

Inquiry into telehealth services in Queensland

Report No. 55

Health and Community Services Committee

September 2014

Health and Community Services Committee

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The committee would like to acknowledge the assistance of the Telehealth Support Unit and the Department of Health during the inquiry process.

Contents

Abbreviations	viii
Glossary	ix
Chair’s foreword	xi
Recommendations	xiii
Introduction and scope of the inquiry	1
Role of the committee	1
Inquiry terms of reference	1
Department of Health reporting on telehealth implementation in 2012-13	2
Committee inquiry process	2
<i>Submissions</i>	2
<i>Public briefings and public hearings</i>	2
<i>Site visits</i>	3
<i>Consumer forums</i>	3
<i>Clinician roundtable discussion</i>	3
Structure of this report	3
1 Policy and funding context for telehealth	5
1.1 Growing demand for access to health services	5
1.1.1 <i>Demographic change</i>	5
1.1.2 <i>Changing disease patterns</i>	5
1.1.3 <i>Population distribution in Queensland</i>	6
1.2 Commonwealth funding for telehealth – pilots and trials	6
1.2.1 <i>Early project funding support</i>	6
1.2.2 <i>Digital Regions Initiative</i>	7
1.2.3 <i>Commonwealth funded NBN-enabled Telehealth Pilots Program</i>	7
1.2.4 <i>In-Home Telemonitoring for Veterans Trial</i>	8
1.3 Commonwealth Medicare Benefits Schedule funding	8
1.4 Other Commonwealth funding incentives for telehealth	10
1.5 Funding for public hospital services – Commonwealth and State responsibilities	11
1.6 Activity-based funding	12
2 Adoption of telehealth in Australia and overseas	13
2.1 Adoption of telehealth in Australian jurisdictions	13
2.1.1 <i>Overview of other jurisdictions</i>	13
2.1.2 <i>New South Wales</i>	13
2.1.3 <i>Victoria</i>	14
2.1.4 <i>Western Australia</i>	14
2.1.5 <i>South Australia</i>	14
2.1.6 <i>Tasmania</i>	14
2.1.7 <i>Australian Capital Territory</i>	15
2.1.8 <i>Northern Territory</i>	15
2.2 Telehealth adoption internationally	15
2.2.1 <i>Overview</i>	15
2.2.2 <i>Canada</i>	16
2.2.3 <i>Scotland</i>	17
2.2.4 <i>Denmark</i>	18
2.2.5 <i>Hong Kong</i>	19

2.3	Adoption of telehealth in Queensland	19
2.3.1	<i>Introduction</i>	19
2.3.2	<i>Pilot projects</i>	19
3	Telehealth in Queensland – current funding and organisation	23
3.1	The Blueprint for better healthcare in Queensland – Rural Telehealth Service	23
3.2	Rural Telehealth Service and funding allocation	23
3.2.1	<i>Rural telehealth service</i>	23
3.2.2	<i>Telehealth coordinators</i>	23
3.2.3	<i>Telehealth Emergency Management Support Unit</i>	23
3.2.4	<i>Funding allocated</i>	24
3.3	Organisational arrangements for Queensland Health telehealth services	25
3.3.1	<i>Role of Department and Hospital and Health Services</i>	25
3.3.2	<i>Service agreements with Hospital and Health Services</i>	25
3.3.3	<i>Service directives</i>	25
3.3.4	<i>Telehealth Support Unit, Department of Health</i>	26
3.3.5	<i>Hospital and Health Services</i>	26
3.4	Telehealth Governance Committee	27
4	Clinical services delivered by telehealth in Queensland	28
4.1	Introduction	28
4.2	Emergency Services	28
4.2.1	<i>Retrieval Services Queensland</i>	28
4.2.2	<i>Telehealth Emergency Management Support Unit</i>	28
4.3	Outpatient (non-admitted) clinical services delivered by telehealth	29
4.3.1	<i>Pre-admission pre-anaesthesia outpatient clinics</i>	29
4.3.2	<i>Cardiology outpatient clinics</i>	29
4.3.3	<i>High Risk Foot Clinic – Cairns</i>	30
4.3.4	<i>Endocrinology outpatient clinics</i>	30
4.3.5	<i>Endocrinology – store and forward</i>	31
4.3.6	<i>Speech pathology</i>	31
4.3.7	<i>Townsville Cancer Centre</i>	32
4.3.8	<i>Orthopaedic surgery outpatient clinics- Mount Isa and Princess Alexandra Hospital</i>	32
4.3.9	<i>Mental health</i>	32
4.3.10	<i>Intensive care – Royal Brisbane and Women’s Hospital and Bundaberg Hospital</i>	33
4.3.11	<i>Neonatal telemedicine – Royal Brisbane and Women’s Hospital</i>	33
4.3.12	<i>Paediatric burns – Royal Children’s Hospital</i>	34
4.3.13	<i>Paediatric telehealth</i>	34
4.3.14	<i>Dermatology</i>	35
4.3.15	<i>Motor neurone disease – outpatient clinic</i>	35
4.3.16	<i>Gerontology</i>	35
4.3.17	<i>Indigenous health screening</i>	35
5	Infrastructure	37
5.1	Introduction	37
5.2	Telehealth network	37
5.2.1	<i>Videoconference network</i>	37
5.2.2	<i>Store and forward and teleradiology</i>	37
5.2.3	<i>Equipment for home monitoring</i>	38
5.3	Access to the Queensland Health telehealth network	38

5.3.1	<i>Introduction</i>	38
5.3.2	<i>External access and interoperability</i>	38
5.3.3	<i>Access to videoconference facilities within a Hospital and Health Service</i>	40
5.4	Equipment replacement	41
5.5	Internet connectivity and capacity for telehealth	42
5.5.1	<i>Variable internet capacity</i>	42
5.5.2	<i>Current connectivity in rural and remote areas</i>	42
5.5.3	<i>Committee comment</i>	43
6	Evaluation of telehealth services	45
6.1	Introduction	45
6.1.1	<i>Purpose of telehealth expansion</i>	45
6.1.2	<i>What the committee considered</i>	45
6.2	Department of Health evaluation	45
6.3	Access to health services	46
6.3.1	<i>Patient experience of travel to health services</i>	47
6.3.1	<i>Access for people with a disability</i>	49
6.3.2	<i>Telehealth clinics – examples of improved patient access</i>	50
6.4	Patient satisfaction and quality of care	51
6.4.1	<i>Introduction</i>	51
6.4.2	<i>Patient satisfaction – examples from the literature</i>	51
6.4.3	<i>Diagnostic accuracy and quality of information obtained in consultation</i>	51
6.5	Clinical outcomes	52
6.5.1	<i>Introduction</i>	52
6.5.2	<i>Diabetes during pregnancy</i>	52
6.5.3	<i>Home based cardiac rehabilitation</i>	52
6.6	Costs and cost-effectiveness	52
6.6.1	<i>Introduction</i>	52
6.6.2	<i>Reported savings in patient travel</i>	53
6.6.3	<i>Avoided patient retrieval and transfer</i>	54
6.6.4	<i>Reduced clinician travel</i>	54
6.6.5	<i>Avoiding unnecessary hospital admissions</i>	54
6.7	Telehealth clinical activity in Queensland Health	55
6.7.1	<i>Introduction</i>	55
6.7.2	<i>Telehealth activity levels</i>	55
6.7.3	<i>Telehealth activity 2011-12</i>	55
6.7.4	<i>Telehealth activity 2012-13 and 2013-14</i>	55
6.7.5	<i>Hospital and Health Service telehealth activity – non-admitted patients</i>	56
6.7.6	<i>Hospital and Health Service telehealth activity – admitted patients</i>	57
6.7.7	<i>Hospital and Health Services providing services by telehealth to admitted patients</i>	57
6.7.8	<i>Hospital and Health Services receiving services by telehealth for admitted patients</i>	57
6.7.9	<i>Clinical specialties providing services by telehealth for non-admitted patients</i>	58
6.7.10	<i>Clinical specialties providing services by telehealth for admitted patients</i>	58
7	Barriers and enablers to telehealth implementation	66
7.1	Impediments to greater telehealth use	66
7.1.1	<i>Telehealth benefits consumers</i>	66
7.1.2	<i>Barriers and enablers</i>	66
7.2	The importance of clinician engagement	67
7.2.1	<i>Introduction</i>	67

7.2.2	<i>Queensland clinicians' perspectives</i>	68
7.3	Supporting clinician engagement	69
7.3.1	<i>Managing cultural change</i>	70
7.3.2	<i>Committee comment</i>	72
7.3.3	<i>Administrative and logistical support</i>	72
7.3.4	<i>Training and technical support</i>	72
7.4	Coordination	74
7.4.1	<i>Introduction</i>	74
7.4.2	<i>Coordinated approach to telehealth infrastructure</i>	74
7.4.3	<i>Hospital and Health Service commitment and coordination</i>	74
7.4.4	<i>Committee comment</i>	75
7.4.5	<i>Coordination of telehealth consultations</i>	75
7.4.6	<i>Coordinated access to images and pathology results</i>	77
7.5	Protocols and guides	77
7.5.1	<i>Absence of guidance as a barrier to implementation</i>	77
7.5.2	<i>Examples of protocols, guides and models of telehealth service delivery</i>	77
7.5.3	<i>Protocols and guides for other clinic types</i>	78
7.6	Policy and legislation	79
7.6.1	<i>Introduction</i>	79
7.6.2	<i>Credentialing, scope of practice and professional indemnity</i>	79
7.6.3	<i>Clinical responsibility and record keeping</i>	79
7.6.4	<i>Legislation</i>	79
7.6.5	<i>Patient consent</i>	80
8	Resources and incentives	81
8.1	Funding	81
8.1.1	<i>Introduction</i>	81
8.1.2	<i>Stable funding to embed service delivery by telehealth</i>	81
8.1.3	<i>Administrative and logistical support to use telehealth</i>	82
8.2	Funding incentives	82
8.2.1	<i>Introduction</i>	82
8.2.2	<i>Queensland Activity-based funding model – non-admitted patients</i>	82
8.2.3	<i>Non-admitted patient telehealth incentive</i>	83
8.2.4	<i>Admitted patient telehealth incentive</i>	83
8.2.5	<i>Use of the Medicare Benefits Schedule in Queensland public sector health services</i>	84
8.2.6	<i>Committee comment</i>	84
8.3	Patient Travel Subsidy Scheme	84
9	Planning and integration of telehealth into service delivery	86
9.1	Objectives, plans and performance measures	86
9.1.1	<i>Introduction</i>	86
9.1.2	<i>Plans and performance measures</i>	86
9.2	Potential impact of telehealth on hospital utilisation	87
9.3	Telehealth and services in rural and remote areas	88
9.3.1	<i>Concerns that telehealth might reduce services in regional areas</i>	88
9.3.2	<i>Wider scope of rural health services</i>	89
9.3.3	<i>Rural workforce development</i>	89
9.4	Telehealth and potential for innovation	90
9.5	Concluding comment	91

Appendices	92
Appendix A – List of Submissions	92
Appendix B – Witnesses at public hearings and briefings	93
Appendix C – Telehealth sites and Hospital and Health Service areas	95
Figures	
Figure 1: Queensland MBS Telehealth Ineligible Area	9
Tables	
Table 1: Recurrent funding to Hospital and Health Services for a telehealth coordinator position	24
Table 2: Staged rollout of Telehealth Emergency Management Support Unit	29
Table 3: Non-admitted telehealth occasions of service by Hospital and Health Service – 2012-13 and 2013-14	59
Table 4: Proportion of non-admitted telehealth occasions of service and all non-admitted occasions of service by Hospital and Health Service – 2013-14	60
Table 5: Non-admitted telehealth occasions of service by Health and Hospital Service – change in activity	61
Table 6: Admitted patient telehealth events by Quarter, by Hospital and Health Service provider-end and recipient-end – 2012-13 and 2013-14	62
Table 7: Non-Admitted Patient Telehealth Occasions of Service, by Quarter, by Clinic Type – 2012-13 and 2013-14	63
Table 8: Admitted patient Telehealth Events by Quarter, by Provider-end Clinical Unit – 2012-13 and 2013-14	65
Case Studies	
Case Study 1 – High Risk Foot Clinic – Cairns	30
Case Study 2 – Townsville Cancer Centre	32

Abbreviations	
ABF	activity-based funding
AHHA	Australian Healthcare and Hospital Association
AIHW	Australian Institute of Health and Welfare
AMAQ	Australian Medical Association Queensland
ASGC	Australian Standard Geographical Classification
ATS	Australasian Telehealth Society
CAHS	Child and Adolescent Health Service
CARU	Clinical Access and Redesign Unit
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CT	computed tomography
CYMHS	Child and Youth Mental Health Service
GP	general practitioner
HHS	Hospital and Health Service
ICU	intensive care unit
IHPA	Independent Hospital Pricing Authority
MBS	Medicare Benefits Schedule
MND	motor neurone disease
NBN	National Broadband Network
NDS	National Disability Services
NEP	nationally efficient price
NNQ	Networking North Queensland
NSTHN	Nova Scotia Telehealth Network
NTN	Networking the Nation
OTN	Ontario Telemedicine Network
PAH	Princess Alexandra Hospital
PCH	Prince Charles Hospital
PTSS	Patient Travel Subsidy Scheme
QRecs	Queensland Remote Chemotherapy Supervision
RACF	residential aged care facility
RACGP	Royal Australian College of General Practitioners
RACP	Royal Australian College of Physicians
RBWH	Royal Brisbane and Women's Hospital
RCH	Royal Children's Hospital
RMO	Resident medical officer
RSQ	Retrieval Services Queensland
SCTT	Scottish Centre for Telehealth and Telecare
SETS	Skin Emergency Telemedicine Service
TEMSU	Telehealth Emergency Management Support Unit
TSU	Telehealth Support Unit

Glossary

activity-based funding	A way of funding hospitals where they get paid for the number and mix of patients they treat. The four building blocks of an ABF system are classification (patients are classified into groups that are clinically relevant), counting (each patient episode is counted), costing (a representative number of patient episodes are costed to develop the classification system and pricing model) and pricing (to determine how much is paid for an average patient and to recognise factors which increase the cost of care which may not be picked up in the classification system). ¹
admitted patient (see also non-admitted patient)	A person who undergoes a hospital's formal admission process as either a same-day patient or an overnight stay patient to receive treatment and/or care.
allied health professional	Health care practitioners with formal education and clinical training who are credentialed and work with other health professionals to identify, prevent and treat diseases, disabilities and disorders. They do not include physicians, nurses, dentists or podiatrists. ²
ambulatory care	Medical care provided on an outpatient basis, including diagnosis, observation, treatment and rehabilitation services. ³
committee	Health and Community Services Committee.
episode of care	A period of health care with a defined start and end. ⁴
episode of care (admitted patient)	A phase of treatment. There may be more than one episode of care within the one hospital stay. An episode of care ends when the principal clinical intent changes or when the patient is formally separated from the facility. ⁵
HHS	Hospital and Health Services are independent statutory bodies which provide hospital and health services in accordance with the Hospital and Health Boards Act 2011. Service delivery is monitored by the Department of Health through individual service agreements, which identify the health services to be provided, funding arrangements and performance indicators and targets. ⁶
non-admitted patient	A person who does not undergo a hospital's formal admission process. Non-admitted patients include emergency department patients, outpatients, and other patients who are treated by hospital staff but not in a hospital.

1 Independent Hospital Pricing Authority (IHPA), *Activity Based Funding*, 7 August 2014, <http://www.ihpa.gov.au/internet/ihpa/publishing.nsf/Content/funding>

2 Health Professions Network, *Allied Health Fact Sheet*, accessed 7 August 2014, http://www.healthpronet.org/docs/allied_health_fact_sheet.pdf

3 Mednet.com, *Definition of ambulatory care*, accessed August 2014, <http://www.medterms.com/script/main/art.asp?articlekey=2218>

4 Queensland Health, Health Statistics Unit, *Queensland Health Data Dictionary*, December 2013, <http://www.health.qld.gov.au/hsu/qhdd/QHDD-OurPerf.pdf>

5 Queensland Health, Health Statistics Branch, *Admitted patient episodes of care*, accessed August 2014, http://www.health.qld.gov.au/hic/QHID/Hospital_Activity/html/episodes%20cumul.asp

6 Queensland Government, *State Budget 2014–15 – Budget Paper 5: Service Delivery Statements – Queensland Health* (Queensland Health 2014-15 SDS), pp.1-3

Glossary	
occasion of service	An occasion of examination, consultation, treatment or other service provided to a patient in each functional unit of a health service establishment.
service event	An interaction between one or more healthcare provider(s) with one non-admitted patient, which must contain therapeutic/clinical content and result in a dated entry in the patient's medical record. ⁷
store and forward	see definition of telehealth
telehealth	<p>Delivery of health-related services and information via telecommunication technologies, including:</p> <ul style="list-style-type: none"> • live, audio and/or video interactive links for clinical consultations and educational purposes • store-and-forward telehealth, including digital images, video, audio and clinical (stored) on a client computer, then transmitted securely (forwarded) to a clinic at another location where they are studied by relevant specialists • teleradiology for remote reporting and clinical advice for diagnostic images • telehealth services and equipment to monitor people in their home.⁸
telehealth event (admitted patient)	... an interactive, real-time clinical activity provided to an admitted patient during a telehealth session. ⁹
telehealth session (admitted patient)	... the transmission and receipt of real-time audio and visual information via videoconference systems between participating sites. It may involve one or more admitted patient/s with each patient having a telehealth event. A telehealth event may occur more than once during an admitted patient episode of care. ¹⁰

7 IHPA, *The Pricing Framework for Australian Public Hospital Services 2014-15*, accessed 26 August 2014 [http://ihpa.gov.au/internet/ihpa/publishing.nsf/Content/CA25794400122452CA257C1B0001F452/\\$File/Pricing-Framework-Aust-PublicHospitalServices-2014-15.pdf](http://ihpa.gov.au/internet/ihpa/publishing.nsf/Content/CA25794400122452CA257C1B0001F452/$File/Pricing-Framework-Aust-PublicHospitalServices-2014-15.pdf)

8 Department of Health, *2012-13 Annual Report*, State of Queensland, 2013, p.144

9 Department of Health, *2013-14 Queensland Hospital Admitted Patient Data Collection (QHAPDC): manual of instructions and procedures For the reporting of QHAPDC data*, Version 1.1 (2013-14 QHAPDC Manual), p.169, accessed July 2014, <http://www.health.qld.gov.au/hsu/pdf/manuals/ghapdc13-14/1314-QHAPDCManual.pdf>

10 Department of Health, *2013-14 QHAPDC Manual*, p.169

Chair's foreword

On behalf of the Health and Community Services Committee of the 54th Parliament of Queensland, I present this report on the committee's inquiry into telehealth services in Queensland.

The committee initiated this inquiry using its public accounts powers under section 94 of the *Parliament of Queensland Act 2001*, following the allocation of \$30.9 million for telehealth. The funds were allocated over four years, from 2013-14 to 2016-17. The committee's terms of reference (see page 1) were to inquire into and report on the implementation of telehealth in public sector health services.

Telehealth has been used in parts of the Queensland public health system for some years, and considerable investment had been made in the infrastructure, particularly a videoconference network, to enable telehealth. The committee heard that Queensland's telehealth infrastructure is highly regarded. The level of use of telehealth infrastructure for the benefit of patients has begun to grow, but it remains low. There have been obvious recent efforts to improve access to services, like the appointment of Telehealth Coordinators in all Hospital and Health Services, and the increase in reported telehealth activity in outpatient clinics (discussed in chapter 6).

At this relatively early stage in expenditure of the \$30.9 million budget allocation, the committee was not able to reach clear conclusions about the efficiency and effectiveness of the management of those funds, and one of our recommendations is that a committee of the next Parliament inquire further into this matter. The committee did however have some concerns about the planning and evaluation of the current work to improve access to services through telehealth.

The challenges of implementing telehealth are not unique to Queensland, and the committee considered the challenges, barriers and factors that enable implementation. With a few exceptions, technology and infrastructure are not barriers to greater use of telehealth in Queensland. Clinician engagement emerged as an important factor in overcoming the barriers to the greater use of telehealth.

The committee believes that the most significant benefits of delivering services by telehealth accrue to patients. Improved access to health services, particularly timely specialist and emergency advice, can in turn lead to improved health outcomes. The committee heard about people travelling considerable distances, sometimes requiring more than a day in travel, for a short outpatient appointment. The committee believes that in many instances, the unreasonable burden of travel on patients could and should be avoided.

Delivering health services by telehealth requires health service providers and health administrators to think differently about the way they work, and to focus on delivering patient-centred care.

The committee considers that the Department of Health and Hospital and Health Services need to take a more deliberate approach to planning the implementation of telehealth. Without clear planning and agreed measures of performance, there is a risk that the utilisation of telehealth as a way of delivering health services will remain low. There needs to be a common understanding of plans to increase the use of telehealth, so that it becomes simply a normal part of how health services are delivered. Also needed are ways to ensure that information is shared across Hospital and Health Services so that best practice approaches, guidelines and lessons learnt are readily accessible.

On behalf of the committee, I thank those who assisted the committee and provided it with the benefit of their experience and insights. People who contributed made written submissions, demonstrated their work with telehealth and talked with the committee during its site visits, gave evidence at its public hearings, and shared their experiences with the committee at consumer forums and clinician discussions. We appreciate all of those contributions.

My thanks in particular to the Telehealth Coordinators in the Cairns, South West and the (then) Torres Strait and Northern Peninsula Hospital and Health Services who assisted the committee in arrangements for the committee's visits to those areas. Your assistance was appreciated.

I commend the report to the House.

A handwritten signature in black ink, appearing to read 'T. Ruthenberg', with a stylized, cursive script.

Trevor Ruthenberg MP

Chair

Recommendations

Recommendation 1 **10**

The committee recommends that the Minister for Health make representations to the Commonwealth Minister for Health to amend the Medicare Benefits Schedule to:

- enable billing by a general practitioner for patient consultations by telehealth, including consultations between a medical specialist and a general practitioner about a patient
- extend eligibility for telehealth billing to metropolitan areas for people in certain circumstances who have difficulty accessing health care services, for example, the elderly, people with a disability or someone with a terminal illness.

Recommendation 2 **40**

The committee recommends that the Minister for Health ensure that the Department of Health gives greater priority to the implementation of improved interconnectivity for clinicians to the Queensland Health telehealth network from personal devices.

Recommendation 3 **44**

The committee recommends that the Queensland Government propose to the Commonwealth that priority be given to implementation of the National Broadband Network in remote communities to provide better access to health services for Aboriginal and Torres Strait Islander peoples and other remote residents.

Recommendation 4 **49**

The committee recommends that the Minister for Health ensure that the Department of Health and Hospital and Health Services examine what measures, policies and clinical key performance indicators can be implemented to:

- ensure that outpatient clinicians are informed of the travel required for individual patients from rural, remote and outer metropolitan locations to attend outpatient appointments and encouraged to offer telehealth services to patients
- inform and encourage consumers to ask whether their outpatient appointments can be delivered by telehealth.

Recommendation 5 **49**

The committee recommends that the Minister for Health ask the Department of Health to examine ways to promote public awareness of telehealth and encourage consumers to ask for telehealth, including by collaborating with the Centre for Online Health.

Recommendation 6 **50**

The committee recommends that the Minister for Health ensure that:

- the Department of Health and Hospital and Health Services consider how telehealth can be used to provide services for consumers with a disability to improve their access to health services
- the Department of Health consult with Deaf Services Queensland to explore arrangements to improve access to health services for hearing impaired patients by using telehealth for Auslan interpreting
- the Department of Health inform Hospital and Health Services about arrangements for Auslan interpreting by telehealth and monitor implementation of those arrangements.

Recommendation 7 **59**

The committee recommends that the Minister for Health ask the Department of Health to:

- take steps to validate and quality assure its telehealth activity data for 2012-13 and 2013-14 to determine whether it is an accurate record of telehealth activity across the state during this period
- develop and implement measures to ensure the integrity of telehealth activity data for Hospital and Health Services and clinic types in the future.

Recommendation 8 **72**

The committee recommends that the Minister for Health ensure that:

- all Hospital and Health Services and the Department of Health place greater emphasis on clinician engagement and change management in the future development of telehealth in Queensland, and
- the Department of Health develop a communication strategy to foster Hospital and Health Service and clinician engagement and support for telehealth, including the provision of information about plans for, and progress in the implementation of telehealth improvements.

Recommendation 9 **76**

The committee recommends that the Minister for Health consider whether a statewide telehealth scheduling system should be implemented to facilitate the effective and efficient use of telehealth to deliver health services.

Recommendation 10 **79**

The committee recommends that the Minister for Health ensure that there is an accessible on-line repository of relevant telehealth guidance material including documents developed to support delivery of services by telehealth in specific specialties or types of clinic.

Recommendation 11 **80**

The committee recommends that the Minister for Health direct the Department of Health, in consultation with Hospital and Health Services, to identify any policy or legislative barriers to the use of telehealth to deliver health services and to propose steps to address those barriers.

Recommendation 12 **82**

The committee recommends that the Minister for Health consider directing the Department of Health to include telehealth in its Service Delivery Statements, which would include the development of appropriate service standards.

Recommendation 13 **85**

The committee recommends that the Minister for Health ask Hospital and Health Boards to consider redirecting any savings in Patient Travel Subsidy Scheme expenditure that arise from telehealth service delivery back to supporting telehealth, in particular ensuring that the rural health workforce is able to support telehealth.

Recommendation 14 **87**

The committee recommends that the Minister for Health direct the Department of Health to:

- review the objectives of the telehealth program for 2013-14 to 2016-17 and communicate clear objectives to Hospital and Health Services, staff and stakeholders

- develop measures of the effectiveness and efficiency of the telehealth program to evaluate it and to inform decisions about future delivery of health services via telehealth
- include performance measures that take account of the safety, clinical effectiveness and cost effectiveness of telehealth, and the financial and social impact of telehealth on patients.

Recommendation 15

87

The committee recommends that the Minister for Health consider including telehealth implementation performance targets in the employment arrangements for senior executives in the Department of Health and chief executives of Hospital and Health Services.

Recommendation 16

88

The committee recommends that the Minister for Health ensure that the Department of Health:

- consider chronic disease management programs in its planning for telehealth implementation
- commence, as soon as practical, the collection of relevant data to enable analysis of the impact of telehealth on hospital admissions and hospital avoidance
- consider options to make arrangements for longer term independent research on the impact of telehealth on hospital admissions and hospital avoidance, including commissioning an independent study in collaboration with other organisations.

Recommendation 17

90

The committee recommends that the Minister for Health ensure that the Department of Health and Hospital and Health Services continues and expands the use of Queensland's telehealth network for the professional development of the rural and remote health workforce.

Recommendation 18

91

The committee recommends that a committee of the next Parliament consider further inquiring into the Department of Health's implementation of telehealth and its expenditure of the \$30.9 million allocated for telehealth for the four years commencing in 2013-14.

Introduction and scope of the inquiry

Role of the committee

The Health and Community Services Committee (the committee) was established by resolution of the Legislative Assembly on 18 May 2012, and consists of government and non-government members.

Under the *Parliament of Queensland Act 2001* (the Act) a portfolio committee is responsible for considering legislation, issues referred to it by the Legislative Assembly, and public works and public accounts matters to the extent that they relate to the committee's portfolio areas. Section 94 of the Act provides that a portfolio committee may assess the integrity, economy, efficiency and effectiveness of government financial management by examining government financial documents. A *government financial document* is defined, in section 79 of the Act, to include a document tabled in the Legislative Assembly under the *Financial Accountability Act 2009*.

Examination of the Department of Health *2012-13 Annual Report*¹¹ was the basis of the committee's decision to commence an inquiry into the implementation of telehealth in public sector health services in Queensland.

Inquiry terms of reference

In February 2014 the committee adopted the following terms of reference for its inquiry.

In accordance with section 94 of the *Parliament of Queensland Act 2001*, the committee has resolved to undertake an inquiry into telehealth services managed by the Department of Health and delivered by the Department and Hospital and Health Services.

For the purposes of this inquiry the committee has adopted the definition of *telehealth* used by the Department of Health in its *2012-13 Annual Report*; the definition is in the glossary on page ix.

In conducting its inquiry the committee will:

- examine the implementation of the telehealth service by the Department of Health and Hospital and Health Services in trials, pilot and other sites, including:
 - expenditure and budget
 - governance arrangements
 - models of service delivery
 - technology and communication systems capacity and capability
 - patients, clinicians and health staff perceptions and experiences of telehealth
 - the outcomes of trials and pilot projects
 - quality of patient care
 - access to health services, particularly in rural and remote locations
- consider the value for money of the delivery of telehealth services
- examine the factors that support successful implementation of telehealth services and identify any barriers to successful implementation
- consider strategies to address any barriers to successful implementation of telehealth services in Queensland.

11 The Department's Annual Report is a government financial document tabled under the *Financial Accountability Act 2009*.

Department of Health reporting on telehealth implementation in 2012-13

The Department of Health (the department) *2012-13 Annual Report* stated the department had implemented an initiative to expand the telehealth network to provide better care to people in rural and remote communities,¹² and implemented a teleradiology network providing specialised digital radiology services.¹³ Other initiatives implemented in 2012-13 included a Heart Health Project to improve cardiac rehabilitation services, and a Telestroke initiative which made telehealth laptops or cameras available to 15 stroke specialists around Queensland.¹⁴

The 2012-13 Annual Report stated:

*To support enhanced models of care and outreach services, the government has approved funding of \$30.9 million over four years to establish a Rural Telehealth Service. For Queenslanders from rural areas, this will improve access to health services and reduce extended waiting times for treatment.*¹⁵

Queensland Health's achievements in telehealth in 2012-13 were described as follows:

Queensland has one of the largest managed Telehealth networks in Australia with 1579 videoconferencing systems deployed in more than 200 hospitals and community facilities supporting more than 40 clinical specialities and sub-specialties across the state.

Implementation of Telehealth service delivery models has enabled health system redesign and transformed how some clinical services are delivered and accessed by rural and remote communities in Queensland.

*As outlined in the Blueprint for better healthcare in Queensland, Telehealth services will provide unprecedented access to a new generation of safe and sustainable healthcare services for residents in small, rural or remote communities. To improve health equity and support for rural and remote Queenslanders, the department is working towards the implementation of a new rural Telehealth service across six pilot sites in 2013-14.*¹⁶

The funding allocation made in the February 2013 *Blueprint for better healthcare* is outlined in chapter 3 of this report.

Committee inquiry process

Submissions

The committee invited submissions on the issues in its terms of reference. Thirty-nine submissions were received and accepted. Submissions are published on the committee's inquiry web page at <http://www.parliament.qld.gov.au/work-of-committees/committees/HCSC/inquiries/current-inquiries/InquiryTelehealth>.

Public briefings and public hearings

The committee held an initial public briefing with the department on 5 March 2014. Public hearings were held on 9 May, 21 May and 31 July 2014 to hear from invited clinicians, the Ontario Telehealth Network, and the department. Transcripts of the public briefings and hearings are available on the committee's web page.¹⁷

12 Department of Health, *2012-13 Annual Report*, 2013, p.13

13 Department of Health, *2012-13 Annual Report*, 2013, p.14

14 Department of Health, *2012-13 Annual Report*, 2013, p.45

15 Department of Health, *2012-13 Annual Report*, 2013, p.30

16 Department of Health, *2012-13 Annual Report*, 2013, p.44

17 Available from the committee's web page at: <http://www.parliament.qld.gov.au/hcsc>

Site visits

The committee visited Retrieval Services Queensland (RSQ) and the Telehealth Emergency Management Support Unit (TEMSU) at the Queensland Emergency Medical System Services Management Centre at Kedron, Princess Alexandra Hospital, Roma Hospital (one of the pilot sites announced in 2013), Cairns Hospital and Health Service (HHS) and Thursday Island HHS. The committee discussed telehealth issues relevant to the terms of reference with clinical staff at those sites, and talked with clinicians and consumers in other locations by videoconference.¹⁸

In Roma, the committee met with a group of clinical staff, and linked by videoconference to talk with clinical staff in Toowoomba, Thargomindah and Dirranbandi. The committee also met with the executive team of the HHS.

On Thursday Island the committee discussed telehealth with a range of clinical staff, and talked with clinical staff and consumers in eleven locations by videoconference.

The committee visited the Cairns Diabetes Centre, located on the Cairns North Community Health campus for discussions and to observe two videoconference patient consultations. It also met with the HHS Chief Executive, a paediatrician, the Director of Mental Health Services, the Executive Director of Medical Services, and a team of oncology staff at the Liz Plummer Cancer Care Centre.

Consumer forums

The committee held consumer forums in Roma and Cairns to hear from consumers about their perspectives and experiences of telehealth. The forums were advertised through the distribution of posters to local community organisations, media coverage, and letters mailed by the respective HHSs to recent telehealth patients. While only a small number of consumers attended the two forums, the committee had the benefit of hearing their views about telehealth.

Discussion at consumer forums focused on consumers' perceptions of telehealth and its impact on time spent travelling to appointments.

