

# HUNTER NEW ENGLAND NSW HEALTH

*Our vision: Healthier communities: Excellence in healthcare*

*Our values: Teamwork, Honesty, Respect, Ethics, Excellence, Caring, Commitment, Courage*

## Draft HNE Health Telehealth Clinical Strategy 2010-2014



## Acknowledgements

The following people are acknowledged for their contribution to this strategy:

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## ABOUT THIS DOCUMENT

### *Purpose*

This document puts forward the strategic directions for clinical Telehealth use within Hunter New England Health. It reviews current applications of Telehealth and identifies priority areas for development, including a near term action plan with associated investments

### *Leadership*

Scott McLachlan, Director Community and Primary Network, provided executive leadership and sponsorship to the strategy development. Dr David Doolan, Director Clinical IT Support & Development, acted as Clinical Lead for the strategy. HNE Innovation Support also assisted the strategy development.

The steering group also included Carolyn Bailey, Director Community Health Strategy, Jane Gray, Director, Innovation Support and Dr Tracey Tay, Clinical Lead, Innovation Support.

Accenture was engaged for a 13 weeks period to analyse current state and identify Telehealth options and finalise Telehealth Strategic Plan.

### *Methodology*

The strategy has been underpinned by direct involvement and consultation with HNE Health staff and patients. Staff provided the picture of the current usage, issues and their readiness for Telehealth, as well as identifying future needs and priorities. National and International case studies were drawn upon to inform and build on local knowledge and priorities.

The research methodology included:

- 45 Interviews with clinical leaders and managers in Newcastle, Tamworth and Moree across clinical streams and networks, cluster management and workforce.
- Attendance at 3 Clinical Network/Stream (Vascular network, Critical Care network, Rehabilitation and Aged Care network) and 3 Clinical Service meetings (2 in Tamworth and 1 in Moree)
- Hosted 3 General Information and Feedback Sessions in Newcastle with Video Conference to Moree, Inverell, Armidale, Taree, Tamworth, Maitland, Muswellbrook.
- Held a Privacy Workshop
- Conducted a web based HNE Health Staff survey with 212 respondents asking questions on use, benefits, challenges, and future priorities of Telehealth
- Presented initial findings to the CEO and the Innovation Support Advisory Committee Reviewed findings of a Consumer survey at the Agquip Event August 2010
- The strategy is also on the October 2010 Agenda for discussion with the Clinical Councils.

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## 1. EXECUTIVE SUMMARY

This document represents the Clinical Telehealth Strategy for HNE Health. The focus moving forward is to operationalise the initiatives articulated in this strategy. Key next steps include consultation and endorsement of this strategy with the HNE Area Executive Team to provide a basis for detailed planning and the development of business cases. A 90 day plan has been developed to support mobilisation of the HNE Telehealth strategy moving forward.

**The key HNE Health priority is to increase the use of Telehealth to support direct patient care.**

This strategic plan recommends 4 key area of strategic focus for expanding the use of Telehealth moving forward:

1. **Tele-Critical Care - Improving quality and timely access to critical care skills and advice for rural sites**
2. **Tele-Ambulatory Care - Improving access to specialist skills** and reducing travel required to attend sessions (e.g. patient and/or staff)
3. **Tele-Home Based Care - Providing new options to support home care and home based monitoring** of chronic conditions or ongoing care support needs (e.g. post discharge)
4. **Tele-Workforce Support - Improving access to clinical workforce support for remote staff** including education, training, case reviews clinical supervision and procedure support.

The following table provides a summary of key initiatives proposed in this strategy. Please note that cost estimates will need to be validated and refined going forward as part of detailed planning.

Strategic Initiative	What's Possible without additional funding	What's possible with additional funding	Additional Funding		Key Risks (summary)
			Capital Cost Estimate	Recurring Cost Estimate	
<b>Tele-Critical Care</b>	<ul style="list-style-type: none"> <li>Continue Adhoc support via Telephone for all rural sites</li> <li>Continued reliance on goodwill from metro critical care services</li> <li>Provide Stabilisation &amp; Retrieval Advice via Telehealth to 12 rural sites</li> </ul>	<ul style="list-style-type: none"> <li>Formalise support arrangements for all sites</li> <li>Establish Tele-Emergency Medical Advice Service via Telehealth Videoconference (VC)</li> <li>Increase Telehealth VC equipment to 18 additional rural sites (inc. in cost estimate).</li> <li>Establish single point of access with scheduled support arrangements</li> <li>Enhance Service to all rural and remote sites (further funding to be confirmed)</li> </ul>	\$164,000  (inc. equipment)	\$374,000	<ul style="list-style-type: none"> <li>Lack of funding</li> <li>Shortage of available resources</li> <li>Inadequate training</li> <li>Inappropriate service requests</li> <li>Resource scheduling and call routing is not managed effectively</li> </ul>
<b>Tele-Ambulatory Care</b>	<ul style="list-style-type: none"> <li>Existing Telehealth Services: Focus on evaluation, addressing adoption barriers</li> </ul>	<ul style="list-style-type: none"> <li>New Telehealth Services: Focus on detailed service planning, business case development, adoption support, and resource funding and change management.</li> <li>Pilot new services and expand current services capacity</li> </ul>	TBC by Service (e.g. Diabetes - \$43,000)	TBC By Service (e.g. Diabetes - \$239,000)	<ul style="list-style-type: none"> <li>Clinical workload implications and funding is not addressed</li> <li>Inadequate training for new service protocols</li> <li>Telehealth equipment is not located in clinicians work areas</li> </ul>
<b>Tele-Home Based Care</b>	<ul style="list-style-type: none"> <li>Support home visits and Hospital in the Home programs to incorporate Telehealth based on existing funds</li> </ul>	<ul style="list-style-type: none"> <li>New Telehealth Services: Focus on detailed service planning, adoption support, funding, pilot projects and change management.</li> <li>Establish Telehealth as an enabler for Chronic Disease Management (monitoring/coaching/home visits)</li> <li>Target Opportunities for Residential Aged Care Facility Support</li> </ul>	TBC based on SCDM and detailed business cases	TBC based on SCDM and detailed business cases	<ul style="list-style-type: none"> <li>Infrastructure and network capacity in not sufficient</li> <li>Resourcing is not in place to support monitoring and local responses</li> <li>Home based patient Technology do not meet HNE Health IT standards</li> </ul>

<b>Tele-Workforce Support</b>	<ul style="list-style-type: none"> <li>Continue to promote Telehealth as viable option for workforce support</li> </ul>	<ul style="list-style-type: none"> <li>Continue to promote Telehealth as viable option for workforce support</li> </ul>	n/a – self funded initiative	n/a – self funded initiative	<ul style="list-style-type: none"> <li>Staff are not aware of Telehealth enabled options</li> <li>Telehealth equipment creates added complexity for delivering effective education/workforce support</li> </ul>
<b>Governance, Program Management &amp; Change Support</b>	<ul style="list-style-type: none"> <li>Each Clinical area independently provides governance</li> <li>Clinical groups assumes responsibility for providing human, financial, and technical resources to sustain the service</li> </ul>	<ul style="list-style-type: none"> <li>Telehealth Oversight is a central decision-making body that meets every month as a steering committee to formally approve Telehealth projects and provide direction</li> <li>Change support team assists clinical service managers planning, change management, service evaluations and acts as coordinator for monthly oversight committees</li> <li>Workforce planning, External Partners and IT integration with oversight</li> </ul>	n/a	\$160,000	<ul style="list-style-type: none"> <li>Governance oversight is not representative of all stakeholders</li> <li>Insufficient funding to provide adequate change support resources</li> <li>Clinicians bypass the toolkits and business case templates</li> <li>Service Evaluations are not completed to support ongoing service expansion</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li>Equipment based on current approved funding only</li> <li>Limited IT Support to help address adoption issues</li> <li>No ongoing funding in place for IT maintenance, replacement or network enhancements</li> </ul>	<ul style="list-style-type: none"> <li>Enhancing IT Helpdesk capacity and onsite support for clinical users of Telehealth (inc. education &amp; training)</li> <li>Addressing technology adoption barriers for ease of VC equipment use and IT training</li> <li>Establishing operating budgets for ongoing technology maintenance and replacements as part of business cases</li> <li>Conduct Scheduling System Planning Project</li> <li>Enhancing Equipment and Network Infrastructure Capacity</li> </ul>	<p>Helpdesk \$10,000</p> <p>Scheduling System Planning \$350,000</p> <p>Equipment based on service plans</p>	<p>Helpdesk \$240,000</p> <p>Equipment based on services</p>	<ul style="list-style-type: none"> <li>Lack of funding to support rollout of IT equipment and Network capacity (inc. maintenance and replacements)</li> <li>New Helpdesk resources don't have the right skills Clinical staff continues to experience challenges troubleshooting technology</li> <li>Complex and time consuming scheduling process</li> </ul>

### Context for Telehealth in HNE Health

HNE Health is a leading regional health service in Australia with a long track record of innovation. Like many regional health networks, HNE Health is continually challenged to provide high quality, equitable services to a geographically broad and culturally diverse population.

Hunter New England Health's challenge is more acute than many as it must provide services across over 130,000 sq kilometres covering a mix of metro, suburban and rural catchments areas. Approximately 553,743 people (63%)<sup>1</sup> live within Armidale Dumaresq, Greater Taree, Lake Macquarie, Maitland, Newcastle and Tamworth Local Government Areas with another 320,902 people (37%) living in more rural and remote locations. A key challenge in this environment is the need to effectively support remote patients and clinical staff in rural communities by providing efficient access to specialist medical skills. Traditionally this has been addressed either by remote phone support or by physically moving the patients to the specialists, or the specialists to the patients.

The majority of the specialist workforce is based in the Greater Newcastle Area (78%) and key regional centres (17%) including Tamworth, Armidale, Taree, and Maitland. The viability of services in rural and remote locations is increasingly under threat due to challenges recruiting permanent medical staff outside of the major centres and recruiting visiting medical officers.

In many rural locations the after-hours and weekend support is managed by local nursing staff and/or general practitioners or without any local medical officer. Limited medical support also occurs in rural emergency departments when unplanned leave is required. For critical care situations this can put patients at higher risk and place staff in unreasonable situations where they do not have the appropriate skills or support to provide quality and timely care.

Currently, Emergency Departments in the acute hospital network provide advice via telephone on an ad hoc basis to rural and regional hospitals. However, the Director of the Primary and Community Network has flagged that a more comprehensive approach to supporting rural emergency departments is required.

Patients in remote and rural areas requiring specialist medical care are often required to travel or be transported to larger centres (e.g. Newcastle or Tamworth) for health care and follow-up. This entails high travel costs, lost time for patients and clinicians. The NSW Health Isolated Patient Travel and Accommodation Scheme (costs for HNE Health patient travel) has grown 26% from \$1.98m in 2008/2009 to \$2.5m in 2009/2010<sup>2</sup>

A March 2010 snapshot of the top 20 specialist clinics with patients attending from outside the local government area indicate that 1135 patients (approx. 9%)<sup>3</sup> travelled greater than 200km for a return journey by car to attend a specialist clinic. Of these patients 67% travelled to John Hunter and 18% to Tamworth Hospital (appendix 2).

