toward economic efficiency resulting from increased demand for healthcare services and a desire to include patient preferences[7] have led to a growing number of HITH services in Australia and internationally.

Most Australian jurisdictions have established HITH programs. HITH is typically staffed by a mix of medical officers and registered nurses, who are highly experienced practitioners and deliver acute care seven days a week with an on call service overnight. They are supported by guidelines which determine a patient's eligibility into a HITH program, management once in HITH and also ensure the safety of the patient, their family and HITH staff.

The Australian Capital Territory (ACT) is serviced by two HITH programs, one of which is operated from The Canberra Hospital (TCH) and the second from Calvary Hospital. Details of these programs are outlined in the subsequent section.

---

3 Hall J, Feldstein M, Fretwell M. Older patients' health status and satisfaction with medical care in an HMO population. Med Care 1990; Issue 28, pp. 261-270

4 Shepperd S, Doll H, Angus RM, Clarke MJ, Iliffe S, Kalra L, Ricauda NA, Wilson AD 2008, 'Admission avoidance hospital at home', Cochrane Database of Systematic Reviews, Issue 4

5 Leff B, Burton L, Mader S, et al. Satisfaction with hospital at home care. J Am Geriatr Soc 2006; 54: 1355-1363.

6 Fretwell M. Acute hospital care for frail older patients. In: Hazzard W, Andres R, Bierman EJP, editors. Principles of geriatric medicine and gerontology 2nd edition. New York: McGraw-Hill; 1990. p. 247-253

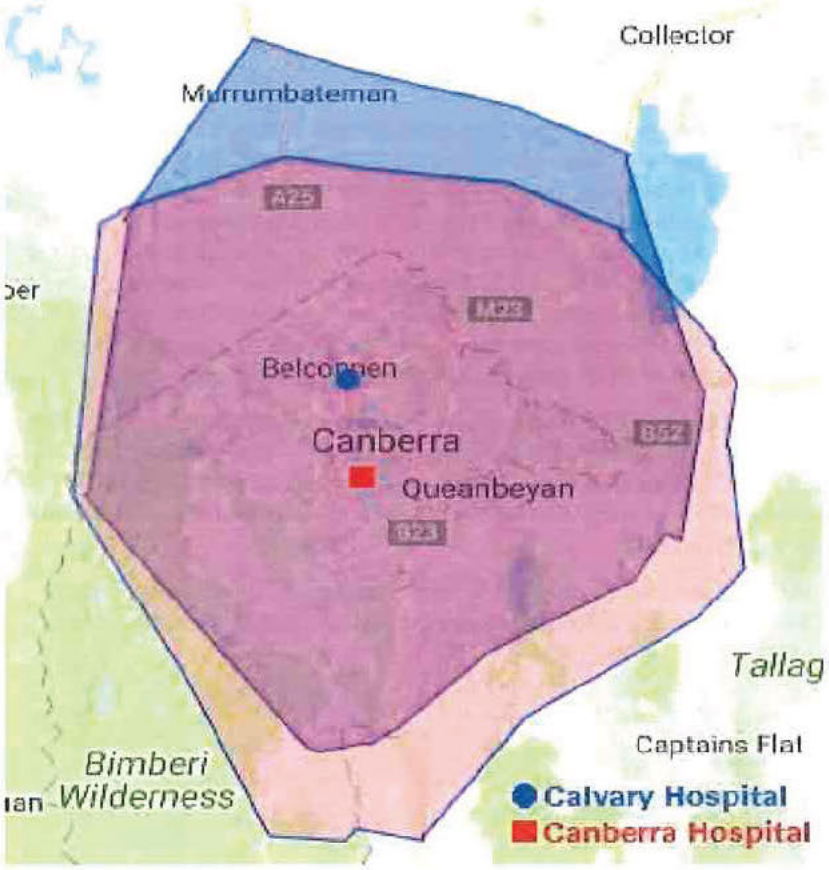
7 Montalto M 2010, 'The 500 bed hospital that isn't there: the Victorian Department of Health review of the Hospital in the Home program', Medical Journal of Australia, 193(10): 598-601.