Clinician roundtable discussion

The committee invited 11 medical specialists and researchers to a public roundtable discussion with the committee to explore the barriers and enablers to effective implementation of telehealth. Participants were drawn mainly from those making written submissions to the committee; additional clinicians were invited to ensure that a clinician from the main medical specialties using telehealth were among those participating.

Structure of this report

Chapters 1 and 2 describe the policy context for, and development of, telehealth both in Australia and overseas.

Chapters 3 to 5 outline the information obtained by the committee about the current state of telehealth in Queensland, including an overview of the clinical services currently provided by telehealth, and discussion of telehealth infrastructure. Chapter 4 highlights some Queensland examples of effective delivery of clinical services by telehealth.

Chapter 6 discusses evaluation of telehealth, by others, and Queensland Health's approach to evaluation of the current efforts to improve access to health services. Chapter 7 canvasses the barriers and enablers to successful implementation of telehealth, focusing on clinician engagement as critical to successful implementation.

18 The committee visited Kedron on 19 March 2014, Princess Alexandra Hospital on 5 May 2014, Roma on 29 May 2014, Thursday Island on 16 June 2014 and Cairns on 18 June 2014.

Chapter 8 discusses resourcing and incentives, and chapter 9 discusses planning and integration of telehealth in delivery of health services.

1 Policy and funding context for telehealth

1.1 Growing demand for access to health services

The Australian Institute of Health and Welfare (AIHW) notes that in 2011-12, health spending in Australia was estimated to be \$140.2 billion, or 9.5 percent of GDP. That was about 1.7 times as high as in 2001-02, with health expenditure growing faster than population growth.¹⁹ A number of factors are driving increasing demand for health services in Queensland, elsewhere in Australia and in other western nations. Concerns about sustainability highlight the need to continually pursue cost-effectiveness in service provision.

1.1.1 Demographic change

Demographic change in Queensland is expected to continue to increase demand for health care and access to health and community services. Queensland's population was estimated at over 4.6 million in 2013, and grew by two per cent between 2012 and 2013. Queensland's population growth rate continues to be higher than the national average (1.8 per cent) and Queensland had the third highest growth rate of any Australian state or territory behind Western Australia (3.3 per cent) and the Australian Capital Territory (2.2 per cent).²⁰

In line with the national trend, Queensland's population is ageing as a result of sustained low fertility (despite an increase in births in recent years), increasing life expectancy, and movement of the large baby boomer cohort (born 1946-1965) into older age groups.²¹ In 2011, 14 per cent of Australia's population was aged 65 or older. By 2031, the Australian Bureau of Statistics predicts that 19 to 21 per cent of the Australian population will be 65 or older.²² Life expectancy is also increasing.²³

1.1.2 Changing disease patterns

At the same time that the population is ageing and growing, the incidence of chronic disease is increasing. This is due in part to the ageing of the population, but also to medical advances in disease treatment and management.

The leading causes of death in Australia are mainly chronic diseases.²⁴ Chronic diseases include cardiac, respiratory, neurological and renal conditions. Patients are now living longer with much higher rates of chronic disease and are more likely to die of advanced chronic illness than of short-term acute illness or injury than was the case in the past.²⁵ Advances in medical technology mean that more patients are living longer with complex and chronic diseases.²⁶

19 Australian Institute of Health and Welfare (AIHW), *Australia's Health 2014: The 14th biennial health report of the Australian Institute of Health and Welfare* (Australia's Health 2014), 2014, p.32, accessed 1 August 2014, <http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129548150>

20 Queensland Treasury and Trade, *Population growth highlights and trends, Queensland 2014*, Queensland Government Statistician's Office, 2014, p.1, <http://www.qgso.qld.gov.au/products/publications/pop-growth-highlights-trends-qld/pop-growth-highlights-trends-qld-2014.pdf>

21 Queensland Treasury and Trade, *Population growth highlights and trends, Queensland 2014*, p.5

22 Health and Community Services Committee (HCSC), *Inquiry into palliative care services and home and community care services in Queensland, Issues Paper*, June 2012, footnote 3, <http://www.parliament.qld.gov.au/documents/committees/HCSC/2012/PalCareHAAC/IP-120626.pdf>

23 Queensland Treasury and Trade, *Population growth highlights and trends, Queensland 2014*, p.5

24 "Chronic disease accounts for more than half of all Australian deaths": TA Burgess, AJ Braunack Mayer, GB Crawford and JJ Beilby, 'Meeting end-of-life care needs for people with chronic disease: palliative care is not enough', *Medical Journal of Australia*, 2013, Vol.198 No.1, pp.186-7

25 HCSC, *Palliative and community care in Queensland: toward person-centred care* (Palliative and community care in Queensland), Report No. 22, 2013, Legislative Assembly of Queensland, p.29 <http://www.parliament.qld.gov.au/documents/committees/HCSC/2012/PalCareHAAC/rpt-022-17May2013.pdf>

26 HCSC, *Palliative and community care in Queensland*, p.29

Greater prevalence of chronic disease places an increasing burden on health care systems, including increased pressure on paying for, and staffing, health systems.²⁷

Chronic diseases are also a major contributor to the gap in adult mortality between Indigenous and non-Indigenous people in Australia.²⁸ The main chronic diseases contributing to the gap in mortality are:

- heart diseases
- diabetes
- liver diseases
- chronic lower respiratory disease
- cerebrovascular diseases, such as stroke
- cancer.²⁹

Over one quarter of Indigenous people live in areas classified as remote or very remote and therefore have less access to health care services.³⁰ Providing access to health care services to manage chronic conditions is challenging, but necessary, if the gap in outcomes is to be addressed.

1.1.3 Population distribution in Queensland

A significant proportion of Queenslanders live in the south-east corner of the state and the remainder of the population is widely dispersed. Regional and remote areas vary greatly, from sparsely populated outback and tropical rainforest areas to coastal communities, regional centres, and mining towns. On average, people who live in regional and remote areas have shorter lives and higher levels of some illnesses than people who live in major cities. At June 2011 (the most recent Census), 69 per cent of the Australian population lived in the major cities and just two per cent in remote or very remote Australia. The remaining 28 per cent lived in inner regional and outer regional areas. In Queensland, three per cent of people live in remote or very remote areas and 36 per cent in regional areas.³¹

Rural health care is often associated with higher costs and decreasing numbers of health care providers. Trends toward centralisation of services affect access to health care services for people in rural and remote areas. The health care needs of people in rural and remote areas and access to services can be difficult to address.³²

1.2 Commonwealth funding for telehealth – pilots and trials

1.2.1 Early project funding support

Funding arrangements for telehealth vary widely in Australian jurisdictions. Gray and others note that telehealth activities in Australia were initially encouraged by Australian Government funding for state and territory health departments to initiate projects. Other Australian Government information

27 AIHW, *Australia's Health 2014*, p.66

28 AIHW, *Indigenous Observatory Chronic disease*, May 2011, accessed 11 August 2014, <http://www.aihw.gov.au/indigenous-observatory-chronic-disease/>

29 AIHW, *Contribution of chronic disease to the gap in adult mortality between Aboriginal and Torres Strait Islander and other Australians*, May 2011, p.v, accessed 11 August 2014, <http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=10737418922>

30 Australian Indigenous HealthInfoNet, *Overview of Australian Indigenous health status 2013*, accessed June 2014, p.5

31 Australian Bureau of Statistics, *Regional population growth, Table 1. Estimated resident population, Remoteness areas, Australia*, <http://www.abs.gov.au/ausstats/abs@.nsf/Products/3218.0~2011-12~Main+Features~Main+Features?OpenDocument>

32 K White, L Wilkes, P Yates and W Cairns, *Development of a model for palliative care in rural and remote communities: the 'pop-up model'*, 2005, p.1, <http://www.abc.net.au/rural/events/ruralhealth/2005/papers/popupmodel.pdf>

and communications technology funding programs such as the Clever Networks and Digital Regions Initiative programs have also supported the establishment of telehealth programs.³³

The availability of Australian Government project funding encouraged the development of early telehealth models in Queensland.

Networking North Queensland (NNQ) was developed by the Queensland Telemedicine Network as a collaborative project in 1998, involving a number of health service providers including Queensland Ambulance Service, Blue Care, the Divisions of General Practice, and Queensland Health. NNQ used Networking the Nation (NTN) funding made available by the Australian Government. The two year project aimed to improve the health outcomes of people living in rural and remote North Queensland, by increasing access to improved telecommunications infrastructure. Upgraded data lines (up to 128 kb) were installed in 58 communities, with PCs and modems to connect over 300 users to the Internet. Videoconferencing facilities were also installed in 21 communities.³⁴

1.2.2 Digital Regions Initiative

The Digital Regions Initiative provided \$60 million over four years for projects to improve the delivery of education, health, and/or emergency services in regional, rural, and remote Australian communities. The funding was provided under the Digital Regions Initiative National Partnership Agreement and coordinated by the Department of Broadband, Communication and the Digital Economy. The initiative commenced in July 2009 and concluded in June 2013.³⁵

The program funded trials enabled by the National Broadband Network (NBN): the NBN Diabetes Telehealth Trial in Townsville, EduONE—Education Our New England and the NSW NBN Telehealth to the Home Trial.³⁶

In Queensland, the Townsville-Mackay Medicare Local telehealth trial used Tunstall telehealth equipment over the NBN to assist patients living with Type 2 diabetes to better manage their condition.³⁷

Thirteen other projects across Australia also received funding, including the RACGP endorsed CDM-NET Australia, used to provide chronic disease management to rural and remote areas, HEALnet, an online professional development website for nurses and health professionals, and Queensland's Princess Alexandra Hospital Online Outreach Services.³⁸

1.2.3 Commonwealth funded NBN-enabled Telehealth Pilots Program

Commencing in 2012, the Australian Government funded a number of telehealth pilot projects under the NBN-enabled Telehealth Pilots Program. The program aimed to demonstrate how fit for purpose broadband technology enables better access to high quality healthcare services, particularly aged care, palliative care and cancer care using telehealth in the home.³⁹ The Commonwealth committed \$20.6 million in program funding for projects over 2012 to 2014.

33 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, prepared by UniQuest Pty Ltd Consulting and Research (Professor Len C Gray, Associate Professor Anthony C Smith, Dr Nigel R Armfield, Dr Catherine Travers, Professor Peter Croll, Dr Liam J Caffery), 28 June 2011, p.26

34 Julie Watson, Lee Gasser and Ilse Blignault, *Networking North Queensland: an e-Health Revolution in the Bush* (Networking North Queensland), 6th National Rural Health Conference Canberra, Australian Capital Territory, 4-7 March 2001, http://www.ruralhealth.org.au/papers/6_E_5_2.pdf

35 Buletpoint, *Digital Regions Initiative*, accessed 31 July 2014, <http://www.buletpoint.com.au/digital-regions-initiative/>

36 Buletpoint, *Digital Regions Initiative*

37 Tunstall Australasia Pty Ltd, *Tunstall telehealth solution at the heart of Townsville-Mackay diabetes trial*, accessed 31 July 2014, <http://www.tunstallhealthcare.com.au/news/409/tunstall-telehealth-solution-at-the-heart-of-townsville-mackay-diabetes-trial>

38 Buletpoint, *Digital Regions Initiative*

39 Department of Health (Cwlth), *Telehealth Pilots Program*, July 2014, <http://health.gov.au/ehealth-nbntelehealth>

1.2.4 In-Home Telemonitoring for Veterans Trial

The In-Home Telemonitoring for Veterans Trial is a targeted trial only for veteran Gold Card holders with specific chronic conditions, who are eligible to be on the Coordinated Veterans Care Program and who live in one of the trial sites. Gold Card holders who are chronically ill have their health monitored by their own GP without leaving home.⁴⁰

The trial commenced in June 2013 at the first trial site in Armidale, NSW. Current trial sites include the NSW North Coast, the New England region in NSW, and the Darling Downs region in Queensland.

Once enrolled in the trial, practices receive a one-off payment of \$600 to become videoconferencing-ready and to assist with covering the time when a nurse coordinator is offline to participate in Department of Veterans' Affairs training. A practice only receives one payment regardless of how many patients it has enrolled on the trial. GPs then receive \$1200 for each participating patient per year.

1.3 Commonwealth Medicare Benefits Schedule funding

Prior to July 2011, Commonwealth funding for telehealth consultations via the Medicare Benefits Schedule (MBS) was limited to telepsychiatry and teleradiology, and only the specialist was able to bill Medicare.⁴¹ Telepsychiatry became available for reimbursement under the MBS from 2002.⁴²

In 2011 the Australian Government moved to encourage the use of telehealth more broadly by making additional items available for medical practitioners to charge for consultations on the MBS.⁴³ A discussion paper to refine the Commonwealth initiative described its intent as: "to address some of the barriers to access to medical services, and specialist services in particular, for Australians in rural, remote, and outer metropolitan areas".⁴⁴ The proposed model for Medicare rebates was:

*Telehealth facilities located in general practices, aged care facilities, Aboriginal Medical Services and certain other, non-medical facilities, will be able to videolink patients in rural, remote and outer metropolitan areas with specialists in cities or major regional centres. The patient may be accompanied by their GP or a nurse practitioner, midwife, Aboriginal health worker or practice nurse.*⁴⁵

Currently, telehealth MBS items are available for telehealth consultations provided by specialists and consultant physicians. To be eligible, a patient must be in a regional or remote area (ASGC remoteness areas RA2 or above) and be 15 km away from the specialist. Figure 1 shows the area of Queensland that is not eligible; that is, remoteness area RA1 – the major city areas of Australia.

Residents of residential aged care facilities (RACFs) and patients at Aboriginal Medical Services and Aboriginal Community Controlled Health Services are also eligible, including those in metropolitan areas.⁴⁶

40 Department of Veterans' Affairs (Cwlth), *In-Home Telemonitoring for Veterans Trial*, accessed 31 July 2014, http://www.dva.gov.au/health_and_wellbeing/health_programs/telem/Pages/index.aspx

41 Department of Health and Ageing (Cwlth), *Connecting Health Services with the Future: Modernising Medicare by providing Rebates for Online Consultations: A Discussion Paper from the Australian Government* (Connecting Health Services with the Future), 2010, p.2, accessed 19 May 2014, [http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/256BA3C38B7EEA22CA2577EA006F7C42/\\$File/Telehealth%20discussion%20paper.pdf](http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/256BA3C38B7EEA22CA2577EA006F7C42/$File/Telehealth%20discussion%20paper.pdf)

42 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, p.43

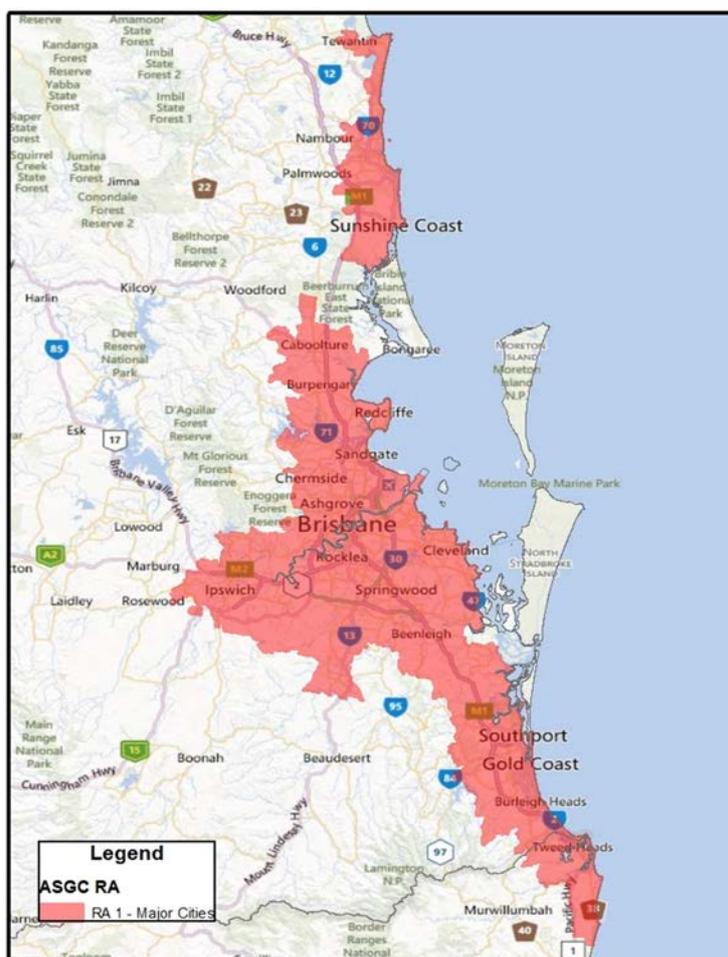
43 Department of Health and Ageing (Cwlth), *Connecting Health Services with the Future*, p.2

44 Department of Health and Ageing (Cwlth), *Connecting Health Services with the Future*, p.1

45 Department of Health and Ageing (Cwlth), *Connecting Health Services with the Future*, p.1

46 Royal Australasian College of Physicians (RACP), Physicians Telehealth Support Project, *Fact Sheet: MBS Items for Specialist Telehealth Consultations*, p.1, accessed July 2014, <http://www.racptelehealth.com.au/wp-content/uploads/2013/03/Specialist-MBS-Items-Fact-Sheet.pdf>

Figure 1: Queensland MBS Telehealth Ineligible Area



Source: *Telehealth Eligible Areas*, accessed 10 July 2014 from [http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/D071C042093EC0BBCA2578A30006E341/\\$File/Telehealth%20Eligible%20Areas%20\(from%201%20January%202013\).pdf](http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/D071C042093EC0BBCA2578A30006E341/$File/Telehealth%20Eligible%20Areas%20(from%201%20January%202013).pdf)

Consultations can be ‘supported’, where there is a medical practitioner at the patient end and that practitioner can claim MBS items, or they can be ‘unsupported’, where the specialist connects with the patient directly via videoconference.⁴⁷ The MBS also supports a physician or specialist consulting by telehealth with another specialist about a patient.

Telehealth specialist services can be provided without patient-end services. Other MBS items enable medical practitioners and other health professionals to provide clinical services, where clinically appropriate, to the patient during an MBS video consultation with a specialist.⁴⁸

A provider is eligible to provide services by telehealth if they:

- have a Medicare provider number and are in a private practice as a:
 - specialist
 - consultant physician, or

⁴⁷ RACP, *Fact Sheet: MBS Items for Specialist Telehealth Consultations*, p.1

⁴⁸ Department of Health (Cwlth), *Medicare Rebates for Specialist Video Consultations – Program Overview*, accessed 10 July 2014, <http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-Program%20Overview>

- consultant psychiatrist.
- have a Medicare provider number, provide support to a patient located in an eligible telehealth area during a video consultation with a specialist, and are in a private practice as a:
 - medical practitioner
 - nurse practitioner, or
 - midwife.
- provide services on behalf of a medical practitioner using their provider number and are a:
 - practice nurse, or
 - Aboriginal health worker.⁴⁹

During its visit to the Cairns Diabetes Centre, the committee was advised that the MBS telehealth item availability for specialists meant that a lot of the costs can be offset toward telehealth, which leaves resources available for other clinical work.⁵⁰

The department noted in its initial public briefing that the MBS billable telehealth items “are somewhat constrained in the fact that there are geographical exclusion zones around the metros, and there are some distance requirements around the distance between the provider and the receiver”.⁵¹

The department told the committee that it had begun discussions with the Commonwealth about the potential for some greater flexibility in the Medicare guidelines, particularly in rural and remote communities, to enable GPs in some circumstances to bill for their interaction with public sector specialists.⁵²

Recommendation 1

The committee recommends that the Minister for Health make representations to the Commonwealth Minister for Health to amend the Medicare Benefits Schedule to:

- enable billing by a general practitioner for patient consultations by telehealth, including consultations between a medical specialist and a general practitioner about a patient
- extend eligibility for telehealth billing to metropolitan areas for people in certain circumstances who have difficulty accessing health care services, for example, the elderly, people with a disability or someone with a terminal illness.

1.4 Other Commonwealth funding incentives for telehealth

Other non-MBS funding incentives to encourage the adoption of telehealth were also introduced by the Commonwealth in July 2011, and ceased in June 2014. The incentives were provided to encourage change in the way in which services are provided. The payments recognised that incorporating telehealth into everyday workflows can represent a significant change to traditional practice that will affect billing and scheduling systems, IT systems, staff training, and capital improvements to establish telehealth-appropriate rooms at a practice.⁵³

49 Department of Human Services (Cwlth), *Telehealth for Health Professionals*, accessed 10 July 2014
<http://www.medicareaustralia.gov.au/provider/incentives/telehealth/information-for-health-professionals.jsp>

50 Site visit, Cairns, 18 June 2014

51 Mr Andrew Bryett, Director, Telehealth Services, Queensland Health, *Public Briefing Transcript*, 5 March 2014, p.6

52 Mr Andrew Bryett, *Public Hearing Transcript*, 31 July 2014, p.6

53 Department of Health (Cwlth), *Program guidelines: Financial incentives for telehealth*, accessed 31 July 2014
[http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/OCA5AF3D82AB2CDDCA2578A30006DA42/\\$File/Telehealth%20Program%20Guidelines%20effective%201%20July%202012.pdf](http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/OCA5AF3D82AB2CDDCA2578A30006DA42/$File/Telehealth%20Program%20Guidelines%20effective%201%20July%202012.pdf)

The Telehealth Financial Incentives Program incorporated:

- the On-Board Incentive Payment – for physicians who commenced using telehealth. The incentive was paid in two instalments, the first after the first MBS item claim (\$1300 in 2013-14) and the second after the tenth claim was processed (\$2600 in 2013-14)
- a Telehealth Service Incentive (\$39 in 2013-14) and a Telehealth Bulk Billing Incentive (\$13 in 2013-14) for each telehealth consultation in addition to the telehealth MBS items⁵⁴
- the RACF On-Board Incentive: a one-off payment (\$3900 in 2013-14) made to an eligible RACF to encourage the provision of appropriate facilities and resources to host telehealth consultations⁵⁵
- the Telehealth Hosting Service Incentive, a time-limited, per service payment (\$39 in 2013-14) to encourage eligible RACFs to provide ongoing hosting services.⁵⁶

The Telehealth Financial Incentives Program ceased on 30 June 2014 and financial incentive payments are not paid for Medicare Telehealth services provided after that date. Providers continue to receive higher Medicare benefits for Telehealth services under Telehealth MBS items.⁵⁷

1.5 Funding for public hospital services – Commonwealth and State responsibilities

Under the National Healthcare Agreement, the Commonwealth is responsible for funding access to private medical care, pharmaceuticals and private health insurance; education of health professionals; health services for eligible veterans; residential, community and flexible aged care services; the purchase of vaccines under national immunisation arrangements; and community-controlled Aboriginal and Torres Strait Islander primary healthcare.⁵⁸ The states and territories are responsible for funding community health; capital infrastructure and service planning; ambulance services; food safety and regulation; environmental health; and disability services.⁵⁹

The Commonwealth and the states and territories are jointly responsible for funding:⁶⁰

- public hospitals
- public health activities
- mental health services
- sub-acute care (including rehabilitation, palliative care, geriatric evaluation and management, and psychogeriatric care)⁶¹
- Aboriginal and Torres Strait Islander health services
- health research
- health workforce training
- emergency responses
- blood and blood products

Queensland is responsible for system-wide planning of the required range, type, and volume of public hospital and health services in Queensland. Decisions about the services that are funded locally or the level at which services should be provided are primarily shared between the Queensland government and the HHSs. The Australian Government (through its funding role), and

54 RACP, *Fact Sheet: MBS Items for Specialist Telehealth Consultations*, p.4

55 Department of Health (Cwlth), *Program guidelines for telehealth*, p.3

56 Department of Health (Cwlth), *Program guidelines for telehealth*, p.4

57 Department of Human Services (Cwlth), *Telehealth*

58 Council of Australian Governments (COAG), *National Healthcare Agreement 2012*, p.A-8,

<http://www.federalfinancialrelations.gov.au/content/npa/healthcare/national-agreement.pdf>

59 COAG, *National Healthcare Agreement 2012*, p.A-7

60 COAG, *National Healthcare Agreement 2012*, p.A-6

61 AIHW, *National Health Data Dictionary 2012 – version 16*, 2012, 24 January 2013,

<http://www.aihw.gov.au/publication-detail/?id=10737422826>

the Independent Hospital Pricing Authority (IHPA) (through its role in price determination) do not have any direct role in determining the type and level of services provided.

1.6 Activity-based funding

Activity-based funding (ABF) was introduced as the primary funding methodology for public hospital services throughout Australia over 2012-2013 as part of major reforms to Commonwealth-State health funding arrangements.⁶² The IHPA calculates and delivers the annual National Efficient Price (NEP) used to calculate the Commonwealth's contribution to public hospital funding.

The IHPA notes that the pricing framework ensures that decisions about the scope of funded public hospital services should not create an incentive for services to be provided in a particular setting. It affirms the roles of states and territories as system managers responsible for planning how best to organise and deliver public hospital services for their populations and for HHSs with respect to local needs. The pricing framework also recognises that decisions about where public hospital services will be provided for individual patients are clinical decisions involving patients and health professionals.⁶³

Public hospital services provided by telehealth are considered in scope and are funded under the national ABF model in the same way as face-to-face delivery of that service. A telehealth consultation is only counted as one service event, irrespective of the number of health professionals and locations participating in the consultation.⁶⁴

The department confirmed for the committee that for the national ABF model in 2013-14, jurisdictions were required to report and count the non-admitted patient service event at the location the patient physically attended. That is, the national ABF provided funding for the hospital recipient-end of the service provision.⁶⁵ If the patient was not located at a public hospital (for example, they were in RACF or a GP clinic), the non-admitted patient service event was counted and reported by the hospital providing the consultation. This changed for 2014-15, with the IHPA requiring that the non-admitted patient service event be counted at the clinic providing the consultation service.⁶⁶ Now, therefore, the telehealth service provider-end receives funding and no funding is provided under the national ABF to support the recipient-end of the service. Funding flows only to the service provider reporting the event.⁶⁷

The committee understands that there are no additional incentives provided under the national ABF model for delivering services by telehealth. The Queensland ABF model for telehealth differs from the national model and is described in chapter 8 of this report where the committee addresses the issues of funding incentives.

62 Queensland Government, *State Budget 2012–13 – Budget Paper 5: Service Delivery Statements – Queensland Health* (Queensland Health 2013-14 SDS), p.5, accessed July 2014, <http://www.budget.qld.gov.au/budget-papers/2012-13/bp5-qh-2012-13.pdf>

63 IHPA, *Pricing Framework for Australian Public Hospital Services*, 2012, p.11, accessed July 2014, <http://www.ihoa.gov.au/internet/ihoa/publishing.nsf/Content/pricing-framework-public-hospitals-2012-13>

64 AIHW, *Activity based funding: Non-admitted patient care DSS 2013-2014*, accessed 1 August 2014, <http://meteor.aihw.gov.au/content/index.phtml/itemId/497531>

65 Department of Health, *Response to committee pre-hearing questions dated 9 July 2014 (Response to questions on notice)*, accessed 23 July 2014, p.2, <http://www.parliament.qld.gov.au/documents/committees/HCSC/2014/InquiryTelehealth/cor-23Jul2014.pdf>

66 IHPA, *Tier 2 Non-admitted services Compendium 2014-2015*, November 2013, section 7, p.13, accessed 29 August 2014 [http://www.ihoa.gov.au/internet/ihoa/publishing.nsf/Content/CA25794400122452CA257C9F002A9FC9/\\$File/tier2-compendium-2014-15.pdf](http://www.ihoa.gov.au/internet/ihoa/publishing.nsf/Content/CA25794400122452CA257C9F002A9FC9/$File/tier2-compendium-2014-15.pdf)

67 Department of Health, *Response to questions on notice*, p.1

2 Adoption of telehealth in Australia and overseas

2.1 Adoption of telehealth in Australian jurisdictions

2.1.1 Overview of other jurisdictions

Activity in telehealth in most Australian jurisdictions commenced in the mid- to late-1990s, encouraged by project funding provided by the Australian Government to health departments in the states and territories.

Encouragement of telehealth activities in Australia was, in general, a response to the need to improve access to health services for people in rural and remote areas. More recently, issues of cost effective delivery of services and improved monitoring of chronic conditions have also become arguments for the expansion of telehealth activity.

The management and coordination of telehealth varies across Australian jurisdictions. In some it is centrally coordinated and in others it is managed by primary care providers or hospitals or supported by regional 'alliances'.⁶⁸

Gray and others note that, in most states and territories, there is a 'large and well equipped videoconferencing network to facilitate telehealth practices'.⁶⁹ Most telehealth activity is found operating within hospitals and the public health system and, at present, its use by general practitioners is low.⁷⁰ Most state health departments operate a network for the delivery of telehealth services. Telehealth in Australia is used for clinical, educational, administrative and research activities.

2.1.2 New South Wales

In New South Wales, programs are centrally coordinated through the NSW Telehealth Network. The NSW Ministry of Health provides the planning, policy and service development. HealthShare NSW, a statewide organisation established to provide high-quality shared services to support the delivery of patient care within the NSW Health system, provides technical advice and support. The Agency for Clinical Innovation, the lead agency in NSW for promoting innovation, engaging clinicians and designing and implementing new models of care, supports the development of models of care and protocols for service delivery. Local Health Districts deliver the services.⁷¹

Telehealth facilities (specifically videoconferencing) are available in the majority of hospitals and/or community health centres throughout NSW.⁷² In February 2011, the Ministry of Health noted that network infrastructure varied considerably across local health areas, with some areas historically investing to a greater extent than others in infrastructure.⁷³

68 Petra Bywood, Melissa Raven and Caryn Butler, *Telehealth in primary health care settings within Australia and internationally*, Primary Health Care Research Information Service (PHC RIS), May 2013, accessed July 2014, http://www.phcris.org.au/phplib/filedownload.php?file=/elib/lib/downloaded_files/publications/pdfs/phcris_pub_84_03.pdf

69 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, p.27

70 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, p.27

71 NSW Agency for Clinical Innovation, *Telehealth*, accessed 6 August 2014, <http://www.aci.health.nsw.gov.au/resources/telehealth>

72 NSW Agency for Clinical Innovation, *Telehealth Resource Package*, accessed 6 August 2014, http://www.aci.health.nsw.gov.au/data/assets/pdf_file/0003/189201/ACI-Telehealth-Resource-Package.pdf

73 Department of Health (NSW), *Submission to Senate Inquiry into the role and potential of the National Broadband Network*, February 2011, Submission 117, p.1

2.1.3 Victoria

In general, telehealth in Victoria is run through regional 'Rural Health Alliances'. There are five in Victoria. The most established of these in terms of telehealth is the Grampians Rural Health Alliance which consists of 12 hospital-based services, four bush nursing centres and several standalone community health centres across 40 sites in Western Victoria.⁷⁴ The Loddon Mallee Health Alliance covers around 25 per cent of the state in the North and North-Western region and is an alliance of 18 hospitals and five community health centres. A key focus for that alliance has been the implementation of the Virtual Trauma and Critical Care Unit which links local doctors to specialist doctors at Melbourne Hospital.

2.1.4 Western Australia

Telehealth in Western Australia is managed through individual public hospitals. In 2008 seven public hospitals provided telehealth services to other metropolitan and rural hospitals and nursing posts.⁷⁵ Emergency departments in small Western Australian country hospitals are linked via telehealth to emergency doctors in Perth.⁷⁶ The Western Australia Department of Health aims to have most WA Country Health Service Hospitals using the system by 2015. The WA Country Health Service leads and promotes the use of telehealth as part of providing quality, accessible health services to people across large regional centres and small remote communities in Western Australia.⁷⁷

2.1.5 South Australia

Telehealth in South Australia is run through individual hospitals.⁷⁸ South Australia's Digital Telehealth Network has been used primarily for mental health but more recently has been extended to other clinical specialities, such as cardiology, cancer, rehabilitation, geriatric evaluation and management, and palliative care services.⁷⁹

2.1.6 Tasmania

Tasmania's Telecare Online Services network enables the support and delivery of health services via the use of video conference equipment. Access to telehealth services is coordinated through GPs and community health centres.⁸⁰ The network covers a range of primary care services including wound management, diabetes education and support, specialist clinics, mental health, palliative care, and

74 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, p. 17

75 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, p.18

76 The Hon. Kim Hames MLA, Minister for Health, Western Australia, *Virtual ED expands in regional WA*, 10 December 2013, accessed 7 August 2014, <http://www.mediastatements.wa.gov.au/pages/StatementDetails.aspx?listName=StatementsBarnett&StatId=8022>

77 WA Country Health Service, *About us and Telehealth*, accessed 7 August 2014 <http://www.wacountry.health.wa.gov.au/index.php?id=442>

78 Bywood *et al.*, *Telehealth in primary health care settings within Australia and internationally*, p.10

79 Country Health SA Local Health Network, *Digital Telehealth Network upgrade fact sheet for GPs*, accessed 7 August 2014, <http://www.sahealth.sa.gov.au/wps/wcm/connect/c121db004c759e5daac8baa496684d9f/DigitalTelehealthUpgradeGPs-CHSALHN-CS-1209.pdf?MOD=AJPERES&CACHEID=c121db004c759e5daac8baa496684d9f> and Statewide Rehabilitation Clinical Network, *Guidelines for Sub-acute Services Offering Digital Telehealth Network Consultations*, July 2013, p.3, accessed 7 August 2014, <http://www.sahealth.sa.gov.au/wps/wcm/connect/68e53f8040b71583ad4dff809397f885/Guidelines+for+Sub-Acute+Services+Offering+Telehealth+Network+Consultations+August+2013.pdf?MOD=AJPERES&CACHEID=68e53f8040b71583ad4dff809397f885>

80 Department of Health and Human Services (TAS), *Telecare Online Services*, accessed 7 August 2014, http://www.dhhs.tas.gov.au/service_information/services_files/telecare

health professional support and education.⁸¹ Provision of the NBN in Tasmania is expected to expand telehealth services.