As part of this plan a patient survey was conducted for patients as part of the Agquip Event in August 2010. The survey had 369 responses and results showed that 28% of patients had made between 2 and 10 trips greater than 2 hours to attend a clinic over the past 12 months and 10% had made this trip more than 10 times. Of these responses, 60% of patients were from the New England Region, 13% from Hunter Region and 27% were from other NSW or interstate Area Health Services.

Additionally, clinical resources in major centres conduct outreach services requiring medical specialists to travel to rural and remote centres. Of the 23 Outreach clinics identified during March 2010, just under half had clinicians travelling approximately 200km or more for a return trip. Seven clinics were from John Hunter Hospital and three were from Tamworth Rural Referral Hospital. (See appendix 2)

**"Palliative care specialists often have to work 14 to 16 hour days when running outreach clinics"**

Clinical Lead, Palliative Care

Models of care continue to be refined to support increased specialist outreach services for rural communities. This is putting pressure on clinical resource capacity and the efficient use of clinical time. Telehealth provides a potential solution to these issues by supporting the efficient and cost effective delivery of care for patients, ongoing workforce capacity development and support for isolated resources.

<sup>1</sup> Source: Australian Bureau of Statistics (ABS) – Local Government Area Population Statistics 2010. Please refer to appendix 8 for more info.

<sup>2</sup> Source: HNE Health General Fund (1) – HNE Health Management report (NCOS) Financial year 09/10

<sup>3</sup> Source: HNE Health IPM. Snapshot Data March 2010 Outpatient Clinics, Patients and Home Suburb locations

## Overview of Telehealth in HNE Health

HNE Health has been an acknowledged leader of Telehealth Services in NSW, although the use of Telehealth for direct patient care has been limited due to funding constraints.

### **Telehealth Definition for HNE Health** (from HNE Health Telehealth Practice Guidelines):

Telehealth is the transmission of images, voice and data between two or more health care locations via digital telecommunications to enable clinicians to provide clinical advice, consultation, education, and training services. Telemedicine specifically relates to the care, treatment and management of patients and clients.

The vast majority of clinical Telehealth in HNE Health is currently focussed on staff education, training and workforce support (e.g. case reviews) as a viable alternative to staff travel and improved efficiency of multidisciplinary team meetings across vast distances. This has been estimated at over 70% of current Telehealth use.

In terms of direct patient care, there has been some uptake of Telehealth primarily in the areas of Critical Care for 'Retrievals' advice and ambulatory care specialist clinics for Mental Health, Podiatry, Drug & Alcohol, Palliative Care and Genetics Counselling. Other area wide services (e.g. interpreters) also use Telehealth to provide support for patient care.

There are very few Medical Benefits Schedule (MBS) items that support Tele-ambulatory care. Where there has been priority funding or changes to MBS items to support Telehealth services, care delivery via Telehealth has been sustained and continued to grow in HNE Health (e.g. Mental Health: Tele-psychiatry). In other areas clinical resource capacity is currently being supported based on the goodwill of clinical staff or internal cost shifting to enable clinical resource capacity for patient care.

The current establishment of Telehealth technology in HNE Health has been mainly based on grants for equipment, technology and administrative support with limited recurrent funding for maintenance or replacement.

Videoconferencing (VC) equipment is located at all sites, mainly installed in meeting rooms and VC rooms. Additional VC units have been located in critical care areas as well as some specialist clinic rooms and mobile laptops on a limited basis. The VC room based systems have been adequate for delivering workforce support but the location is typically viewed as inappropriate for delivering patient care and is a key contributing factor to reduced uptake of Telehealth to support Tele-ambulatory care or Tele-home based care.

The current Telehealth videoconferencing and related equipment statistics<sup>4</sup> include:

- 70% of sites (35 of 50) have Personal Computers (PC's) or laptops with Telehealth software installed
- 90% of sites (45 of 50) have video conferencing devices
- 16% of sites (8 of 50) have Integrated video conferencing room devices
- 39% of rural emergency departments (12 of 31) have a dedicated Telehealth Camera installed

The current digital region investment to increase network infrastructure at rural sites is expected to provide network capacity for the next wave of Telehealth adoption between HNE Health facilities. Network capacity implications will need to be reviewed based on home based Telehealth (e.g. home monitoring) as part of the NSW Server Chronic Disease Management (SCDM) program or other home based disease management programs.

As part of the current state review, a number of issues were identified by clinicians relating to overall HNE Telehealth governance including:

- Planning for new services,
- Addressing technology requirements,
- Accessing new funding opportunities, and
- Overall change support for clinical staff deploying new services.

<sup>4</sup> Source: HNE Health Telehealth Centre / Tamworth Connecting Critical Care support officer



The ability to reinvigorate the HNE Health governance and oversight arrangements for Telehealth will play a key role in supporting clinical plans for new Telehealth services, business case requirements, program and change support and service evaluations.

### **HNE Health Strategies for Clinical Telehealth Moving Forward**

This strategic plan recommends 4 key area of strategic focus for expanding the use of Telehealth moving forward:

1. **Tele-Critical Care - Improving quality and timely access to critical care skills and advice for rural sites**
2. **Tele-Ambulatory Care - Improving access to specialist skills** and reducing travel required to attend sessions (e.g. patient and/or staff)
3. **Tele-Home Based Care - Providing new options to support home care and home based monitoring of chronic conditions or ongoing care support needs** (e.g. post discharge)
4. **Tele-Workforce Support - Improving access to clinical workforce support for remote staff** including education, training, case reviews clinical supervision and procedure support.

#### **Tele- Critical Care**

This initiative recommends that remote Telehealth enabled Critical Care advice services be enhanced so that videoconferencing (VC) support is available for all rural sites providing emergency care services.

This will require additional staff to provide specialist advice. The integration of the critical care Telehealth initiative with the HNE Health rural model of care, currently under development, will be important to further plan and validate support arrangements and service volumes (e.g. demand levels, advice resources).

#### **The key focus for Critical Care Telehealth:**

- **Tele-Emergency Medical Advice** – a team staffed by emergency staff specialists and nurses to provide advice (1<sup>st</sup> point of escalation after local emergency care protocols are exhausted). This model has been proven in Canada and Queensland.
- **Tele-Stabilisation & Retrieval Advice** – a team staffed by retrieval staff specialists to provide advice( 2<sup>nd</sup> point of escalation after local emergency care protocols are exhausted)

**“I’d like to have a staff specialist in the Patient Flow Unit who can provide medical advice when required. Nursing resource by themselves is not enough  
Clinical Lead/Staff Specialist, Major Hospital**

**Table 1: Tele- Critical Care Current and Future State**

	Current state	Future state	Target Benefits
<b>Stabilisation and Retrievals Advice</b>	<ul style="list-style-type: none"> <li>• 12 sites supported by Telehealth</li> <li>• Telephone support for other sites</li> </ul>	<ul style="list-style-type: none"> <li>• 39 sites supported by Telehealth               <ul style="list-style-type: none"> <li>➢ Phase 1 = 30 sites</li> <li>➢ Phase 2 = 39 sites</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Improved remote advice and retrieval coordination for emergency and critical care situations</li> <li>• Improved ability for rural practitioners to access specialist health services and support</li> <li>• Improved appropriateness of patient retrievals or transfers and reduced costs</li> <li>• Enhanced health resource education, training and clinical network team integration</li> </ul>
<b>Emergency Medical Advice</b>	<ul style="list-style-type: none"> <li>• Ad hoc Telephone support for sites</li> </ul>	<ul style="list-style-type: none"> <li>• Patient Flow Unit as single access point for Tele-advice (resources onsite in PFU or virtual workflow)</li> </ul>	

**The initial two focus areas for the Tele-critical care advice services** are to expand the Tele-Stabilisation & Retrievals services and establish an Emergency Medical Advice Service. Ongoing planning and business cases will be required to expand the service and address cost implications to support additional sites past the initial 30 sites identified.

The Tele-critical care service volumes are currently estimated at 1000 stabilisation and retrieval requests for all of HNE Health per year and approximately 16,000 emergency medical advice requests for the 30 priority sites. Based on these volumes it is expected that a team of 4 FTE will be required to deliver the advice services.

**Tele-Stabilisation and Retrieval Advice** is currently provided via videoconferencing (VC) Telehealth to 12 rural emergency departments by the Tamworth hospital and JHH retrieval teams. The remaining sites are supported by Telephone only. The advice is provided by staff specialists. The ability to enhance VC based advice to all rural sites across HNE Health will require additional investments in resource capacity to formalise current support availability and expand the service to additional sites.

**“I was the team lead for a cardiac arrest case for a nurse. I ran it from 400km away. Unfortunately she didn’t survive but I was able to tell the staff at Moree that they had followed my instructions perfectly and there was nothing more they could do. That meant a lot to them”**  
Staff Specialist, Referral Hospital

**Tele-Emergency Medical Advice** is currently provided to rural sites on an adhoc basis from other HNE sites by Telephone. The future vision is to establish a service that is rostered to support rural sites via Telehealth. This service would only be accessed when local protocols and staff feel the need to escalate to the service (e.g. for higher acuity and higher complexity patients). This will be a new service that requires additional investment at metropolitan sites to establish adequate capacity to provide the Tele-service in addition to existing clinical workloads.

A combination of a staff specialist/s supported by a Clinical Nurse Consultant, Medical Registrar or other specialist (as appropriate) is required to staff the Emergency Medical Advice Service. The staffing model may potentially works across multiple sites with formal support arrangements and rosters in place. For patients with low acuity conditions it may be more appropriate to establish general practice advice support as an alternative option to Emergency Department resources. This will need to be further planned and validated based on detailed planning, service needs and the ability to incorporate general practitioners into the support arrangements (e.g. roles and responsibilities, rostering, workflow, remuneration).

The Tele-Emergency Medical Advice will take ownership of resolving the call and help connect rural staff to the most appropriate support specialist to provide advice (e.g. connect with retrievals team, other specialist skills, etc). It will be important to provide each site receiving Telehealth support with a clear and structured escalation process for critical care support.

**The Patient Flow Unit** has been identified as the proposed single point of contact to access the Tele-Critical Care Service with staff providing advice either onsite at the flow unit or from their local facilities.

Senior staff from Critical Care and PFU has requested a review of the Patient Flow Unit’s business model and would like to ascertain whether the PFU can incorporate Tele-critical care support services (inc. medical skills, rostering, call handing, workflow procedures, escalations, telephony infrastructure, business hours). The service will be set-up with one number for both services or two separate phone numbers for Tele-Emergency Medical Advice vs. Tele-Stabilisation & Retrieval Advice.