Models of Care

This section provides an overview of the TCH and Calvary HITH models of care, including a high level comparison of the two services, to highlight the key similarities and differences.

TCH and Calvary both service a catchment area within 45 minutes' drive of the respective hospital base. This results in significant overlap of service area as depicted in Figure 8. This map has been created based on an average speed of 60km/h and a travel time of 45 minutes.

Figure 7: TCH and Calvary HITH catchment.



Source: https://www.freemaptools.com/how-far-can-i-travel.htm

In TCH, HITH provides care in the home setting, for acute conditions requiring medical treatment, monitoring and/or input that would otherwise require care and management in a traditional inpatient bed.[8] It encompasses a MDU and HITH. The MDU is a day-only admitted inpatient service, with patients admitted to receive a range of treatments, including intravenous infusions for chronic medical conditions. The review and analysis conducted for this report did not include the MDU services at TCH as it is understood that its affiliation with TCH HITH is historical and, for all intents and purposes, is not considered a HITH service by definition.

The TCH HITH service is a specialist model, with no dedicated treating HITH physicians. Admitting doctors belong to the treatment team under which the patient receives inpatient care.

Conversely, Calvary, HITH admits patients from acute care and the admitting physician is a HITH consultant or HITH Career Medical Officer (CMO). This is a 'generalist' model of HITH care and varies from TCH which has the specialist consultant and admitting physician maintain responsibility for the patient throughout the stay in the HITH program.

[8]Hospital in The Home TCH - Service Overview Notes, Canberra Hospital HITH Team, 2017.

Appendix 4 - Assessment of options

Assessment of long list of options

No.	Criteria	Weighting	Status Quo	Enhanced Status Quo	Hybrid Model	HITH Centre	Outsourced
1	The ACT community has access to a territory-wide model	3	1	3	1	4	4
2	The HITH service delivers safe and patient centered care	3	2	3	1	3	2
3	Continuance of clinically appropriate treatment	3	3	3	2	3	2
4	The HITH services allows for clear referral pathways and smooth transitions in and out	2	2	3	2	3	3
5	Cost Effective	2	2	2	1	3	4
6	Sustainable	2	2	2	1	4	3
7	Integrated and coordinated service	1	1	2	1	2	2
8	Supports innovation	1	1	2	1	3	3
9	Simple governance framework	2	1	1	1	3	2
10	Ease of implementation						
	Score		16	21	11	28	25
	Weighted Score		34	47	24	61	53

Assessment of long list of options

No.	Criteria	Weighting	Enhanced Status Quo	HITH Centre	Outsourced
1	The ACT community has access to a territory-wide model	3	4	4	4
2	The HITH service delivers safe and patient centered care	3	4	4	2
3	*Continuance of clinically appropriate treatment*	3	3	3	2
4	The HITH services allows for clear referral pathways and smooth transitions in and out	2	4	4	3
5	Cost Effective	2	3	4	3
6	Sustainable	2	3	4	3
7	*Integrated and coordinated service*	1	3	3	3
8	Supports innovation	1	3	4	3
9	Simple governance framework	2	2	3	2
10	Ease of implementation	2	3	2	1
Score			32	35	26
Weighted Score			69	74	54

Scoring	Description
4	Completely fulfils
3	Mostly fulfils
2	Partially fulfils
1	Does not fulfil