2.1.7 Australian Capital Territory

ACT Health clinicians provide complex clinical advice by telehealth to clinicians located in emergency departments at surrounding south-east NSW towns and the other major emergency care hospital in Canberra.⁸² ACT Health funds telehealth consultations for patients from Canberra Hospital with a cancer geneticist at Prince of Wales Hospital Sydney.⁸³

2.1.8 Northern Territory

The Northern Territory's Health eTowns was funded as part of the Digital Regions initiative.⁸⁴ It is administered by the NT Department of Health in partnership with the NT Department of Education and Training and the NT Department of Business and Employment.⁸⁵ It delivers health and education services from Darwin to 47 remote towns and provides telehealth services to emergency rooms and resuscitation areas in regional hospitals and 17 territory growth towns.

The NT telehealth network works with the Aboriginal Medical Services Alliance Northern Territory and health services to enable video consults into the NT Hospital network. The Network operates Tele-Critical care and Tele-Specialist Clinics, including Tele-Burns, Tele-Gastro, Pre-Admissions clinics, Tele-Rheumatology, Tele-Renal, Tele-Oncology, and Tele-Respiratory.⁸⁶

2.2 Telehealth adoption internationally

2.2.1 Overview

The committee also considered examples of adoption of telehealth internationally. Various models of telehealth have been established in other countries. A number provide pointers to the barriers to and enablers of take up of telehealth. International experiences of telehealth have also been important in providing evaluation evidence showing the efficacy of telehealth approaches.

In line with telehealth development in Australian jurisdictions, efforts to encourage wider consideration of telehealth overseas started in the early 1990s as information and communications technology became more readily available. Similar to the Australian experience, telehealth in other countries has been funded largely on a project funding basis as trials and pilots rather than as a recurrent and embedded mainstream service, although a number of Canadian provinces and Scotland are more advanced in efforts to mainstream the use of telehealth in health care.

In the international context, the need to improve access to health services has been a significant driver in changing models of service delivery towards the use of telehealth but cost effectiveness and efficiency are also important goals for government and private health insurers in other countries.

81 Judi Walker, Ros Hill and Lorraine Green, Tassie's Tele-rific Telehealth Network: Linking Primary Health Care Services for Better Rural Health Outcomes, *Australian Journal of Primary Health*, 2000, 6(4) 108-117, accessed 7 August 2014, <http://www.publish.csiro.au/paper/PY00043.htm>

82 ACT Health, *Critical Care Telehealth*, accessed 7 August 2014, <http://health.act.gov.au/consumers/telehealth/&template=74>

83 Canberra Times, *Canberra Hospital claims a win with videolinks*, 29 July 2013, accessed 7 August 2014, <http://www.canberratimes.com.au/act-news/canberra-hospital-claims-a-win-with-videolinks-20130729-2qtsm.html>

84 Adam Bender, *Australia aims to improve NT healthcare with IT*, 31 July 2012, accessed August 2014, http://www.computerworld.com.au/article/432222/australia_aims_improve_nt_healthcare_it/

85 Australian Indigenous HealthInfoNet, *Major telehealth initiative will improve remote Indigenous access to healthcare*, 1 August 2012, accessed 7 August 2014, <http://www.healthinfonet.ecu.edu.au/about/news/968>

86 Aboriginal Medical Services Alliance Northern Territory, *Telehealth update September 2013*, accessed 7 August 2014, <http://www.amsant.org.au/index.php/telehealth>

2.2.2 Canada

All Canadian provinces and territories have established a telemedicine network, although the operation of the network varies in each jurisdiction. In Ontario, Manitoba, Newfoundland and Labrador there is one telehealth program for the province. In British Columbia, New Brunswick, and Nova Scotia, the programs are based on regions or health authorities, and on Prince Edward Island the telehealth programs are run through hospitals.⁸⁷

Ontario

The Ontario Telemedicine Network (OTN) is an independent not-for-profit corporation funded by the Government of Ontario and established in 2006. Its delivery partners include:

- eHealth Ontario
- Keewaytinook Okimakanak e-Health
- OntarioMD
- Canada Health Infoway.⁸⁸

The committee held a public hearing with representatives of OTN on 9 May 2014. Dr Brown of OTN advised the committee that three original networks had been merged to form OTN and that there had been significant discussion about the model of governance that should be adopted for the new organisation. He noted it was “felt that putting this outside of government would enable a bit more flexibility, a bit more of an entrepreneurial approach than if we went inside government or became an agency of government.”⁸⁹

Consultants and health organisations may join OTN to access the telemedicine services provided by the network. OTN has experienced rapid expansion with 700 new consultants joining the network in the 2012-13 financial year.⁹⁰ OTN’s members include 1,350 health care and education organisations and it has 230 employees.⁹¹

OTN provides a range of telehealth services:

- the Healthcare Office facilitates health organisations, patients, and health professionals to use telemedicine services such as videoconferences from room-based systems or from desktop, laptop and/ or mobile devices⁹²
- the Telemedicine Directory (TM Directory) and the OTN Site Finder, which assist medical practitioners and health organisations to find services
- videoconferencing in telemedicine studios located at more than 1500 sites across Ontario
- personal videoconferencing, through a mobile device or PC in the practitioner’s office or patient’s home⁹³
- acute care, for example, the Provincial Telestroke Program and the Teletrauma Program provide access to specialist medical care at the time of an emergency
- home and Community Care, the Telehomecare program supports chronic disease patients within their own home⁹⁴

87 Coach, *2013 Canadian Telehealth Report*, 25 March 2013,

<http://coachorg.com/en/resourcecentre/resources/TeleHealth-Public-FINAL-web-062713-secured.pdf>

88 Ontario Telemedicine Network (OTN), Presentation to Health and Community Services Committee of the Queensland Parliament, 9 May 2014 (OTN Presentation),

<http://www.parliament.qld.gov.au/documents/committees/HSCSC/2014/InquiryTelehealth/phd-09May2014.pdf>

89 Dr Ed Brown, Chief Executive Officer, OTN, *Public Hearing Transcript*, 9 May 2014, p.14

90 OTN, *Embarking on the Journey for Virtual Care; 2012/13 Annual Report*, accessed 27 March 2014,

<http://otn.ca/sites/default/files/otn-annual-report-2012-13.pdf>

91 OTN, *OTN Presentation*

92 OTN, *OTN Presentation*

93 OTN, *Services*, accessed 27 March 2014, <http://otn.ca/en/services>

- the Learning Centre
- OTN facilitates group or one-to-one meetings for professional education through videoconferencing, webcasting, and webconferencing. Health professionals can use their PC, Smartphone or tablet to access health education through the Centre⁹⁵
- assistance in scheduling coordination activities, general inquiries, and service requests while safeguarding privacy
- webcasting, which allows the archiving of education sessions for later viewing on the web
- webconferencing, which enables conferences to take place by emailing a link.

At the public hearing, Dr Brown noted that OTN's vision was 'remarkably simple', in that the organisation works towards embedding telemedicine in every day health care activities in a way that is simple and straightforward for clinicians.⁹⁶

Nova Scotia

Nova Scotia was the first Canadian province to introduce a province-wide telehealth service, after a successful pilot program in 1996.⁹⁷ Nova Scotia Telehealth Network (NSTHN) provides videoconferencing services between health care related facilities. All hospitals in the province of Nova Scotia are locations of the NSTHN. The network also connects several community health centres, primary care locations and justice facilities.⁹⁸ The program works in collaboration with the province's District Health Authorities and the IWK Health Centre, which provides specialised healthcare for women, children, youth, and families.

The NSTHN provides videoconferencing facilities for clinical, educational, and administrative purposes.⁹⁹ Telehealth services are provided in the following areas:

- dermatology
- genetics
- geriatrics
- lung transplant
- mental health
- oncology
- preoperative
- rehabilitation
- visitation.

The IWK centre provides specialised care through the Children's TeleHealth NetworkTM.¹⁰⁰

Videoconferencing through NSTHN is also used to provide education to medical practitioners and patients and their families.

2.2.3 Scotland

Scotland is recognised as a leader in the development and use of telehealth. The Scottish Centre for Telehealth and Telecare (SCTT) was established in 2006 by the Scottish government to "support and guide the development of telehealth and telecare throughout Scotland" by disseminating best practice, providing practical clinical and technical support and evaluating the impact of telehealth

94 OTN, *OTN Presentation*

95 OTN, *Learning Centre*, accessed 27 March 2014, <http://otn.ca/en/services/learning-centre>

96 Dr Ed Brown, *Public Hearing Transcript*, 9 May 2014, p.4

97 Department of Health and Wellness (Nova Scotia, Canada), *Nova Scotia Telehealth Network*, accessed 27 March 2014, <http://novascotia.ca/dhw/ehealth/telehealth/>

98 Department of Health and Wellness, *Nova Scotia Telehealth Network*

99 Department of Health and Wellness, *Nova Scotia Telehealth Network*

100 IWK Health Centre, *About us*, accessed 11 August 2014, <http://www.iwk.nshealth.ca/page/about-us>

and telecare projects.¹⁰¹ In 2010 the SCTT was incorporated into NHS24, which provides health information and self-care advice for Scotland, to facilitate the transition of telehealth into the mainstream.¹⁰² A specific principle of the SCTT in supporting telehealth service provision is that it should “effectively plan and manage appropriate transition from pilot projects to at-scale mainstream services”.¹⁰³

Scotland set in place a National Telecare Strategy (2008) and Telecare Action Plan 2010-2012 and a National Telehealth Strategy (2010) and four national telehealth programs in stroke, paediatrics, mental health and long term conditions. Over 2006 to 2011 it made significant funding investment in the development of telecare. A National Telehealth and Telecare Advisory Board drives strategic direction on telehealth and telecare in Scotland.¹⁰⁴

At the public hearing, the department noted that Scotland was acknowledged as a leading exponent of Telestroke, the telehealth model under which acute stroke services are provided by telehealth to support lysis for patients in remote locations where they have access to CT.¹⁰⁵

2.2.4 Denmark

In the European Union, Denmark has the highest deployment of telehealth.¹⁰⁶ In 2007, more than 15 telemedicine applications were being used in specialities such as cardiology, endocrinology, and radiology.¹⁰⁷ Denmark’s interest in telehealth was driven by shifting demographics, together with an increase in the incidence of chronic disease.¹⁰⁸

Telehealth solutions being used in Denmark include videoconferencing, digital exchange of images and monitoring patients in their own homes.¹⁰⁹ Telehealth in Denmark is supplemented by electronic information systems including the government health portal, MedCom and the Shared Medication Record.¹¹⁰

Through the government health portal patients have access to their own medical records. Patients are also able to make appointments and communicate electronically with general practitioners, renew prescriptions, check on waiting times in public hospitals and access information. The website also has patient networks, particularly for patients with chronic disease so they can discuss their disease and treatment with others in a similar situation.¹¹¹ Healthcare professionals also have access

101 Scottish Centre for Telehealth & Telecare, *About*, accessed 8 August 2014, <http://www.sctt.scot.nhs.uk/>; and Alistair Hodgson, *Telehealth and telecare: integrated delivery in Scotland*, accessed 8 August 2014, http://www.telecare.org.uk/webfm_send/480

102 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, pp.23-4

103 Scottish Centre for Telehealth & Telecare, *Health*, accessed 8 August 2014, <http://www.sctt.scot.nhs.uk/programmes/health/>

104 Scottish Centre for Telehealth and Telecare, *A National Telehealth and Telecare Delivery Plan for Scotland to 2015*, accessed 7 August 2014, <http://www.scotland.gov.uk/Resource/0041/00411586.pdf>

105 Mr Andrew Bryett, *Public Hearing Transcript*, 31 July 2014, p.9

106 Business Wire, Denmark, World Leader in Health IT, Tests New Systems with US Companies, 19 February 2014, <http://finance.yahoo.com/news/denmark-world-leader-health-tests-150000901.html>

107 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, p.21.

108 Danish Government, Local Government Denmark, Danish Regions, *Telemedicine – A Key to the Health Services of the Future: National Action Plan for Dissemination of Telemedicine* (Denmark National Action Plan for Telemedicine), August 2012, p.3, accessed July 2014, http://www.digst.dk/Digital-velfaerd/~media/Files/Velf%C3%A6rdsteknologi/Telemedicinsk%20handlingsplan/telemedicine_UK_pdfa_03_11_12.pdf

109 Danish Government, *Denmark National Action Plan for Telemedicine*, p.7

110 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, p.21.

111 Danish Ministry of Health, *eHealth in Denmark: eHealth as a part of a coherent Danish health care system* (eHealth in Denmark), April 2012, p.14

to electronic patient records and a professional handbook for physicians.¹¹² By the end of 2011, the system had health data for more than 85 per cent of the Danish population.¹¹³

MedCom is an electronic system for basic medical communications between public hospitals, general practitioners, and pharmacies such as discharge letters, referrals, lab test orders, e-prescriptions, and reimbursement from public health insurance. The system was established in 1994 and is now almost fully electronic with more than 60 million messages sent in 2011.¹¹⁴

The Shared Medication Record is a central database containing information on all Danish citizens' medicine dispensed during the previous two years as well as an updated list of every patient's current medication.¹¹⁵

2.2.5 Hong Kong

Hong Kong is one of the leading telehealth jurisdictions in Asia. Its emphasis is on the use of 'store-and-forward' telehealth and some videoconferencing. The most common areas of use are radiology for orthopaedic and neurology problems, home telehealth, ophthalmology, pathology, emergency medicine and cardiology.¹¹⁶

The Hong Kong Hospital Authority, the organisation managing 43 public hospitals/institutions, 47 specialist outpatient clinics and 74 general outpatient clinics, has adopted a clinical management system using electronic patient records. The electronic record is available 24 hours a day seven days a week for 29,000 clinical users at the Authority's health facilities across Hong Kong.¹¹⁷

One example of Hong Kong's use of telehealth is its Telephone Nursing Consultation Service for high risk elderly living in the community. Telehealth delivery was seen to be important in the context of geriatrics, due to the frailty and isolation of patients. Telephone protocols were developed in relation to specific issues for the elderly, such as abdominal pain, loss of appetite, chest pain, and falls.¹¹⁸ In 2008, the service was reported to have reduced the number of visits to accident and emergency departments by 36.5 per cent and the number of emergency admissions by 35.8 per cent.¹¹⁹

2.3 Adoption of telehealth in Queensland

2.3.1 Introduction

This section provides an overview of Queensland's early use of telehealth, including development of infrastructure and some of the pilot projects that were funded and developed. Chapter 4 describes the clinical services currently delivered by telehealth in Queensland.

2.3.2 Pilot projects

Much of the early development of telehealth in Australia, including Queensland, can be characterised as project-based, driven by the commitment and enthusiasm of an individual or small group of

112 eHealth in Denmark, p.15

113 eHealth in Denmark, p.18

114 eHealth in Denmark, p.13

115 Statens Serum Institut, *Shared Medication Record*, accessed 8 August 2014, <http://www.ssi.dk/English/HealthdataandICT/The%20National%20eHealth%20Authority/FMK.aspx>

116 Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, p.19

117 Hong Kong Hospital Authority, *Clinical Management Systems (CMS)*, November 2007, accessed 8 August 2014, <http://www3.ha.org.hk/hi/CMS.html>

118 Dr CP Wong, Chief of Integrated Medical Services, Ruttonjee & Tang Shiu Kin Hospitals, Hong Kong Health Authority, *Telehealth-Management of High Risk Elderly* (Paper presented at Hong Kong Hospital Authority Convention 2008) pp.24, 27 & 28, accessed 8 August 2014, <http://www.ha.org.hk/haconvention/hac2008/proceedings/pdf/Special%20Topic/ST3-2%20WONG.pdf>

119 Dr CP Wong, *Telehealth-Management of High Risk Elderly*, pp.42-3

clinicians, and reliant on short-term funding. This work has led to some significant innovations in delivery of health services, some of which have continued.

A number of projects have tested different aspects of telehealth. Many pilot projects are now established services due to the good outcomes recorded from using telehealth.¹²⁰

The committee notes that most reported studies of pilot projects highlight successful outcomes. Reported advantages include patient and clinician satisfaction, and avoidance of travel costs for patients and specialists. There is limited published information about those pilots which may have contributed to knowledge about using telehealth but which did not continue when funding ended. Unfortunately, some pilot and research projects have lost skilled staff, or ended due to lack of certainty about funding. Without sustainable organisational and financial support for telehealth, there is a risk that valuable practice knowledge is lost, and that clinicians and patients will perceive telehealth as an unreliable service.

Some Queensland public sector telehealth pilot projects are summarised below; the examples include projects that have continued as an ongoing mode of service delivery, and some that have been modified as a result of what has been learnt during a pilot. The committee understands that some pilot projects have not continued beyond the pilot funding period.

Townsville Cancer Centre

The Townsville Cancer Centre embarked on a two year pilot program of a technology model of care for its six rural satellite sites in 2007.¹²¹ In 2009 the network was extended to 18 telehealth-equipped centres, from Camooweal near the Northern Territory border, north to Mornington Island and south to Longreach.¹²² Continuous expansion has led to around 21 sites in 2014.¹²³ Studies evaluating the Townsville teleoncology model have reported: acceptance of the model by patients and medical specialists;¹²⁴ that it is a safe model to supervise chemotherapy;¹²⁵ and net savings due to avoidance of travel costs for patients, their escorts and medical specialists.¹²⁶ The teleoncology model has expanded the rural scope of practice and workforce.¹²⁷ It is expected that savings will also increase as there is an increase in patient numbers.¹²⁸

Cairns Diabetes Centre

In July 2009, a project commenced to develop a model of care for telehealth consultations with medical teams in the Torres Strait, Cape York and Cairns hinterland for people with diabetes.¹²⁹ The project aimed to introduce, regularly assess, and improve telehealth diabetes services to the region.¹³⁰ By 2013, the project supported 365 video-linked consultations, of which 95 per cent were

120 Associate Professor Michael d'Emden, Submission 28, 2014, p.4

121 Darshit A Thaker, Richard Moneypenny, Ian Olver and Sabe Sabesan, 'Cost Savings from a telemedicine model of care in northern Queensland, Australia' (Cost savings from telemedicine), *Medical Journal of Australia*, 2013, Vol.199 No.6, pp.414-417, at p.414

122 Australian College of Rural and Remote Medicine, *Telehealth turns 750,000 square kms into a 'local' oncology Practice*, accessed August 2014
https://www.acrrm.org.au/files/uploads/pdf/news/Release_TeleHealth%20cancer%20practice-ACRRM-6.pdf

123 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.1

124 Dr Sabe Sabesan *et al.*, 'Telemedicine for cancer care in NQ: bringing cancer care home', *Australian Journal of Rural Health*, 2012, Vol.20, pp.259-264; and Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.2

125 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, pp.2 and 4

126 Thaker *et al.*, *Cost savings from telemedicine*, p.3

127 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.4

128 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.3

129 Deborah Dean and Anna McLean, 'A project to develop a telehealth model of care for people with diabetes in Far North Queensland' (Telehealth for diabetics in Far North Queensland), *12th Annual Rural Health Conference*, April 2013, pp.1-4, at p.2, http://nrha.org.au/12nrhc/wp-content/uploads/2013/07/Dean-Deborah_ppr.pdf

130 Dean and McLean, *Telehealth for diabetics in Far North Queensland*, p.2

for Aboriginal and Torres Strait Islander patients in remote communities.¹³¹ The Cairns Diabetes Centre continues to deliver services by telehealth.

Store-and-forward: diabetic foot disease

The Queensland Health AUSCARE® diabetic foot store-and-forward project was implemented between August 2009 and February 2010 across six Queensland Health sites.¹³² A survey of clinicians reported that telehealth improved their access to diabetic foot speciality services, the up-skilling of local diabetes service staff, and improved patient outcomes.¹³³ All sites in the pilot study, including regional and remote and metropolitan, seemed to indicate positive impacts from the provision of telehealth.¹³⁴

Townsville National Broadband Network Enabled Telehealth Trial

The Townsville trial of telehealth home monitoring of patients with type 2 diabetes was funded through the National Partnership Agreement on the Digital Regions Initiative.¹³⁵ The trial was implemented by the Townsville-Mackay Medicare Local through a service level agreement with the Department of Health.¹³⁶ Initially scheduled to conclude on 30 June 2013 the trial was extended to June 2014. Recruitment of patients to the trial was limited due to the delayed rollout of the NBN in Townsville.¹³⁷ The Commonwealth Government provided up to \$3.76 million for the entire trial.¹³⁸

The trial included in-home monitoring of key health indicators, video consultations between patients, nurse coordinators and health professionals, and education to promote healthier lifestyles.¹³⁹

Toowoomba telehealth pre-admission clinic

In 2004 a trial of pre-admission consultations by telehealth for regional patients was introduced in the southwest region of Queensland.¹⁴⁰ Patients would otherwise be required to travel to the Toowoomba Hospital for a pre-admission consultation. In May 2004 four sites were selected for telehealth preadmissions. Between May 2004 and January 2008, a further 20 hospitals chose to participate in telehealth preadmission assessments.¹⁴¹ The telehealth pre-admission clinic has continued, and the model has been introduced in other locations.

Tele-Eye Care Project

The CSIRO is working in partnership with the (former) Torres Strait-Northern Peninsula HHS and the Indigenous and Remote Eye Health Service to conduct a 12 month trial of remote eye screening at

131 Dean and McLean, *Telehealth for diabetics in Far North Queensland*, p.2

132 PA Lazzarini, D Clark, RD Mann, VL Perry, CJ Thomas, SS Kuys, 'Does the use of store-and-forward telehealth systems improve outcomes for clinicians managing diabetic foot ulcers? A pilot study' (Managing diabetic foot ulcers), *Wound Practice and Research*, 2010, Vol.18 No. 4, pp.164-175

133 Lazzarini et al., *Managing diabetic foot ulcers*

134 Lazzarini et al., *Managing diabetic foot ulcers*

135 Senate Community Affairs Committee (Cwlth), *Answers to Question on Notice, Health and Ageing Portfolio, Supplementary Budget Estimates 2012-13, 17 & 19 October 2012* (Senate Estimates Answers to Questions on Notice); and Department of Communications (Cwlth), *Digital Health and Education Initiatives*, http://www.communications.gov.au/digital_economy/digital_health_and_education_initiatives

136 Department of Health, *2012-13 Annual Report*, 2013, p.83

137 Department of Health, *2012-13 Annual Report*, 2013, p.83

138 Department of Communications (Cwlth), *Digital Health and Education Initiatives*

139 Senate Community Affairs Committee (Cwlth), *Senate Estimates Answers to Questions on Notice*

140 Dr C Kennedy, Dr R Gray, I McCowan, C Sarquis, S Stenhouse, A Scott, *Establishment of a sustainable telehealth service for pre-admission clinic consultations*, Queensland Health

141 Queensland Health, CaSS Statewide Telehealth Services, *2009 Queensland Health awards for Excellence*, accessed August 2014, p.2, http://www.health.qld.gov.au/qhafe/docs/006_sts_cass.pdf

Badu Island, Thursday Island and Bamaga.¹⁴² The project is funded by the Broadband-enabled Telehealth Pilots Program administered by the Australian Government Department of Health.¹⁴³ The trial will evaluate the performance of the eye screening system and its performance over a satellite broadband connection.¹⁴⁴

142 CSIRO, Submission 18, p.2

143 CSIRO, Submission 18, p.2

144 CSIRO, *Broadband-enabled Indigenous Tele-Eye Care*, accessed August 2014 <http://www.csiro.au/Organisation-Structure/Flagships/Digital-Productivity-and-Services-Flagship/Health-services/Broadband-enabled-indigenous-tele-eye-care.aspx>

3 Telehealth in Queensland – current funding and organisation

3.1 The Blueprint for better healthcare in Queensland – Rural Telehealth Service

In February 2013, the *Blueprint for better healthcare in Queensland* included plans for an “innovative plan for new bush services”. It said the department and HHSs will “... provide unprecedented access to a new generation of safe and sustainable care for residents in small, rural, or remote communities for the very first time”.¹⁴⁵

As part of this new initiative, the network of Telehealth facilities will be developed, expanded and co-ordinated to bring remote residents straight into the waiting room of the most advanced hospitals in this state.

*Under the Rural Telehealth Service facilities in different communities will be standardised, upgraded or re-oriented to enable networking at-call. As the scope and scalability of the new facilities is developed, training and workplace arrangements will enable local emergency access for patients at-call, up to 24-hours-a-day. Six trial sites for the Rural Telehealth Service will be created in 2013.*¹⁴⁶

3.2 Rural Telehealth Service and funding allocation

3.2.1 Rural telehealth service

The 2013-14 Queensland State Budget provided funding of \$30.9 million over four years to establish a Rural Telehealth Service to support enhanced models of care and outreach services. The Budget announcement envisioned that, under the new service, local residents who called participating facilities, up to 24 hours a day, would be able to access emergency staff and other clinicians at the best hospitals in Queensland via telehealth services. The aim of establishing the service was to improve access to health services and eliminate extended waiting times for treatment.¹⁴⁷

Better Health for the Bush notes that the Rural Telehealth Service is intended to enhance telehealth models of care, improve access to specialist consultations, and provide emergency management advice and support.¹⁴⁸

3.2.2 Telehealth coordinators

In its *State Budget 2014-15 Service Delivery Statements*, Queensland Health notes that this funding has supported the establishment of telehealth coordinator positions in all HHSs to support implementation of telehealth enabled service delivery models.¹⁴⁹ The department advised the committee that the telehealth coordinators were provided with skill development in strategic direction, funding models, monitoring and reporting, and approaches to stakeholder engagement.¹⁵⁰ The coordinators meet regularly.¹⁵¹

3.2.3 Telehealth Emergency Management Support Unit

The funding has also enabled the creation of the Telehealth Emergency Management Support Unit (TEMSU) to support provision of emergency management support and advice for rural and remote

145 Queensland Health, *Blueprint for better healthcare in Queensland*, February 2013, p.18

146 Queensland Health, *Blueprint for better healthcare in Queensland*, p.18

147 Queensland Government, *Queensland Health 2013-14 SDS*, p.7

148 Department of Health, *Better Health for the Bush*, 2014, p.11

149 Queensland Government, *Queensland Health 2014-15 SDS*, p.9

150 Dr Michael Cleary, Deputy Director-General, Queensland Health, *Public Briefing Transcript*, 5 May 2014, p.5

151 Dr Michael Cleary, *Public Briefing Transcript*, 5 May 2014, p.5

communities with an initial focus on Moura, Kowanyama, Normanton, Alpha, Bedourie, Roma and Eidsvold.

Queensland Health noted that “the results of this investment are already being realised, non-admitted telehealth occasions of service have increased by 38 per cent across the state when compared with the same period the previous year (July to March 2013)”.¹⁵² Only the South West HHS includes expansion of telehealth as a key activity in the Service Delivery Statements for 2014-15.¹⁵³

3.2.4 Funding allocated

The department’s Telehealth Support Unit (TSU) received an allocation of \$3.64 million in 2013-14. This included labour, labour on-costs, core non-labour, consultancy engagement, and minor capital acquisitions. In 2014-15, the TSU has an allocation of \$2.24 million. Another \$1.0 million was allocated to capital expenditure, including infrastructure, bandwidth, and equipment.

The TEMSU was allocated \$1.5 million in 2013-14 and \$2.5 million in 2014-15.¹⁵⁴ The total recurrent funding provided to HHSs for telehealth coordinators, and the date those coordinators were appointed, is provided in Table 1 below.

Table 1: Recurrent funding to Hospital and Health Services for a telehealth coordinator position

Hospital and Health Service and Mater Health Service	Telehealth coordinator start date	Recurrent funding	
		2013-14 \$	2014-15 \$
Cairns and Hinterland	24 October 2013	91,125	121,500
Cape York	24 February 2014	113,520	151,360
Central Queensland	1 February 2014	91,125	121,500
Central West	11 November 2013	113,520	151,360
Children’s Health	2 June 2014	91,125	121,500
Darling Downs	28 April 2014	91,125	121,500
Gold Coast	11 February 2014	91,125	121,500
Mackay	12 May 2014	91,125	121,500
Mater Health Service	---	---	121,500
Metro North	25 November 2013	91,125	121,500
Metro South	1 February 2014	91,125	121,500
North West	1 November 2013	113,520	151,360
South West	16 September 2013	113,520	151,360
Sunshine Coast	17 February 2014	91,125	121,500
Torres Strait and Northern Peninsula	1 December 2013	113,520	151,360
Townsville	7 April 2014	91,125	121,500
West Moreton	22 April 2014	91,125	121,500
Wide Bay	1 November 2013	91,125	121,500
Total		1,661,100	2,336,300

Note: Mater Health Service was funded from 2014-15

Source: Department of Health, *Response to questions on notice*, pp.3 & 6

152 Queensland Government, *Queensland Health 2014-15 SDS*, p.9

153 Queensland Government, *Queensland Health 2014-15 SDS*, p.165

154 Department of Health, *Response to questions on notice*, pp.3-4

3.3 Organisational arrangements for Queensland Health telehealth services

3.3.1 Role of Department and Hospital and Health Services

Responsibility for telehealth is shared between the department and HHSs. The department is responsible for managing Queensland's public health system, including leading policy development, managing state wide planning, purchasing health services, and monitoring service performance. The department purchases services from the 16 independent HHSs and other organisations.

The HHSs are responsible for providing health services. Service delivery is monitored by the through individual service agreements which identify the health services to be provided, funding arrangements and performance indicators and targets.

3.3.2 Service agreements with Hospital and Health Services

Current service agreements between the department and HHSs for 1 July 2013 to 30 June 2016¹⁵⁵ contain requirements for each HHS to:

- maintain existing telehealth services through current delivery models
- support the implementation of the Rural Telehealth Service, including the telehealth emergency support service set out in the *Blueprint for Better Healthcare in Queensland*
- collaborate with the department, other HHSs and relevant stakeholders to expand the network of telehealth services and enables an improved program of scheduled and unscheduled care
- ensure telehealth coordinators progress telehealth locally by driving stakeholder engagement, adoption, planning and implementation activities that support and grow telehealth enabled services through substitution of existing face-to-face services and identification of new telehealth enabled models of care.¹⁵⁶

Schedule 2 of the service agreement with Townsville HHS also includes specific operational funding of \$478,125 and \$20,000 capital funding for the Comprehensive Telehealth Oncology Service Project. The Service Agreement describes the operational funding as "50 percent of proposed funding for 2013-14",¹⁵⁷ and states that additional services "will be the focus of detailed monitoring".¹⁵⁸

3.3.3 Service directives

Health Service Directives to HHSs provide a mechanism under the *Hospital and Health Boards Act 2011* to promote service coordination and integration. The purpose of Health Service Directives may include optimising effective and efficient use of resources, setting standards and policies for safe and high quality service delivery, ensuring consistent approaches to service delivery and supporting the application of State policies, legislation, and agreements entered into by the State.¹⁵⁹

There are no current Health Service Directives specifically about the provision of services by telehealth.

155 HHS service agreements are published on the department's website at <http://www.health.qld.gov.au/system-governance/health-system/managing/agreements-deeds/default.asp>

156 *Hospital and Health Service Agreements, section 4, Schedule 1*, accessed 23 July 2014, <http://www.health.qld.gov.au/system-governance/health-system/managing/agreements-deeds/default.asp>

157 Queensland Government, *Townsville HHS Service Agreement 2013/14 – 2015/16 May 2014 Revision*, accessed August 2014, <https://publications.qld.gov.au/dataset/townsville-hhs-service-agreements/resource/6d60bb00-c69b-4673-9c0d-009d88aa2745>

158 Queensland Government, *Townsville HHS Service Agreement 2013/14 – 2015/16 May 2014 Revision*, s. 4, Sch.2

159 *Hospital and Health Boards Act 2011*, s.47. Health service directives are published on the department's website at Queensland Health, *Health service directives*, <http://www.health.qld.gov.au/directives/html/a.asp>

3.3.4 Telehealth Support Unit, Department of Health

The TSU in the department is organisationally located in the Clinical Access and Redesign Unit (CARU), which forms part of the Health Systems Innovation Branch Services and Clinical Innovation Division. That Division is headed by a Deputy Director-General.

The role of CARU includes partnering with HHSs to improve the flow of patients through the health system by removing bottlenecks and providing clinical redesign support and advice, improving service efficiency, patient access to services and patient's experience in hospitals. Telehealth was one of eight work priorities for CARU in 2013-14.