The implementation is likely to be achieved in two phases:

1. The current PFU provides in hours support with a rostered arrangement for after-hours supervision
2. The PFU becomes a 24/7 service with protocols

**Other Critical Care Telehealth opportunities** have been also identified for future consideration. These opportunities have not been further developed as part of this strategy and will need to be planned as part of an overall program management and change support system including: Organ Donation Family Interviews and NICU Virtual Family Visits

## Tele-Ambulatory Care

HNE Health will continue to support, evaluate and expand existing Telehealth Ambulatory Care services. This initiative recommends that additional HNE Health clinical services review current models of care for patients in rural and remote locations to help identify opportunities to adopt Telehealth based on appropriate clinical situations for patient screening, care planning consultation, pre-admission consultation and/or patient follow-up post treatment or discharge. This will require planning support and the ability to identify new funding opportunities for clinical resource and additional videoconferencing equipment.

### Key focus for Ambulatory care Tele-health:

- **Existing Telehealth Services:** Focus on evaluation, addressing adoption barriers and enhancing capacity for Mental Health (Tele-psychiatry), Podiatry (High Risk Foot Clinic), Drug & Alcohol, Palliative Care and Hunter Genetics
- **New Telehealth Services:** Focus on detailed service planning, business case development, resource funding, change management and enablement (in alignment with program management and change support)

The main aim of adopting Telehealth for ambulatory care is to provide a viable alternative to the 'traditional' face to face mode of delivering specialist clinics, group based care and/or community based care. Ongoing detailed planning will need to be conducted with each identified clinical area in the short term to further identify service resource requirements, patient needs and funding implications.

**Table 2: Tele-Ambulatory Care Current and Future State**

	Current State	Future State	Target Benefits
<b>Ambulatory Care</b>	<p><b>Existing Services:</b></p> <ul style="list-style-type: none"> <li>❖ Mental Health</li> <li>❖ Podiatry</li> <li>❖ Drug and Alcohol</li> <li>❖ Palliative Care</li> <li>❖ Hunter Genetics</li> </ul>	<p><b>Existing Services:</b> <i>Focus on evaluation, addressing adoption barriers and enhancing capacity.</i></p> <p><b>New Services:</b> <i>Focus on adoption support, funding and change management.</i></p> <p><b>High Priority Areas</b></p> <ul style="list-style-type: none"> <li>• McIntyre Cluster Multi-disciplinary Chronic Diseases Clinic</li> <li>• Women's Health Clinics</li> <li>• Diabetes Clinics</li> <li>• Stroke Rehab Clinics</li> <li>• Aged Care Clinics</li> <li>• Pre-Post Surgical Clinics</li> </ul> <p><b>Other Opportunity Areas</b></p> <ul style="list-style-type: none"> <li>• Aboriginal Health Screening</li> <li>• Clinical Oncology Pharmacy Services</li> <li>• Dementia care management</li> <li>• Rehabilitation clinics</li> <li>• Allied Health Clinics</li> <li>• Paediatrics</li> <li>• Aged Care Assessment</li> <li>• Wound management</li> <li>• Spinal Injury Clinics</li> <li>• Eye Care Clinics</li> </ul>	<ul style="list-style-type: none"> <li>✓ Improved patient and carer access to ambulatory health services via Telehealth</li> <li>✓ Reduced unnecessary travel time and cost for patients/carers and clinical staff</li> <li>✓ Improved patient and carer involvement in care planning</li> <li>✓ Improved ability for rural practitioners to access specialist health services</li> <li>✓ Improved ability to conduct multidisciplinary patient care planning when healthcare professionals are in various locations</li> <li>✓ Improved ability to conduct screening and health promotion within remote communities</li> <li>✓ Increased viability of providing services locally in rural and remote communities</li> </ul>

Due to challenges recruiting specialist clinical resources in regional and rural locations, new methods of service delivery are required; otherwise people will continue to have to travel.

**"I've got patients who are travelling hundreds of kilometres for what can be a 5 minute consult"**

Staff specialist, Referral Hospital

Some ambulatory care services in HNE Health have piloted Telehealth services (e.g. Tele-colposcopy) but experienced difficulties addressing the ongoing resource capacity and funding requirements past the pilot funding. Without adequate clinical resource capacity to balance current responsibilities with Telehealth responsibilities, the Telehealth service is generally going to become unsustainable.

The ability to address workload implications for salary staff and remuneration issues for staff receiving income based on MBS items (e.g. staff specialists) will need to be addressed on a service by service basis. Additionally, Ambulatory care Telehealth services will require resource capacity at both the patient location and remote support location with adequate service coordination support.

**“What’s a major barrier? Well I need to be able to bill in order to do Telehealth consults.”**

Medical Director/Staff specialist,  
Referral Hospital

New investments will be required for VC equipment to enable ambulatory care in specialist clinic room or by a laptop PC with VC and mobile network connection. These investments will need to be identified based on Tele-service planning and business cases and specific facility clinic needs.

The Australian Federal Government has made an election announcement to introduce telehealth MBS items as of July 2011<sup>5</sup>. This is expected to be a key enabler for HNE Health Telehealth adoption in ambulatory care for providing specialist clinics. Currently, there are a variety of potential funding sources for piloting Telehealth specialist clinics that include the Medical Specialist Outreach Assistance Program (MSOAP), priority funding for key clinical areas (e.g. Mental Health, Rural Health), potential offsets of funding for Isolated Patients Travel and Accommodation Assistance Scheme (IPTAAS) and Regional Health Services funding.

<sup>5</sup> The Labor party has pledged almost \$400 million for a Tele-medicine initiative offering basic advice from doctors and nurses. This includes \$250 million for up to 500,000 on-line consultations over four years backed by more than \$140 million in services and training for GPs.

## Home Based Care

This initiative recommends that HNE Health continue to work with the NSW Severe Chronic Disease Program (SCDM) to support development and piloting of home based coaching and home monitoring programs. The current internal HNE Health planning is targeted for rollout in Hunter New England during 2011. Incorporating Telehealth into existing Home Visiting and Residential Aged Care Facility support is a short term opportunity to increase remote support for patients at home and integrate with future SCDM pilots.

### Key focus for Home Based Care Tele-health:

- **Existing Home Visiting Services (e.g. Hospital in Home):** Focus on evaluation, addressing adoption barriers and identifying target patients to utilise Telehealth as a viable option to offset the need for some in-person home visits
- **Chronic Disease Management Programs:** Continue planning and model of care development with NSW Health as part of the SCDM program. Identify pilot requirements for Telehealth and incorporate into ongoing plans based on available funding.

**Table 3 Home Based Telehealth Care Current and Future State**

	Current State	Future State	Target Benefits
<b>Home Based Care</b>	<p><b>Existing Services (very limited use):</b></p> <ul style="list-style-type: none"> <li>❖ Hospital in the Home (home visits)</li> </ul>	<p><b>New Services:</b> <i>Focus on adoption support, funding, pilot projects and change management.</i></p> <p><b>High Priority Areas</b></p> <ul style="list-style-type: none"> <li>• Chronic Disease Management (monitoring/coaching/home visits)</li> <li>• Residential Aged Care Facility Support Arrangements</li> </ul> <p><b>Other Opportunity Areas</b></p> <ul style="list-style-type: none"> <li>• Healthy at Home</li> <li>• Rehabilitation in the Home</li> <li>• Social Work</li> </ul>	<ul style="list-style-type: none"> <li>✓ Better access to services and improved support for patients (and carers) at home or residential care location for self-management of symptoms (e.g. chronic or rehabilitation)</li> <li>✓ Increased contact between patients (and carers) and local health services for involvement in care planning</li> <li>✓ Limiting unnecessary referrals to help reduce patient travel and improve patient experience (including home visits and ambulatory clinics)</li> <li>✓ Reduced complications and exacerbations leading to patient hospitalisation and increased length of stay</li> <li>✓ Extended system capacity and better use of available home care resources</li> <li>✓ Improved adherence to drug regimens</li> <li>✓ Extended geographic reach of the health system</li> </ul>

Telehealth capabilities are a key enabler for improving capabilities to support patients with chronic disease and will help enable new models of care that include educating, monitoring and reviewing patients requiring ongoing rehabilitation support / review directly from their home.

In many cases, home based care patients are elderly and/or frail and their condition will likely deteriorate if extensive and frequent travel is required. Home Telehealth can be used to gather patient biometric data, provide patients access to services and improve self management, thereby reducing the need for 'in person' home visits and ultimately the cost of homecare.

**“Telehealth can be used to get GPs and Specialists connected to older people in their homes. Soon there will be 2 million older women living by themselves in Australia “**

Clinical Lead, Aged Care stream

Integration with General Practice (as primary care provider) is integral in the development of care plans and ongoing roles in coaching and monitoring of patients at home or in the residential aged care setting. Identification of who bears the cost of the service needs to be clearly defined for each service (e.g. In Home care (in-reach), remote coaching, remote Tele-monitoring). There are resource, cost and workflow implications for clinical networks, general practice as well as nursing support services (e.g. CNC role)

Detailed disease management program planning will need to include implications for technology (monitoring devices, videoconferencing, network capacity, standards), clinical resources (monitoring, response teams, care planning), service coordination, change management and funding.

## **Workforce Support**

This initiative recommends that HNE continue to promote the use of Telehealth as part of clinical workforce support strategies for all staff in remote and isolated work locations.

### **Key Focus for Workforce Support Tele-health:**

- **Promoting the use of Telehealth as a viable option** for increasing workforce support in regional and rural locations for education, training, case reviews, and clinical supervision

Clinical Education and Workforce support is important as it ensures that clinician's are receiving appropriate education and training and feel supported when they make clinical decisions. It also provides a means to learn how others have handled situations that they might encounter in the future

**Table 4 Workforce Support Current and Future State**

	Current State	Future State	Target Benefits
<b>Workforce Support</b>	<b>Variable level of use in clinical areas for:</b> <ul style="list-style-type: none"> <li>❖ Education and Training Programs</li> <li>❖ Clinical Supervision</li> <li>❖ Case Reviews</li> <li>❖ Interpreter Services</li> </ul>	<b>High Priority Areas for all Clinical Groups to optimise:</b> <ul style="list-style-type: none"> <li>❖ Education and Training Programs</li> <li>❖ Clinical Supervision</li> <li>❖ Case Reviews</li> <li>❖ Interpreter Services</li> </ul> <b>Other Opportunity Areas</b> <ul style="list-style-type: none"> <li>• Education/Training Services Provided to External Providers</li> <li>• Surgical Procedure Support</li> </ul>	<ul style="list-style-type: none"> <li>✓ Improved clinical workforce capability development opportunities for staff in regional/rural/isolated locations</li> <li>✓ Improved ability to access clinical support (e.g. supervision, case reviews, interpreter and other services) for regional, remote, isolated staff</li> <li>✓ Improved ability to conduct multidisciplinary education and capability development across distances</li> <li>✓ Reduced staff travel for education and/or clinical network integration activities that can be accessed/delivered via Telehealth</li> <li>✓ Reduce isolation for clinical staff and improved attractiveness of remote/isolated location</li> <li>✓ Increase revenue generated from education and training programs to external organisations. For example, NGO's, Prisons, and private health care facilities.</li> </ul>

Telehealth enabled clinical workforce support will continue to be a strategy used across HNE Health to help address the current challenges attracting and maintaining clinical resources and specialist skills in regional and rural centres.