Appendix 5 - DRG Profile

Separations by DRG and hospital, 2016-17

DRG	Calvary	TCH
Abdominal Pain or Mesenteric Adenitis	1	2
Acute and Major Eye Infections W CC	1	
Acute and Major Eye Infections W/O CC		3
Aftercare of Musculoskeletal Implants/Prostheses W Catastrophic or Severe CC		2
Aftercare of Musculoskeletal Implants/Prostheses W/O Cat or Sev CC	3	17
Allergic Reactions	1	
Amputation		1
Anal and Stomal Procedures	1	4
Antenatal and Other Obstetric Admission		2
Antenatal and Other Obstetric Admission, Sameday	46	
Appendicectomy W Malignancy or Peritonitis or W Catastrophic or Severe CC		2
Arrhythmia, Cardiac Arrest and Conduction Disorders W/O Cat or Sev CC	3	1
Benign Prostatic Hypertrophy		2
Bone Diseases and Arthropathies W Catastrophic or Severe CC	1	
Bone Diseases and Arthropathies W/O Catastrophic or Severe CC	1	1
Bronchitis and Asthma W/O CC		1
Caesarean Delivery W Catastrophic CC		3
Cellulitis W Catastrophic or Severe CC	23	20
Cellulitis W/O Catastrophic or Severe CC	144	85
Chest Pain	1	
Chronic and Unspecified Paraplegia/Quadriplegia W or W/O OR Pr W/O Cat/Sev CC	2	
Chronic and Unspecified Paraplegia/Quadriplegia W or W/O OR Procs W Cat CC	1	
Chronic and Unspecified Paraplegia/Quadriplegia W or W/O OR Procs W Severe CC		2
Chronic Obstructive Airways Disease W Catastrophic CC	1	8
Chronic Obstructive Airways Disease W/O Catastrophic CC	5	5
Circulatory Disorders W AMI W Invasive Cardiac Inves Proc W Cat or Sev CC		1
Circulatory Disorders W AMI W/O Invasive Cardiac Inves Pr W/O Catastrophic CC	1	
Circulatory Disorders W/O AMI W Invasive Cardiac Inves Proc W Cat or Sev CC		1
Circulatory System Diagnosis W Non-Invasive Ventilation	2	
Coagulation Disorders	6	1
Colonoscopy W Catastrophic or Severe CC		1
Complex Gastroscopy W Catastrophic CC	1	
Cranial and Peripheral Nerve Disorders W/O CC	1	
Cranial Procedures W Catastrophic CC		1
Cystic Fibrosis W Catastrophic or Severe CC		1
Cystic Fibrosis W/O Catastrophic or Severe CC	1	7
Degenerative Nervous System Disorders W Catastrophic or Severe CC	4	
Degenerative Nervous System Disorders W/O CC	8	
Delirium W/O Catastrophic CC		1
Dementia and Other Chronic Disturbances of Cerebral Function	2	

DRG	Calvary	TCH
Diabetes W Catastrophic or Severe CC	1	1
Diabetes W/O Catastrophic or Severe CC	3	
Diagnostic Curettage or Diagnostic Hysteroscopy	1	
Digestive Malignancy W/O Catastrophic CC		1
Disorders of Liver Excep Malig, Cirrhosis, Alcoholic Hepatitis W/O Cat/Sev CC	2	4
Disorders of Liver Except Malig, Cirrhosis, Alcoholic Hepatitis W Cat/Sev CC		1
Disorders of Pancreas Except for Malignancy W Catastrophic or Severe CC	1	1
Disorders of the Biliary Tract W CC	1	1
Disorders of the Biliary Tract W/O CC	1	1
Eating and Obsessive-Compulsive Disorders		3
Endocrine Disorders W Catastrophic or Severe CC	2	
Fever of Unknown Origin W CC	2	3
Fever of Unknown Origin W/O CC		2
Hand Procedures		2
Head and Neck Procedures W/O Malignancy W/O CC		1
Heart Failure and Shock W Catastrophic CC	3	
Heart Failure and Shock W/O Catastrophic CC	2	3
Hernia Procedures W CC		1
Hip Revision W Catastrophic CC		2
Hip Revision W/O Catastrophic CC		1
HIV-Related Diseases W Catastrophic CC		1
Humerus, Tibia, Fibula and Ankle Procedures W CC		2
Humerus, Tibia, Fibula and Ankle Procedures W/O CC		1
Hypertension W Catastrophic or Severe CC		1
Infect/Inflam of Bone and Joint W Misc Musculoskeletal Procs W Cat CC		5
Infect/Inflam of Bone and Joint W Misc Musculoskeletal Procs W Sev or Mod CC		7
Infect/Inflam of Bone and Joint W Misc Musculoskeletal Procs W/O CC		14
Infective Endocarditis W Catastrophic CC	1	5
Infective Endocarditis W/O Catastrophic CC	3	7
Inflammation of the Male Reproductive System		6
Inflammatory Musculoskeletal Disorders W Cat or Sev CC		1
Inflammatory Musculoskeletal Disorders W/O Cat or Sev CC		2
Injuries W Catastrophic or Severe CC	3	3
Injuries W/O Catastrophic or Severe CC	1	2
Injury to Forearm, Wrist, Hand or Foot	2	
Injury to Shoulder, Arm, Elbow, Knee, Leg or Ankle W CC		1
Interstitial Lung Disease W Severe or Moderate CC		1
Interventional Coronary Procedures W AMI W/O Catastrophic CC		3
Intracranial Injury W Catastrophic or Severe CC	1	
Kidney and Urinary Tract Infections W Catastrophic or Severe CC	17	4
Kidney and Urinary Tract Infections W/O Catastrophic or Severe CC	42	15
Kidney and Urinary Tract Neoplasms W/O Catastrophic or Severe CC		1
Kidney and Urinary Tract Signs and Symptoms W/O Catastrophic or Severe CC		1
Kidney, Ureter & Major Bladder Procedures for Non-Neoplasm W Catastrophic CC		1
Kidney, Ureter & Major Bladder Procedures for Non-Neoplasm W/O Cat or Sev CC		1