The TSU works with HHSs, primary care and partners in the development of telehealth service delivery models. Its vision is to embed telehealth into everyday services as an accepted and supported enabler of health care for all Queenslanders.¹⁶⁰

*The Telehealth Support Unit enables the Rural Telehealth Services across Hospital and Health Services through the provision of tools, support and technical capability necessary to deliver a range of healthcare services to the people of Queensland via the Queensland telehealth network.*¹⁶¹

The TSU's webpage includes information and resource material for patients, carers, families, and health professionals who want to use telehealth for a clinical consultation. The TSU also provides booking information and assistance, via email and a toll free 1800 phone number, and is now facilitating external access to Queensland Health's videoconferencing system by advertising the connection details for a dedicated videoconference unit, which is available to external parties to test connection compatibility.¹⁶²

3.3.5 Hospital and Health Services

Consistent with the requirements of service agreements described above, most of the responsibility for expanding the use of telehealth falls to HHSs, in collaboration with the department, other HHSs, and stakeholders.

Hospital and Health Service Telehealth Coordinators

Funding was allocated to HHSs during 2013-14 for appointment of a Telehealth Coordinator. The HHS Telehealth Coordinators commenced work in HHSs between October 2013 and May 2014. Dr Cleary described aspects of the role of Telehealth Coordinators:

The telehealth coordinator network established across the hospital and health services represents the central point of contact for all telehealth matters in each of our hospital and health services. The telehealth coordinators provide training, support and information to facilitate the implementation of telehealth enabled services which are tailored to meet the needs of the local hospital or hospital and health service.

Dr Cleary advised the committee that:

*The telehealth coordinators work very closely with the Telehealth Support Unit to ensure that they are well equipped to provide training on telehealth equipment, identify options for service expansion, facilitate service implementation and engage with the clinical workforce in a very meaningful way to ensure that this project is successful.*¹⁶³

160 Queensland Health, *Telehealth Support Unit (TSU)*, accessed 21 July 2014, <http://www.health.qld.gov.au/telehealth/>

161 Queensland Health, *TSU*

162 Queensland Health, *TSU, Frequently asked questions*, accessed 22 July 2014, <http://www.health.qld.gov.au/telehealth/html/faqs.asp>

163 Dr Cleary, *Public Hearing Transcript*, 31 July 2014, p.2

Funding for the telehealth coordinator positions was part of the \$30.9 million allocated to telehealth.

3.4 Telehealth Governance Committee

The *Blueprint for better healthcare in Queensland* stated that to drive and refine the Rural Telehealth Concept summarised in section 3.1 above, “a governing body for remote Telehealth service delivery will be established, including representatives of the Rural Doctors Association and the Clinical Ministerial Advisory Council”.¹⁶⁴

The department advised that the purpose of the Telehealth Governance Committee is to:

... integrate, coordinate and endorse telehealth implementation, service planning and policy development across all of health services to:

- *improve access to safe and sustainable health services*
- *better meet people’s needs across the health continuum*
- *enhance organisational work processes and systems to support service delivery and business effectiveness*
- *assist Department of health and Hospital and Health Services to achieve their strategic objectives by ensuring access to appropriate health services is simple, equitable, and timely for all Queenslanders.*¹⁶⁵

The Telehealth Governance Committee is chaired by Dr Ewan McPhee, the Telehealth Lead from the Statewide Rural and Remote Clinical Network, and members include departmental staff, a HHS chief executive, two public sector clinicians active in providing services by telehealth, and representatives of the AMAQ, CheckUP, the Centre for Online Health at the University of Queensland, the Mount Isa Centre for Rural and Remote Health, the Rural Flying Doctor Service, Rural Doctors Association Queensland and the Australian College of Rural and Remote Medicine.¹⁶⁶

164 Queensland Health, *Blueprint for better healthcare in Queensland*, p.18

165 Department of Health, *Response to questions on notice*, Attachment 1

166 More detail about the Telehealth Governance Committee is available in: Department of Health, *Response to questions on notice*

4 Clinical services delivered by telehealth in Queensland

4.1 Introduction

This chapter provides an overview of the types of clinical services currently delivered by telehealth in Queensland. More detailed information is provided about some clinical services delivered by telehealth which have had a significant impact on patients.

The non-admitted specialist services most frequently delivered using telehealth are endocrinology, oncology, gastroenterology, mental health, paediatrics, general medicine, orthopaedics, pre-admission clinics, cardiology, midwifery, and obstetrics.¹⁶⁷

Admitted patient services delivered by telehealth include intensive care, geriatrics, general medicine and surgical care, oncology and rehabilitation.¹⁶⁸

4.2 Emergency Services

4.2.1 Retrieval Services Queensland

Retrieval Services Queensland (RSQ) supports the aero-medical transfer of critical patients by using videoconferencing to link rural and remote facilities with RSQ staff in the Queensland Emergency Management Service Coordination Centre in Brisbane and Townsville. One hundred and nine facilities are currently equipped to link with RSQ, with two video-cameras and a video screen located in the resuscitation area of each facility.

Referring clinicians or the RSQ medical coordinator can initiate a telehealth consultation at any time. RSQ staff “dial in” to the referring facility and control all aspects of the system, including camera angles and zoom functions in the referring facility, to ensure they can control what they see and to allow the regional clinicians to focus on patient care and treatment rather than technology.¹⁶⁹ Clinicians at RSQ can interact with the patient and their family, which results in optimal information gathering.¹⁷⁰

The department advised the committee that RSQ provided 123 consultations to support stabilisation and aeromedical retrieval of critical patients in 2012-13, and 75 consultations between July 2013 and January 2014.¹⁷¹

4.2.2 Telehealth Emergency Management Support Unit

The TEMSU was established to improve access, by videoconference, to specialist emergency advice and support for clinicians in regional, rural, and remote communities. The service is co-located with RSQ and is available 24 hours a day to assist in the management of non-critical patients, complementing the support that RSQ provides for critically ill patients.¹⁷²

The seven evaluation sites in the Rural Telehealth Service (Alpha, Bedourie, Moura, Eidsvold, Roma, Kowanyama and Normanton) were planned to be the first sites linked in to TEMSU. The TEMSU had been implemented in five of those sites at 31 July 2014. In response to interest from HHS to implement the service in more than one site, future implementation is planned on a HHS-wide

167 Mr Andrew Bryett, *Public Briefing Transcript*, 5 March 2014, p.4

168 Department of Health, *Response to questions on notice*, pp.10-11

169 Department of Health, *Retrieval Services and Counter Disaster Unit*, Information brochure, accessed March 2014

170 Site visit, Queensland Emergency Medical System Services Management Centre, Kedron, 19 March 2014

171 Mr Andrew Bryett, *Public Briefing Transcript*, 5 March 2014, p.4

172 Department of Health, *Retrieval Services and Counter Disaster Unit*

model.¹⁷³ The department advised that TEMSU will be expanded to the following HHSs during 2014-15 and 2015-16:

Table 2: Staged rollout of Telehealth Emergency Management Support Unit

2014-15	2015-16
Central Queensland HHS	Cairns and Hinterland HHS
Central West HHS	Townsville HHS
Cape York HHS	Sunshine Coast HHS
Darling Downs HHS	Gold Coast HHS
North West HHS	Metro South HHS
Mackay HHS	Metro North HHS
South West HHS	Children's HHS
Wide Bay HHS	

Source: Department of Health, Response to questions on notice, p.12

4.3 Outpatient (non-admitted) clinical services delivered by telehealth

4.3.1 Pre-admission pre-anaesthesia outpatient clinics

The pre-admission clinic at Toowoomba Hospital uses telehealth to conduct pre-surgery consultations with rural and remote surgical patients. Patients arrive at the recipient site 30 minutes before the teleconference so staff can take the necessary observations and send the results to the hospital. The teleconference involves an interview with a registered nurse and a formal consultation with a consultant or registrar in anaesthesia. The clinic has recently updated workplace instructions to assist new staff in remote locations and plans to expand into endoscopy.¹⁷⁴

In February 2014, the Mater Adult Hospital started telehealth consultations with patients undergoing surgery. The perioperative telehealth service includes pre-operative assessment, risk stratification and optimisation of medical issues, medication management, and coordination of care with anaesthetists and surgeons. A post-discharge telehealth consultation with the patient and their GP is also offered to develop a management plan to address chronic medical issues.¹⁷⁵

The Mater intends to extend telehealth consultations to a number of other specialties including supporting GP consults in RACFs, follow-ups for patients with heart failure and expanding the in-hospital lipid clinic to rural and remote patients.¹⁷⁶

4.3.2 Cardiology outpatient clinics

The Prince Charles Hospital (PCH) provides a range of cardiology clinics by telehealth – including cardiac transplant and heart failure. At the PAH telehealth is used in all subspecialties, including heart failure, transplant medicine and electrophysiology.

173 Mr Andrew Bryett, *Public Hearing Transcript*, 31 July 2014, p.8

174 Site visit, Roma, 29 May 2014

175 Dr Nathalie van Havre, Submission 4, p.2

176 Dr Nathalie van Havre, Submission 4, p.2

4.3.3 High Risk Foot Clinic – Cairns

Case Study 1 – High Risk Foot Clinic – Cairns

A High Risk Foot Clinic was established in Cairns in 1997. A high proportion of patients of the Cairns clinic are Aboriginal and Torres Strait Islander people, consistent with the higher rate of diabetes in those communities. Between establishment of the clinic and 2008 the rate of major lower limb amputations in Far North Queensland fell from 9.3 per 100 000 of population, to 7.4 per 100,000.¹⁷⁷

The high rate of diabetes in Aboriginal communities, distance and the challenges of travel mean that telehealth is an effective way to follow-up patients who live in remote communities, and who may not return to Cairns for review of foot lesions. Previously “these patients were lost to follow up and then relapsed and required a further inpatient admission”.¹⁷⁸

Telehealth follow-up appointments enable frequent follow-up of high risk patients, contributing to improvements in the care that can be provided. To date telehealth consultations have been provided for patients in Aurukun, Bamaga, Kowanyama, Napranum, Yam, Yorke Island, Thursday and other Torres Strait Islands, Cardwell, Mount Isa and Weipa.¹⁷⁹

The use of telehealth means that more patients are followed up, avoiding the situation where no post-operative review occurs. More frequent follow-up of patients also reduces the risk that patients will develop more serious complications. Dr Christina Steffen told the committee that the number of amputations in high risk vascular, diabetic patients has reduced to less than 10 amputations a year. Feedback from patients in Cape York communities about telehealth consultations has been positive, “In fact they request it now”.¹⁸⁰

While telehealth is not suitable for all types of health care, it can be used to reduce the frequency of patient travel from remote areas, for example prior to surgery. For example Dr Steffen, in the RACP submission, commented that telehealth:

*... is a modality which has fairly specific applications and is not appropriate for others. For example in surgery it is really important to actually see and examine a patient in many cases, however telehealth can be used for an initial interview and subsequent face to face visit can be organised along with any required imaging or tests which would save the patient making multiple trips, e.g. a vascular patient with claudication can be interviewed and angiogram organised for a later date.*¹⁸¹

New patients with relatively minor problems may be seen by telehealth, and treatment can be commenced and completed where they live, without the need to travel to Cairns.¹⁸²

4.3.4 Endocrinology outpatient clinics

Cairns

The Cairns Diabetes Centre was established in 2006 to provide ambulatory care. It is staffed by endocrinologists, diabetes educators, nurses, podiatrists, and other allied health staff. In 2007, the Centre began using telehealth on an ad hoc basis. The majority of the Cairns Diabetes Centre telehealth consultations involve diabetes management for Aboriginal and Torres Strait Islander

177 SR O'Rourke, CM Steffen, A Rauli and FJ Tulip, 'Diabetes-related major lower limb amputation in Far North Queensland, 1998-2008', *Australian Health Review*, 2012, Vol.36, pp.105-109

178 RACP, Submission 27, p.3

179 RACP, Submission 27, p.3

180 RACP, Submission 27, p.3

181 RACP, Submission 27, p.3. Claudication is pain and related symptoms in the lower leg, caused by arterial blockage

182 RACP, Submission 27, p.3

people, who have a higher incidence of diabetes than the non-Indigenous population.¹⁸³ The service averages approximately 400 telehealth consultations a year.¹⁸⁴ Clinicians visit remote communities for patient consultations however the frequency of visits has been reduced as it is supplemented by telehealth consultations.

The primary care team is often present during a consultation, along with a carer or family. Test results may be shared via videoconference with the client, their family, health worker, and primary care team. Telehealth consultations can contribute to consumer understanding and to a multidisciplinary approach to treatment.

Telehealth consultations create the opportunity for the client, their family and/or carers, the primary care team and the specialist to be involved at the same time, with potential advantages over a face-to-face consultation.¹⁸⁵

The service has developed a range of supporting documentation and tools, including work instructions to facilitate consultations, case conferencing and professional development sessions, information flyers for referring doctors and power point presentations for staff to learn how to facilitate telehealth consultations.¹⁸⁶

Princess Alexandra Hospital

The tele-endocrinology clinic at PAH provides specialist consultations to patients in hospitals and clinics in Mount Isa, Mackay, Yeppoon, Maryborough and Chinchilla.¹⁸⁷ Consultations may include recommendations for further diagnostic investigations, an adjustment of the patient's insulin dose, and referrals to other health providers. In his analysis of 54 videoconference consultations during 2013, Dr Fatehi reported that a nurse accompanied the patient in 68 per cent of consultations and was asked to perform a physical examination of the patient in 18 percent of those cases.¹⁸⁸

4.3.5 Endocrinology – store and forward

A store and forward telehealth system which assists in the management of diabetic foot ulcers was piloted between August 2009 and February 2010. A web-based clinical information system, on which staff could upload, store and view clinical images, documents and pathology, was piloted in six sites: the PCH and PAH in Brisbane, Inala Chronic Disease Management Service, Mount Isa Hospital, Townsville Hospital and the Cairns Diabetes Centre.¹⁸⁹

4.3.6 Speech pathology

The Royal Brisbane Women's Hospital (RBWH) Speech Pathology Telehealth Service supports the swallowing and communication management of patients with head and neck cancer living in regional cancer sites within the Central Integrated Regional Cancer Service. The service covers four sites – RBWH, Nambour, Hervey Bay and Rockhampton. Each site offers weekly telehealth appointments and is equipped with a mobile standard video teleconference unit with an integrated medical camera system.¹⁹⁰

183 RACP, Submission 27, p.3; and Dean and McLean, *Telehealth for diabetics in Far North Queensland*

184 Site visit, Cairns, 18 June 2014

185 Dean and McLean, *Telehealth for diabetics in Far North Queensland*, p.2

186 Site visit, Cairns Diabetes Centre, 19 June 2014

187 Farhad Fatehi, Centre for Online Health, University of Queensland, 'Telemedicine for Clinical Management of Diabetes- A Process Analysis of Video Consultations' (Telemedicine for Clinical Management of Diabetes), *Presentation Successes and Failures in Telehealth*, Brisbane, 2013

188 Farhad Fatehi, *Telemedicine for Clinical Management of Diabetes*

189 Lazzarini *et al.*, *Managing diabetic foot ulcers*, p.164

190 Ms Clare Burns, Submission 23, pp.1-2

4.3.7 Townsville Cancer Centre

Case Study 2 – Townsville Cancer Centre

The Townsville Cancer Centre (the Centre) provides services across a broad area taking in Mount Isa and smaller centres as far west as Camooweal and north to Mornington Island. There were 21 participating sites in May 2014.¹⁹¹ The Centre uses videoconferencing to manage medical oncology patients.

Prior to 2007 oncology patients in Mount Isa travelled to Townsville for initial chemotherapy doses and review consultations with an oncologist. Simple chemotherapy in Mount Isa was supervised by emergency doctors and two part-time chemotherapy nurses were administering selected chemotherapy regimens. Patients who travelled to Townsville for review often had a brief consultation “and it was really heartbreaking to see people travel that far and take that many days with an escort just to see us for 10 minutes”.¹⁹²

The initial approach to telehealth care was that patients were required to travel for a first review consultation and for complex chemotherapy regimens, with all other treatment done in Mount Isa. Staffing of two nurses and a part-time senior medical officer provided the services in Mount Isa.¹⁹³ Evaluation of the service and quality improvement activities resulted in a model of care that, by 2009, meant “that no-one needed to travel. So doctors do not have to travel, patients do not have to travel, but they were based on strict governance and it was not ad hoc”.¹⁹⁴

By 2014 the service delivered by telehealth had expanded to a routine medical oncology clinic three to four times a week, and also on demand. Videoconference is used for “new patients, reviews, urgent cases, admissions and ward runs, and all types of select chemotherapy regimens”.¹⁹⁵

Staffing has expanded to include a cancer care coordinator in Mount Isa, rotating medical registrars, RMOs, nurses and allied health practitioners.¹⁹⁶ Some of increased staffing has been resourced by diverting some of the savings to the Patient Travel Subsidy Scheme.¹⁹⁷

Evaluation of the Centre’s work has examined access, patient and clinician satisfaction, patient safety, cultural issues and cost effectiveness. The outcomes of evaluations are discussed in later chapters of this report. One important finding was that clinicians with the Centre believe videoconferencing “can be complementary to any models of care in looking after rural and remote patients, in all fields of medicine”.¹⁹⁸ The Centre’s work has also illustrated the importance of appropriate clinical staffing at rural sites, coordination and the potential to expand the training and scope of practice of the rural health workforce.

4.3.8 Orthopaedic surgery outpatient clinics- Mount Isa and Princess Alexandra Hospital

Videoconference fracture clinics have been held between Mount Isa and PAH since January 2011. The clinics involve an orthopaedic surgeon at PAH consulting with the registrar and patient at Mount Isa Hospital via videoconference and include the transfer of patients’ x-rays.¹⁹⁹

4.3.9 Mental health

The uptake of telehealth by mental health professionals is relatively good, while small compared to the occasions of service delivered.²⁰⁰ The Child and Youth Mental Health Service (e-CYMHS) operates

191 Dr Sabe Sabesan, Presentation to Health and Community Services Committee of the Queensland Parliament- Townsville Teleoncology Network (Townsville Teleoncology Presentation), 21 May 2014, <http://www.parliament.qld.gov.au/documents/committees/HCS/2014/InquiryTelehealth/phd-21May2014.pdf>

192 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.1

193 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.2

194 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.2

195 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.2

196 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.2

197 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.2

198 Thaker *et al.*, *Cost savings from telemedicine*

199 Royal Australasian College of Surgeons (RACS), Submission 27, pp.4-5

out of both the Royal Children's Hospital (services rural and remote areas) and the Mater (services South West Queensland) to provide telephone and videoconference support to rural and remote mental health professionals. Clinicians can access a senior CYMHS clinician and a Child and Adolescent Consultant Psychiatrist for case supervision and consumer consultation through the e-CYMHS program.²⁰¹ Services include case review discussions, direct clinical assessment, and treatment planning with young people and families and professional development and educational input and support and assistance in meeting minimum mental health standards of care.²⁰²

A number of HHSs provide, or plan to expand their delivery of mental health outpatient services by telehealth. For example, the Cairns HHS has used videoconference to supplement face-to-face patient consultations. It is currently working to establish a system where the registrars in two regional hospitals can use videoconference if a person presents in crisis after hours, rather than transferring the patient to Cairns.²⁰³

4.3.10 Intensive care – Royal Brisbane and Women's Hospital and Bundaberg Hospital

Bundaberg Hospital services a population of almost 45,000, with the nearest tertiary centre approximately 400 kilometres away. The hospital has an eight bed shared intensive care and coronary care unit.

In 2009, the hospital introduced a new model of intensive care unit (ICU) care, involving week day ward rounds being undertaken with an intensive care specialist via videoconference. Junior medical staff present their case to the intensivist via video-link with the aid of a mobile wireless web camera. Anaesthesia consultants also participate and the intensivist is able to view and speak with patients. Ward notes are dictated by the intensivist; typed, checked, returned to the hospital and co-signed the same day; to form part of the patient chart.²⁰⁴

4.3.11 Neonatal telemedicine – Royal Brisbane and Women's Hospital

The RBWH has documented the difficulties associated with telephone-only interactions with referring hospital clinicians seeking advice on neonatal issues and episodes of acute care, which can involve retrieval to the hospital's tertiary nursery. During this process RBWH identified a higher rate of mortality in preterm infants born outside a hospital with a tertiary nursery (compared to those born in a hospital with a tertiary nursery) and considered whether telemedicine might improve this outcome.²⁰⁵

The Division of Neonatology at RBWH collaborated with the University of Queensland's Centre for Online Health to design and build a neonatal telemedicine system to support remote neonatal clinician consultation between a tertiary perinatal centre and referring hospitals.²⁰⁶

The system includes a mobile, wireless trolley containing camera equipment and a microphone, which is placed adjacent to the infant and a personal computer based console, which allows remote control of the cameras and a number of other functions to support the clinician.²⁰⁷

200 Queensland Mental Health Commission, Submission 5, p.3

201 Mater Kids In Mind, *e-CYMHS Program*, accessed 29 July 2014, <http://www.kidsinmind.org.au/cymhs/e-cymhs-program>

202 Royal Children's Hospital, *Division of Child and Youth Mental Health Services (CYMHS)*, accessed 29 July 2014, http://www.health.qld.gov.au/rch/professionals/cymhs_ecymhs.asp#about

203 Site visit, Cairns, 18 June 2014

204 RJ Boots, S Singh, M Terblanche, N Widdicombe and J Lipman, 'Remote care BY telemedicine in the ICU: many models of care can be effective', *Current Opinion in Critical Care*, 2011, Vol.17, pp.638-639

205 Dr Timothy Donovan, Submission 34, p.1

206 Dr Timothy Donovan, Submission 34, p.1

207 Dr Timothy Donovan, Submission 34, p.2

A 12 month clinical trial of the system was recently completed. The trial incorporated neonatal telemedicine consults between RBWH and four remote nurseries in Hervey Bay, Caboolture, Nambour and Redcliffe.²⁰⁸

4.3.12 Paediatric burns – Royal Children’s Hospital

The Royal Children’s Hospital (RCH) in Brisbane has been delivering telehealth services to children for burns treatment and other surgical conditions for more than 14 years. The multidisciplinary telehealth service was established in consultation with the Queensland Centre for Online Health.²⁰⁹

Videoconferencing is used to deliver post-acute burns care to children living in rural and remote areas. Families travel to a hospital close to home, meet the local clinicians, and link up with a team in Brisbane. Digital images are shared to assess injuries and monitor progress.²¹⁰

Between November 2003 and May 2004, RCH’s the paediatric burns unit conducted a study to assess whether parents of burns patients could take suitable clinical images with a digital camera and add the necessary text information to enable the paediatric burns team to provide follow up care via email. The study involved four families and 32 email consultations.

The burns team was confident that the clinical information they received in 30 of the emails was accurate. The study also showed that low resolution imaging (average size of 37 kb) was satisfactory for diagnosis, that families found it easy and convenient to participate in the study and were able to do so without intensive training or support.²¹¹

The study concluded that clinical images and advice via email is a potential low cost service for burns follow up, which requires only modest investment in equipment, training and support.²¹²

4.3.13 Paediatric telehealth

In 1998 the Child and Adolescent Health Service (CAHS) in Mackay commenced subspecialist telehealth clinics with the Centre for Online Health at the RCH in Brisbane and established a program of telehealth clinics for rural sites in Mackay. The service covers a region that includes six rural hospitals, and is staffed by paediatric consultants and junior medical staff. The service includes an 11 bed ward and an eight bed special care nursery.²¹³

Doctors at rural sites phone CAHS when they have a patient with an acute problem requiring specialist advice, or a potential transfer to a paediatric unit for assessment and management. A telehealth consultation with a consultant paediatrician is arranged as quickly as possible. The CAHS has two dedicated telehealth units. Far end camera controls are used by the receiving consultant to obtain close up views of the patient. After hours consultations are possible, using dedicated software or a laptop with a webcam.

After review of the patients’ history, clinical findings, and investigations a decision is made whether to treat the patient at the rural hospital or transfer them to Mackay, Brisbane or Townsville. Transfers are coordinated by RSQ. Patients who remain at the rural hospital are followed up using

208 Dr Timothy Donovan, Submission 34, p.1

209 Professor Roy Kimble, Submission 23, p.1

210 Professor Roy Kimble, Submission 23, p.1

211 A Johansen, R Wootton, R Kimble, J Mill, A Smith and A Hockey, ‘A feasibility study of email communication between the patient’s family and the specialist burns team’(A feasibility study), *Journal of Telemedicine and Telecare*, 2004, Vol.10, pp.5154-56

212 Johansen *et al.*, *A feasibility study*, p.5154

213 S Desai, ML Williams and AC Smith, ‘Teleconsultation from a secondary hospital for paediatric emergencies occurring at rural hospitals in Queensland’(Teleconsultation from a secondary hospital), *Journal of Telemedicine and Telecare*, , 2013, Vol.19 No.7, pp.405-410, at p.405

further telehealth consultations or telephone calls with the referring doctor. The CAHS director visits rural sites annually to review services and infrastructure and build rapport.²¹⁴

A 'child friendly' mobile videoconference system was developed by the Centre for Online Health in 2006 for use in Gladstone; the unit can be positioned at a child's bedside for a videoconference session between the patient, family local clinicians and the specialist in Brisbane. This model is now being used in a variety of settings.²¹⁵

4.3.14 Dermatology

A pilot study in 2008-09 by the University of Queensland Dermatology Research Centre and PAH's Department of Emergency Medicine provided a Skin Emergency Telemedicine Service (SETS). During 2012 it received 167 referrals, 121 of which were external to PAH. Referrals to the SETS were images of rashes (108 cases) and skin lesions (21 cases). The referring doctor received a reply from a participating dermatologist in less than three hours in over half of the referrals, and within 12 hours in 80 percent of referrals.²¹⁶

4.3.15 Motor neurone disease – outpatient clinic

A monthly motor neurone disease (MND) telehealth outpatient clinic has been provided since 2008 by RBWH and PCH. Thirty eight patients have been seen an average of three times at three to four month intervals. An MND clinical nurse consultant, neurologist, palliative care physician, sleep physician, and sleep nurse consult with patients using multiple site log-in.

Life expectancy for people diagnosed with MND averages two to three years and progressive muscle weakness leads to loss of speech, swallowing, use of arms and legs and eventual respiratory failure. Patients travel to a local hospital or community health service for telehealth outpatient consultation. The driving distance from Brisbane averaged 612 kilometres per telehealth event, ranging from 158 to 1824 kilometres. The advantages of telehealth over face-to-face outpatient clinics include ongoing patient support by clinicians with experience in MND, reduction in patient travel and possibly a reduction in the hopelessness that MND patients feel.²¹⁷

4.3.16 Gerontology

Geriatric ward rounds are provided in a number of Queensland hospitals. In 2007, a geriatric ward round was commenced from Brisbane to the 25 bed geriatric ward at Toowoomba Hospital.²¹⁸ A mobile videoconference unit is placed at the patient's bedside. Geriatric ward rounds are currently provided by telehealth from the PAH to rural hospitals and to RACFs.

Post discharge consultations with a geriatrician are conducted by videoconference in the Torres Strait.²¹⁹

4.3.17 Indigenous health screening

In 2008, the Centre for Online Health established a mobile telemedicine program to deliver routine ear and hearing screening services in the Cherbourg Community. The service has screened around 1250 children since commencing. The mean waiting time from referral to specialist appointment

214 Desai *et al.*, *Teleconsultation from a secondary hospital*

215 Centre for Online Health, Submission 20, p.7

216 Terri Biscak, *Audit of a State-Wide Store and Forward Teledermatology Service in Australia*, Presentation to the Successes and Failures in Telehealth Conference, Brisbane 2013, 23 May 2014, <http://www.icebergevents.com/uploads/File/2013-SFT/Tuesday/Connaught%20Room/Biscak,%20Terri.pdf>

217 RD Henderson, N Hutchinson, JA Douglas and C Douglas, 'Telehealth for motor neurone disease' letter, *Medical Journal of Australia*, 2014, Vol.201 No.1, p.31

218 LC Gray, et al 'Geriatric ward rounds by videoconference: a solution for rural hospitals', *Medical Journal of Australia*, 2009, Vol.191, No.11/12, p.605

219 Site visit, Thursday Island, 16 June 2014

dropped from 73 days in 2009 to 29 days in 2011, the mean number of outpatient appointments at the tertiary hospital has dropped from 54 to 22 cases per year and the mean number of surgical procedures performed in the indigenous community has increased from 6 to 39 cases per year.²²⁰

220 Centre for Online Health, Submission 20, p.8

5 Infrastructure

5.1 Introduction

The inquiry terms of reference include examination of the factors that support successful implementation of telehealth services, any barriers to successful implementation, and technology and communication systems capacity and capability. This chapter outlines the committee's observations about those issues. It includes a brief description of the infrastructure in place to support the use of telehealth, and stakeholders' views about the capacity and utility of the infrastructure and technology that is available.

While it is widely accepted that Queensland Health has a very good videoconference network to support the implementation of telehealth, the committee was also informed about barriers to maximising the use of that infrastructure, which are discussed below and later in this report.

5.2 Telehealth network

5.2.1 Videoconference network

Queensland Health has one of the largest managed telehealth networks in Australia, with more than 2000 systems in over 200 hospitals and community facilities, supporting more than 40 clinical specialties and subspecialties.²²¹ The location of videoconference systems in HHSs is shown at Appendix C. Approximately 75 per cent (1,409) of the systems are hardware systems, with the remaining 25 per cent (596) software based.²²²

As noted above, the videoconference network is generally considered to be of a high standard, although it is recognised that some upgrading and modification is required. The RACP stated that those of its members who viewed the Queensland Health telehealth service favourably "commented that the infrastructure within Queensland Health facilities were world class".²²³

The department told the committee that:

*In the past, we have had quite a large amount of infrastructure deployed across Queensland, which has not really had the level of uptake that you would reasonably expect.*²²⁴

The committee heard about practical issues (outlined below) that place constraints on the clinical use of the existing videoconference network. The committee notes that, for emergency clinical services, the 2013 *Blueprint for better healthcare in Queensland* states that:

*Under the Rural Telehealth Service facilities in different communities will be standardised, upgraded or re-oriented to enable networking at-call. As the scope and scalability of the new facilities is developed, training and workplace arrangements will enable local emergency access for patients at-call ...*²²⁵

5.2.2 Store and forward and teleradiology

Telehealth includes store and forward systems, where digital images or videos and clinical data are stored and forwarded to another location for a specialist to examine.

221 Dr Michael Cleary, *Public Briefing Transcript*, 5 March 2014, p.2

222 Mr Andrew Bryett, *Public Briefing Transcript*, 5 March 2014, p.4

223 RACP, Submission 8, p.2

224 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.10

225 Queensland Health, *Blueprint for better healthcare in Queensland*, p.18

A common use for store and forward in Queensland is for images forwarded to a dermatologist for an opinion. A pilot study in 2008 and 2009 found that most opinions were provided within two hours, and there was 98 per cent agreement between tele-diagnosis and final clinical diagnosis. Building on the pilot, the Dermatology Department at the PAH now provides a store and forward tele-dermatology service for Queensland. A 2012 audit found that just over half of the referrals received a reply within three hours, and all clinicians surveyed found the service useful.

In addition, specialist review of x-rays and scans using store and forward telehealth is common. The department told the committee that store and forward was not frequently used in other clinical specialties, however:

*... reviewing X-rays in a regional centre can be done very rapidly now. Queensland has one of the most sophisticated BreastScreen reporting systems in place in Australia, and all of those are reported through a central hub although the radiologists are not necessarily all in that particular room.*²²⁶

In the Torres Strait, CSIRO researchers are working with the HHS to deliver a remote eye screening service that uses store and forward to send high resolution retinal images to ophthalmologists in Brisbane.²²⁷

In other jurisdictions store and forward systems are used in a range of clinical services. For example in Ontario, store and forward is most commonly used for dermatology, providing a specialist opinion in less than five days. It is also used for ophthalmology including retinal screening for diabetics, telepsychiatry, and home care. In Ontario it is intended to extend the use of store and forward to most specialties over the next year or two.²²⁸

5.2.3 Equipment for home monitoring

From the information available to the committee, it appears that the only home monitoring or home care services by telehealth, implemented by Queensland Health, are a pilot project in Metro North HHS.

5.3 Access to the Queensland Health telehealth network

5.3.1 Introduction

Two issues about access to the Queensland Health telehealth network were commonly raised with the committee by clinicians:

- external access to the videoconference system from personally owned or other devices outside Queensland Health, such as in private medical practices, private hospitals, or RACFs. In addition, access to the store and forward system from personally owned devices was raised as a concern,
- access from various locations within a HHS (e.g. using a HHS-provided smart phone, tablet, laptop, desktop computer, mobile videoconference unit).