Telehealth is already being used across HNE Health to support clinical workforce meetings, education and training to help reduce the need for travel and improve the use of clinical time.

The ongoing adoption of Telehealth to support workforce is aimed at improving the equity of support for staff in locations outside of the metropolitan hubs (e.g. Newcastle Area), and to help maintain and enhance clinical staff knowledge base, skills development and clinical network integration across HNE Health.

**"The training available via Telehealth and the ability to connect to your peers makes me feel less isolated"**  
Physiotherapist, Rural health service

## **Inpatient Care**

A range of additional opportunities within the inpatient setting have been identified by clinical leaders during the strategy development. These opportunities include:

- **Inter-facility Tele-Patient Flow / Transfer of Care:** Telehealth can help streamline patient flows and assist inter-hospital patient reviews, referrals and transfers (e.g. using VC to support patient review, diagnostic, care planning and transfer decisions). Being able to provide care in inpatient facilities closer to home in areas with limited access to specialists
- **Tele-Sub-Acute Care Support (rural and remote locations):** Telehealth can encourage a connected health service that is able to provide sub-acute care (care right after treatment of acute conditions in a hospital) in rural and remote locations (e.g. Acute Tele-rehabilitation support for Stroke patients)
- **Inpatient Virtual Family Visits:** Telehealth provides the opportunity for HNE Health to connect patients in large hospitals to their families and communities usually hundreds of kilometres via Video conference
- **Clinical Oncology Pharmacy Services** – medication review by specialist pharmacist directly with the patient via telehealth

## ***Clinical Telehealth Service Enablers***

The ongoing adoption of Telehealth will require additional support and investments to address adoption challenges identified by clinicians, including difficulties navigating the planning and funding process, availability of VC equipment, ease of technology use, change management and IT support.

Key Focus for Telehealth Service Enablers:

### **Governance, Program Management & Change Support**

- **Formalising governance committee** to provide oversight for Telehealth business cases and support funding implications and service evaluations
- **Establishing a program and change support team** to support clinicians in:
  - service planning
  - business case development
  - change management
  - post implementation evaluations
- **Establishing external partnerships with potential funding bodies** to:
  - Help pilot new Telehealth services and support changes to Medicare MBS items
  - Support ongoing rollout of equipment and network capacity for new services

### **Technology**

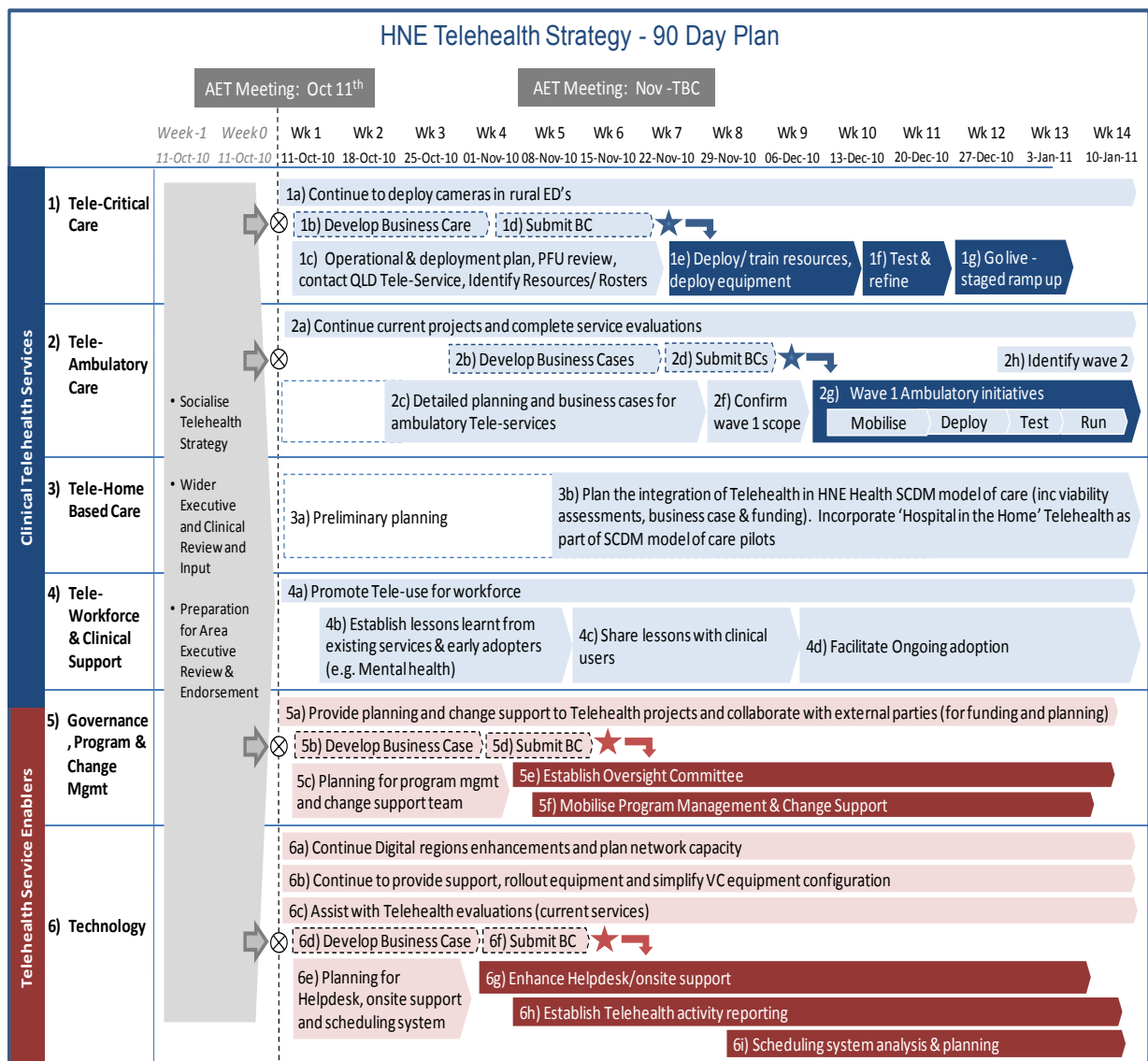
- **Enhancing IT Helpdesk capacity** and onsite support for clinical users of Telehealth (including education & training)
- **Addressing technology adoption barriers** for ease of VC equipment use and IT training
- **Extending the implementation of VC equipment** in clinical workspaces
- **Increase support and reduced complexity of multiple scheduling systems** (iPM, CHIME and Bridging) including planning and review of scheduling systems capabilities for Telehealth
- **Establishing operating budgets for ongoing technology maintenance and replacements**
- **IT planning and network capacity upgrades** to support Home Based Telehealth network traffic

### 90 Day Plan

The initial 90 day plan aims to identify detailed requirements and service models. As this is refined, the business case will need to be reviewed and updated. This 90 day plan includes formal checkpoints to endorse ongoing planning. A high level, three year roadmap has been developed (please refer to section 8). These plans will need to be updated on an ongoing basis and part of overall program and change management activities.

The 90 day plan includes an initial phase to gain approval for funding enhancements required to mobilise key strategies, including Tele-critical care, Tele-ambulatory care clinics, IT support and program and change support. Immediate next steps include seeking endorsement from the Area Executive Team for the proposed initiatives and confirming funding for elements that require new investments. (inc. support resources, equipment & infrastructure, clinical resource capacity).

The following table illustrates the 90 day plan and is divided into actions to develop clinical Telehealth services (blue) and Telehealth service enablers (red):



Please note: timing of services/initiatives will need to be confirmed based on detailed planning and funding implications.

**Legend**

- Telehealth Clinical Service
- Telehealth enabler
- ⊗ Area Executive Team Review/Endorsement
- ★ Secure Required Funding

Please refer to section 8 – High level Implementation Roadmap for details of key activities.



### Costs & Funding Opportunities

The following table provides indicative costs for the initiatives proposed. **Please note that these need to be validated and refined going forward (as the 90 day plan is updated and refined).** The overall costs will need to be consistently reviewed based on new business cases and ongoing clinical planning.

**Table 5 Costs by Initiative**

Initiatives			Capital Costs*	Recurring Costs*	New funding required ?	Potential Target Funding sources
<b>A) Clinical Telehealth Services</b>						
1	<b>Critical Care Initiative</b>	<ul style="list-style-type: none"> <li>4 FTE Advice Services               <ul style="list-style-type: none"> <li>S&amp;R = .3FTE</li> <li>EMA – 2.1 FTE (12 existing sites) +1.5 (18 new sites)</li> </ul> </li> <li>Equipment = 7 VC units in metro sites, 18 VC in rural EDs</li> </ul>	<b>Current Sites:</b> \$21,000 <b>New Sites:</b> \$135,000	\$195,00  \$132,00	Yes  Yes	<ul style="list-style-type: none"> <li>Retrieval &amp; PFU offsets</li> <li>HNE Health Internal budget</li> <li>National Rural and Remote Health Infrastructure Program</li> <li>State \$1.5m JHH &amp; TBH ICU bed funding</li> <li>NSW Health and/or MBS Items</li> </ul>
2	<b>Ambulatory Care</b>	<ul style="list-style-type: none"> <li>Diabetes clinic pilot</li> <li>Other clinics TBC</li> <li>Other clinics TBC</li> <li>Other clinics TBC</li> </ul>	\$43,000 TBC TBC TBC	\$239,00 TBC TBC TBC	Yes TBC	<ul style="list-style-type: none"> <li>Staff travel and accommodation cost offsets</li> <li>MBS Item re-imbursements (through short term means such as, MSOAP/RDN, \$400m Labor party election campaign promise and/or through Medicare)</li> <li>Charging direct fee for service</li> <li>HNE Health Internal budgets</li> <li>National Rural and Remote Health Infrastructure Program</li> <li>Rural Pharmacy Workforce Development Program</li> <li>State and/or Federal Priority Funding</li> </ul>
3	<b>Home based care</b>	<ul style="list-style-type: none"> <li>TBC – Home Monitoring / Health coaching systems</li> <li>TBC – resources to support monitoring &amp; coaching</li> </ul>	TBC	TBC	Yes	<ul style="list-style-type: none"> <li>NSW Severe Chronic Disease Management Program (SCDM)</li> <li>MBS Item re-imbursements</li> <li>Private partnerships for devices</li> <li>Rural Pharmacy Workforce Development Program</li> <li>HNE Health Internal budgets</li> <li>State and/or Federal Priority Funding (Aged care)</li> </ul>
4	<b>Workforce education, training and clinical support</b>	<ul style="list-style-type: none"> <li>Use existing resources and budgets</li> <li>Use/refine existing training/support content for Telehealth</li> </ul>	n/a  TBC	n/a  TBC	No	<ul style="list-style-type: none"> <li>Internal HNE Health Budgets</li> <li>Staff Travel and accommodation offset</li> <li>Rural and Remote Priorities</li> <li>\$20 million election commitment for a new teaching and training facility at Tamworth Hospital</li> <li>Federal Workforce Funding</li> </ul>
<b>B) Telehealth Service Enablers</b>						
5	<b>Governance, Program &amp; Change Mgmt</b>	<ul style="list-style-type: none"> <li>Oversight and governance Telehealth Resource</li> <li>Telehealth adoption and change support team 2 FTE (initially for year 1)</li> <li>Collaborate with external partners</li> </ul>	n/a  n/a  TBC	TBC  \$160,00  n/a	TBC  Yes  No	<ul style="list-style-type: none"> <li>Internal HNE Health budgets</li> <li>State and/or Federal Priority Funding</li> </ul>
6	<b>Technology</b>	<ul style="list-style-type: none"> <li>Telehealth IT helpdesk and onsite support 3 FTE (two in JHH one in Tamworth hospital)</li> <li>Telehealth scheduling and booking process and tools Planning assignment to identify requirements and options for the future</li> <li>Telehealth Equipment Telehealth equipment &amp; infrastructure planning</li> </ul>	\$10,000  \$350,000  Based on Tele-service business cases and available funding for new equipment	\$240,00  TBC	Yes  Yes	<ul style="list-style-type: none"> <li>Internal HNE Health Budgets</li> <li>NBN funding (e.g. Digital Regions – new funding applications)</li> <li>Public Private Partnerships</li> <li>NSW Health (inc. MSOAP funding)</li> <li>Federal Funding (Doha)</li> </ul>
<b>Total</b>			<b>\$559,000</b>	<b>\$966,000</b>		

\*All costs have been rounded to nearest \$'000.