DRG	Calvary	TCH
Kidney, Ureter and Major Bladder Procedures for Non-Neoplasm W Severe CC		1
Knee Replacement W/O Catastrophic or Severe CC		1
Knee Revision W Severe CC		1
Knee Revision W/O Catastrophic or Severe CC		1
Laparoscopic Cholecystectomy W Closed CDE or W (Cat or Sev CC)		1
Laparoscopic Cholecystectomy W/O Closed CDE W/O Cat or Sev CC	1	
Local Excision and Removal of Internal Fixation Devices Excl Hip and Femur		2
Lower Limb Procs W Ulcer/Cellulitis W Catastrophic CC		1
Lower Limb Procs W Ulcer/Cellulitis W/O Cat CC W/O Skin Graft/Flap Repair		2
Major Biliary Tract Procedures W Catastrophic CC		1
Major Chest Procedures W Catastrophic CC		2
Major Procedures for Malignant Breast Conditions	2	
Major Reconstruct Vascular Procedures W/O CPB Pump W Catastrophic CC		1
Major Skin Disorders W/O Catastrophic or Severe CC	5	1
Major Skin Disorders, Sameday	1	
Major Small and Large Bowel Procedures W Catastrophic CC		1
Major Small and Large Bowel Procedures W/O Catastrophic CC		1
Malignancy of Hepatobiliary System, Pancreas W/O Catastrophic CC		1
Malignancy, Male Reproductive System W Catastrophic or Severe CC	1	
Malignancy, Male Reproductive System W/O Catastrophic or Severe CC		1
Malignant Breast Disorders W CC	1	
Minor Procedures for Non-Malignant Breast Conditions	1	
Minor Skin Disorders	8	3
Minor Skin Disorders, Sameday	1	
Miscellaneous Metabolic Disorders W Catastrophic or Severe CC		1
Miscellaneous Metabolic Disorders W/O Catastrophic or Severe CC	21	
Multiple Sclerosis and Cerebellar Ataxia W CC		1
Multiple Sclerosis and Cerebellar Ataxia W/O CC	2	30
Multiple Trauma W/O Significant Procedures W/O Catastrophic or Severe CC		1
Neonate, AdmWt >2499 g W/O Significant OR Procedure W/O Problem		1
Nervous System Infection Except Viral Meningitis W Cat or Sev CC		1
Nervous System Infection Except Viral Meningitis W/O Cat or Sev CC	1	2
Neurological and Vascular Disorders of the Eye W/O CC		5
Non-Malignant Breast Disorders W CC	1	1
Non-Malignant Breast Disorders W/O CC	2	1
Non-surgical Spinal Disorders W CC	2	3
Non-surgical Spinal Disorders W/O CC	1	4
Non-surgical Spinal Disorders, Sameday	1	
Oesophagitis and Gastroenteritis W Cat/Sev CC		1
Oesophagitis and Gastroenteritis W/O Cat/Sev CC	1	
OR Procedures for Diabetic Complications W Catastrophic CC		1
OR Procedures for Diabetic Complications W/O Catastrophic CC		3
OR Procedures for Infectious and Parasitic Diseases W Catastrophic CC		9
OR Procedures for Infectious and Parasitic Diseases W Severe or Moderate CC		4
OR Procedures for Infectious and Parasitic Diseases W/O CC		4