5.3.2 External access and interoperability

While some stakeholders expressed concerns about access to the Queensland Health telehealth network, the Australian Healthcare and Hospitals Association (AHHA) commented that:

The Queensland Health approach to telehealth has avoided where possible the use of proprietary products which lock users into a particular piece of equipment or software. The more open access approach taken by Queensland Health gives (health) providers

226 Dr Michael Cleary, *Public Briefing Transcript*, 5 March 2014, p.10

227 CSIRO, *Submission 18*, p.2

228 Dr Ed Brown, *Public Hearing Transcript*, 9 May 2014, pp.5-6

*and users a wider choice of products, including free downloadable software, with which to engage with the Queensland Health telehealth network.*²²⁹

The department told the committee that it is:

*... working to support the development and dissemination of standards providing guidance to ensure compatibility and interoperability of telehealth capabilities across the public and private health care sectors.*²³⁰

*We are investigating innovative applications of existing technologies and exploring technical solutions to provide greater access to reduced cost mobile and low bandwidth solutions.*²³¹

Public sector clinicians told the committee during site visits and a clinicians' roundtable discussion that they wanted to access the Queensland Health videoconference network from personal devices (e.g. tablet, laptop or personal computer). Some clinicians knew how they could access the videoconference system; others appeared to have no information or knowledge and saw lack of access from external devices or systems as a significant barrier to their use of telehealth.

At the committee's public hearing on 31 July 2014, Dr Cleary of the department acknowledged concerns about the interconnectivity of systems within Queensland Health and between Queensland Health and others, and said that further work was needed to have systems in place that allow that interconnectivity.²³²

The committee notes that an update of the Queensland Health Telehealth website on 1 July 2014 added information about external access to the videoconference network. The website states:

Individuals and organisations external to Queensland Health can securely connect to these facilities using their own videoconferencing equipment as long as it meets specific call standards.

*A dedicated video unit is available for testing your connection into Queensland Health.*²³³

In addition, the website lists the call standards needed for an external videoconference unit or software application to access the videoconference network, and lists examples of hardware and software videoconference solutions that are standards-based and meet the required standards. The software videoconference solutions that can be used include Cisco Jabber (enterprise version and free public version), Polycom RealPresence Mobile and RealPresence Desktop, and Lifesize UVC ClearSea.²³⁴

In light of clinicians' perception that access from personal devices or external networks was not possible or limited, the committee asked the department about the use of Cisco Jabber, which some clinicians mentioned in discussion with the committee. The department advised that HHSs use two versions of the software based video client, Cisco Jabber; a free version with which people "experience some issues", and MOVI (now called Jabber) which is the enterprise version that is supported and is being rolled out in Queensland Health.²³⁵

229 Australian Hospitals and Healthcare Association, Submission 16, p.2

230 Ms Jan Phillips, Executive Director, Health Systems Innovation Branch, Queensland Health, *Public Briefing Transcript*, 5 March 2014, p.2

231 Ms Jan Phillips, *Public Briefing Transcript*, 5 March 2014, p.2

232 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.13

233 Queensland Health, *TSU*

234 Queensland Health TSU, *External access*, accessed 21 July 2014, http://www.health.qld.gov.au/telehealth/html/external_access.asp

235 Mr Andrew Bryett, *Public Hearing Transcript*, 31 July 2014, p.12

Mr Andrew Bryett told the committee that technology advances in the last few years enable mobile access to videoconferencing, and that the department is looking at mobile solutions that work in Queensland Health and externally. He said that the relatively high number of software based telehealth solutions reflects the move to mobile access

*... we are moving a lot more towards these much lower cost and more mobile solutions. We can load the software clients onto tablets and onto various other devices to give people access to the Queensland Health network from their homes or from locations that are outside the traditional hospital walls.*²³⁶

The department also advised the committee that the quality of external access is affected by location and the quality of the service that parties use. It said that it expected that the NBN, with greater upload speeds than current residential broadband services, will greatly increase coverage in 2014-15 and in the future.²³⁷

Recommendation 2

The committee recommends that the Minister for Health ensure that the Department of Health gives greater priority to the implementation of improved interconnectivity for clinicians to the Queensland Health telehealth network from personal devices.

5.3.3 Access to videoconference facilities within a Hospital and Health Service

Devices in Hospital and Health Services

Another barrier to the use of telehealth which clinicians raised with the committee was lack of access to the Queensland Health videoconference network from convenient locations. Clinicians wanted the ability to participate in a videoconference consultation using their desktop computer, tablet, or bedside videoconference unit.

The videoconference equipment or access to videoconference that is available in HHSs for telehealth consultations varies from site to site and includes:

- desktop videoconference units for offices and consulting rooms
- PC based webcam systems for offices and consulting rooms
- fixed, wall mounted videoconference systems in conference rooms
- mobile videoconference trolleys for meeting rooms
- wireless, battery powers videoconference trolleys for bedside consultation
- integrated dual camera systems for emergency bays in hospitals
- iPad videoconference software.²³⁸

The department said that clinicians with iPads provided by the department or HHS can videoconference from a HHS facility using WiFi, offsite using 3G or 4G, or by using their home broadband WiFi and the Cisco Jabber video application.²³⁹

Clinicians the committee consulted with had varying views about the utility of existing videoconference equipment, not all of which was perceived as suitable to clinician and patient needs. For example, one clinician told the committee that she had access to an iPad, but no connectivity.²⁴⁰

236 Mr Andrew Bryett, *Public Briefing Transcript*, 5 March 2014, p.9

237 Department of Health, *Response to questions on notice*, p.20

238 Department of Health, *Response to questions on notice*, p.16

239 Department of Health, *Response to questions on notice*, p.16

240 Site visit, Thursday Island, 16 June 2014

As modifications to the telehealth system in Queensland Health are rolled out, improvements in clinician access are anticipated. The committee observed that some clinicians have the perception that telehealth is inaccessible. There is a risk that negative perceptions may become entrenched unless clear information is provided about how to access the system, and about planned improvements that will improve access to the videoconference network.

Accommodation and location of videoconference equipment

When videoconference units were rolled out in Queensland Health facilities they were often located in conference rooms, staff rooms, lecture theatres and other common areas in hospitals.

*Historically, video conference units were installed to provide administration and education support only, a situation evidenced by inappropriate and often inaccessible units, located in conference, education or staff rest rooms.*²⁴¹

The Australasian Telehealth Society (ATS) noted that videoconference end-points are commonly in conference or seminar rooms that are unsuitable for clinical consultations, and ad hoc clinical uses cannot be accommodated. The ATS argued that Queensland Health should focus telehealth expansion on incorporating video communication into routine IT systems, selecting appropriate software, and prioritising video traffic over traffic such as email and web browsing.²⁴²

A 2008 directory of videoconference units lists just over 500 units in Queensland Health facilities, more than 130 of which were in conference rooms or similar. It is likely that some videoconference equipment will require internal relocation to maximise its utility.

The suitability of rooms with videoconference units for clinical consultations was raised by a number of clinical staff, particularly in small health services where space is limited. In remote locations such as Torres Strait islands, videoconference could only be accessed from rooms that were too small to accommodate a patient's family members, conference rooms, or areas that did not provide for sufficient privacy.

The Far North Queensland Medicare Local told the committee that the lack of private consultation rooms in which telehealth could be used was an issue.²⁴³ Clinicians who provide services by telehealth to the Torres Strait commented that the videoconference equipment in some Torres Strait locations could not be moved and could not always be used for consultations.²⁴⁴ Specialist clinicians suggested that mobile videoconference units and access to wireless systems in remote facilities would increase use of telehealth, and enhance confidentiality.²⁴⁵

5.4 Equipment replacement

As noted in chapter 3, \$1 million was allocated in both 2013-14 and 2014-15 for infrastructure, bandwidth and equipment, including installation and modification.

The department's telehealth asset replacement examines the uses of a system, for example whether a large screen and high definition is needed for clinical practice, such as intensive care or the emergency network, or whether lower definition is sufficient for some 'talking' consultations. Dr Cleary noted that previously there was limited choice in systems but there is now the opportunity to examine what equipment is fit for purpose.²⁴⁶

241 Dean and McLean, *Telehealth for diabetics in Far North Queensland*, p.2

242 Australasian Telehealth Society, Submission 14, p.4

243 Far North Queensland Medicare Local, Submission 17

244 Site visit, Cairns, 18 June 2014

245 Site visit, Cairns, 18 June 2014

246 Dr Michael Cleary, *Public Briefing Transcript*, 5 March 2014, p.9

5.5 Internet connectivity and capacity for telehealth

5.5.1 Variable internet capacity

One of the factors that people who have used telehealth for some time identified as important in delivering services via telehealth is internet connectivity. LifeTec, a non-government organisation, submitted that after a period of extensive development beginning in 2008, the main limiting issue experienced with telehealth services is inconsistent and unreliable internet connectivity, which leads to breakdowns in communication and in turn can detract from the adoption and support of telehealth.²⁴⁷

The Australian College of Rural and Remote Medicine's submission also identified connectivity as one of the barriers to implementation of telehealth.²⁴⁸

5.5.2 Current connectivity in rural and remote areas

The department advised the committee in July 2014 that:

*A recent change to Queensland Health's bandwidth utilisation for videoconferencing has increased the speeds of all departmental videoconference systems around the state. Videoconferencing within Queensland Health between all major hospitals in the south-east corner, along the east coast and inland at Mount Isa and Roma will now be capable of speeds that can produce high definition resolutions. Videoconferencing to all other Queensland Health facilities will still produce high quality standard definition resolutions.*²⁴⁹

The department also advised that:

*Bandwidth across Queensland Health facilities is generally very good, internal videoconferencing is reliable and of high quality. 70% of all Queensland Health facilities are currently connected by Queensland Government fibre optic networks. Bandwidth on fibre optic networks in Queensland Health can vary from 4 megabits per second to 1,000 megabits per second depending location.*²⁵⁰

The committee notes that some Queensland Health facilities, particularly in western Queensland and remote areas, do not have reliable internet connectivity.

The Longreach Regional Council submission stated that:

*... in order for telehealth to work effectively, consideration should be given to the reliability of telephone services and/or voice-over-IP protocols. This mainly relates to rural and remote locations that may utilise telehealth such as Yaraka and the Health Clinic in Isisford.*²⁵¹

The committee visited RSQ and asked about internet capacity in rural areas. The committee was advised that internet capacity can be patchy and limited in some rural areas.²⁵²

Central West HHS noted that Bedourie had been identified as one of the seven evaluation sites but that, although every effort is being made to develop telehealth in Bedourie, the absence of infrastructure in this remote area of Queensland means that development is challenging. Central

247 LifeTec, Submission 24, p.3

248 Australian College of Rural and Remote Medicine, Submission 22, p.7

249 Department of Health, *Response to questions on notice*, p.16

250 Department of Health, *Response to questions on notice*, p.20

251 Longreach Regional Council, Submission 2, p.1

252 Site visit, Queensland Emergency Medical System Services Management Centre, Kedron, 19 March 2014

West HHS advised the committee that “areas in the far west of the Health Service, Jundah and Bedourie are services that cannot be used due to the absence of adequate infrastructure”.²⁵³

During a visit to Thursday Island the committee observed that the quality of videoconferencing to Torres Strait islands was highly variable and, in some instances, not of sufficient quality for a clinical consultation. The committee noted the remoteness of some islands, the substantial improvements in health care that could be achieved if this barrier was overcome, and that the financial investment required would be significant.

In response to a committee question about plans to address videoconference quality, Mr Bryett of the department advised that it varies between islands, some of which depend on microwave and copper links that are affected by weather. He indicated that the cost of addressing those issues is high and it was hoped that the NBN would assist. Satellite infrastructure could be explored; however the effect of time delays is an issue for telehealth. Mr Bryett noted that health, policing, education, and a whole range of community services could be better enabled with better technical infrastructure in place.²⁵⁴

Dr Cleary said that bandwidth to the outer islands of the Torres Strait is an area that could be considered. He also advised that satellite technology is being trialled in one health service to determine whether it is a useful alternative. If it is considered suitable it may provide alternative to expand the services where there is no broadband in place.²⁵⁵

5.5.3 Committee comment

The committee has direct experience of the impact of variable internet connectivity in the Torres Strait, but did not have the opportunity to directly view the situation in other remote areas of Queensland. The committee is concerned that the locations where many Aboriginal and Torres Strait Islander people live are locations where internet connectivity may be poor. This limits access to health services using telehealth.

As outlined in section 1.1 of this report, the rate of chronic disease is increasing and people live longer with complex conditions. Chronic disease is a major contributor to the gap in mortality between Indigenous and non-Indigenous people. In addition, chronic disease is the reason for a significant proportion of hospital admissions and readmissions, and the risk of some chronic disease is greater in rural areas.²⁵⁶ There is some evidence to suggest that chronic disease management programs delivered by telehealth can reduce unnecessary hospital admissions.²⁵⁷ This is further canvassed in chapter 9.

The committee considers that priority should be given to implementation of telehealth in ways that may have the greatest impact on health outcomes. The committee suggests that the technical barriers to high quality telehealth in remote communities should be addressed with some urgency, particularly in those locations with a high proportion of Aboriginal residents and high rates of chronic disease.

253 Central West HHS, Submission 36, Attachment p.1

254 Mr Andrew Bryett, *Public Hearing Transcript*, 31 July 2014, p.16

255 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.16

256 For example: AIHW, *Use of hospital services*, <http://www.aihw.gov.au/use-of-hospital-services/>; Health Statistics Centre, Queensland Health, *Hospital readmissions amongst patients with chronic illnesses*, 2008, <http://www.health.qld.gov.au/hsu/pdf/statbite/statbite4.pdf>; National Heart Foundation, ‘Not so lucky country: snapshot shows hearts at far greater risk in the bush’, Media Release, 14 August 2014, <http://www.heartfoundation.org.au/news-media/Media-Releases-2014/Pages/not-so-lucky-country.aspx> (all accessed 14 August 2014)

257 B Dinesen, LK Haesum, N Soerensen, C Nielsen, O Grann, O Hejlesen, E Toft, L Ehlers, ‘Using preventive home monitoring to reduce hospital admission rates and reduce costs: a case study of telehealth among chronic obstructive pulmonary disease patients’, *Journal of Telemedicine and Telecare*, 2012, Vol.18 No.4, pp.221-5

There may be opportunities to upgrade the bandwidth in remote areas through a collaborative approach across Queensland Government portfolios, and the committee encourages the Government to consider such an approach. The committee also recommends that the Government approach the Australian Government to advocate for implementation of the NBN at the earliest opportunity in remote communities where it could contribute to improved health services.

Recommendation 3

The committee recommends that the Queensland Government propose to the Commonwealth that priority be given to implementation of the National Broadband Network in remote communities to provide better access to health services for Aboriginal and Torres Strait Islander peoples and other remote residents.

6 Evaluation of telehealth services

6.1 Introduction

6.1.1 Purpose of telehealth expansion

Assessment of the effectiveness of telehealth and the value for money of delivery of services by telehealth is complex. The aim of the government's 2013-14 telehealth expansion plans, according to the *Blueprint for better healthcare in Queensland* is to:

... provide unprecedented access to a new generation of safe and sustainable care for residents in small, rural or remote communities.²⁵⁸

The 2013-14 budget papers state the allocation of \$30.9 million over four years is "to support enhanced models of care and outreach services", and improve access to emergency staff and other clinicians, and stated that the funding support "will improve access to health services and eliminate extended waiting times for treatment".²⁵⁹

6.1.2 What the committee considered

This chapter discusses the information considered by the committee that is relevant to evaluation of the effectiveness of telehealth. It focuses on access to health services, quality and safety of care, cost savings and cost effectiveness, and telehealth activity levels. The discussion draws on submissions, briefings, hearings, published articles, and consultation with clinicians and patients.

The data available to the committee does not enable it to fully assess the impact of telehealth in Queensland, nor is it possible with the available data to conclude what degree of success has been achieved to date since the injection of \$30.9 million in 2013-14.

While the published literature and evidence provided to the committee suggests that telehealth is effective, published evaluations and studies of telehealth projects vary widely and consider issues such as patient access to services, satisfaction levels of patients and clinicians, consistency of diagnosis, patient safety and cost savings and cost effectiveness. The diversity of published studies and evidence provided to the committee makes direct comparisons between services delivered by telehealth difficult.

6.2 Department of Health evaluation

The *Blueprint for better health care in Queensland* stated that six trial sites would be established in 2013. The department advised the committee that implementation was not limited to the evaluation sites.²⁶⁰ The distinction between trial sites and other HHS facilities is that trial sites would be prioritised for the implementation of the TEMSU service²⁶¹ (described at section 4.2).

The committee sought information about Queensland Health's plans for evaluation of telehealth. The department advised that evaluation is intended to include both scheduled (inpatient and outpatient) and unscheduled (emergency) care. At the public hearing the department advised the committee that the evaluation will include:

- telehealth activity levels
- patient and clinician experiences including acceptance of the use of technology
- access to services

258 Queensland Health, *Blueprint for better healthcare in Queensland*, p.18

259 Queensland Government, *Queensland Health 2013-14 SDS*

260 Dr Michael Cleary, *Public Briefing Transcript*, 5 March 2014, p.5

261 Mr Andrew Bryett, *Public Hearing Transcript*, 31 July 2014, p.8

- expenditure on the Patient Transport Subsidy Scheme (PTSS), to see if expenditure is reduced
- travel optimisation, including analysis of where a patient could have travelled if telehealth was not available
- cost arrangements
- clinical outcomes and quality of care
- referral flows.²⁶²

Dr Cleary told the committee that evaluation of clinical outcomes and quality of care would “occur in collaboration with the Hospital and Health Services as they assess and often publish much of this online. They will also be taking advantage of the online publications that are available”.²⁶³

The department advised that a performance measure has been established in HHS service agreements for Central West HHS, North West HHS, South West HHS, and Cape York and Torres HHS. The performance measure is to increase non-admitted telehealth service events by 10 per cent compared to the previous year.²⁶⁴ The department did not explain why only five HHS have a performance measure to increase telehealth activity. Performance measures are discussed later in this chapter in relation to current telehealth activity data and in chapter 9.

Armfield and colleagues argued in their submission that evaluation of the implementation of telehealth must go beyond activity levels and acceptance of technology, and should include an assessment of the clinical and economic effectiveness of telehealth.²⁶⁵ The committee acknowledges the importance of evaluating the clinical effectiveness of services delivered by telehealth, and assessing the cost effectiveness of telehealth services.

A number of stakeholders drew attention to the need to have sound evidence about telehealth in order to engage other clinicians, for example:

*... one of the greatest barriers is clinician engagement ... I think research that is hard-nosed and gives you evidence that clinicians will ... think is unambiguous is one way forward.*²⁶⁶

The committee notes that it appears the proposed Queensland Health evaluation is intended to be undertaken by the department in collaboration with HHSs. The committee also notes that, in advising the committee about its proposed evaluation, the department said it was “a key body of work for 2014-15”. The committee also notes that the objectives of the telehealth service have not been clearly articulated, and that performance indicators are proposed for only five HHSs.

With the information available to the committee it is difficult to establish whether the intended outcomes of expanding telehealth services are being achieved. Without a clear focus on defining objectives and performance standards, and monitoring and evaluating telehealth performance, it is possible that the department’s evaluation may not provide information to assist in decisions about whether the current policy approach to telehealth services is clinically effective and efficient.

6.3 Access to health services

Improved access to health services is one of the explicit purposes of the recent funding allocation for expansion of telehealth services. Access is also one of the most commonly discussed advantages of telehealth. While geography is the main determinant of access for people in rural and remote areas of Queensland, access is also affected by disability, and by type of residence, such as a RACF.

262 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.3

263 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.3

264 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.3

265 Dr Nigel R. Armfield, Professor Paul Scuffham and Dr Anthony C. Smith, Submission 33

266 Professor Tim Donovan, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.4

Professor Len Gray told the committee: “If you live in a nursing home in Brisbane, you may as well live in Roma as far as getting access to health services is concerned”.²⁶⁷

Changing demographics mean that the need for access to health services in RACFs is expected to grow. There is a growing need for ready access to specialist health care for older people in metropolitan as well as rural locations.

6.3.1 Patient experience of travel to health services

To better understand patient experiences when travel was necessary for outpatient appointments and treatment, the committee spoke with a small number of consumers who had used telehealth. It also drew on the evidence provided by Associate Professor Pam McGrath and other submissions.

From the committee’s consultations there was a clear message that consumers saw advantages in videoconference consultations, but did not want to lose access to face-to-face consultations. In short, telehealth is seen as an acceptable substitute for some face-to-face consultations, but not a complete replacement for face-to-face consultations.

The Tambo Country Women’s Association told the committee that:

*From a patient’s point of view the convenience of (telehealth) service delivery is wonderful. No travel, the patient is in comfortable, familiar and secure surroundings of their local facility.*²⁶⁸

One HHS told that committee that a number of elderly patients said that they drive for 12 hours, for an appointment of only for 10 minutes. One patient who had used telehealth for an outpatient consultation described the benefits:

*It is 1200 kms to Brisbane and we would have to fly, the hospital would reimburse you, - you have to pay the difference between bus fare and air fare. I would have had to pay around \$300 just for the difference each way. (Telehealth is) great, firstly because it saves the trip, secondly it saves the cost and you are getting the same information via television or whatever you would like call it by just talking, you know person to person. I was actually really pleased and honoured I suppose to get the top man in Cardiovascular in Queensland and probably the eastern states.*²⁶⁹

Associate Professor McGrath’s submission and oral evidence was based on recent research that examined issues associated with haematology patients’ relocation for specialist care, using a representative sample of patients who are supported by the Leukaemia Foundation of Queensland.²⁷⁰

Associate Professor McGrath told the committee that, if patients need to relocate for treatment, it creates many stressors for patient and family.

It means leaving home; it means who is looking after home while you are down there. It means do you bring children with you? Do you leave them at home? Do you interrupt work? Do you want to interrupt schooling?

In some cases, the distance to treatment means that carers are not able to accompany a patient as they need to look after the farm, family or business, at a time when patients want the support of home and family.

267 Professor Len Gray, *Public Hearing Transcript*, 21 May 2014, p.15

268 Queensland country Women’s Association – Tambo Branch, Submission 11, p.1

269 Mr Stuart Scott, quoted in Central West HHS, Submission 36, Attachment 1, p.2

270 Associate Professor Pam McGrath, Submission 7. This research was funded by the Leukaemia Foundation of Queensland.

The research found that many people travelled long distances to attend outpatient appointments. Many patients were over 60, and sometimes sick and nauseated. For example, among patients interviewed, the travel for routine follow up appointments, sometimes of five to ten minutes, included:

*... up to a six-hour flight each way; a 17-hour car trip each way; an eight-hour trip each way; a 18-hour bus trip each way; a four-day return trip by car—they are just some examples. ... that is the level of hardship.*²⁷¹

For patients who drive “there is enormous wear and tear on the car”. In addition the travel and time required has a significant financial impact “so that people after a few years with a haematological malignancy, especially if they were not well off in the beginning, will be really feeling the financial impact”.²⁷²

The committee was very concerned to learn that often “patients were travelling these distances and the hospitals did not know about it”. In busy hospitals, patients and carers do not always raise their concerns about travel. If patients raise concerns that they cannot continue treatment, “then the doctors are being forced into finding ways around it”.²⁷³

The committee’s impression that few consumers know that telehealth may be available for them to use accords with Professor Anthony Smith’s description of one of the barriers to using or expanding the use of telehealth:

*... there is a real lack of awareness of what telehealth is from a general public perspective. ... We need to actually improve public awareness and knowledge of telehealth ... what it will also take is we need our patients to be walking in asking for telehealth. One of our [the Centre for Online Health] programs of work at the moment is trying to generate consumer awareness and ... we have a theme: ask for telehealth.*²⁷⁴

The committee agrees with the view put by Metro South HHS that telehealth needs to be normalised for consumers:

*Telehealth needs to be “normalised” for the general public and public hospital patients. It should be seen as just another option available for accessing specialised health services.*²⁷⁵

To this end, the committee considers that work is needed to ensure that the public is more aware of telehealth, and that health care workers – clinical and administrative – are well informed and able to provide information to patients.

The committee believes that the department, HHSs and clinicians have a responsibility to consider the impact on patients of lengthy travel, and to consider alternatives such as telehealth, provided patient safety and quality of care would not be compromised.

Information about the travel that is required for a rural patient to attend an outpatient clinic should be routinely made available to clinicians so that consideration can be given to whether the travel is essential. Information about telehealth should be made available to patients and their families in outpatient clinics, to encourage consumers to ask whether telehealth is available for outpatient appointments. In addition the committee encourages the department to collaborate with others, including the Centre for Online Health, in work to improve public awareness of telehealth.

271 Associate Professor Pam McGrath, *Public Hearing Transcript*, 21 May 2014, pp.6-7

272 Associate Professor Pam McGrath, *Public Hearing Transcript*, 21 May 2014, pp.6-7

273 Associate Professor Pam McGrath, *Public Hearing Transcript*, 21 May 2014, pp.6-7

274 Associate Professor Anthony Smith, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.6

275 Metro South HHS, Submission 31, p.8

Recommendation 4

The committee recommends that the Minister for Health ensure that the Department of Health and Hospital and Health Services examine what measures, policies and clinical key performance indicators can be implemented to:

- ensure that outpatient clinicians are informed of the travel required for individual patients from rural, remote and outer metropolitan locations to attend outpatient appointments and encouraged to offer telehealth services to patients
- inform and encourage consumers to ask whether their outpatient appointments can be delivered by telehealth.

Recommendation 5

The committee recommends that the Minister for Health ask the Department of Health to examine ways to promote public awareness of telehealth and encourage consumers to ask for telehealth, including by collaborating with the Centre for Online Health.

6.3.1 Access for people with a disability

While most consumers are positive about telehealth, for some people telehealth can be problematic. Research on telehealth geriatric consultations noted that:

*There are special challenges for older people in using video-consultation. Many patients have impaired vision, hearing or cognitive function, although this is also a problem with “live” consultation.*²⁷⁶

The study reported that a minority of patients with hearing impairment require a person at the bedside to repeat the conversation.²⁷⁷

Deaf Services Queensland told the committee that deaf and hard of hearing people do not always have access to an Auslan interpreter, creating difficulties in their access to health services. The factors influencing whether a clinical consultation is interpreted in Auslan include the patient’s location, timing of the consultation, the lack of an accredited Auslan interpreter in a regional or rural location, or a patient’s discomfort at using the local interpreter in a small community.

Deaf Services Queensland suggested that some of those barriers could be overcome by providing accredited Auslan interpreting for deaf and hard-of-hearing patients by telehealth.²⁷⁸

National Disability Services (NDS) notes that access to health services in rural, remote and indigenous communities supports people with disabilities maintaining their independence. It recommends that Queensland Health be encouraged to provide services by telehealth to people in their homes. It also emphasises that telehealth should not replace face-to-face health care.²⁷⁹

276 AC Smith and LC Gray, ‘Telemedicine across the ages’, *Medical Journal of Australia*, 2009, Vol.190 No. 1

277 Smith and Gray, *Telemedicine across the ages*

278 Deaf Services Queensland, Submission 40, p.4

279 National Disability Services, Submission 37, p.3

Recommendation 6

The committee recommends that the Minister for Health ensure that:

- the Department of Health and Hospital and Health Services consider how telehealth can be used to provide services for consumers with a disability to improve their access to health services
- the Department of Health consult with Deaf Services Queensland to explore arrangements to improve access to health services for hearing impaired patients by using telehealth for Auslan interpreting
- the Department of Health inform Hospital and Health Services about arrangements for Auslan interpreting by telehealth and monitor implementation of those arrangements.

6.3.2 Telehealth clinics – examples of improved patient access

Submissions and other evidence to the committee included a broad range of examples of the use of telehealth to improve patient access to health services. Most commonly, telehealth is used to deliver outpatient clinics. The volume of inpatient and emergency care by telehealth is smaller, and in the committee's view, has the potential to make specialist health services and expert emergency care available to more Queenslanders.

The potential to improve patient access to services ranges from the technically simple to technically complex. For example, the Dietitians Association of Australia noted that dietitians are generally not 'hands on' clinicians. Like many other types of clinic, dietitians require only videoconference facilities. The Association suggested that telehealth could improve access to general medical nutrition therapy services for rural and remote residents.²⁸⁰

The Cairns High Risk Foot Clinic is another example where patient access to health services and patient outcomes, have been improved. Patients with diabetes and foot disease in Aurukun, Bamaga, Kowanyama, Napranum, Yam, Yorke, Thursday Island and other Torres Strait Islands, Cardwell, Mount Isa and Weipa have had specialist follow up consultations by videoconference that would not have otherwise been accessible.²⁸¹ If the videoconference does not provide sufficient clarity to assess a patient, still photos can be uploaded to AUSLAB, or emailed.²⁸²

The Townsville teleoncology network, established by Dr Sabe Sabesan, is a model of remote supervision of chemotherapy treatment by telehealth. Most patients do not need to travel from Mount Isa or other locations for treatment. The most recent 80 patients were managed solely by videoconference and 12 urgent cases were treated solely in Mount Isa, avoiding the need for transfer.²⁸³

Dr Sabesan told the committee:

*I believe that is the only way you can close the gap between rural and urban disparities in a sustainable or meaningful manner.*²⁸⁴

The TEMSU uses more complex technology to provide clinical support to rural and remote clinicians, ensuring that patients have access to specialist emergency care in locations where it would not otherwise be available.

280 Dietitians Association of Australia, Submission 30, p.3

281 RACS, Submission 27, p.2

282 Site visit, Cairns, 18 June 2014

283 Dr Sabe Sabesan, Townsville Teleoncology Network Presentation, 21 May 2014

284 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.2

6.4 Patient satisfaction and quality of care

6.4.1 Introduction

The committee recognises the importance of ensuring that high quality patient care is maintained when health services are delivered by telehealth. No evidence was received to suggest that quality of care is compromised. Indeed, the committee considers that the use of telehealth for emergency care (using TEMSU) and for rural clinicians to consult with senior colleagues should lead to improved quality of care.

The committee's terms of reference include considering patient perceptions of telehealth. Patient satisfaction has been considered in this context, and to inform the committee's consideration of the quality of healthcare when it is delivered by telehealth.

6.4.2 Patient satisfaction – examples from the literature

Studies that have examined consumer acceptance and satisfaction with telehealth have generally found high levels of satisfaction. For example, surveys of patients and health workers at the Townsville Cancer Centre found a high level of participant satisfaction with videoconference consultations among both Indigenous and non-Indigenous participants.²⁸⁵

A North Queensland pilot project in the late 1990s found that Indigenous participants (patients and health workers) rated their comfort levels as more than satisfactory, which was consistent with earlier studies that indicated that Aboriginal and Torres Strait Islander people are generally comfortable with videoconferencing.²⁸⁶

A 2003 review of RCH's use of videoconferencing to provide post-acute burns care identified high levels of patient satisfaction in a number of areas, including picture and sound quality, the freedom to say what they needed to during the consult, and savings in terms of time, money and stress. Parents were also confident that their child's condition could be managed by videoconference.²⁸⁷

A telehealth specialist speech pathology clinic for patients with head and neck cancer reported on patient feedback from 38 consultations. Patients reported that the videoconference provided adequate visual and auditory quality, instructions were clear and patients would be comfortable using telehealth if it was available at their local hospital or health care centre.²⁸⁸

6.4.3 Diagnostic accuracy and quality of information obtained in consultation

A 2004 study assessed the accuracy of diagnosis in videoconference consultations for 35 patients at the RCH's paediatric burns unit. There was a high level of agreement between consultants who saw patients face to face (85 per cent concordance) and consultants who saw patients face to face and by videoconference (84 per cent concordance).²⁸⁹ The study concluded that the quality of information collected during a videoconference appointment is comparable to that collected during a traditional face-to-face appointment for a follow up burns consultation.²⁹⁰

285 JK Mooi, LJ Whop, PC Valery, S Sabesan, 'Teleoncology for Indigenous patients: The responses of patients and health workers', *Australian Journal of Rural Health*, 2012, pp.265-269

286 Watson *et al.*, *Networking North Queensland*

287 A Smith, K Youngberry, J Mill, R Kimble and R Wootton, 'A review of three years' experience using email and videoconferencing for the delivery of post-acute burns care to children in Queensland', *Burns*, 2004, Vol.30, p.250

288 CL Burns, EC Ward, AJ Hill, K Malcom, L Bassett, LM Kenny and P Greenup, 'A pilot trail of a speech pathology telehealth service for head and neck cancer patients', *Journal of Telemedicine and Telecare*, 2012, p.3

289 A Smith, R Kimble, J Mill, D Bailey, P O'Rourke and R Wootton, 'Diagnostic accuracy of and patient satisfaction with telemedicine for the follow-up of paediatric burns patients' (Telemedicine and paediatric burns patients), *Journal of Telemedicine and Telecare*, 2004, Vol.10, p.193-198

290 Smith *et al.*, *Telemedicine and paediatric burns patients*, p.193

6.5 Clinical outcomes

6.5.1 Introduction

Some clinicians and patients have concerns that telehealth may be a less effective mode of service delivery than face-to-face care. The committee did not hear any evidence of clinical outcomes being compromised by delivering health services by telehealth. The committee considers that ongoing assessment of the clinical effectiveness of telehealth to deliver health services is important, and has summarised some of the evidence received about clinical outcomes.