Please refer to section 9 – High level Costs & Funding Opportunities for more information.

## 2. INTRODUCTION AND BACKGROUND

### 2.1. A definition for Telehealth

Telehealth uses telecommunication technologies, such as videoconferencing, to bridge the distance for consumers and health workforce when accessing health services.

***Telehealth Definition for HNE Health (from HNE Health Telehealth Practice Guidelines):***

Telehealth is the transmission of images, voice and data between two or more health care locations via digital telecommunications, to enable clinicians to provide clinical advice, consultation, education, and training services. Telemedicine specifically relates to the care, treatment and management of patients and clients.

**Interactive Video Conferencing** is two-way, real-time (live) interactive communication between two sites via audio/video equipment (e.g. Polycom or VC enabled computer). Live video conferencing (VC) between remote patients and clinicians to help enable new mode of care for patient to access specialist support or other health support programs (e.g. health screening, diagnostic support, care planning, pre-operative consults, post-operative follow-up, group therapy, health education). Live VC between multiple sites and clinical providers to help improve education, training, supervision, clinical network integration and multidisciplinary team coordination. Example use includes:

- **Clinical consultations** conducted between two or more sites at a variety of locations using videoconferencing equipment. In some cases the clinical consultation will be supported by remote monitoring devices or other clinical information systems. Tele-consultations are being proved as an effective way to reduce travel time for patients from rural areas. Additionally, these services are helping to bridge the gap for populations who would not have attended a consultation that required hours of travel and who may have ignored their condition until it became an emergency For example, socially disadvantaged or remote populations.
- **Clinical Education, Training and Clinical Workforce Support** sessions can be utilised for health care professionals across multiple locations. Tele-education has also been identified as a key enabler of improving the network integration of clinical staff across the Area Health Service.
- **Home Care** to support patients at home with health coaching, home monitoring and access to support programs for chronic conditions. This can also be an effective way for remote patients to access short term rehabilitation services and provide support for residential aged care facilities. The use of Telehealth can also be incorporated in 'Hospital in the Home' programs as an option for follow-up or some elements of care support.
- **Family virtual visits** link patients receiving treatment in a metropolitan (or regional) hospital to family located in rural and remote areas. This assists family and friends to continue supporting the patient and has been successful for new parents who can still bond with infants who may need to have an extended stays in intensive care units.
- **Multidisciplinary clinical team meetings** are useful to present patient care plans to a larger peer group, as both rural and metropolitan consultants are in attendance.
- **Non clinical use** may include interviews, court appearances, planning meetings, conferences, working group discussions and general team meetings.

**Store and Forward Telemedicine** is the transfer of diagnostic images or data for later review and assessment by specialist health providers at a distant site. Store and forward Telehealth can help improve support for isolated clinical staff to conduct increased patient screening in their local communities with remote specialist support for review of diagnostic images (or other information), and support for ongoing care planning and patient follow-up. This can also be done in real time. Examples of potential use include:

- **Tele-ECG** - using ECG recording devices equipped with fax
- **Tele-Dermatology or wound care** - using a digital camera to capture still images
- **Tele-Ophthalmology** – using a slit lamp and/or fundus camera
- **Tele-Ultrasound** – based on Picture Archiving and Communication Systems (PACS) and/or real time transmission of ultrasound video
- **Tele-Pathology** – capturing still images from a microscope
- **Tele-Radiology** – using PACS or high resolution scanners
- **Tele-ENT** – based on asynchronous transmission of still images or video

The scope of this strategy is focussed on core Telehealth clinical use and implications for eHealth systems (e.g. PACS, Electronic Medical Record (EMR) and other Clinical Systems) will need to be managed as part of related eHealth and technology initiatives in alignment with clinical needs. In some cases, such as Tele-Radiology, the current HNE PACS system is the most appropriate option for sharing radiology images to support Telehealth sessions.

#### **Example of Store and Forward Interaction:**

##### **Tele-Radiology ----**

- In a rural community Telehealth site, a patient x-ray is scanned and captured as an electronic file. This file, including accompanying medical notes, is sent electronically to the physician in the tertiary care Telehealth site.
- The radiologist in the tertiary care site opens the file and reviews the x-rays and notes in order to confirm and/or determine a diagnosis.
- The file and accompanying notes are then returned to the rural Telehealth site.
- The patient is informed of diagnosis without having to meet the radiologist.

#### **Example of Real-Time Interaction:**

##### **Tele-Psychiatry**

- A patient is in the video conferencing room of a rural community Telehealth site.
- At the same time the patient's psychiatrist is in the video conferencing room at the specialist Centre for psychiatry.
- Live interactive consultation takes place between the patient and the psychiatrist.

#### **Example of Combination of Store and Forward and Real-Time Interaction:**

##### **Tele-Dermatology**

- In a rural community Telehealth site, a patient is diagnosed with a skin condition by a dermatologist located in a remote specialist centre using real-time interactive consultation and use of a camera.
- Following one week of treatment, the patient's skin condition has improved, and a staff member takes a new photographic image.
- The photographic image is forwarded to the dermatologist in the remote location for further follow-up and review.

Telemedicine is a health care delivery method that links a patient and a provider who are not at the same location and is identical to a traditional healthcare visit except for the mode of delivery.

## **2.2. Telehealth vs. eHealth**

For the purpose of this strategy - eHealth is a term that as a very broad meaning covers many different activities related to the use of health record clinical information systems and the internet for healthcare. In Australia, the term eHealth has been used to include health identifiers (for patients and providers), electronic records management, electronic information exchange and other standards related to computer access and security of electronic clinical information.

Although eHealth has a role in enabling some Telehealth capabilities and supporting information requirements, this project has attempted to create a clear definition between Telehealth and other eHealth technology

capabilities such as PACS/RIS, EMR and EHR. eHealth capabilities are considered key enablers for some clinical use of Telehealth for information exchange but are not considered in scope for this strategy. The HNEAHS Telehealth clinical strategy will only identify high level implications for supporting eHealth capabilities in relation to the clinical context for Telehealth use.

### 2.3. Policy Context / Strategic Alignment

NSW Health released the Future Directions for Health in NSW (towards 2025) in Feb 2007. The Future Directions document is underpinned by the fundamental principle of equity in health. The Directions will guide the changes that must be made in NSW over the next 20 years to ensure that we will have a healthier community and continuing access to high quality, affordable health services for ourselves, our children and grandchildren.

The Future Direction's overall vision is 'Healthy People – Now and in the Future' and is underpinned by four goals and Seven Strategic Directions that will guide the development and delivery of health services over the next five years and into the future. HNE Health has adopted the same vision, goals and strategic directions as articulated in the table below.

**Table 6 NSW Health Vision, Goals and Strategic Directions**

NSW Health Vision	NSW Health Goals	NSW Health Strategic Directions
1. Healthy People – Now and in the Future	1. To keep people healthy 2. To provide the health care that people need 3. To deliver high quality services 4. To manage health services well.	1. Make prevention everybody's business 2. Create better experiences for people using health services 3. Strengthen primary health and continuing care in the community 4. Build regional and other partnerships for health 5. Make smart choices about the costs and benefits of health services 6. Redesign and reinvigorate the health workforce 7. Be ready for new risks and opportunities

The State Health Plan reflects the health priorities in the NSW Government's State Plan with strategies based on evidence of what works and challenging targets set for the future. The State Health Plan is based on the Future Directions for Health in NSW (towards 2025) following the work of the NSW Health Care Advisory Council and the two State-wide planning forums, which involved leading clinicians, academics, consumers, and government and nongovernmental sector representatives. It adopts the vision, goals and strategic directions of the Future Directions for Health in NSW (towards 2025.)

#### Hunter New England Health Service Strategic Plan (towards 2010)

As stated in the Hunter New England Health Service Strategic Plan (towards 2010), HNE Health is committed to achieving the seven Strategic Directions identified in the State Health Plan. The Area Strategic Plan identifies strategies and initiatives to achieve these directions and measures to assess how well we are performing in achieving them.

HNE Health's vision for the future is: "Healthier Communities: Excellence in Healthcare" and its purpose is "Working with our communities to deliver quality health services". The HNEH Telehealth Strategy is in alignment with the NSW Health and HNEH 7 strategic directions mentioned above. The following table indicates how the Telehealth strategy supports the 7 directions.