DRG	Calvary	TCH
OR Procedures W Diagnoses of Other Contacts W Health Services W/O Cat/Sev CC	1	
Oral and Dental Disorders Except Extractions and Restorations	2	
Osteomyelitis W Catastrophic or Severe CC	5	8
Osteomyelitis W/O Catastrophic or Severe CC	8	5
Other Back and Neck Procedures W Catastrophic or Severe CC		1
Other Circulatory System Diagnoses W Catastrophic CC	1	1
Other Circulatory System Diagnoses W Severe or Moderate CC	1	1
Other Digestive System Diagnoses W Catastrophic or Severe CC	1	1
Other Digestive System Diagnoses W/O Catastrophic or Severe CC	1	
Other Digestive System OR Procedures W Catastrophic CC		2
Other Digestive System OR Procedures W Severe or Moderate CC		1
Other Disorders of the Eye		1
Other Disorders of the Nervous System W Catastrophic or Severe CC	1	
Other Disorders of the Nervous System W/O Catastrophic or Severe CC	2	4
Other Ear, Nose, Mouth and Throat Diagnoses W CC	2	1
Other Ear, Nose, Mouth and Throat Diagnoses W/O CC	3	2
Other Factors Influencing Health Status	2	
Other Factors Influencing Health Status, Sameday	5	
Other Gastroscopy W Catastrophic CC		1
Other Gastroscopy W/O Catastrophic CC	1	
Other Hepatobiliary and Pancreas OR Procedures W Catastrophic CC		2
Other Hip and Femur Procedures W Catastrophic CC		1
Other Hip and Femur Procedures W/O Catastrophic CC		2
Other Infectious and Parasitic Diseases W Catastrophic CC	3	6
Other Infectious and Parasitic Diseases W Severe or Moderate CC	3	6
Other Infectious and Parasitic Diseases W/O CC		1
Other Kidney and Urinary Tract Diagnoses W Catastrophic or Severe CC	3	2
Other Kidney and Urinary Tract Diagnoses W/O Catastrophic or Severe CC	18	1
Other Knee Procedures		1
Other Male Reproductive System Diagnoses	1	
Other Musculoskeletal Disorders W Catastrophic or Severe CC	2	2
Other Musculotendinous Disorders W/O Catastrophic or Severe CC	1	1
Other OR Procedure of Blood and Blood Forming Organs W Cat or Sev CC		1
Other OR Procedure of Blood and Blood Forming Organs W/O Cat or Sev CC		1
Other Procedures for Injuries to Hand W CC		1
Other Procedures for Injuries to Lower Limb W Catastrophic or Severe CC		3
Other Procedures for Injuries to Lower Limb W/O Catastrophic or Severe CC		1
Other Procedures for Other Injuries W Catastrophic or Severe CC		5
Other Procedures for Other Injuries W/O Catastrophic or Severe CC	2	2
Other Respiratory System Diagnosis W Severe or Moderate CC	1	4
Other Respiratory System Diagnosis W/O CC	5	
Other Respiratory System OR Procedures W/O CC		1
Other Skin Graft and/or Debridement Procedures W CC		1
Other Skin Graft and/or Debridement Procedures W/O CC		1
Other Skin, Subcutaneous Tissue and Breast Procedures	1	