6.5.2 Diabetes during pregnancy

The RBWH's telehealth diabetes in pregnancy clinic currently provides a weekly service to patients in the Wide Bay, Central Queensland and Mackay HHSs. A submission from Dr Michael D'Emden stated:

*The clinical outcome of this service is spectacular with dramatic improvements in the overall control of the patients' diabetes with the measure of this control (HbA1c) being roughly equivalent to women managed through our Diabetes in Pregnancy clinic at the Royal Women's Hospital. Unfortunately, the HbA1c at the first appointment remains unacceptably high for the commencement of pregnancy due to their relative lack of access to high quality endocrine care in these communities between pregnancies.*²⁹¹

6.5.3 Home based cardiac rehabilitation

The CSIRO has worked with the Metro North HHS to develop a cardiac rehabilitation program using smartphones and a web portal. Completion of cardiac rehabilitation can reduce the incidence of a second heart attack by 40 per cent, but less than 20 per cent of patients use traditional hospital based rehabilitation programs.²⁹²

A trial found that a phone based cardiac rehabilitation program will lead to increased participation levels and hence a significant reduction in second heart attacks. A health diary app on a smartphone was used to capture patient data, and deliver educational and motivational multimedia content. Patient data is updated through a web portal to a care mentor who provides weekly consultations by phone or video.²⁹³

In South Australia, a multi-modal telehealth service for acute cardiac services has reduced the death rate from heart attack in rural patients to the same rate as urban patients.²⁹⁴

6.6 Costs and cost-effectiveness

6.6.1 Introduction

It is generally assumed that telehealth will reduce costs to the health system, to the patient and to society generally. The published studies of cost savings and cost effectiveness present a diverse picture of savings from telehealth. A review of published economic analyses of videoconference telehealth up to 2009 concluded that:

Delivery of health services by real time video communication was cost-effective for home care and access to on-call hospital specialists, showed mixed results for rural service

291 Dr Michael D'Emden, Submission 28, p.2

292 CSIRO, Submission 18, p.1

293 CSIRO, Submission 18, p.1

294 Australasian Telehealth Society, Submission 14, p.5

*delivery, and was not cost-effective for local delivery of services between hospitals and primary care.*²⁹⁵

A thorough assessment of any savings from delivering health services by telehealth would take account of direct and indirect savings to the health system and to patients, for example, the indirect cost of time away from employment and carer roles, and quality of life. There appears to be limited information available on the direct and indirect savings to patients from telehealth and on the impact on employment and family disruption.

6.6.2 *Reported savings in patient travel*

Savings from avoided patient travel is one of the common measures of the value of delivering services by telehealth. The committee notes that studies infrequently consider patients' unsubsidised and indirect costs.

The OTN estimated that 260 million kilometres of patient travel was avoided in 2013-14. Dr Brown said:

*One of the very important numbers for our government is the savings in patient travel in the northern part of Ontario and that is because, I believe similar to Queensland, for patients in rural areas the government subsidises their travel. Had all the patients travelled instead of using telemedicine last year it would have cost the government about Can\$61 million.*²⁹⁶

Associate Professor McGrath examined the issues associated with haematology patients who relocate for specialist care. Her conservative estimate of the 2012 PTSS cost for a haematology patient to attend a routine follow-up appointment was \$3714. The estimate did not include carer travel and accommodation costs. Extrapolating from information about travel by patients cared for by the Leukaemia Foundation of Queensland to the population of haematology patients, Associate Professor McGrath estimated the potential savings from using telehealth for routine follow up consultations would be \$4.6 million.²⁹⁷

The paediatric burns unit at RCH analysed the type, frequency and destination of telepaediatric consultations undertaken between January 2001 and February 2007 to calculate the potential travel distance saved by videoconferencing. The analysis found the total distance saved was over 1.4 million kilometres (equivalent to two return journeys from the earth to the moon).²⁹⁸

The Toowoomba Telehealth Preadmissions Clinic enables rural and remote patients to be assessed by an anaesthetist by videoconference before admission for surgery, rather than travelling to Toowoomba. Reported outcomes over a four year period include a net cost benefit to Queensland Health, and clinician and patient satisfaction with the service.²⁹⁹

The Townsville Cancer Centre analysed savings of their teleoncology service from March 2007 to November 2011. The analysis identified a total cost for the service of \$442,276 and an estimated avoided expense of \$762,394, representing a net saving of \$320,118. The study reported that the

295 VA Wade, J Karnon, AG Elshaug and JE Hiller, 'A systematic review of economic analyses of telehealth services using real time video communication', *BMC Health Services Research*, 2010; Vol.10 No.233

296 Dr Ed Brown, *Public Hearing Transcript*, 9 May 2014, p.5

297 Associate Professor Pam McGrath, Submission 7, pp.7-8

298 Smith *et al.*, *Telemedicine and paediatric burns patients*, pp.76-78

299 CaSS Statewide Telehealth Services, *2009 Queensland Health Awards for Excellence*, Queensland Health, http://www.health.qld.gov.au/qhafe/docs/006_sts_cass.pdf, p.4; and Dr C Kennedy, Dr R Gray, I McCowan, C Sarquis, S Stenhouse, A Scott, *Establishment of a sustainable telehealth service for pre-admission clinic consultations*, Queensland Health

main driver of net savings is reduced travel costs for patients, and recommends that net savings should be re-directed to further improve rural infrastructure and capabilities.³⁰⁰

A study of videoconference fracture clinics for patients in Mount Isa during a 17 month period in 2011 and 2012 concluded that 21 patient transfers were avoided. In the first phase of the study it was recognised that significant costs could be saved if the transfer of patients who required an escort (children, elderly and incapacitated patients) could be avoided. Changes in attendance and radiology services improved during the trial.

The study found that:

*During the first 12 months the study the savings in avoided transfers were outweighed by the costs of running the clinics. However, in the final 5 months, there were oval savings of \$11,334 for the health service. Improvements in the areas of administration and radiology were identified, which could enhance telehealth application of telemedicine in multiple locations in rural and remote areas.*³⁰¹

6.6.3 Avoided patient retrieval and transfer

The CAHS in Mackay HHS provides paediatric telehealth consultations for acute paediatric patients who present at rural sites in the HHS. The 34 consultations during 2012 were reviewed. In 47 per cent of cases the paediatric team felt that patient transfer was avoided. The study estimated the savings from avoiding 16 patient retrievals in a year was approximately \$190,000, and there were no adverse patient outcomes or delayed transfers. Most of the rural clinicians (90 per cent) felt that the telehealth consultation had reduced their anxiety in dealing with acute paediatric illness.³⁰²

Economic modelling of the RBWH neonatal telemedicine system also identified significant savings. The modelling identified total project costs of \$45,686 and a saving of \$102,338 in transport costs, yielding an overall saving of \$56,652.³⁰³ Clinicians associated with the trial state there is “a sound economic and clinical case for providing neonatal telemedicine access in further level 2 hospitals” and that any statewide telemedicine plan should give strong consideration to this perinatal service.³⁰⁴

An independent expert reviewed cases and found that new clinical information was provided via telehealth in 93 per cent of cases, a decision about transport was changed in 33 per cent of cases, and patient retrieval was avoided in 26 per cent of cases.³⁰⁵

6.6.4 Reduced clinician travel

Several clinicians highlighted the additional clinical consulting time that was made available by using telehealth instead of some ‘outreach’ specialist outpatient clinics. For example, Professor d’Emden said that by replacing some face-to-face clinics with telehealth, about six hours of clinician travel time was avoided. Face-to-face clinics are held every three months, and “additional consulting time has been created without any increase commitment required by the consultant”.³⁰⁶

6.6.5 Avoiding unnecessary hospital admissions

In an earlier inquiry into palliative care and community care, the committee became aware of issues surrounding unnecessary, and often distressing, attendances at hospital emergency departments.

300 Thaker *et al.*, *Cost savings from telemedicine*

301 A McGill and J North, ‘An analysis of an ongoing trial of rural videoconference fracture clinics’, *Journal of Telemedicine and Telecare*, 2012, Vol.18, p.470 (attachment to Submission 27)

302 Desai *et al.*, *Teleconsultation from a secondary hospital*

303 Dr Timothy Donovan, Submission 34, p.3

304 Dr Timothy Donovan, Submission 34, p.1

305 Extract from thesis of Dr Nigel Armfield (attachment to Submission 34, p.3)

306 Dr Michael d’Emden, Submission 28, p.3

The committee was informed that many residents of aged care facilities are transferred to a hospital emergency department when this may not be necessary.

One of the most significant areas of potential savings to the health system is in avoidance of unnecessary patient transfers, unnecessary admissions and attendance at hospital emergency departments.

Aboutcoms told the committee about its work with Toowoomba Hospital on a pilot project during 2013. It noted that lack of geriatric specialist support to nursing home staff was a major reason for unnecessary admission to hospital. During the pilot it had:

*... been able to show that very considerable cost savings would occur for Queensland Health by reducing ambulance transfers and presentation to emergency wards of aged care residents who are in need of specialist advice and care.*³⁰⁷

There is limited local information available about the impact of telehealth on hospital admissions, which the committee considers would be a useful area for longer term research. A study in the United Kingdom is discussed in chapter 9.

The committee considers that the department should make appropriate arrangements for an independent study of the impact of telehealth on avoidance of hospital admissions. In the shorter term the department should ensure that relevant data is collected to facilitate analysis of the impact of telehealth on hospital avoidance.

6.7 Telehealth clinical activity in Queensland Health

6.7.1 Introduction

Assessment of the level of telehealth activity, like assessment of its efficacy, is constrained by the data available. Telehealth has been in use in Queensland for well over a decade. It does not appear that there has been any systematic reporting on telehealth activity in public health services during this time. Various journal articles report on activity in specific clinics or projects, but the committee did not locate any consolidated public health services data.

6.7.2 Telehealth activity levels

The level of clinical telehealth activity is one indicator of whether government expenditure on telehealth is achieving what is intended. The level of telehealth activity in 2012-13 and 2013-14 are described later in the chapter, to compare activity levels before and after allocation of additional funding in 2013-14. Only tentative conclusions can be drawn from the data, given the short period since efforts to increase telehealth activity commenced in 2013-14.

6.7.3 Telehealth activity 2011-12

As discussed earlier in this report, Queensland Health has one of the most extensive videoconference networks in Australia. The level of telehealth clinical activity however has been quite low. When expansion of telehealth services was announced in February 2013, the *Blueprint for better healthcare in Queensland* stated that there were 13,635 occasions of service reported in 2011-12.³⁰⁸ This was a tiny proportion of the over 3.4 million occasions of face-to-face outpatient care provided at public hospitals in the same period.

6.7.4 Telehealth activity 2012-13 and 2013-14

At the committee's request the department provided data on telehealth occasions of service, both admitted and non-admitted, by HHS and by clinic type for the financial years 2012-13 and 2013-14.

307 aboutcoms, Submission 10, p.2

308 See the glossary on page ix for a definition of "occasion of service"

That data is at the end of this chapter. The following discussion draws on the telehealth activity data provided by the department and on submissions and hearing evidence.

The department's telehealth activity data is categorised as:

- **admitted patient telehealth services**, which are predominantly used to deliver remote intensive care management advice and support with some use for geriatric and stroke services³⁰⁹
- **non-admitted patient telehealth services**, which are those provided to patients who do not undergo a formal admission process and do not occupy a hospital bed. For example, services provided by hospitals in outpatient clinics, community based clinics or in patients' homes.³¹⁰

At a public briefing in March 2014, the department advised the committee that:

*... the benefits of the additional resources and the incentives are already being realised with the 34 per cent growth that has been seen in non-admitted telehealth services over the last six months.*³¹¹

In July 2014, at a public hearing the department advised that activity in telehealth had increased by 40 per cent. The change in total telehealth non-admitted occasions of service across all HHSs was 41 per cent between the September quarter 2012 and the June quarter 2014. Most of this increase in occasions of service occurred in the September and December quarters of 2013.

The department told the committee at its public briefing that there were 26,600 videoconference calls, for clinical and administrative purposes, between October and December 2013. The systems had a combined usage of 30,845 hours, with each system used, on average, 7.7 times a month for about 8.9 hours per month.³¹² In their submission, Drs Armfield, Scuffham and Smith note that this suggests that the system is not being 'used to its capacity' and that this level of usage equates to a utilisation of only 5.6 per cent.³¹³

6.7.5 Hospital and Health Service telehealth activity – non-admitted patients

Table 3 shows the telehealth occasions of service in 2012-13 and 2013-14 for non-admitted patients by HHS. There was an increase in occasions of service from 17,440 in 2012-13 to 23,748 in 2013-14 of 36 per cent. The largest number of occasions of service (6,438) was reported in the June 2014 quarter.

In 2013-14, more than 50 per cent of the non-admitted patient telehealth occasions of service were recorded for the Darling Downs, Metro North, Central Queensland, and Mackay HHSs.

Fewer than 80 telehealth occasions of service for non-admitted patients were reported in each of the two years by the Torres Strait-Northern Peninsula HHS, Mater Public Hospitals, West Moreton HHS and Gold Coast HHS.

Table 4 illustrates the small proportion of non-admitted patient occasions of service that are delivered by telehealth, and the proportion of each HHSs total non-admitted patient occasions of service that are delivered by telehealth. Of the almost 11 million non-admitted patient occasions of service in 2013-14, less than 24,000 were delivered by telehealth. The two HHSs that provide the most non-admitted patient occasions of service provide varying proportions by telehealth. Metro North HHS provides 17 per cent of the state's non-admitted patient occasions of service and 15

309 Mr Andrew Bryett, *Public Briefing Transcript*, 5 March 2014, p.4

310 IHPA, *Non-admitted care*, accessed 12 August 2014

<http://www.ihoa.gov.au/internet/ihoa/publishing.nsf/Content/non-admitted-care>

311 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.5

312 Mr Andrew Bryett, *Public Briefing Transcript*, 5 March 2014, p.4

313 Dr Nigel R. Armfield, Professor Paul Scuffham and Dr Anthony C. Smith, Submission 33, p.1 (with utilisation based on an 8 hour day/20 day month)

per cent of the telehealth non-admitted patient occasions of service. In contrast, while Metro South HHS provides 18 per cent of the non-admitted patient occasions of service, only six per cent are delivered by telehealth. Darling Downs HHS, Mackay HHS and Central Queensland HHS provide a relatively high proportion of their non-admitted patient occasions of service by telehealth.

Table 5 shows non-admitted telehealth occasions of service in the quarters ending 30 September 2012 and 30 June 2014, and the percentage change in activity in each HHS. While there was an increase of 41 per cent in telehealth non-admitted occasions of service between those two quarters, some HHSs recorded reductions in telehealth activity for non-admitted patients, notably Central West HHS and Children's Health Queensland. The Sunshine Coast and Torres-Strait-Northern Peninsula HHSs also recorded less occasions of service in the final quarter of 2014, from low bases in 2012. In those HHSs which recorded a high percentage increase over the data period, there were only a small number of telehealth occasions of service in 2012.

6.7.6 Hospital and Health Service telehealth activity – admitted patients

Table 6 shows the number of admitted patient telehealth events by HHS for 2012-13 and 2013-14, for both the provider and recipient end of a telehealth consultation.

A **telehealth event** is defined as an interactive real-time clinical activity provided for an admitted patient within a telehealth session. A **telehealth session** is transmission and receipt of real-time vision and audio by videoconference between participating sites.³¹⁴

Telehealth has been used less frequently for admitted patients and represented only three per cent of reported telehealth activity over the data period. In the two year period there were 1308 admitted patient telehealth events, compared to 41,188 non-admitted patient telehealth occasions of service. The number of admitted patient telehealth events has also decreased slightly during the reporting period, from 668 in 2012-13 to 640 events in 2013-14.

6.7.7 Hospital and Health Services providing services by telehealth to admitted patients

The HHSs which provided most telehealth events for admitted patients during 2012-13 and 2013-14 were Metro North (499), Metro South (182), Darling Downs (236) and West Moreton (153). Those HHSs accounted for 82 per cent of all provider-end admitted patient telehealth events.

Metro North HHS was the largest provider of admitted patient telehealth services, delivering 38 per cent of the total admitted patient telehealth activity. All but a few of the Metro North HHS admitted patient telehealth events were provided to Wide Bay HHS.

The greatest increase in the provision of admitted patient telehealth services was in Metro South, which reported only two telehealth events in 2012-13 and 180 events in 2013-14. The recipient of all but three of those telehealth events was Darling Downs HHS.

No provider end admitted patient telehealth events were reported in 2012-13 and 2013-14 by Cairns and Hinterland HHS, Gold Coast HHS, and Torres and the Cape HHS. Mater Public also reported no admitted patient telehealth activity.

6.7.8 Hospital and Health Services receiving services by telehealth for admitted patients

The Wide Bay HHS and Darling Downs HHS accounted for 72 per cent of all recipient-end admitted patient telehealth events in 2012-13 and 2013-14, receiving 533 and 412 telehealth events respectively.

Wide Bay receives 41 per cent of the admitted patient telehealth events, with 355 events reported in 2012-13 and 178 events reported in 2013-14. No recipient admitted patient telehealth events were

314 Department of Health, *Response to questions on notice*, p.11

reported by the Cairns and Hinterland HHS, Gold Coast HHS and Torres and the Cape HHS, and Mater Public Hospital.

6.7.9 *Clinical specialties providing services by telehealth for non-admitted patients*

The department advised the committee that in 2013-14:

*... the top 10 reported non-admitted clinic types delivering telehealth across the state included: oncology; orthopaedic surgery; diabetes, paediatric medicine; gastroenterology; general medicine; cardiology; preadmission; pre-anaesthesia; midwifery and obstetric care. The activity reports of these by clinics represents about 60 per cent of the non-admitted patient telehealth occasions of service.*³¹⁵

The department also advised that it had compared this telehealth activity to PTSS data and had found that:

*... some of the areas where patients are frequently being transferred also coincide with (clinic types); for example, cardiology, which is frequently an area where patients require transfer. I think we are seeing take-up in those areas and a decrease in the need for inter-hospital transfers.*³¹⁶

Table 7 shows non-admitted telehealth occasions of service, by clinic type for 2012-13 and 2013-14. Over the two year period six types of clinic account for 51 per cent of the non-admitted occasions of service reported, as follows: diabetes (5,392); oncology (4,891); orthopaedic surgery (,3910); paediatric medicine (2,638); gastroenterology (2,630) and cardiology (1,391).

There has been a notable increase in the occasions of service reported for a number of clinic types from 2012-13 to 2013-14, including burns (from 59 to 157), cardiac (from 64 to 300), haematology (from 193 to 403), hepatology (from 80 to 199), midwifery (from 133 to 701) and obstetrics (from 233 to 555). This was in line with information on telehealth activity provided to the committee in submissions and discussions.

There has also been a notable decrease in the occasions of service reported for other clinic types from 2012-13 to 2013-14, including primary care (from 907 to 301), wound management (from 294 to 108), physiotherapy (from 192 to 66), psychiatry (from 529 to 368) and speech pathology (from 229 to 136).

6.7.10 *Clinical specialties providing services by telehealth for admitted patients*

The total number of admitted patient telehealth events in 2012-13 and 2013-14 (1,308) is shown in Table 8, by provider-end clinical unit.

Four types of clinic account for 84 per cent of admitted patient telehealth events: intensive care (498), rehabilitation (246), geriatric (195), and general medical/ surgical (160). There has been a substantial increase in geriatric services during the reporting period, from no admitted patient telehealth events reported in 2012-13 to 195 events reported in 2013-14.

In contrast, there has been a substantial decrease in both rehabilitation and intensive care telehealth events services. Intensive care admitted patient telehealth events have decreased from 354 events in 2012-13 to 144 events in 2013-14. Rehabilitation admitted patient telehealth events have decreased from 166 in 2012-13 to 80 in 2013-14.

As outlined above, there are substantial changes in reported telehealth activity over the two year period. It is not clear whether all of those changes can be explained by changes in clinical telehealth activity, or whether the accuracy of data recorded or changes to categories and definitions may

315 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.5

316 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.5

contribute to some of the changes. The committee is therefore not convinced about the reliability of the data and is unsure whether the data can be used effectively to inform policy development and decisions about service provision. The committee suggests that the data be validated and quality assured to inform evaluation of the current policy and decisions about future service provision.

Recommendation 7

The committee recommends that the Minister for Health ask the Department of Health to:

- take steps to validate and quality assure its telehealth activity data for 2012-13 and 2013-14 to determine whether it is an accurate record of telehealth activity across the state during this period
- develop and implement measures to ensure the integrity of telehealth activity data for Hospital and Health Services and clinic types in the future.

Table 3: Non-admitted telehealth occasions of service by Hospital and Health Service – 2012-13 and 2013-14

Hospital and Health Service and Mater Public Hospital	2012-13	2013-14
Cairns and Hinterland	759	892
Cape York	231	343
Central Queensland	1598	2,699
Central West	960	737
Children’s Health Queensland	1,309	1,250
Darling Downs	1,904	4,083
Gold Coast	37	64
Mackay	1,853	2,655
Mater Public Hospitals	0	78
Metro North	3,142	3,557
Metro South	1,026	1,483
North West	1,032	1,252
South West	357	539
Sunshine Coast	349	206
Torres Strait-Northern Peninsula	80	80
Townsville	1,385	2,205
West Moreton	13	69
Wide Bay	1,405	1,556
Total	17,440	23,748

Source: unpublished data provided by Queensland Health

Table 4: Proportion of non-admitted telehealth occasions of service and all non-admitted occasions of service by Hospital and Health Service – 2013-14

Hospital and Health Service and Mater Public Hospitals	Non-admitted occasions of service			
	All		Telehealth	
	No.	%	No.	%
Cairns and Hinterland	751,005	7	892	4
Cape York	158,883	1	343	1
Central Queensland	596,001	6	2,699	11
Central West	80,777	1	737	3
Children’s Health Queensland	149,206	1	1,250	5
Darling Downs	606,251	6	4,083	17
Gold Coast	960,489	9	64	0
Mackay	430,935	4	2,655	11
Mater Public Hospitals	518,784	5	78	0
Metro North	1,799,415	17	3,557	15
Metro South	1,942,894	18	1,483	6
North West	256,688	2	1,252	5
South West	141,642	1	539	2
Sunshine Coast	576,191	5	206	1
Torres Strait-Northern Peninsula	59,954	1	80	0
Townsville	725,593	7	2,205	9
West Moreton	412,227	4	69	0
Wide Bay	552,301	5	1,556	7
Total	10,719,236	100	23,748	100

Source: Data on non-admitted telehealth occasions of service provided by Queensland Health; Data on all non-admitted occasions of service is Queensland Health Hospital Activity Data from http://www.health.qld.gov.au/hic/QHID/Hospital_Activity/html/occasions%20month.asp

Table 5: Non-admitted telehealth occasions of service by Health and Hospital Service – change in activity

Hospital and Health Service and Mater Public Hospitals	Non-admitted telehealth occasions of service		
	July-Sept 2012	April-June 2014	%change
Cairns and Hinterland	263	266	1
Cape York	58	62	7
Central Queensland	269	737	174
Central West	408	200	-51
Children’s Health Queensland	522	305	-42
Darling Downs	440	1,057	140
Gold Coast	6	13	117
Mackay	470	712	51
Mater Public Hospitals	0	77	-
Metro North	816	1,058	30
Metro South	212	267	26
North West	250	422	69
South West	69	145	110
Sunshine Coast	64	46	-28
Torres Strait-Northern Peninsula	15	13	-13
Townsville	338	624	85
West Moreton	2	18	800
Wide Bay	348	416	20
Total	4,550	6,438	41

Source: unpublished data provided by Queensland Health.

Table 6: Admitted patient telehealth events by Quarter, by Hospital and Health Service provider-end and recipient-end – 2012-13 and 2013-14

Hospital and Health Service		2012-2013					2013-2014				
Provider	Recipient	Quarter				Year Total	Quarter				Year Total
		Sep	Dec	Mar	Jun		Sep	Dec	Mar	Jun	
Central Queensland	Central West		1	1		2					0
Central West	Central West		1			1					0
Children's Health Services	Darling Downs					0		1			1
	Mackay				1	1	1		3		4
	Sunshine Coast					0				1	1
Darling Downs	Darling Downs	161	1	3	6	171	13	2	20	21	56
	South West	1	1	1	4	7	2				2
Mackay	Mackay	9	7	1	14	31	7	2	7	16	32
Metro North	Darling Downs					0				2	2
	Metro North					0		1			1
	Wide Bay	172	143	23	14	352	3	30	76	35	144
Metro South	Darling Downs		1			1	18	38	58	65	179
	Mackay				1	1					0
	South West					0		1			1
South West	South West					0		1		1	2
Sunshine Coast	Sunshine Coast	2	5	20	7	34	7	33	5		45
Townsville	Mackay		1			1	4	12	6	19	41
West Moreton	West Moreton	48	10	4		62	31	37		23	91
Wide Bay	Wide Bay		1	1	1	3		5	19	10	34
RSQ	Darling Downs					0		1		1	2
	Mackay					0				2	2
	South West	1				1					0
Grand Total		394	172	54	48	668	86	164	194	196	640

Source: unpublished data provided by Queensland Health.

Table 7: Non-Admitted Patient Telehealth Occasions of Service, by Quarter, by Clinic Type – 2012-13 and 2013-14

Clinic Type	2012-2013					2013-2014				
	Quarter				Year Total	Quarter				Year Total
	Sep	Dec	Mar	Jun		Sep	Dec	Mar	Jun	
Aboriginal Health Clinic		10			10	7		2	1	10
Aged Care Assessment	3	13	18	4	38	6	11	6	14	37
Aids and Appliances	1				1					0
Alcohol and Other Drug	2	1	13	18	34	11	23	11	15	60
Anaesthetics	123	130	111	132	496	190	134	75	86	485
Audiology		4			4		1			1
Breast	1	1			2	2	2	6	1	11
Burns	9		27	23	59	36	50	44	27	157
Cardiac	18	14	13	19	64	78	105	57	60	300
Cardiology	148	128	109	178	563	258	206	155	209	828
Clinical Measurement	69	54	43		166		49	35	43	127
Clinical Pharmacy	3			10	13	9			2	11
Cognition and Memory						1		1	1	3
Community Health Services	36	25	3	13	77	7	11	36	31	85
Continence	15				15					0
Craniofacial	17				17					0
Dermatology	23	9	17	25	74	11	18	12	15	56
Diabetes	674	642	729	615	2,660	618	622	722	770	2,732
Diagnostic Imaging	61				61			8		8
Ear Nose and Throat Surgery	19	21	19	81	140	28	35	31	23	117
Emergency	4	3	3	8	18			3	1	4
Endocrinology	124	107	60	86	377	117	136	154	143	550
Falls Prevention							2	22		24
Gastroenterology	250	271	261	354	1,136	387	374	377	356	1,494
General Counselling	4	1	1	3	9	2	9	7		18
General Medicine	189	211	251	260	911	256	231	360	412	1,259
General Surgery	24	74	88	135	321	143	55	39	36	273
Genetics	53	80	46	75	254	110	81	122	104	417
Geriatric	19	49	94	106	268	145	166	95	53	459
Gynaecology	9	4	2	2	17	5	3	19	2	29
Haematology	37	39	49	68	193	93	71	111	128	403
Hepatobiliary	1				1			4		4
Hepatology	32	4	2	42	80	43	61	43	52	199
Hydrotherapy	3		1		4					0
Immunology	2	2	1	3	8	1	3	3	1	8
Infectious Diseases	6	5	21	6	38	15	6	17	20	58
Midwifery	15	18	35	65	133	182	193	192	134	701
Neonatal	1	1			2					0

Inquiry into telehealth services in Queensland

Clinic Type	2012-2013					2013-2014				
	Quarter				Year Total	Quarter				Year Total
	Sep	Dec	Mar	Jun		Sep	Dec	Mar	Jun	
Nephrology	84	43	69	78	274	88	72	107	121	388
Neurology	54	51	50	67	222	77	128	107	140	452
Neurosurgery	3	3			6		7	6	2	15
Nutrition	39	43	22	29	133	31	64	45	73	213
Obstetrics	31	65	45	92	233	141	172	148	94	555
Occupational Therapy	29	30	23	20	102	35	48	46	52	181
Oncology	493	482	486	544	2,005	617	594	745	930	2,886
Ophthalmology	2	4		6	12	1	3	14	4	22
Orthopaedic Surgery	77	148	300	535	1,060	837	571	646	796	2,850
Orthoptics		6		1	7	8		2	1	11
Orthotics		6			6					0
Other Outreach Services		10	2	1	13				2	2
Paediatric Development	5	8	3	6	22	7	5	9	2	23
Paediatric Medicine	286	258	205	312	1,061	345	409	440	383	1,577
Paediatric Surgery	54	48	54	62	218	72	71	64	81	288
Pain Management	2	3	6	10	21	12	42	20	64	138
Palliative Care	6	4	8	12	30	26	26	32	59	143
Pharmacy	9	1			10	46			16	62
Physiotherapy	36	53	59	44	192	8	10	22	26	66
Plastic and Reconstructive	9	2	4	9	24	9	10	11	9	39
Podiatry	2		15		17					0
Post Acute Care					0				5	5
Pre-Admission and Pre-	170	126	86	137	519	163	166	195	177	701
Primary Care	333	190	127	257	907	90	63	52	96	301
Psychiatry	322	46	83	78	529	104	78	98	88	368
Psychogeriatric			4		4	1	21	1		23
Psychology	12	18	5		35	6	10	7	5	28
Rehabilitation	5	2	5	6	18	7	3		4	14
Respiratory	110	90	124	127	451	139	106	141	143	529
Rheumatology	66	65	63	63	257	77	101	94	123	395
Sleep Disorders	22	29	28	20	99	26	31	21	26	104
Social Work	13	27	17	9	66	8	9	6	21	44
Speech Pathology	94	80	36	19	229	21	38	25	52	136
Spinal	1				1		2	4	2	8
Stomal Therapy		4	3	2	9					0
Transplants	13	9	18	18	58	29	11	19	22	81
Urology		2	4	3	9	2	4	3	10	19
Vascular Surgery	7	3	5	8	23	12		10	23	45
Wound Management	166	98	18	12	294	32	13	17	46	108
Total	4,550	3,978	3,994	4,918	17,440	5,838	5,546	5,926	6,438	23,748

Source: unpublished data provided by Queensland Health.

Table 8: Admitted patient Telehealth Events by Quarter, by Provider-end Clinical Unit – 2012-13 and 2013-14

Provider-end clinical unit	2012-2013					2013-2014				
	Quarter				Year Total	Quarter				Year Total
	Sep	Dec	Mar	Jun		Sep	Dec	Mar	Jun	
Cardiology		1			1			1		1
Day Surgery					0			1		1
Ear Nose and Throat				1	1					0
Endocrinology and Diabetes			1		1					0
General Medical/Surgical	48	6	12	11	77	38	26	8	11	83
Geriatric					0	18	52	58	67	195
Haematology					0		1	1	1	3
Infectious Diseases				1	1					0
Intensive Care	172	143	24	15	354	3	30	76	35	144
Neonatal Intensive Care					0	2				2
Obstetric/Maternity	1				1				3	3
Oncology	2	1			3	4	12	11	27	54
Orthopaedic		5	5	3	13	5	3	7	7	22
Outpatients – Specialists					0			1	2	3
Paediatric	9	12	6	13	40	9	2	3	7	21
Palliative		1			1		2	1	2	5
Psychiatric	1	3	1	1	6	4	3	6	2	15
Rehabilitation	160		4	2	166	3	32	18	27	80
Renal/Nephrology					0			2		2
RSQ	1				1		1		3	4
Thoracic/Respiratory Medical			1	1	2				2	2
Grand Total	394	172	54	48	668	86	164	194	196	640

Source: unpublished data provided by Queensland Health

7 Barriers and enablers to telehealth implementation

7.1 Impediments to greater telehealth use

7.1.1 Telehealth benefits consumers

The committee is persuaded that two of the greatest benefits of telehealth are in:

- improving consumer access to health services that were not previously accessible, including access to expert trauma care, provision of timely specialist medical advice, and potential long term benefits in effective management of chronic disease, reduced hospital admissions and reducing the burden of disease on individuals
- reducing the burden on individual patients and their carers and families of travel, including less time away from work and family, less cost to consumers, and avoidance of the inconvenience of travel when it is not necessary.³¹⁷

Thus it would seem that patients have the most to gain from the increased use of telehealth delivery of services in Queensland, particularly in rural and remote areas where access to services is a particular issue and there are disparities in health outcomes.

7.1.2 Barriers and enablers

The committee considered the barriers to the uptake of telehealth opportunities as well as the enablers. Challenges to establishing telehealth service provision are widely canvassed in the literature available on telehealth. Submissions to the committee's inquiry also outlined these issues, particularly as they related to Queensland.

Consultant paediatrician and Director of the CAHS at Mackay Base Hospital, Dr Michael Williams, has written broadly on his experiences with telehealth. Much of his work includes commentary on the benefits of telehealth and barriers which have limited its uptake.³¹⁸ He notes that there are high levels of patient acceptance and satisfaction with telehealth services and argues that it promotes patient centred care, where the patient is the focus and actively involved in the consultation.³¹⁹

Dr Williams' view is that a number of issues identified as possible barriers do not present a 'significant impediment' to the take up of telehealth. For example, he states that lack of infrastructure and high speed transmission capability and an inability to undertake a physical examination are not major reasons for a lack of telehealth activity.³²⁰ Dr Williams notes, however, that there are barriers to clinicians using telehealth in terms of lack of remuneration, no incentives or rewards for services, and lack of administrative support.