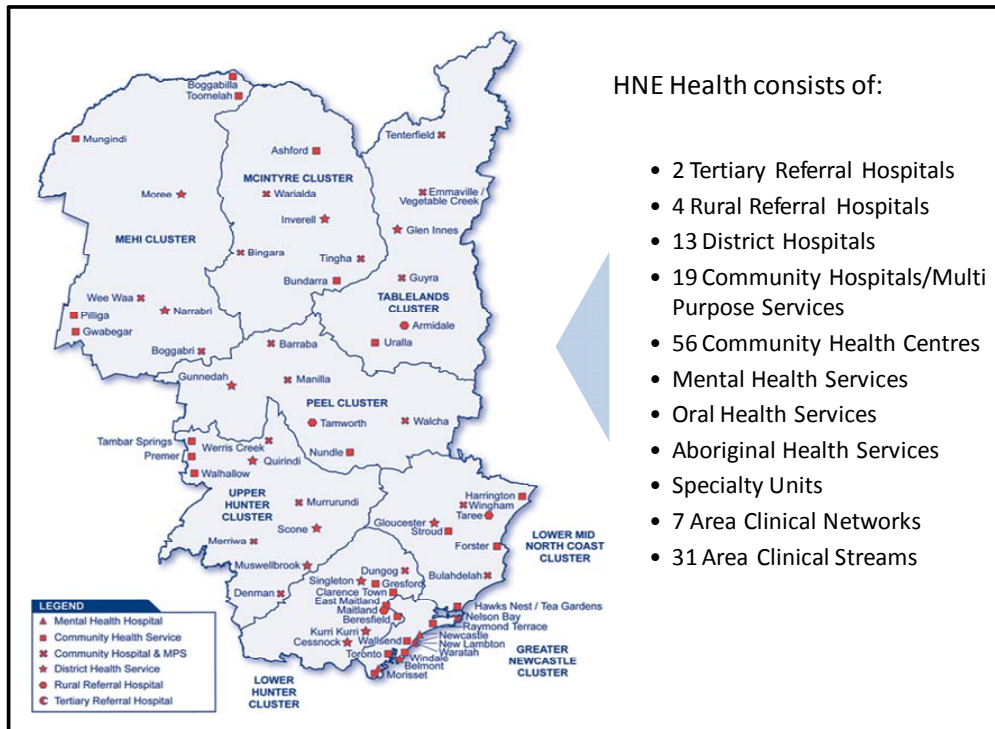
**Table 7 Telehealth Strategy supporting the HNE Health Strategic Direction**

id	NSW Health / HNEH strategic direction	How does the HNEH Telehealth strategy support this direction?
1	Make prevention everybody's business	<ul style="list-style-type: none"> <li>• An application of Telehealth is to assist through health coaching.</li> </ul>
2	Create better experiences for people using health services	<ul style="list-style-type: none"> <li>• Telehealth provides improved access to quality healthcare for acute, ambulatory and home based care.</li> <li>• Telehealth enhances the ability to provide outreach clinics to remote areas</li> <li>• Telehealth can reduce patient travel and therefore increase customer satisfaction with health services</li> <li>• Telehealth has the potential to reduce avoidable hospital admissions by increasing patient contact with health services and support for home based and community based interventions</li> </ul>
3	Strengthen primary health and continuing care in the community	<ul style="list-style-type: none"> <li>• Telehealth empowers primary healthcare to work with specialists remotely when necessary (e.g. Tele-colposcopy)</li> <li>• Telehealth has the potential to improve mental health outcomes by increasing patient contact with health services and increase support for home based and community based interventions</li> </ul>
4	Build regional and other partnerships for health	<ul style="list-style-type: none"> <li>• Telehealth increases access to healthcare in remote regions including Aboriginal communities and partnerships with Aboriginal health services.</li> <li>• Telehealth can be used to support care delivery partnerships and collaboration with local organizations such as Divisions of GP, NGO's, other government agencies (commonwealth, state and local) and other healthcare providers.</li> </ul>
5	Make smart choices about the costs and benefits of health services	<ul style="list-style-type: none"> <li>• For clinicians who are travelling to see patients, Telehealth can eliminate clinician travel and accommodation costs. Saved travel time can be used for clinical workloads</li> </ul>
6	Redesign and reinvigorate the health workforce	<ul style="list-style-type: none"> <li>• The rural and remote workforce can be supported and involved with their professional networks in major centres via Telehealth through clinical supervision, case reviews, education and administrative meetings.</li> <li>• Rural and remote workforce will potentially feel less isolated or unsupported</li> </ul>
7	Be ready for new risks and opportunities	<ul style="list-style-type: none"> <li>• Telehealth has the potential to reduce greenhouse gas emissions and reduce the carbon footprint by offsetting travel</li> </ul>

## 2.4. The Need for Telehealth in HNE Health

Hunter New England Health is large geographically dispersed area health service that includes a major metropolitan centre, several regional centres and many rural and remote locations. The health service is responsible for providing healthcare to a population of 845,000 (12% of the state) spread across 130,000 sq km.

Some key facts regarding Hunter New England Area Health service:



Between 2004 and 2009 there was an overall increase in inpatient separations by 9% and an overall increase in activity from non-admitted patients by 8%. In a recent analysis conducted by the HNE Health Planning Department, the population trends in HNE include:

- **Rapidly growing population** – Lower Mid North Coast, Lower Hunter, Greater Newcastle, Tamworth City
- **Potential future growth** through planned developments, e.g. mining – Gunnedah, Narrabri, Boggabri and Muswellbrook
- **Stable/declining populations** – Peel, Upper Hunter, Tablelands, McIntyre and Mehi
- High proportions of **older people** – Lower Hunter, Upper Hunter, Peel, Lower Mid North Coast and Tablelands
- **Major seasonal fluctuations** in Great Lakes, Port Stephens and Tamworth areas
- **Aboriginal population** that comprises 3.3% of the total population, with 47% under 20 years of age

**Table 8 HNE Health Activity Data Summary**

Overall Activity	2003/04	2008/09	% Change
Admitted Patient Separations	170141	184957	↑9%
Non-admitted patients occasions of service			
- Hospital	1,045,032	916,513	↓12%
- ED	460399	561994	↑22%
- Community Health	996,900	1,212,355	↑22%
- Total NAPOOS	2,502,331	2,690,862	↑8%

Source: HNE Health - A Hunter New England Health Overview - Area Health Advisory Council (June 2010)

In order to help address service delivery challenges, the health service has done well to institute a variety of community and home based care delivery in a wide range of geographical locations which has helped HNE to increase use of Community Health based services by 22% for non-admitted patients. However, there has also been an increase in the use of Emergency Departments (22%) for patients who need outpatient care which would suggest that some patients are not able to access local specialist clinics and are using local emergency departments for many non-urgent care needs.

### **Key Challenges delivering quality Healthcare in HNE**

HNE Health is faced with an increasing number of challenges in maintaining and improving the delivery of quality health care for its patients and communities. In a recent presentation on Health Reform, Nigel Lyons, HNE Health Chief Executive, singled out the major challenges as:

- Maintaining and sustaining appropriate **workforce**
- **Geographic isolation** and challenges with **transport**
- Managing **Emergency** and **Maternity** Services, especially in **rural** areas
- Enhancing access to **Rehabilitation** and **Allied Health** Services
- **Stronger focus** on Ambulatory Care, Day Surgery, Community/ Home Based Care and Preventative Care
- **Evolving models** of Mental Health Care
- **Sustainability** of services at some **smaller facilities**
- Keeping pace with **Technology**
- High levels of **social disadvantage**
- Future role and **sustainability** of **District Health Services**

The challenges with population trends and workforce capacity are expected to continue over the coming years as the government reform programs will take a number of years to fill workforce places. HNE Health will need to continue to take new actions to support the efficient and cost effective delivery care for patients, ongoing workforce capacity development and support for isolated staff.

### **Impact of Clinical Staffing Skills Distribution**

The geographic size of Hunter New England Health service creates challenges for HNE Health to sustain the appropriate level of access for patients outside of locations where the majority of specialist healthcare skills are located.

**Table 9 HNE Health Population and Medical Resources by Cluster**

	Population Estimate***	% of Total HNE Health Population	VMO**	Doctor	Specialists	Total Medical	Total Medical % of Total Medical	Specialist % of Total Specialists
Area Services*	Whole population		NA	377	167	544	27%	38%
Greater Newcastle	402,580	48%	261	390	185	836	41%	42%
Lower Hunter	140,020	17%	92	76	27	195	10%	6%
Lower Mid North Coast	85,930	10%	89	32	19	140	7%	4%
Mehi	30,130	4%	17	0	0	17	1%	0%
McIntyre	20,710	2%	13	0	0	13	1%	0%
Peel	73,090	9%	77	83	33	193	9%	7%
Tablelands	50,870	6%	43	14	10	67	3%	2%
Upper Hunter	34,340	4%	40	0	1	41	2%	0%
<b>HNE Health TOTALS</b>	<b>837,670</b>	<b>100%</b>	<b>632</b>	<b>972</b>	<b>442</b>	<b>2046</b>	<b>100%</b>	<b>100%</b>

Source: HNE Health – Workforce Planning Unit (as of July 13, 2010) excluding Calvary/Mater Hospital.

Notes:

\*Area Services includes area dental, admin, pathology, mental health, imaging, medical genetics, drug and alcohol, workforce development, public health unit. Also includes: Northern Sydney Central Coast Pathology, North Coast Pathology, Ranking Park Hospital (closed)

\*\*VMO data from HNEH Workforce unit. Represents number of VMO's that each centre has on its books. Information was manually gathered in 2010

\*\*\*Population figures for clusters from DIPNR Dec 2004 (and have major centre population excluded. Other population figures from the following sources. Maitland and Newcastle – [www.newcastle.nsw.gov.au](http://www.newcastle.nsw.gov.au), Armidale – [www.armidale.nsw.gov.au](http://www.armidale.nsw.gov.au), Tamworth – HNEH Tamworth Health Services plan, Taree - [www.gtcc.nsw.gov.au](http://www.gtcc.nsw.gov.au)

Overall, the majority of the clinical workforce is located in the Newcastle area and some key regional centres including Tamworth, Armidale, Taree, and Maitland. Specialist and Senior Specialists are highly concentrated in John Hunter Hospital (40%), Area Services (38%) and rural referral hospitals (17%). The following table provides an overview of service locations and distribution of specialist medical skills.

**Table 10 Staff Specialist by HNE Health Facility**

Type	Area Services	Tertiary Referral Hospitals	Rural Referral Hospitals	District Hospitals	Community Hospitals / MPS / Community Health Centres	Total
<b>Location</b>	Area Pathology Mental Health Drug and Alcohol Imaging Genetics Workforce Public Health Rankin Park (Closed)	John Hunter	Armidale Maitland Tamworth Taree Manning	Belmont Cessnock Glen Innes Gloucester Gunnedah Inverell Kurri Kurri Manilla Moree Muswellbrook Narrabri Scone Singleton	75 sites including:  Mehi: 10 sites McIntyre: 8 sites Tablelands: 8 sites Peel: 8 sites Upper Hunter: 16 sites Lower Mid: 7 sites Lower Hunter: 9 sites Greater Newcastle: 9 sites	
Specialist	72	82	51	2	12	219
Senior Specialist	95	93	27	2	6	223
<b>Total permanent specialists</b>	<b>167</b>	<b>175</b>	<b>78</b>	<b>4</b>	<b>18</b>	<b>442</b>
<i>Proportion of Total permanent specialist</i>	38%	40%	17%	1%	4%	

Source: HNE Health – Workforce Planning Unit (as of July 13, 2010) excluding Calvary/Mater Hospital.

The impact of population trends and staffing distribution has already led to notable increases in workloads at John Hunter Hospital. Between 2004 and 2009 there has been a 38% increase in total patient separations and 51% increase in patient transfers (inflows) from other services. Over this period there was a 42% increase in transfers from the top 6 referral locations and over 180% increase in transfers from Tamworth Rural Referral hospital to John Hunter hospital.