DRG	Calvary	TCH
Other Surgical Follow Up and Medical Care W Catastrophic CC	3	
Other Surgical Follow Up and Medical Care W/O Catastrophic CC	1	
Otitis Media and URI	2	3
Parathyroid Procedures W Catastrophic or Severe CC		1
Peripheral Vascular Disorders W Catastrophic or Severe CC	1	1
Peripheral Vascular Disorders W/O Catastrophic or Severe CC		1
Peritoneal Adhesiolysis W Severe or Moderate CC		1
Pleural Effusion W Catastrophic CC		2
Pleural Effusion W Severe or Moderate CC	3	1
Pneumothorax W CC		1
Poisoning/Toxic Effects of Drugs and Other Substances W Cat or Sev CC		1
Postoperative and Post-Traumatic Infections W Catastrophic or Severe CC	2	6
Postoperative and Post-Traumatic Infections W/O Catastrophic or Severe CC	11	6
Postpartum and Post Abortion W/O OR Procedure	11	2
Pulmonary Embolism W Catastrophic CC	1	2
Pulmonary Embolism W/O Catastrophic CC	7	7
Rectal Resection W Catastrophic CC		1
Red Blood Cell Disorders W Catastrophic or Severe CC	1	
Red Blood Cell Disorders W/O Catastrophic or Severe CC	35	1
Renal Failure W Severe CC	2	
Renal Failure W/O Catastrophic or Severe CC		1
Respiratory Infections/Inflammations W Catastrophic CC	4	4
Respiratory Infections/Inflammations W Severe or Moderate CC	20	11
Respiratory Infections/Inflammations W/O CC	32	6
Respiratory Neoplasms W Catastrophic CC		1
Respiratory System Diagnosis W Non-Invasive Ventilation	2	1
Respiratory Tuberculosis		1
Reticuloendothelial and Immunity Disorders W Catastrophic or Severe CC		1
Reticuloendothelial and Immunity Disorders W/O Cat or Sev CC W/O Malignancy		1
Seizure W/O Catastrophic or Severe CC		1
Septic Arthritis W Catastrophic or Severe CC		2
Septic Arthritis W/O Catastrophic or Severe CC	1	7
Septicaemia W Catastrophic CC	7	12
Septicaemia W/O Catastrophic CC	9	16
Sequelae of Treatment W Catastrophic or Severe CC	3	3
Sequelae of Treatment W/O Catastrophic or Severe CC	3	2
Signs and Symptoms	1	1
Sinus and Complex Middle Ear Procedures		1
Skin Malignancy W/O Catastrophic CC	1	
Skin Ulcers in Circulatory Disorders W Catastrophic or Severe CC	1	1
Skin Ulcers W/O Catastrophic CC	3	3
Soft Tissue Procedures W CC		2
Soft Tissue Procedures W/O CC		1
Specific Musculotendinous Disorders W Catastrophic or Severe CC	2	3
Specific Musculotendinous Disorders W/O Catastrophic or Severe CC	8	8

DRG	Calvary	TCH
Spinal Procedures W Catastrophic or Severe CC		2
Stroke and Other Cerebrovascular Disorders W Catastrophic CC	3	1
Stroke and Other Cerebrovascular Disorders W Severe CC		1
Stroke and Other Cerebrovascular Disorders W/O Catastrophic or Severe CC	5	2
Stroke and Other Cerebrovascular Disorders, Died or Transferred <5 Days	1	
Syncope and Collapse W Catastrophic or Severe CC		1
Syncope and Collapse W/O Catastrophic or Severe CC		1
Thyroid Procedures W Catastrophic or Severe CC		1
TIA and Precerebral Occlusion W Catastrophic or Severe CC		2
TIA and Precerebral Occlusion W/O Catastrophic or Severe CC	1	
Trauma to the Skin, Subcutaneous Tissue and Breast W Cat or Sev CC	1	1
Trauma to the Skin, Subcutaneous Tissue and Breast W/O Cat or Sev CC		1
Ungroupable	14	15
Unstable Angina W Catastrophic or Severe CC	2	
Urinary Stones and Obstruction		1
Valvular Disorders W Catastrophic or Severe CC		1
Vascular Procs Except Major Reconstruction W/O CPB Pump W Sev or Mod CC		1
Vascular Procs Except Major Reconstruction W/O CPB Pump W/O CC		1
Venous Thrombosis W Catastrophic or Severe CC	1	1
Venous Thrombosis W/O Catastrophic or Severe CC	2	1
Viral Illness	1	2
Grand Total	**687**	**621**

KPMG

Contact us

Nicki Doyle
Partner
Health, Ageing and Human Services
[redacted]

Renae Beardmore
Associate Director
Health, Ageing and Human Services
[redacted]

kpmg.com.au