Queensland has recently moved to address some of these issues, by introducing financial incentives and moving to provide more administrative support. Dr Williams' concern, however, that there is a lack of drivers to encourage the take up of telehealth, for example no telehealth targets for services or individual clinicians and no requirement in specialists' contracts for telehealth consultation to rural and regional sites, remains.³²¹

317 See, for example, Jennifer J. Moffatt and Diann S. Eley, 'The reported benefits of telehealth for rural Australians', *Australian Health Review*, 2010, Vol.34 No.3, pp.276–281 at p.278, <http://www.publish.csiro.au/paper/AH09794.htm>

318 Dr Michael Williams, Submission 35, p.2

319 Dr Michael Williams, *Comments on the Australian Government telehealth discussion paper: Connecting Health Services with the Future; Modernising Medicare by Providing Rebates for Online Consultations* (Comments on Providing Rebates for Online Consultations Discussion Paper), 2013, p.6

320 Dr Michael Williams, *Comments on Providing Rebates for Online Consultations Discussion Paper*, p.5

321 Dr Michael Williams, *Comments on Providing Rebates for Online Consultations Discussion Paper*, p.5

Consideration of the barriers to the implementation of telehealth and its expansion beyond pilot programs and single pioneer practitioners indicate that there is a range of impediments that arise from user concerns about the application of telehealth and therefore, general acceptance and engagement in its use. These 'user acceptance issues' are mainly observed among clinicians, although there can be issues for consumers. Acceptance issues by HHSs about the required adjustments to administrative support for clinicians and patients and integration into the work of HHSs at the local level also need to be considered.

7.2 The importance of clinician engagement

7.2.1 Introduction

Clinicians are key to the integration of telehealth into mainstream health care provision and its broader acceptance in health care service delivery. Wade et al note the following as necessary for successful uptake of telehealth:

*... well-functioning technology, user training, planned change with provider participation, development of protocols, acceptance by health care providers, support for provider collaboration, use of a business model, and supporting policy and legislation.*³²²

In considering the development of a theoretical framework for the successful implementation of telehealth, however, Wade and her colleagues establish that clinician acceptance is "the key factor of most important influence on the successful operation of telehealth services".³²³ Therefore, strategies to address the willingness of clinicians to use telehealth will be critical to the mainstream success of telehealth delivery.

The published literature and some stakeholders suggest that clinicians may be reluctant to use telehealth due to:

- lack of information or knowledge, e.g. clinicians may be unfamiliar with telehealth use in their area of clinical practice
- negative experiences with telehealth, including an absence of technical or administrative support, or clinical support with the patient
- concerns about quality of care, or lack of an agreed model of care, and/or
- lack of clarity about consent, credentialing, clinical record-keeping, professional indemnity, and clinical responsibility for 'remote' patients.

Zanaboni and Wootton are also of the view that the attitude of health professionals to the use of telehealth is "a crucial factor" in the adoption of telehealth. They highlight the important point that, for individual practitioners, using telehealth "is almost always more time and trouble than practising in the ordinary way", and that, therefore, personal incentives are needed.³²⁴

Resistance to using telehealth on the part of specialists and other clinicians can be on the basis that they cannot use the technology or do not trust it, or because of concerns about the possibility of increased clinical risk or the impact on quality of health care. Many clinicians prefer face-to-face consultation and it is the case that face-to-face arrangements for consultations are a better fit for current funding arrangements. Queensland's activity-based funding arrangements are described in chapter 3, and funding incentives are discussed in chapter 8 of this report.

322 Wade, VA, Elliott, JA & Hiller JE, 'Clinician Acceptance is the Key Factor for Sustainable Telehealth Services' (Clinical Acceptance of Telehealth Services), *Qualitative Health Research*, 2014, Vol.11 No.2, p.683

323 Wade et al., *Clinician Acceptance of Telehealth Services*, p.686

324 P Zanaboni and R Wootton, 'Adoption of telemedicine: from pilot stage to routine delivery' (Adoption of telemedicine), *BMC Medical Informatics and Decision Making*, 2012, Vol.12 No.1, pp.6-7

7.2.2 Queensland clinicians' perspectives

Professor Donovan, a neonatal paediatrician at the RBH, told the committee at the clinician's roundtable that:

*As far as the barriers go ... I think one of the greatest barriers is clinician engagement along the way. I think research that is hard-nosed and gives you evidence that clinicians will agree to and will think is unambiguous is one way forward.*³²⁵

In a response to an Australian Government discussion paper about providing Medicare rebates for online consultations and in his submission, Dr Williams made a number of suggestions that could address ease of use of telehealth for clinicians, including:

- the importance of providing funding for administrative support and upfront funding to establish activity as well as ongoing per-capita funding
- the provision of single statewide support service to provide technical advice and other support, which is available over an extended time period (not just 8am to 5pm weekdays).³²⁶

At the clinician's roundtable Dr Macdonald, a hepatologist who delivers care for viral hepatitis to prisoners via telehealth, noted difficulties in engaging clinician assistance in his work with these patients, despite the considerable savings of having an alternative to transporting prisoners to appointments:

*I think there is a lot of support from the administrators within Corrective Services. The main problem I have is engagement with the clinicians. The (administration) staff will make the bookings, the equipment mostly works, but actually trying to identify patients at risk of side effects, and these are potentially quite nasty medications, is difficult. Probably the biggest challenge that I face is trying to have engagement with the clinicians. So although it is seen as a good idea, actually across a number of different prisons it is a difficult issue.*³²⁷

In its submission, the RACP reported that it had an "ambiguous response" from physicians about the use of telehealth services in Queensland.³²⁸ The RACP submission advised the committee that:

*Some physicians have commented very favourably about the telehealth services in their facilities whilst others do not accept it to be a dependable model of health service delivery.*³²⁹

There was greater acceptance of telehealth use for follow up consultations on the part of clinicians:

*Overall, feedback overwhelmingly supports the use of telehealth services for the purposes of follow up consultations. This has shown to be particularly useful where rural and remote patients are disadvantaged in accessing specialist health care ...*³³⁰

The RACP noted the difficulties of variable acceptance:

*Some clinicians also experienced lack of acceptance of these services from other clinicians and ultimately the patient is disadvantaged.*³³¹

325 Associate Professor Tim Donovan, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.4

326 Dr Michael Williams, *Comments on Providing Rebates for Online Consultations Discussion Paper*, p.3

327 Dr Graeme Macdonald, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.4

328 RACP, Submission 8, p.1

329 RACP, Submission 8, p.1

330 RACP, Submission 8, p.1

331 RACP, Submission 8, p.2

The AMAQ commented that expanding telehealth beyond the early adopters to a wider group would benefit from a high level of engagement with clinicians, along with practical guidance and support from the HHS or department.³³²

Professor Smith reminded the committee that telehealth needs to be adapted differently to each specialty and that the development of relationships for the delivery of clinical services by telehealth were “absolutely essential”, saying:

*Telehealth is a partnership. Providing services to regional sites requires building partnerships and there is no better way of doing that than sitting in a tearoom out in the middle of nowhere and working with the clinicians and understanding what their environment is like to do that. That is very, very good.*³³³

Implicit in this comment is the importance of HHSs recognising that clinicians and staff need time to build and support the relationships to effectively deliver services by telehealth.

The ATS noted that each clinical discipline or area of service has “unique” needs in incorporating telehealth into delivery and that the focus must be on service development in any introduction of telehealth, in collaboration with clinicians. The society stressed that telehealth is not a substitute for face-to-face services but “an additional tool” for delivering care.³³⁴

Despite some negative perceptions of telehealth on the part of clinicians, studies show high levels of satisfaction among clinicians associated with trials and pilots undertaken in Queensland. This was the case for clinicians associated with a 12 month trial of a neonatal telemedicine system which supports neonatal consults between the RBWH and remote nurseries in Hervey Bay, Caboolture, Nambour and Redcliffe.³³⁵

Professor d’Emden summarised the situation at the roundtable discussion:

*Technology is not a barrier; it is people embracing it that is the barrier.*³³⁶

7.3 Supporting clinician engagement

Based on the evidence presented to the committee, it appears that more focus may be needed to engage with clinicians and patients and to support changes to facilitate the use of telehealth.

In their work on why more widespread adoption of telehealth has not occurred, Zanaboni and Wootton note that:

*Governments can provide health professionals with the technology, but the majority of potential users need to perceive compelling relative advantages of telemedicine over existing practices in order to adopt it.*³³⁷

Armfield et al argue that a more rigorous evidence base for telehealth is needed to better support clinician engagement. They note that analysis of a clinical problem before implementing telehealth in a service area is often insufficient, or omitted, and that there is a lack of clarity about how best to evaluate outcomes. Armfield and the others believe that a “disciplined, multifactorial, formal assessment of where telemedicine may be useful” is required before any implementation of

332 AMAQ, Submission 19, p.3

333 Associate Professor Anthony Smith, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.14

334 Australasian Telehealth Society, Submission 14, p.4

335 Dr Timothy Donovan, Submission 34, p.1

336 Associate Professor Michael d’Emden, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.10

337 Zanaboni and Wootton, *Adoption of telemedicine*, p.7

telehealth delivery. This would better support its “sustainable integration into routine clinical care”.³³⁸

In its submission, Metro South HHS noted that the use of telehealth as a mode of delivery is a ‘disruptive’ system change.³³⁹ While this means that it has the potential to transform health care delivery as the HHS notes, it also challenges conventional delivery models around which funding and administrative systems have been structured and with which clinicians are familiar and comfortable.

In his submission to the committee, Professor Donovan noted feedback from a multicentre trial that indicated clinicians perceived telehealth as time consuming. Professor Kimble also said that using telehealth was extra work and that clinicians did not really have the time to do it. He explained at the roundtable discussion that it needed to be acknowledged that the advantages of telehealth were really for the patient and family and not for the clinician. A long term user of telehealth, Professor Kimble told the committee that:

*For a clinician it is actually much easier for us just to give an appointment card and get them to travel sometimes two days to come and see us for a five-minute consultation.*³⁴⁰

Dr Korczyk asked that there be “direct recognition by the hospital executives that this is actually extra work that the clinician does”.³⁴¹

Clinician engagement in using telehealth for the delivery of health care services therefore needs to be specifically encouraged and supported if the broader adoption of telehealth is to be successful.

The committee believes that changes to the mode of delivery of health services requires a focus on making telehealth easy to use, managing change, including identifying and resolving problems and issues, supporting staff and communicating effectively across the organisation to ensure that barriers to implementation are addressed.

7.3.1 *Managing cultural change*

The committee heard how the use of telehealth to deliver services challenges the predominant model of face-to-face care consultation as ‘how we do things’ in health care. This is also acknowledged in the literature and a range of submissions.

Given the need to adjust clinical models of delivery in order to accommodate the greater use of telehealth, and challenge traditional structures for delivering health care, consideration of change management is as important as the provision of appropriate infrastructure.

The department advised the committee “the new telehealth program”, which expands on the success of early adopters and innovators to ensure widespread and systematic adoption of telehealth enabled models of care. The department said it was focussing on enabling factors, including:

- engaging clinical champions to drive innovation in and normalisation of telehealth
- harnessing the experience of other sectors to enhance and unify telehealth services
- enhancing inter-organisational relationships to develop strategic partnerships and broaden capability
- supporting the development of standards to ensure compatibility and inter-operability across sectors
- developing the administration and support capabilities required to maximise use

338 Nigel Armfield et al., ‘Telemedicine – is the cart being put before the horse?’, *Medical Journal of Australia*, Vol.200 No.9, p.530-533, at p.532

339 Metro South HHS, Submission 31, p.2

340 Professor Roy Kimble, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.6

341 Dr Dariusz Korczyk, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.15

- establishing governance arrangements to oversee the expansion of Queensland’s telehealth service, and guide program implementation
- incentivising uptake in Queensland by localising the national activity-based funding model
- introducing new purchasing incentives to promote and encourage adoption
- investigating options to increase access to reduced cost mobile and low bandwidth solutions, and
- supporting the re-design of clinical workflows to enable the design and procurement of “fit-for-purpose solutions” .³⁴²

At the public briefing, Dr Cleary recognised the importance of fostering cultural change:

*I think we are looking at changing the culture here. This is not a technical implementation. We can do the technical stuff. We know we can do that. It is actually the strong focus on the relationships and cultural change that is important.*³⁴³

The department told the committee that its approach to change management is:

*... across a number of broad areas to create an environment for engagement between lead implementers and majority followers, promoting a sector-wide approach, removing complexity and risk associated with the use of telehealth and incentivising uptake.*³⁴⁴

In a review of telehealth and education initiatives, Watkins notes the problems of adopting a top down approach to the technical planning and rolling out of telehealth. A better approach is to make way for open discussions with end users and business operators to ensure that innovations are accepted.³⁴⁵

A focus on using ‘early adopters’ to drive the implementation of telehealth is part of change efforts:

*In Queensland the majority of innovators and supportive early adopters have already taken up telehealth and the focus of engagement should now be on expanding on that success.*³⁴⁶

A part of the department’s approach is to encourage ‘clinical champions’ who can demonstrate to colleagues that telehealth is reliable and can provide quality outcomes.³⁴⁷

*Evidence and experience tells us that we need clinical champions within the health system to drive innovation and normalisation of telehealth as a medium to deliver quality care.*³⁴⁸

Associate Professor McGrath noted in her submission that it was important to the adoption of telehealth that “initial steps in telehealth had been driven by leading haematologists”.³⁴⁹ This theme was echoed by clinicians who participated in the clinicians' roundtable discussion with the committee.³⁵⁰

Ms Phillips said that it is important clinicians be presented with ‘clear evidence’ so that

... they can see evidence within the literature and elsewhere that something works. Which is why the list of articles, the growing list of academic articles, is so important,

342 Dr Michael Cleary, *Public Briefing Transcript*, 5 March 2014, p.3

343 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.14

344 Ms Jan Phillips, *Public Briefing Transcript*, 5 March 2014, pp.2-3

345 Associate Professor Jerry Watkins, *Intermediaries and end-users in telehealth and education*, January 2010, p.113

346 Ms Jan Phillips, *Public Briefing Transcript*, 5 March 2014, p.3

347 Ms Jan Phillips, *Public Hearing Transcript*, 31 July 2014, p.15

348 Ms Jan Phillips, *Public Briefing Transcript*, 5 March 2014, p.2

349 Associate Professor Pam McGrath, Submission 7, p.4

350 For example, Professor H Peter Soyer, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.14

*because that is part of that cultural shift with clinicians and with doctors, in particular, and gives them that growing confidence that something is going to work for them.*³⁵¹

At the clinician's roundtable, Professor Smith, Deputy Director of the Centre for Online Health, noted the important shift that had been made in focussing less on simply providing technology and more on the encouragement of integrating telehealth delivery into providing health services and care:

*... no-one has mentioned the 'technology' word and that is great. Five years ago I think in Queensland Health it would have been all about the technology, all about the number of systems that we have and the number of links that we do. This is about providing clinical services.*³⁵²

7.3.2 Committee comment

The committee noted that the clinicians it consulted sometimes had limited information about what improvements to Queensland Health's telehealth system were proposed and where work was underway, for example to enable clinicians to use personal devices to access telehealth. The committee considers that a high level of communication and information about plans and progress is central to effective change management, and recommends that this be given greater focus by the department and by HHSs.

Recommendation 8

The committee recommends that the Minister for Health ensure that:

- all Hospital and Health Services and the Department of Health place greater emphasis on clinician engagement and change management in the future development of telehealth in Queensland, and
- the Department of Health develop a communication strategy to foster Hospital and Health Service and clinician engagement and support for telehealth, including the provision of information about plans for, and progress in the implementation of telehealth improvements.

7.3.3 Administrative and logistical support

At the clinician's roundtable discussion Professor Smith, raised the important issue of ease of use of telehealth for clinicians, of which funding for coordination and organisation is an important aspect:

*... telehealth coordination is very important. Just in terms of operating a good-quality high-standard telehealth operation, you need coordination ... clinicians have to be clinicians and not technicians.*³⁵³

Administrative and logistical support for telehealth is discussed in section 7.4 below.

7.3.4 Training and technical support

At the committee's site visit to Kedron early in the inquiry, Dr Elcock told the committee that it takes time to grow awareness and acceptance of the telehealth system but that once a critical mass is reached everyone wants to use it. An important component of this is to make it easy to use and accessible.³⁵⁴

351 Ms Jan Phillips, *Public Hearing Transcript*, 31 July 2014, p.15

352 Associate Professor Anthony Smith, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.13

353 Associate Professor Anthony Smith, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.13

354 Site visit, Queensland Emergency Medical System Services Management Centre, Kedron, 19 March 2014

The committee was impressed with the work of OTN which has made on-line training readily accessible to clinicians. Training can be accessed through the same on-line system as all other telehealth functions.

One HHS in Queensland acknowledged that senior clinicians in regional facilities perceive that the telehealth equipment is difficult to use and that they are not given assistance or support to do so.³⁵⁵

In its submission to the committee the Stroke Foundation noted that with access to telehealth infrastructure available in most hospitals, an important need was for adequate training and support for staff in an “environment where clinical service time is continually pushed”. It also noted that telehealth support staff had been lost in recent restructuring.³⁵⁶

It was clear to the committee that lack of familiarity with videoconference and other telehealth equipment is a potential barrier to its use by clinicians and health service staff. Issues of trust in the technology and concerns about dependability of telehealth would be addressed by the availability of training and provision of easily accessible technical support.

The committee asked the department for information about the training available to staff in HHSs in how to use telehealth infrastructure and applications, including plans for guides, on-line training other resources to support staff in the use of telehealth. The department advised the committee that it:

*... acknowledges that clinicians, administrative end users and support staff must be highly conversant with the clinical applications and the use of telehealth technologies. End users must feel at ease using the equipment to support service delivery and they must also be assured that the systems that are supporting them provide for the necessary privacy and confidentiality as well as security.*³⁵⁷

The department advised the committee that the telehealth coordinators in each HHS provide training, support and information to facilitate the implementation of telehealth enabled services. Dr Cleary said that:

*... telehealth coordinators are going to ... drive that opportunistic training and bring people along on the journey with them. I think before these coordinators were put in place there was very much a challenge in the take-up because there was no-one to go to and ask how to do this ...*³⁵⁸

Dr Cleary said that telehealth coordinators, employed by HHSs, “work very closely with the Telehealth Support Unit to ensure that they are well equipped to provide training on telehealth equipment ...”.³⁵⁹

In addition, he said that online training videos that demonstrate the use of different types of health technology are available to department and HHS staff as required.³⁶⁰ The committee was unable to locate any videos on the department’s Telehealth web page. The department advised that several video tutorials about different types of telehealth equipment are available on a Queensland Health intranet page.³⁶¹

355 Central West HHS, Submission 36, Attachment, p.2

356 Stroke Foundation, Submission 29, p.2

357 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.3

358 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.13

359 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.2

360 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.3

361 Mr Andrew Bryett, personal communication, 20 August 2014

The role of telehealth coordinators in each HHS includes engagement and implementation support activities, however most have been in their roles for a relatively short period. Table 1 in chapter 3 shows the appointment dates for each HHS telehealth coordinator.

7.4 Coordination

7.4.1 Introduction

The evidence the committee has considered suggests there are a number of levels of coordination and integration of telehealth required for it to be effective. Coordination and integration of telehealth may include: infrastructure, technology and interoperability of the statewide telehealth system; integration of remote access to store and forward systems; coordination of the use of telehealth resources within a HHS or facility; integration of telehealth consultations into clinical workflows; coordinated scheduling of telehealth consultations, and administrative and logistical support for clinics delivered by telehealth.

The committee notes that delivering services by telehealth appears to require coordination at both strategic and operational levels, and that the varying needs of different clinic types and locations require a degree of flexibility.

The committee considers that integration of telehealth as a 'normal' part of health service delivery is essential, and that appropriate coordination and integration will assist to overcome the barriers to improved implementation of telehealth in Queensland.

7.4.2 Coordinated approach to telehealth infrastructure

Chapter 5 of this report discussed telehealth infrastructure, in particular remote communities that do not have sufficient bandwidth for videoconference consultations, and interoperability issues. The committee's recommendations about those matters are in chapter 5.

The committee supports a coordinated approach to telehealth infrastructure and ongoing improvement in rural and remote facilities' access to sufficient bandwidth for the routine use of telehealth.

7.4.3 Hospital and Health Service commitment and coordination

The level of acceptance and commitment to delivering services by telehealth in HHSs was highly variable. The committee spoke with health service managers and clinicians who were champions of telehealth as a mode of service delivery, and others who were less experienced but nevertheless enthusiastic about the potential benefits for patients. The committee also encountered managers and clinicians whose understanding of the benefits and practicalities of delivering services by telehealth was limited, and who perceived difficulties in adapting to telehealth as a way of delivering health services.

Professor Smith pointed to the importance of putting appropriate systems in place to support an effective telehealth service. He felt that there was a reluctance to fund support systems noting:

*In my own experience I have sensed that the cost of telehealth coordination is often seen by organisations, particularly at management level, as an overhead or an additional burden ...*³⁶²

In its submission to the committee, the RACP said that some clinicians who wanted to use the service had reported that their HHSs "were reluctant to support and provide telehealth services and blocked these services".³⁶³

362 Associate Professor Anthony Smith, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.6

363 RACP, Submission 8, p.2

Funding was provided to HHSs in 2013-14 to appoint telehealth coordinators in each HHS, which is a positive recognition of the need to resource coordination functions. The first of the HHS telehealth coordinators commenced in September 2013 in South West HHS; it was not until June 2014 that a coordinator had commenced in all HHSs.³⁶⁴

Dr Korczyk told the committee:

*I think coordinators are the most important in providing telehealth to patients. ... they can actually get a buy-in from the clinicians, not only those on the receiver side but also ... (those) ... only now starting to warm to it because we have coordinators. We have people who will do the leg work and who will come and organise the clinic and provide you with the data. It is much easier to do that.*³⁶⁵

The committee anticipates that HHSs may need more staff to ensure appropriate coordination at the clinic and operational level.

7.4.4 Committee comment

The committee notes that some HHSs appear to have been slow to utilise telehealth, and that the activity data discussed in chapter 6 highlights significant variations in telehealth use among HHSs that include major hospitals. Chapter 9 of the report, which considers planning and performance, includes recommendations that are aimed at promoting HHS commitment to supporting telehealth.

7.4.5 Coordination of telehealth consultations

Coordination of clinicians and support

Professor d’Emden observed the importance of appropriate support at the patient end of a consultation:

*The most important factor by a country mile is having someone at the other end who is actually interested in better outcomes for their patients and embraces telehealth. If you have someone at the other end, the rest is simple.*³⁶⁶

Professor Smith said that an important coordination issue:

*... is looking at the availability of clinicians. Because clinicians are involved in multiple locations, scheduling can be a challenge ... In many cases you are dealing with multiple locations and timing is certainly a challenge to ensure that not only the specialist or clinician at a specialist centre is available but also the person at the receiving end with the patient is also available. So lining all of that up takes skill and requires systems in place to be able to do that adequately.*³⁶⁷

Coordination of telehealth bookings

Stakeholders highlighted the need in some types of clinic for support to ensure that videoconference bookings for the clinic are scheduled seamlessly. Professor Kimble noted that the style of clinic affects the level of coordination needed.

In a system ... where you are going to multiple centres, if all you have to do is ... sit there and be a doctor, it works. But if you are trying to do everything else – trying to get all the images together, trying to get the pictures and collate them – it is not going to work. It is

364 Department of Health, *Response to questions on notice*, p.6

365 Dr Dariusz Korczyk, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.12

366 Professor Michael d’Emden, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.10

367 Associate Professor Anthony Smith, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.6

*easy enough going from one hospital to another or one intensive-care unit to another – that is fairly straightforward – but so many clinics (dotted) about Queensland and that is very difficult. That needs funding.*³⁶⁸

Professor d’Emden also said that the level of coordination needed is higher for a clinic via telehealth to multiple locations. A three- to four-hour telehealth diabetes in pregnancy clinic may see up to 24 patients at a number of sites; “... we need a second person at our site just making all of the bookings to that things work seamlessly ... So you need trained staff.”³⁶⁹ Based on experience in using telehealth for endocrinology consultations Prof d’Emden suggested that success:

*... is making the telehealth service part of the standard clinic structure of a Department and not a service that is conducted in a separate part of the hospital with separate staff. Ideally, an outpatient consulting room should be able to receive a telehealth consultation. The only additional cost at the receiving end is having at least an enrolled nurse present to help facilitate the consultation.*³⁷⁰

A statewide scheduling system?

A number of stakeholders suggested that an on-line scheduling system would overcome some of the current challenges of coordination of telehealth.

The submission from Metro South HHS suggested that telehealth would be more efficient and coordinated if a statewide scheduling system was available to schedule the clinicians and technology at provider and recipient locations, and the patient. Metro South HHS suggested that a scheduling system should be linked to external consultations for example, at general practices or RACFs.³⁷¹ It also suggested that the referral system needs to be streamlined to encourage use of telehealth.³⁷²

Dr North highlighted the common use of on-line booking systems for airline flights, and advocated for an on-line booking system for telehealth.³⁷³

The Far North Queensland Medicare Local suggested that a sophisticated booking system is required, that works across all hospitals and health centres.³⁷⁴ Dr Yang also suggested that an accurate and up-to-date state-wide directory of appropriate staff in each of the major centres and peripheral centres was needed, “because our coordinators take a lot of time to try to find that person to get something going.”³⁷⁵

The committee was briefed on the scheduling system used by OTN in Canada, and understands that an on-line scheduling system could integrate a directory for referrals and enable better coordination of people, equipment and information required for consultations by telehealth.

Recommendation 9

The committee recommends that the Minister for Health consider whether a statewide telehealth scheduling system should be implemented to facilitate the effective and efficient use of telehealth to deliver health services.

368 Professor Roy Kimble, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.12

369 Professor Michael d’Emden, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.7

370 Dr Michael d’Emden, Submission 28, p.5

371 Metro South HHS, Submission 31, p.4

372 Metro South HHS, Submission 31, p.4

373 Dr John North, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.8

374 Far North Queensland Medicare Local, Submission 17, p.2

375 Associate Professor Ian Yang, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.14

7.4.6 *Coordinated access to images and pathology results*

Integrated electronic access to clinical records, including pathology results, x-rays and other images is important to support the effective use of telehealth. The committee heard from some clinicians of their frustrations when digital images and test results were not available remotely, or had only recently become available. A secure web based store and forward system was available, but not accessible from outside a HHS. A clinician said that remote access to x-rays from a personal device recently became possible, but only from some health facilities and not others.³⁷⁶ The ability of clinicians to access Queensland Health's telehealth systems from personal devices was discussed in chapter 5.

The committee also heard of circumstances where access to x-ray is adequate for a telehealth endocrinology clinic which has a coordinated approach to ensure that images required for the next clinic session are transferred to clinicians. Professor d'Emden commented that access to letters is available using a program called "the Viewer".³⁷⁷

Professor d'Emden also commented that the Integrated Medical Record:

*... when it finally gets up and running in about six years' time, will be fantastic because everyone will see the same information. Once again, it needs coordination.*³⁷⁸

7.5 Protocols and guides

7.5.1 *Absence of guidance as a barrier to implementation*

As noted above, where there is uncertainty about clinical governance, coordination, technical arrangements, staffing and other resource requirements, clinicians and health services are less likely to use telehealth. It appeared to the committee that clinicians and health facilities would be more likely to embrace the use of telehealth if material was readily available to provide guidance for different types of clinical practice about protocols, clinical governance, telehealth staffing and administrative requirements and financial issues.

Earlier sections of this report have described some of the successful outpatient and emergency health services delivered by telehealth. Some of those clinics have published the results of trials, assessed cost savings or descriptions of their service model. Those publications do not generally present information in the form of an accessible protocol or guide, and the committee acknowledges that in some clinical areas this may not be necessary.

7.5.2 *Examples of protocols, guides and models of telehealth service delivery*

The committee heard from Dr Sabesan about the development of a remote chemotherapy service delivered by telehealth, and was impressed by his work to normalise telehealth as a routine part of service delivery. The Townsville Cancer Centre is described in chapter 4 and its outcomes in chapter 6.

Starting in 2007, Dr Sabesan has developed an approach to the remote supervision of chemotherapy treatment. Along with colleagues he has assessed the impact on patients, the safety of remote chemotherapy, and published a number of journal articles about aspects of teleoncology.

At a public hearing on 31 July 2014, the department tabled a copy of the Queensland remote chemotherapy supervision guide (QReCS), which is purpose designed to support the remote administration of chemotherapy, published in July 2014.

376 Professor H Peter Soyer and Dr John North, *Clinician Roundtable Discussion Transcript*, 4 August 2014, pp.10 and 11

377 Professor Michael d'Emden, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.11

378 Professor Michael d'Emden, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.11

The QReCS guide provides information:

*... to support the implementation of the QReCS model and is supported by evidence from several studies on Teleoncology. This guide is intended to support the safe and sustainable administration of chemotherapy closer to home for patients from rural and remote areas utilising Telehealth.*³⁷⁹

7.5.3 Protocols and guides for other clinic types

The department told the committee that:

*Many of (the Queensland telehealth) clinics have proven to be sustainable and scaleable over time and provide evidence for the implementation of those models more broadly in the state.*³⁸⁰

The Department of Health 2012-13 Annual Report stated that the Statewide Rural and Remote Clinical Network had progressed collaborative planning and engagement activities, “including Telehealth service delivery models”.³⁸¹

The department advised the committee that

*... there are bodies of work already underway to look at how to use telehealth and document correct use of telehealth services in relation to a whole number of fields.*³⁸²

Mr Bryett told the committee that where service delivery is complex,

... such as the administration of chemotherapy or the administration of tPA for lysis for stroke patients, you really need robust documents ... (to) provide the governance.

If there are existing mature models, however, such as in management of respiratory disease, endocrinology or heart failure follow-up, which focus on patient management and do not involve complex interventions, there is less need for robust guidelines. For example:

*... if the consultation is that every six months you check in to get your bloods assessed by a cardiologist, check your weight, check your girth and get an ECG done, you do not need a 40-page document around that. That model exists and we can transfer that and implement that quickly.*³⁸³

In the more complex area of telestroke, Mr Bryett explained that Queensland is at an early stage of development, and is currently in discussion with Victoria, and has consulted with colleagues in Canada and Scotland.³⁸⁴

The committee acknowledges that complex and robust guides or protocols may not be required for many clinic types. The committee considers that the availability of guides such as that for remote supervision of chemotherapy (or a relevant simpler document) has the potential to assist in overcoming some of the barriers to clinician and HHS management take-up of telehealth as a mode of service delivery. The committee encourages the department to ensure that relevant guides and protocols, whether developed locally or elsewhere, are made readily accessible to all HHS staff in one web location.

379 Queensland Health, *Queensland remote chemotherapy supervision guide*, accessed July 2014

380 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.4

381 Department of Health, *2012-13 Annual Report*, 2013, p.41

382 Ms Jan Phillips, *Public Hearing Transcript*, 31 July 2014, p.10

383 Mr Andrew Bryett, *Public Hearing Transcript*, 31 July 2014, p.9

384 Mr Andrew Bryett, *Public Hearing Transcript*, 31 July 2014, p.10

Recommendation 10

The committee recommends that the Minister for Health ensure that there is an accessible on-line repository of relevant telehealth guidance material including documents developed to support delivery of services by telehealth in specific specialties or types of clinic.

7.6 Policy and legislation

7.6.1 Introduction

Policies, legislation and ‘the way we do health care’ can be barriers in expansion of telehealth services. Several issues raised with the committee are discussed below.

7.6.2 Credentialing, scope of practice and professional indemnity

The framework for ensuring that health professionals are credentialed and have a defined scope of clinical practice to support the delivery of safe, quality health care is set out in a Health Service Directive.

The committee notes that information on the Queensland Health website clarifies that the HHS where the patient is located is responsible for ensuring that a clinician located in another HHS has the required scope of clinical practice for the proposed service via telehealth. The website states:

*A practitioner providing telehealth services must have SoCP (scope of clinical practice) from the HHS/DoH division where they are located when providing telehealth services. The HHS/DoH division where the patient is located needs to verify the SoCP in the practitioner’s home HHS/DoH division and be satisfied that the practitioner has appropriate and current SoCP for the service provided to that patient in that HHS/DoH division.*³⁸⁵

In relation to professional indemnity, the website states that:

*Medical Practitioners employed by the Department of Health or a Hospital and Health Service who are providing Telehealth services are able to seek indemnity under HR Policy 12.*³⁸⁶

Dr Cleary told the committee that authority to approve the state-wide scope of practice for practitioners currently rests with him and the Chief Health Officer. He also advised that the department was going through a process to put in place a delegation so that chief executive officers of HHSs may approve a state-wide scope of practice.³⁸⁷

7.6.3 Clinical responsibility and record keeping

Remote specialist consultation requires that clinical responsibility for ongoing care of the patient is clear. The committee notes that the requirements for clarification of clinical responsibility may vary according to the clinic type and location, for example whether it is within one HHS or involves two or more HHS.