**Table 11 John Hunter Hospital Activity Data and Inflow Summary**

John Hunter Hospital Activity	2003/2004	2008/2009	% Increase
Total Separations	31640	43793	38%
Total Inflows (from transfers)	10253	15490	51%

Intra-Area Inflows to John Hunter	2003/2004	2008/2009	% Increase
Tamworth	493	1390	182%
Greater Taree	1154	1839	59%
Armidale	237	369	56%
Maitland	3364	4647	38%
Great Lakes	1248	1680	35%
Cessnock	3324	4015	21%
<b>Total (top 6)</b>	<b>9820</b>	<b>13940</b>	<b>42%</b>

Source: HNE Health - A Hunter New England Health Overview - Area Health Advisory Council (June 2010)



### 3. SUMMARY OF CURRENT USE & KEY ADOPTION ISSUES

HNE Health has been using Telehealth in a variety of ways. By far the most use to date has been in the workforce support and integration area for education and administrative reasons. Critical care and clinical support (supervision and case reviews) are the main areas of clinical Telehealth use. In the Ambulatory care space, Tele-psychiatry and Drug and Alcohol regularly use Telehealth for consultations. However outside of these two disciplines, Telehealth has mainly been limited to pilot studies. Telehealth usage for home-based care is in the pilot phase.

#### 3.1. Current Use

The following key adoption examples provide more detailed on select examples from the table above:

**Table 12 HNE Health Current Telehealth Use**

Health care service	Degree of use	Key Clinical Areas	Type of use	Benefits Identified
Critical Care	Low - Med	<ul style="list-style-type: none"> <li>Stabilisation and retrieval</li> </ul>	<ul style="list-style-type: none"> <li>11 out of 58 rural remote sites (~19%)</li> <li>2 out of 5 major centres</li> <li>12 Ambulances fitted with ECG transmissions</li> </ul>	<ul style="list-style-type: none"> <li>Improved remote advice and retrieval coordination for emergency and critical care situations</li> <li>Improved appropriateness of patient transfers and reduced costs</li> </ul>
Ambulatory care	Low	<ul style="list-style-type: none"> <li>Specialist Clinic</li> <li>Community Health</li> <li>Group based care</li> </ul>	<ul style="list-style-type: none"> <li>Podiatry: High risk foot clinic pilot</li> <li>Drug and Alcohol: Pharmacotherapy</li> <li>Mental Health: Tele-psychiatry and tribunals</li> <li>Women's Health (Tele-colposcopy pilot)</li> <li>Tele psycho-oncology pilot</li> <li>Type 1 Diabetes clinic pilot</li> <li>Genetic Counselling: evaluation of Tele-genetics in diagnosis of developmental disability</li> <li>Genetics Services Networks: Hunter New England and Northern Sector of Greater West AHS</li> <li>Palliative Care academic research project</li> <li>Tele-stroke research project</li> <li>Falls group pilot</li> </ul>	<ul style="list-style-type: none"> <li>Reduced unnecessary travel time and costs for patients and clinicians</li> <li>Improved ability to conduct screening and health promotion within remote communities</li> <li>Increased viability of providing services locally in rural and remote communities</li> <li>Earlier and improved access to specialist opinion</li> </ul>
Home-based care	Low	<ul style="list-style-type: none"> <li>Residential based care</li> <li>Health coaching</li> <li>Home monitoring</li> <li>Hospital in the Home</li> </ul>	<ul style="list-style-type: none"> <li>CAPAC Hospital in the Home</li> </ul>	<ul style="list-style-type: none"> <li>Improved patient involvement in care planning and reduced readmissions</li> <li>Increased contact between patients, their families and local health services</li> <li>Improved options to receive home based support</li> <li>Reduced unnecessary travel time and costs for patients and clinicians</li> </ul>
Clinical Support	Low to-Med	<ul style="list-style-type: none"> <li>Clinical Supervision</li> <li>Case Reviews (Grand Rounds)</li> </ul>	<ul style="list-style-type: none"> <li>Clinical supervision</li> <li>Some grand rounds supported via Telehealth</li> <li>VC for interpreter services</li> </ul>	<ul style="list-style-type: none"> <li>Increased choice and access to second opinion</li> <li>Reduced unnecessary travel time and costs</li> <li>Improved ability for rural</li> </ul>

		<ul style="list-style-type: none"> <li>• Interpreter Services</li> </ul>		<p>practitioners to access specialist health services and support</p> <ul style="list-style-type: none"> <li>• Improved ability to conduct multidisciplinary patient care planning when healthcare professionals are in various locations</li> <li>• Improved ability to support and maintain a collegiate network</li> </ul>
<b>Workforce support</b>	<b>Med to High</b>	<ul style="list-style-type: none"> <li>• Education programs</li> <li>• Administrative programs</li> </ul>	<ul style="list-style-type: none"> <li>• Clinical Network/stream meetings</li> <li>• Cluster administrative meetings</li> <li>• Formally programmed training and education sessions</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced unnecessary travel time and costs</li> <li>• Enhanced health resource education, training and clinical network team integration</li> <li>• Improved the ability to recruit staff and retain health professionals</li> <li>• Improved ability to support and maintain a collegiate network</li> <li>• Improved effectiveness of health care</li> </ul>

Please refer to Appendix 1 for more information on current Telehealth clinical care use examples and staff quotes.

### 3.2. Key Adoption Issues

Insights from HNE Health interviews indicate that some clinical users have encountered the following key adoption issues:

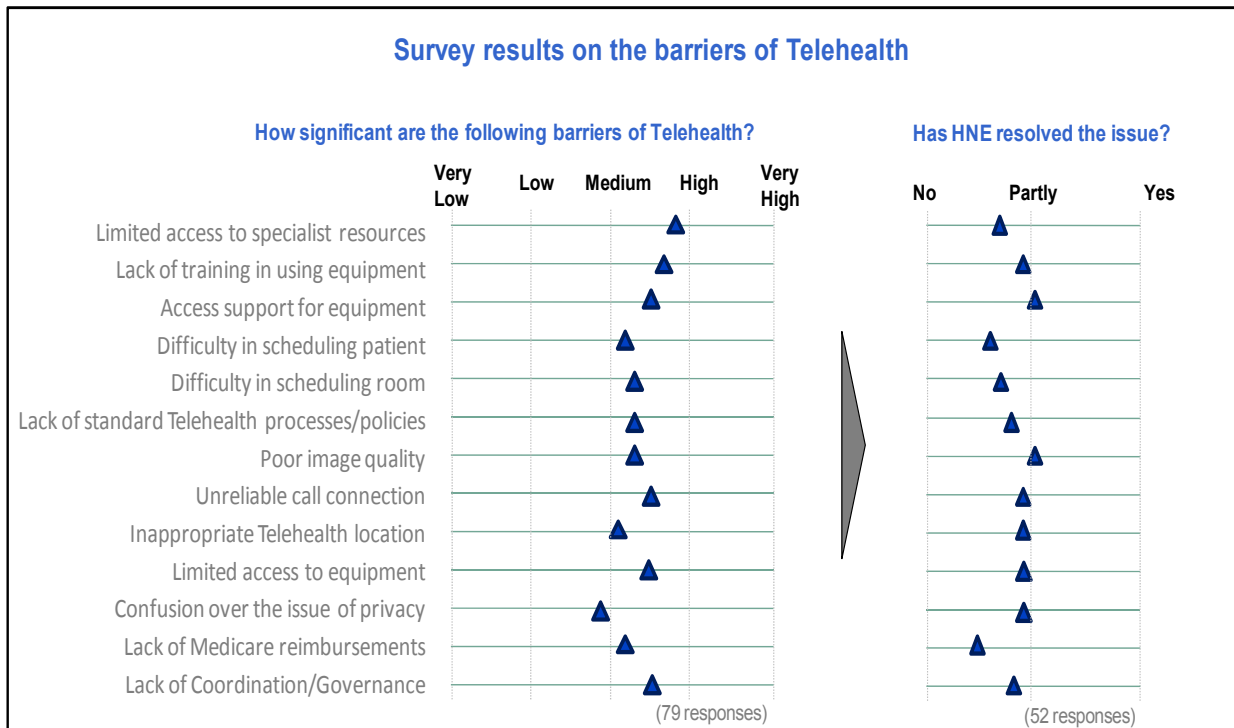
- **Resource capacity to support Telehealth** – including both clinical staff delivering services and Telehealth support staff (e.g. scheduling and technology helpdesk support)
- **Difficulties using the Telehealth Technology** – including access limitations regarding Telehealth equipment proximity to clinician work area (includes lack of mobile / wireless access, low image quality), demands on clinical time for organising and using Telehealth scheduling systems (including bridging systems), getting equipment connected between sites, ‘quality of service’ to ensure the Telehealth live VC connection is not interrupted during use and integration of clinical information systems and peripheral devices to support Telehealth interactions (e.g. biometric monitoring devices, ECG).
- **Lack of Funding models for clinical staff not on salary to support Telehealth sessions** - session based remuneration via MBS where telehealth session types not covered.
- **Lack of Standard Program Guidelines, Change Management and Training** – availability of guidelines and training programs to support policy guidelines (including privacy, indemnity), standard procedures for using Telehealth technology, Telehealth service needs assessment tools and integrated change management between clinical users and IT support (inc. equipment provisioning, service volume planning and network availability)

As part of the project’s involvement plan, a survey was released to a large group of HNE stakeholders. In total, there were 212 responses. Respondents were located in all 8 clusters and included clinical staff from all 7 clinical networks as well as managerial/administrative staff.

Survey respondents have indicated that the key barriers for Telehealth have only been partly addressed by HNE Health. Limited access to specialists stands out as a key unresolved issue (i.e. having enough specialists to support the additional workload of providing care via Telehealth). According to survey respondents, another key issue is related to the Medicare reimbursements impacting staff generating income through session based MBS items and the barrier this creates for some key clinicians (e.g. staff specialists, GPs). This is an area that Medicare has been able to make some changes (e.g. Tele-psychotherapy, chronic care planning) but further enhancements to available items will need to be made to help enable sustainable Telehealth involvement from these clinicians.

Respondents also highlighted a few significant issues that they thought HNE Health had partially addressed. These were lack of Telehealth training, inability to access technical support, quality of connection and limited access to equipment.

**Table 13 HNE Health Staff Survey results – Barriers to Telehealth**



Source: HNE Telehealth Survey (2010)

**“What’s a major barrier? Well I need to be able to bill in order to do Telehealth consults.”**  
 Medical Director/Staff specialist,  
 Referral Hospital

**“Telehealth is not a substitute for doctors; I need skilled hands to follow my instructions. You don’t want to watch somebody die”**  
 Staff Specialist, Critical Care

**“I’d like to have a VC unit here in this consult room”**  
 (Staff Specialist, Referral Hospital)

**“70% of troubleshooting is for basic issues. Training is on request and there is not a pre-requisite to use”**  
 HNE Health Telehealth centre

**“The technology needs to be simple; otherwise no one is going to use it”**  
 Clinical lead, Referral Hospital

**“Clinicians need to be confident that it works each time and every time. It’s usually difficult to connect, has unclear pictures, you need to book a room”**  
 Staff Specialist, Mental Health

### 3.3. Patient Survey

As part of this plan a patient survey was conducted for patients as part of the Agquip Event in August 2010. The survey had 369 responses and results showed that 28% of patients had made between 2 and 10 trips greater than 2 hours to attend a clinic over the past 12 months and 10% had made this trip more than 10 times. Of these responses, 60% of patients were from the New England Region, 13% from Hunter Region and 27% were from other NSW or interstate Area Health Services.