7.6.4 Legislation

The committee was informed of a barrier to the administration of chemotherapy in some locations because of legislative requirements for two staff to sign that the medication is correct, and was told that electronic signatures were not adequate under the current legislation. The committee chair

385 Queensland Health, *Telehealth: Health Professionals*, accessed 22 August 2014, http://www.health.qld.gov.au/telehealth/html/health_professionals.asp

386 Queensland Health, *Telehealth: Health Professionals*

387 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.4

raised this with the department in a public hearing and was advised that the legislation was under review, and that a short term resolution of the issue may be available:

*In terms of electronic signatures, there is a process which can be used under the existing legislation to provide authority to use electronic signatures, but it does require an application to the department for that to be considered.*³⁸⁸

Dr Cleary undertook to follow up on the issue and the committee wrote to him on 8 August 2014 to request a resolution. On 2 September 2014, the department informed the committee that the use of electronic signatures for electronic prescription is already permitted under the Health Drugs and Poisons Regulation 1996. The department also advised that an amendment is proposed to the Health Drugs and Poisons Regulation 1996 to enable electronic instructions to nurses.

The department advised the committee that the Health Drugs and Poisons Regulation 1996 does not require two nurses to sign for the administration of medicines, and that it was possible that the requirement for two signatures is a locally implemented policy to provide an additional safety net against medication errors.

The department also informed the committee that the process to approve the chemotherapy ordering and administration system (MOSAIQ) to produce suitable electronic instructions with electronic signatures is underway.

Recommendation 11

The committee recommends that the Minister for Health direct the Department of Health, in consultation with Hospital and Health Services, to identify any policy or legislative barriers to the use of telehealth to deliver health services and to propose steps to address those barriers.

7.6.5 Patient consent

Consent to a telehealth consultation may involve additional issues to consent than that of a face-to-face consultation, where consent is often implied by attending the consultation. A telehealth consultation may involve more people than some face-to-face consultations, at both the provider and recipient end of the videoconference. It is important that patients have the opportunity to consent or decline to consent to the presence of others.

The committee notes that in 2011 Queensland was the only state with an explicit consent policy for the use of telehealth in public sector health services.³⁸⁹ A telehealth consent form is available on the Queensland Health website. It includes a requirement to inform patients that they have the option of a face-to-face consultation.³⁹⁰

388 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.15

389 Department of Health and Ageing (Cwlth), Department of Health and Ageing (Cwlth), *Telehealth Assessment Final Report*, p.28

390 Queensland Health, *Patient Consent For Telehealth Clinical Consultations*, accessed 20 August 2014, http://www.health.qld.gov.au/telehealth/docs/pat_consent_form.pdf

8 Resources and incentives

8.1 Funding

8.1.1 Introduction

As noted earlier in this report, funding of \$30.9 million was allocated in the 2013-14 budget for telehealth, for the four year period until June 2017. The way that funds were allocated in 2013-14 and 2014-15 is outlined in chapter 3 of this report.

The recent investment of funding is encouraging, and it coincides with changes to the Queensland ABF model and the Commonwealth MBS, which are expected to provide further support to telehealth implementation.

As Professor Gray told the committee:

There are a lot of good things happening in telehealth in Australia: the Medicare item numbers; the disposition of the Queensland government towards telehealth is positive; the new funding arrangements that are being put in place on 1 July to support in-patient consultations are a positive; the support for ambulatory services in Queensland Health is being acknowledged now as an important enabler. All of those things are really quite important to get a good result.³⁹¹

The committee remains concerned that the potential impact of the current funding investment may not be realised for some years; ongoing monitoring is essential and further financial investment may be required.

8.1.2 Stable funding to embed service delivery by telehealth

Chapters 1 and 2 described programs that funded telehealth pilot projects and trials, and described some examples of telehealth pilot projects in Queensland. Funding for pilot projects has been instrumental in enabling some telehealth initiatives to commence (and some pilot projects are still underway), however the committee considers that the efficacy of pilot funding has passed. While short term funding has advantages in supporting innovation, research and development, it can foster a short term vision and results in loss of momentum and loss of skilled staff.

The committee considers that funding for telehealth, including supporting coordination of telehealth, should be considered as integral to funding the delivery of health services. The implementation of telehealth in Queensland had a significant boost when infrastructure was rolled out to most health services in the state. Unfortunately, as has been canvassed in earlier sections of the report, infrastructure is not enough, and considerable planning and development work is needed. The committee is concerned about the possibility that, if telehealth is not well embedded and 'normalised' by 2017, and if recurrent funding is not available, much of the current effort could be wasted. For this reason, the committee recommends that consideration be given to providing ongoing funding and impetus.

The committee suggests that consideration be given to reporting on telehealth as a service area in the budget Service Delivery Statements.

391 Professor Len Gray, *Public Hearing Transcript*, 21 May 2014, p.12

Recommendation 12

The committee recommends that the Minister for Health consider directing the Department of Health to include telehealth in its Service Delivery Statements, which would include the development of appropriate service standards.

8.1.3 Administrative and logistical support to use telehealth

A recurring theme in the committee's consultations with health services and clinicians, discussed in chapter 7, was the importance of administrative and logistical support and coordination to ensure that telehealth is an effective mode of service delivery.

The committee considers that allocating funding for coordination and administrative and logistical support is essential and anticipates that when telehealth as a mode of service delivery is 'normalised', it is possible that the logistical support required may reduce. The committee encourages HHSs to demonstrate their commitment to telehealth by continuing to provide adequate resources for coordination, administration and logistical support.

8.2 Funding incentives

8.2.1 Introduction

In briefing the committee, the department noted that it was important that funding and reimbursement models provide "the right incentives in the health system to encourage people to use telehealth".³⁹² The department advised the committee that there were two avenues for providing revenue for telehealth services. In addition to any incentives provided by the Commonwealth via the MBS for private providers, Queensland could use its state-based ABF model to provide funding incentives for HHSs to adopt telehealth approaches for the public provision of clinical service delivery.³⁹³

The department has informed the committee of funding arrangements that are intended to provide an incentive to use telehealth in clinical service delivery. Dr Cleary told the committee that HHSs now have an incentive to use telehealth "because the reimbursement from the department probably exceeds your expenses."³⁹⁴

8.2.2 Queensland Activity-based funding model – non-admitted patients

In 2012-13, Queensland adopted a state-specific Queensland ABF model because the national ABF model was released too late to inform Service Agreements. During 2013-14, the Queensland ABF model was aligned with the national ABF model as far as possible, while applying a limited number of localisations where appropriate. These included private patients being funded at the full NEP, and not at the discounted rate of the national model (which was to be reviewed for 2014-15), and Queensland purchasing localisations.³⁹⁵

The department explained that "Queensland has also taken the lead nationally with a range of incentives to promote the uptake of telehealth. Queensland is the only jurisdiction with an activity-based funding model that incorporates a very strong focus on telehealth."³⁹⁶

392 Dr Michael Cleary, *Public Briefing Transcript*, 5 May 2014, p.2

393 Mr Andrew Bryett, *Public Briefing Transcript*, 5 May 2014, p.6

394 Dr Michael Cleary, *Public Hearing Transcript*, 30 July 2014, p. 7

395 Department of Health, *Health Funding Principles and Guidelines 2013-14*, pp.15 and 37, accessed 1 August 2014 <https://publications.qld.gov.au/storage/f/2014-06-06T04%3A24%3A00.515Z/health-fund-pples-n-guidelines-13-14.pdf>

396 Dr Michael Cleary, *Public Briefing Transcript*, 5 May 2014, p.5

The department advised the committee that it had “incentivised the uptake of telehealth in Queensland through localisation of the national activity-based funding model, recognising and funding the contribution of both specialist providers and patient end support clinicians”.³⁹⁷

As noted earlier in this report at section 1.6, the national ABF only funds one end of the non-admitted patient telehealth service event. The 2013-14 national ABF provided no financial incentive for a metropolitan hospital to provide outpatient clinics to rural locations by telehealth. The national funding model changed for 2014-15, so that irrespective of the patient’s location, the non-admitted patient service event is counted and funded at the public sector clinic that provides the consultation service. While this recognises the work at the provider-end, it does not compensate the recipient-end facility participating in telehealth service events.³⁹⁸

The Queensland ABF model incorporates a purchasing localisation for non-admitted patient telehealth activity whereby both the recipient-end and provider-end of a non-admitted patient telehealth service event are counted and funded. This means that Queensland funds both the provider-end and recipient-end of a non-admitted telehealth service event.

This funding arrangement “recognises the workforce and resources used at both ends of a telehealth service event”.³⁹⁹ Under the Queensland ABF model, there is a financial incentive for a metropolitan hospital to provide outpatient clinics to rural locations by telehealth and for the recipient-end to support clinics delivered by telehealth.

8.2.3 *Non-admitted patient telehealth incentive*

In February 2014, a new financial incentive for telehealth service delivery was introduced. Non-admitted telehealth activity that is above the volume reported for the equivalent period in the previous year will be funded, irrespective of the separate cap on payment for outpatient items in HHS contracts. Under the new arrangement, HHSs receive funding for all telehealth service events for non-admitted public patients. In outlining the change to the committee, the department explained that this meant that “the more activity you do, the more you will receive funding for it. So there is no restriction on the level of telehealth activity”.⁴⁰⁰

8.2.4 *Admitted patient telehealth incentive*

From 1 July 2014 a purchasing adjustment for admitted patient telehealth activity is being applied. The purchasing adjustment provides a new payment to telehealth provider-ends for each in-scope telehealth event, and will not contribute to the purchased inpatient activity level. The payment applies to specialist medical consultations. A payment of \$350 per admitted patient telehealth event will be made to provider-end HHSs for each event that exceeds the baseline set in the comparative period the previous year. The payment is not provided for telehealth within the same facility.⁴⁰¹ The payment can be made for telehealth events between HHSs and telehealth events between different facilities in one HHS.⁴⁰²

The Queensland Health website notes that “these are Activity-based funding purchasing localisations unique to Queensland, and enable the delivery and expansion of telehealth services”.⁴⁰³

397 Dr Michael Cleary, *Public Briefing Transcript*, 5 May 2014, p.3

398 Mr Andrew Bryett, personal communication, 25 August 2014

399 Department of Health, *Response to questions on notice*, p.2

400 Dr Michael Cleary, *Public Briefing Transcript*, 5 May 2014, p.5

401 Department of Health, *Response to questions on notice*, p.1

402 Department of Health, *Response to questions on notice*, p.2; and Mr Andrew Bryett, *Public Hearing Transcript*, 31 July 2014, p.6

403 TSU, *Health professionals*, accessed 31 July 2014, http://www.health.qld.gov.au/telehealth/html/health_professionals.asp

8.2.5 Use of the Medicare Benefits Schedule in Queensland public sector health services

The department advised the committee that Queensland Health clinicians may bill the MBS items when they are acting under their 'Right of Private Practice', have a Medicare provider number and the MBS billing requirements are met.⁴⁰⁴ In August 2014, a *Private practice in the Queensland public health sector framework* and a related guideline was introduced.

8.2.6 Committee comment

The committee welcomes the funding incentives that have been put in place to promote the use of telehealth. It is important that the department and HHSs monitor the effect of the incentives, and if necessary, modify the arrangements.

The committee notes that the funding arrangements do not appear to provide any incentive to use store and forward telehealth, and notes Professor Gray's comments that ways to reward store and forward and tele-monitoring need to be found.⁴⁰⁵ The committee suggests that incentives are needed to promote the use of store and forward and tele-monitoring.

8.3 Patient Travel Subsidy Scheme

The PTSS is funded by the Queensland Government to provide financial assistance to eligible patients and approved escorts who are required to travel more than 50 kilometres from their local public hospital to access specialist medical services.

Travel and accommodation subsidies are available. Generally the cheapest form of public transport is subsidised unless the patient is approved for a more expensive mode of transport. Patients and escorts must pay the first four nights of accommodation per financial year unless they are a concession card holder or a dependent child under the age of 17.⁴⁰⁶

Patients or their guardian must complete a PTSS Application Form and lodge the form at their local public hospital. Patients whose PTSS Application are approved must also return a completed PTSS Specialist Certification Form to their local hospital following their treatment, together with all travel and accommodation receipts to enable reimbursement.⁴⁰⁷ Both the PTSS Application Form and the PTSS Specialist Certification Form include fields which ask the referring doctor, approving officer and specialist whether the specialist care is available by telehealth.⁴⁰⁸

During the inquiry it became apparent to the committee that the funding arrangements for the PTSS were not well understood. A number of stakeholders suggested that any savings made by a HHS in patient travel costs as a result of using telehealth remained in a central pool, providing no incentive for a HHS to offer patients an alternative to travel.

Other stakeholders suggested that any savings from the PTSS should be redirected to staffing at rural health facilities that are the receiving-end for telehealth consultations. For example, Dr Sabesan said that "the savings on PTSS need to be reinvested in building rural capacity, rather than just putting it into the bottom line".⁴⁰⁹

Dr Cleary told the committee that the budget for the PTSS sits with the HHS. He also advised that expenditure is being monitored very closely:

This data will be reviewed in conjunction with the patient flow data and will give a context to patients: where they are travelling to for face-to-face services and what type

404 Department of Health, *Response to questions on notice*, p.5

405 Professor Len Gray, *Public Hearing Transcript*, 21 May 2014, p.12

406 Queensland Health, *Patient Travel Subsidy Scheme*. A guide for patients and their carers, December 2012

407 Department of Health, *Patient Travel Subsidy Scheme - Information for patients and their carers*, December 2012, p.9

408 Queensland Government, PTSS Application Form and the PTSS Specialist Certification Form

409 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.4

*of clinical support these patients require if they were to receive the same support through telehealth.*⁴¹⁰

Dr Cleary emphasised the role of HHSs and boards in planning:

*... the regional centres ... would be well placed to retain any PTSS benefits that they have from making some of those changes. In some respects, they are the people who drive those changes.*⁴¹¹

The committee believes that there is merit in redirecting any savings made in PTSS expenditure to clinical services that will benefit rural and remote patients, and particularly for enabling the rural health workforce to support telehealth service delivery.

Recommendation 13

The committee recommends that the Minister for Health ask Hospital and Health Boards to consider redirecting any savings in Patient Travel Subsidy Scheme expenditure that arise from telehealth service delivery back to supporting telehealth, in particular ensuring that the rural health workforce is able to support telehealth.

410 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.3

411 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.11

9 Planning and integration of telehealth into service delivery

9.1 Objectives, plans and performance measures

9.1.1 Introduction

The committee was told that the department had a very clear idea of where it wants to get to with telehealth;⁴¹² however, the committee was not persuaded that there is a clear and shared vision or plan for how the department intends to proceed with the implementation of telehealth.

In light of the experience in Australia and overseas that implementing telehealth as a mode of service delivery is complex, the committee considers that it is essential that the department have a clearly articulated vision and plan to 'normalise' the use of telehealth in delivering clinical services. Without clarity of objectives, clear plans and monitoring of performance there is considerable risk that the current investment will not realise the potential benefits for patients and for the health system as a whole.

While the committee acknowledges that the department is measuring activity levels and examining other data, it has not been convinced that the department's approach is sufficiently deliberate to inform decision makers whether the implementation of telehealth is effective and efficient. It is timely that the Auditor-General, in a recent Government-wide audit about monitoring and reporting performance, reminded us of the aptness of the aphorism, 'what gets measured gets managed'.⁴¹³

Chapter 6 of this report discusses the evaluation of current work to improve access to telehealth and noted that from the information available to the committee, it is possible that the department's planned evaluation may not provide information to inform decisions about whether the current approach to telehealth is effective.

9.1.2 Plans and performance measures

The committee considers that the department should develop, and make known to HHSs, clinicians and others, clear objectives and plans for implementing telehealth and making it a 'normal' mode of delivering health services.

The department's focus appears to have been on implementing the TEMSU services, initially in the nominated trial sites, and then in response to interest in more facilities in the relevant HHSs. The department's timetable for TEMSU implementation is outlined in section 4.2 of this report. The committee encourages the department to consider areas of potential high impact and hospital avoidance in its planning; this is discussed in section 9.2 below.

The information available to the committee did not indicate that measures of effectiveness had been developed following investment of \$30.9 million, other than setting a target to increase telehealth activity. The department told the committee that:

*... we have moved to setting targets and outcomes rather than looking at the details of how a program is delivered.*⁴¹⁴

*For the targets that we are setting, and we are incrementally increasing those targets, making it much more favourable for people to use telehealth, the targets were those where we accept the expectation that, for the rural and regional health services, they will be delivering 10 per cent more telehealth work this year.*⁴¹⁵

412 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.10

413 Queensland Audit Office, *Monitoring and reporting performance*, Report 18: 2013-14, p.2

414 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.7

415 Dr Michael Cleary, *Public Hearing Transcript*, 30 July 2014, p.7

As already noted, performance measures can put a focus on managing to achieve targets that have been set. The committee considers that the performance measures included in rural HHS Service Agreements are modest, and may not be sufficient to drive change. The committee was informed that as the “evaluation sites have come online they have far exceeded the 10 per cent target.”⁴¹⁶ The committee considers there may be merit in setting more ambitious performance targets in HHS Service Agreements in future.

There has been a decline in telehealth activity in some metropolitan HHS from 2012-13 to 2013-14, and the committee suggests that consideration be given to establishing performance targets for all HHSs.

The committee notes that both the department and HHSs have responsibility for improving access to health services via telehealth. It considers that performance targets should be included in the employment arrangements for HHS chief executives and senior executives in the department with responsibility for telehealth implementation.

Recommendation 14

The committee recommends that the Minister for Health direct the Department of Health to:

- review the objectives of the telehealth program for 2013-14 to 2016-17 and communicate clear objectives to Hospital and Health Services, staff and stakeholders
- develop measures of the effectiveness and efficiency of the telehealth program to evaluate it and to inform decisions about future delivery of health services via telehealth
- include performance measures that take account of the safety, clinical effectiveness and cost effectiveness of telehealth, and the financial and social impact of telehealth on patients.

Recommendation 15

The committee recommends that the Minister for Health consider including telehealth implementation performance targets in the employment arrangements for senior executives in the Department of Health and chief executives of Hospital and Health Services.

9.2 Potential impact of telehealth on hospital utilisation

Chronic disease is usually associated with high rates of hospital admission. While the available evidence is not conclusive, the committee believes that the department should consider whether some priority should be given to examining the use of telehealth in management of chronic disease. There may be potential to both improve the management of chronic disease, and reduce hospital admissions, in turn improving access for other patients. The committee also considers there is merit in encouraging research on the impact of telehealth delivered chronic disease management.

In England in 2008, the Department of Health established a program of research to evaluate what telehealth and telecare could achieve. The first set of initial findings showed that:

416 Dr Michael Cleary, *Public Hearing Transcript*, 31 July 2014, p.8

*... if delivered properly, telehealth can substantially reduce mortality, reduce the need for admissions to hospital, lower the number of bed days spent in hospital and reduce the time spent in A&E.*⁴¹⁷

The study assessed the effect of home based telehealth interventions for people with diabetes, chronic obstructive pulmonary disease or heart failure on the use of hospital care and on patient mortality. The 3230 study participants were patients of 179 general practices in three areas of England. While the health service context differs from Australia's, the study provides encouraging evidence of the impact of telehealth on hospital utilisation by people with chronic disease. The study also highlights some of the challenges in establishing causal relationships between telehealth and reduced hospital utilisation:

*Our results suggest that telehealth helped patients to avoid the need for emergency hospital care. The mechanism for this is not yet clear. Telehealth could help patients manage their conditions better and therefore reduce the incidence of acute exacerbations that need emergency admissions. Telehealth could also change people's perception of when they need to seek additional support, as well as professionals' decisions about whether to refer or admit patients.*⁴¹⁸

As is apparent from the study described above, the longer term impact of telehealth on hospital admissions, hospital avoidance and health outcomes, particularly in the management of chronic disease is a challenging research exercise that requires considerable research expertise. It is nevertheless a challenge that the committee considers should be considered in the Australian and Queensland context. The committee believes that the department should explore the possibility of sponsoring research, potentially in collaboration with other health departments and academics.

Recommendation 16

The committee recommends that the Minister for Health ensure that the Department of Health:

- consider chronic disease management programs in its planning for telehealth implementation
- commence, as soon as practical, the collection of relevant data to enable analysis of the impact of telehealth on hospital admissions and hospital avoidance
- consider options to make arrangements for longer term independent research on the impact of telehealth on hospital admissions and hospital avoidance, including commissioning an independent study in collaboration with other organisations.

9.3 Telehealth and services in rural and remote areas

9.3.1 Concerns that telehealth might reduce services in regional areas

Clinicians and patients in regional areas had similar concerns about the impact of the wider adoption of telehealth on the delivery of face-to-face health services in regional areas. People in rural and remote areas did not want the promotion of telehealth to be at the expense of face-to-face services.

417 Department of Health, *Whole System Demonstrator Programme: Headline Findings – December 2011*, accessed 22 August 2014, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215264/dh_131689.pdf

418 A Steventon et al, 'Effect of telehealth on use of secondary care and mortality: findings from the Whole System Demonstrator cluster randomised trial', *British Medical Journal*, 2012, Vol.344 No.e3874

A number of submissions expressed apprehension that telehealth would reduce the services provided and limit the introduction and improvement of local services.⁴¹⁹ In its submission, the Australian College of Rural and Remote Medicine was uneasy about possible unintended negative consequences of wider adoption of telehealth service delivery, such as:

- over substitution of inappropriate telehealth services for essential face-to-face visiting specialist services and the possible reduction of specialist commitment to providing face-to-face services for particular groups such as remotely located Indigenous people
- disproportionate cuts to patient assisted transport schemes
- unnecessary telehealth services that might undermine the role of local generalist and specialist health care providers.⁴²⁰

The committee acknowledges those concerns and concurs with the view of many clinicians and consumers that telehealth complements, but cannot replace face-to-face care. Telehealth is providing people in regional and remote areas with access to care that would not otherwise be easily available to them. The committee also heard from clinicians that the implementation of telehealth was, in some areas, meeting previously unmet need for health services.

The committee noted that Queensland Health's 'Patient Consent for Telehealth Clinical Consultations' form indicates to patients that participation in a telehealth clinical consultation is not compulsory and that there is always the option of receiving face-to-face services.⁴²¹

Rather than a feared reduction in services on the part of people in regional areas, a review of the benefits of telehealth to rural patients and rural health professionals by Moffatt and Eley found that telehealth promoted enhanced local service provision.⁴²²

9.3.2 *Wider scope of rural health services*

People in regional areas may be reassured that, in its visits and discussions, the committee also saw and heard how the delivery of services via telehealth can support the development of the rural and remote health workforce and maintain breadth of service.

Generally, small rural hospitals have not been able to safely sustain a wide range of clinical services unless arrangements are in place for visiting specialists. Telehealth creates the potential to provide a wider range of clinical services in more locations. The Central West HHS noted that "telehealth increases the range of services available locally to the remote population, and improves the access to a sustainable configuration of health services".⁴²³

Submissions to the committee also indicated that telehealth can support greater rural autonomy and allow for a more complex case mix to be supported in regional areas.⁴²⁴

9.3.3 *Rural workforce development*

A number of clinicians consulted by the committee highlighted the role of telehealth in professional development. Doctors, nurses and health workers in rural and remote locations have the opportunity to be involved in specialist care and treatment with the support and supervision of specialists and experienced clinicians in major centres.

419 RACP, Submission 8, p.2; Australian College of Rural and Remote Medicine, Submission 22, p.24 and AMAQ, Submission 19, p.4

420 Australian College of Rural and Remote Medicine, Submission 22, p.6

421 Available at http://www.health.qld.gov.au/telehealth/docs/pat_consent_form.pdf

422 Moffatt and Eley, *The reported benefits of telehealth for rural Australians*

423 Central West HHS, Submission 36, p.1

424 Metro South HHS, Submission 31, p.8; and Far North Queensland Medicare Locals, Submission 17, p.4

Dr Sabesan described the combined advantages of avoiding patient travel, and improving the skills and experience of the rural clinical workforce:

... you get improved access to specialist services locally, it broadened the scope of practice and if you broaden the scope of practice you have to improve your workforce and if you have an adequate workforce you can provide more services and that means you cut down the travel. That is what I want to achieve and I think the system needs to aspire to achieve it.⁴²⁵

In an article on a tele-consultation fracture clinic delivered into Mount Isa Hospital, McGill and North explain that a benefit is “support for the orthopaedic registrar and a unique opportunity for education in a rural clinical setting”.⁴²⁶ The AMAQ also noted the potential to provide additional training and support for junior doctors.⁴²⁷

The Royal Australasian College of Surgeons submission described the work of Dr Steffen, a vascular surgeon in Cairns, and commented on the high level of satisfaction of clinical staff in remote communities “in that they can offer a greater level of care locally”.⁴²⁸

The committee suggests that the acceptance of telehealth services in rural communities would be enhanced if residents are assured that telehealth is not intended to be a substitute for face-to-face service delivery. The committee suggests that the department consider including this message in its promotion of telehealth to the public. The importance of telehealth as a support for regional health workforce development, improving access to health services and reducing disparities in health outcomes should also be promoted.

The committee notes that the Queensland Health videoconferencing network is used for professional development for rural and remote health services staff. The use of the telehealth network for this purpose should be maintained and expanded.

Recommendation 17

The committee recommends that the Minister for Health ensure that the Department of Health and Hospital and Health Services continues and expands the use of Queensland’s telehealth network for the professional development of the rural and remote health workforce.

9.4 Telehealth and potential for innovation

The use of telehealth creates both an opportunity and an imperative to review clinical processes, workflows, referral pathways, protocols and guidelines to ensure that health care is accessible, remains of high quality and is delivered efficiently. Telehealth “implies a change in practice”.⁴²⁹

Professor Gray argued that the anticipated increasing demands on the health system as the population ages means that changes are needed to the way that health services are delivered:

If we cannot figure out a different way of delivering health care, we are going to have to compromise the standard. The only way I can see that you can do that is by changing the systems – rethinking the whole way you do the health care. So if an endocrinologist can look after 500 people instead of 250 through the use of remote monitoring surveillance systems and support staff – in other words he or she manages a system instead of the conventional ‘Come in and I will do everything for you’ – then

425 Dr Sabe Sabesan, *Public Hearing Transcript*, 21 May 2014, p.4

426 Alison F. McGill and John B. North, ‘Teleconference fracture clinics: a trial for rural hospitals’, 2012, *ANZ Journal of Surgery*, Vol.82, pp.2-3

427 AMAQ, Submission 19, p.4

428 RACS, Submission 27, p.2

429 Associate Professor Anthony Smith, *Clinician Roundtable Discussion Transcript*, 4 August 2014, p.5

you have some chance of getting the same result at a lower cost. ... We have to think about all of those kinds of opportunities.⁴³⁰

9.5 Concluding comment

It is not possible for the committee to make clear findings about the effectiveness and efficiency of management of the financial allocation of \$30.9 million for telehealth from 2013-14 to 2016-17. For this reason the committee has made recommendations about improvements to planning and performance measurement, and a further review by a committee of the next parliament.

The committee has noted that successful implementation of telehealth requires the support of clinicians. There are few incentives to change the way that clinical services are delivered, in the face of systems that have been designed for traditional modes of service delivery. The most obvious beneficiaries of telehealth are patients, and there is considerable potential for benefits to the health system and the public. To overcome the barriers to implementation of telehealth, the committee considers that the department and HHSs should engage in more deliberate planning, improved performance monitoring, active change management, ongoing consideration of incentives to adopt change, and promotion of telehealth to the general public.

Delivery of health services by telehealth presents an opportunity to reconsider some of the 'ways we deliver health care', and to plan and deliver services in ways that put benefits to patients at the centre of how the health system functions.

Recommendation 18

The committee recommends that a committee of the next Parliament consider further inquiring into the Department of Health's implementation of telehealth and its expenditure of the \$30.9 million allocated for telehealth for the four years commencing in 2013-14.

430 Professor Len Gray, *Public Hearing Transcript*, 21 May 2014, p.12

Appendices

Appendix A – List of Submissions

Sub #	Name	Sub #	Name
001	Ms Teegan Green	021	Telstra Health
002	Longreach Regional Council	022	Australian College of Rural and Remote Medicine
003	Darling Downs South West Queensland Medicare Local	023	Ms Clare Burns
004	Nathalie van Havre MD	024	LifeTec
005	Queensland Mental Health Commission	025	Occupational Therapy Australia
006	Professor H. Peter Soyer	026	Tunstall Healthcare
007	Associate Professor Pam McGrath	027	Royal Australasian College of Surgeons
008	Royal Australasian College of Physicians	028	Associate Professor Michael d’Emden
009	Diabetes Queensland	029	National Stroke Foundation
010	aboutcoms	030	Dietitians Association of Australia
011	Queensland Country Women's Association – Tambo Branch	031	Metro South Hospital and Health Service
012	CSC Healthcare Group	032	Professor Roy Kimble
013	Associate Professor Cliff Pollard	033	Dr Nigel R. Armfield, Professor Paul Scuffham and Dr Anthony C. Smith
014	Australasian Telehealth Society	034	Dr Timothy Donovan
015	Isolated Children’s Parents’ Association Qld Inc.	035	Dr Michael Williams
016	Australian Healthcare & Hospitals Association	036	Central West Hospital and Health Service
017	Far North Queensland Medicare Local	037	National Disability Services
018	CSIRO	038	Cancer Council Queensland
019	Australian Medical Association Queensland	039	Mr Renato Ulpiano
020	Centre for Online Health, The University of Queensland	040	Deaf Services Queensland

Appendix B – Witnesses at public hearings and briefings

Public briefing – 5 March 2013, Brisbane

Department of Health

- Dr Michael Cleary, Deputy Director-General, Health Services and Clinical Innovation Division
- Ms Jan Phillips, Executive Director, Health Systems Innovation Branch, Health Services and Clinical Innovation Division
- Mr Andrew Bryett, Director Telehealth Services, Clinical Access & Redesign Unit, Health Systems Innovation Branch, Health Services & Clinical Innovation Division

Clinician Discussion – 5 May 2014, Princess Alexandra Hospital Telehealth Centre, Brisbane

- Dr Paul Varghese, Geriatrician, Director of Geriatrics and Rehabilitation Unit
- Dr Timothy Geraghty, Rehabilitation Physician, Queensland Spinal Cord Injuries Service
- Dr Graeme Macdonald, Gastroenterologist
- Dr Paul Garrahy, Cardiologist, Director of Cardiology
- Professor Peter Soyer, Dermatologist, Director of Dermatology
- Dr Anthony Russell, Endocrinologist, Director of Endocrinology
- Ms Rita Hwang, Physiotherapist
- Ms Kiley Pershouse, Social Worker, Manager of Spinal Outreach Team

Public hearing – 9 May 2014, Brisbane

Ontario Telehealth Network (OTN)

- Dr Ed Brown, Chief Executive Officer (*by videoconference*)
- Mr Scott Duggan, Manager, Engineering and Innovation
- Ms Karen Waite, Senior Telemedicine Consultant
- Dr Rob William, Chief Medical Officer

Public hearing – 21 May 2014, Brisbane

Dr Sabe Sabesan, Medical Oncology, Townsville Hospital and Health Service (*by videoconference*)

Associate Professor Pam McGrath, Griffith Health Institute, Griffith University

Professor Len Gray, Centre for Online Health, The University of Queensland

Public hearing – 31 July 2014, Brisbane

Department of Health

- Dr Michael Cleary, Deputy Director-General, Health Services and Clinical Innovation Division
- Ms Jan Phillips, Executive Director, Health Systems Innovation Branch, Health Services and Clinical Innovation Division
- Mr Andrew Bryett, Director Telehealth Services, Clinical Access & Redesign Unit, Health Systems Innovation Branch, Health Services & Clinical Innovation Division

Clinician Roundtable Forum – Brisbane, 4 August 2014

Associate Professor Michael D'Emden, Director, Endocrinology and Diabetes, Royal Brisbane and Women's Hospital

Associate Professor Tim Donovan, Neonatal Paediatrician, Royal Brisbane and Women's Hospital

Associate Professor Jagmohan Gilhotra, Consultant Psychiatrist, Queensland Mental Health Commission

Professor Roy Kimble, Director, Paediatric Trauma, Lady Cilento Hospital

Dr Dariusz Korczyk, Cardiologist, Princess Alexandra Hospital

Dr Jeffrey Lipman, Director, Intensive Care, Royal Brisbane and Women's Hospital

Dr Graeme Macdonald, Hepatology and Gastroenterology, Princess Alexandra Hospital

Dr John North, Orthopaedic Surgeon, Princess Alexandra Hospital

Associate Professor Anthony Smith, Deputy Director, Centre for Online Health, Royal Children's Hospital

Professor H. Peter Soyer, Director, Dermatology Department, Princess Alexandra Hospital

Associate Professor Ian Yang, Director, Thoracic Medicine, The Prince Charles Hospital

Appendix C – Telehealth sites and Hospital and Health Service areas



Source: Department of Health, provided by Mr Andrew Bryett, 15 August 2014