**Table 14 HNE Health Telehealth Patient Survey Results**

id	Question	Response
Q1	Have you ever had a video or telephone conference with a health care professional?	85% No 15% Yes
Q2	Would you be comfortable to see and talk to health care professionals via video or telephone conference?	10% Not at all 59% Somewhat comfortable 31% extremely uncomfortable
Q3	Have you ever travelled greater than 2 hours to receive health care in the last 12 months?	62% Never 28% Yes, Between 2 and 10 Times 10% Yes Greater than 10 Times
Q4	Do you or your family use the internet to find out about health?	23% Never 50% Sometimes 27% Frequently
Q5	Where do you live?	60% New England Region 13% Hunter Region 27% Other NSW or interstate area health services

## 4. FUTURE VISION FOR TELEHEALTH

### 4.1. Vision, Mission and Guiding Principles

Telehealth is a service delivery mechanism which will positively contribute to achievement of the HNE Health and NSW Health vision for a sustainable health care system. Ongoing adoption of Telehealth for clinical use will require effective and appropriate integration of Telehealth into health services models of care in order for Telehealth to become more broadly accepted and adopted by clinicians.

#### Vision

Telehealth is an integral part of HNE Healthcare delivery that helps enable equitable access to effective, efficient and timely health services

#### Mission

Connecting patients and HNE clinical staff by using technology for accessing quality health services, support and education from a distance

#### Guiding Principles

1. Improve access to appropriate and timely care
2. Maintain / improve quality of care and clinical outcome
3. Integrate with clinical models of care
4. Reduce avoidable patient and staff travel
5. Enhance patient and carer experience
6. Improve options for isolated staff to access clinical support
7. Improve staff job satisfaction, retention and recruitment of staff
8. Improve current and future workforce capacity
9. Potential for initiatives to be transferred to other HNE Sites
10. Same or improved cost-effectiveness

### 4.2. Target Benefits and Outcomes

The ability for Telehealth to help support HNE healthcare delivery in under-served areas is a key driver for ongoing adoption as a viable alternative to help provide improved access when there are no local specialist skills available or local support programs.

Where Telehealth is adopted as a viable option for the delivery of health services it can provide **patients** with:

- **Earlier and improved access to specialist opinion**
- **Increased choice and access to second opinion**
- **Reduced unnecessary travel time and cost**
- **Improved patient involvement in care planning and reduced readmissions**
- **Reduced patient transfers**
- **Increased contact between patients, their families and local health services**
- **Improved options to receive home based support**
- **Improved ability to visit family virtually (e.g. newborn in NICU)**

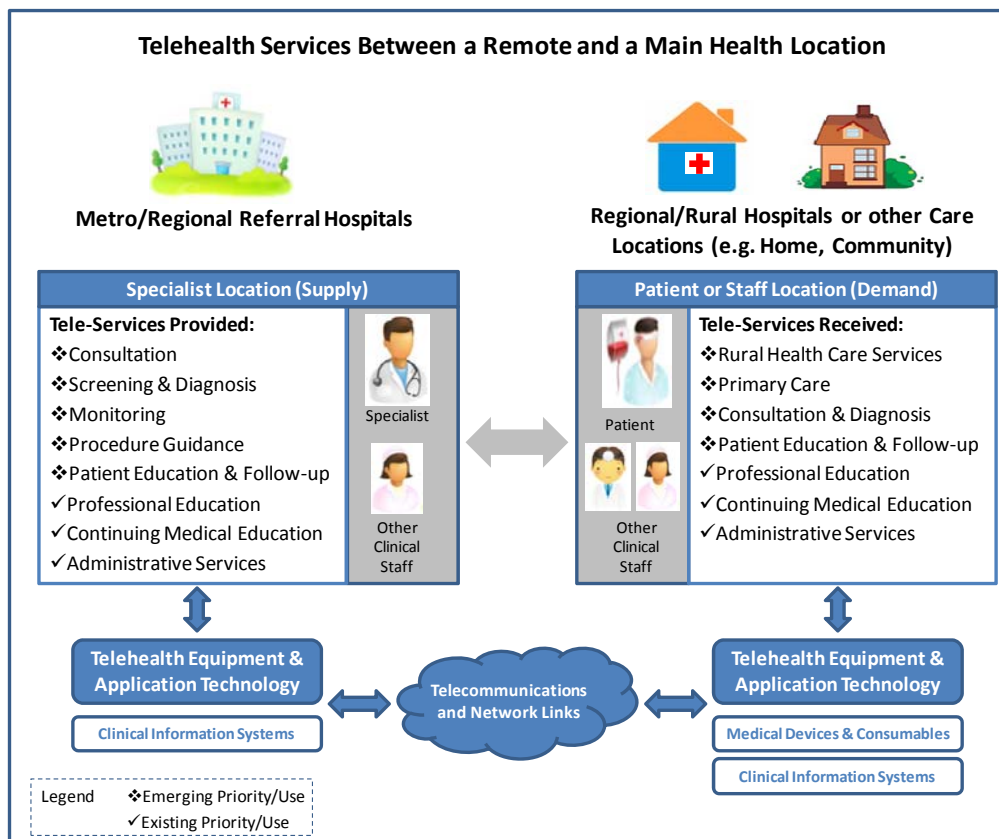
For health professionals Telehealth can be used to enhance health resource education and training and, when used to support direct patient care, provide an option to improve access to specialist support or an alternative mode of delivery for conducting patient clinics / consultations. Telehealth can also help reduce rural practice isolation by enhancing physician, nurse and allied health professional access to colleagues, specialists and education.

**Healthcare provider** benefits can include:

- **Reduced travel time and costs**
- **Improved ability for rural practitioners to access specialist health services and support**
- **Improved remote advice and retrieval coordination for emergency and critical care situations**
- **Enhanced health resource education, training and clinical network team integration**
- **Improved ability to recruit staff and retain health professionals**
- **Improved ability to conduct multidisciplinary patient care planning when healthcare professionals are in various locations**
- **Improved appropriateness of patient transfers and reduced costs**
- **Improved ability to conduct screening and health promotion within remote communities**
- **Improved ability to support and maintain a collegiate network**
- **Increased viability of providing services locally in rural and remote communities**
- **Improved effectiveness of health care**

#### 4.3. Emerging Priorities for Clinical Use of Telehealth

There is significant potential for Telehealth to improve access to health services and support for remote and isolated patients and staff. The following diagram provides an overview of services between remote and main (provider) healthcare sites with identification of both current and emerging priorities for HNE Health Tele-based services (based on clinical stakeholder input).



## 5. TELEHEALTH MODELS

The following sections provide examples of how Telehealth may be further adopted to support:

- Critical Care (inc. Emergency Care)
- Ambulatory Care Sessions
- Home Based Care
- Workforce Education & Support

### 5.1. Tele-Critical Care

The term “Critical Care” is the umbrella term that encompasses the services provided by the Emergency Department, Intensive Care Unit, Neonatal Intensive Care Unit and Retrieval and Stabilisation.

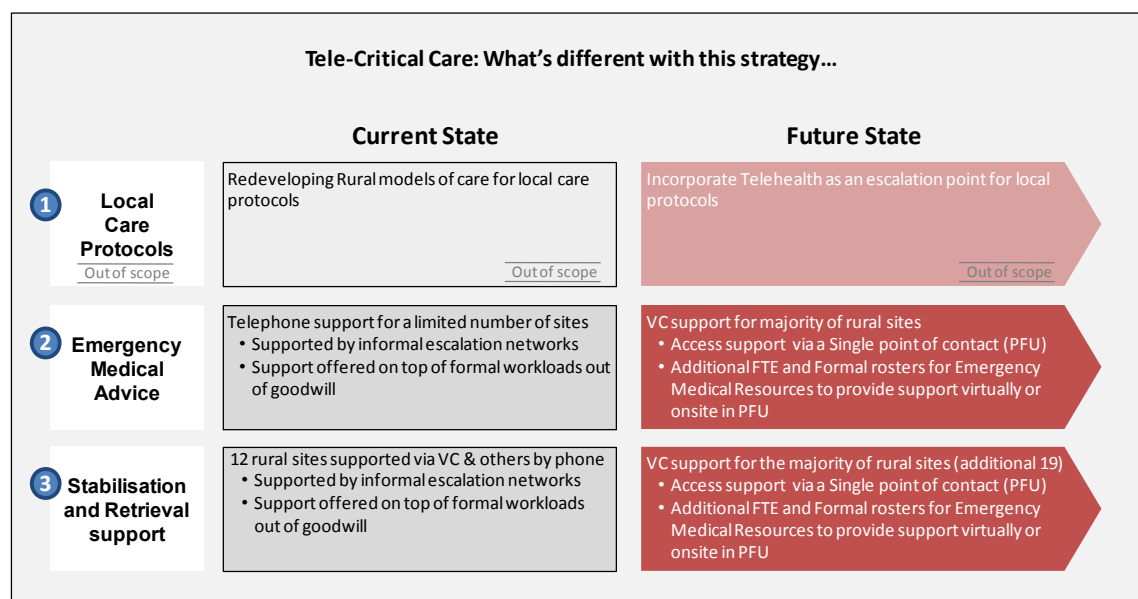
The main challenge for HNE Health's Primary and Community Network Hospitals is that many rural Emergency Departments do not have 24/7 medical coverage. Whether there is a medical staff member present or not, the rural ED teams need access to specialist emergency advice. In some cases, this will escalate to retrieval and ICU support. The Director of PCN has identified this as a major risk for rural communities and HNE Health.

Currently critical care areas in the acute hospital network do provide advice on an ad hoc basis to rural and regional hospitals. The Patient Flow Unit currently provides support for hospital transfers and escalates the referring clinician to the retrieval services when required.

Telehealth equipment and infrastructure has already been installed in critical care areas of 12 rural/remote sites to support the retrieval and stabilisation service. However this only covers approximately 20% of rural and remote centres (59 in total). All rural/remote critical care Telehealth equipment and infrastructure is in the emergency departments (the exception is Muswellbrook, where the camera is in Special Care, but can be rotated to view the ED or the High Dependency Unit. In the major centres, Tamworth has one mobile and one fixed videoconference unit in the ICU to allow it to receive stabilisation and retrievals support.

Critical Care clinical leaders have identified several priority areas for Telehealth:

1. Incorporating Telehealth as an escalation point for Local Care protocols (Out of scope for this project);
2. The establishment of an **Emergency Medical Advice Service**; and
3. Expansion of the area **Stabilisation and Retrieval** services.



By focusing on these priority areas, it is expected that the following benefits will be realized:

- Improved remote advice and retrieval coordination for emergency and critical care situations
- Improved ability for rural practitioners to access specialist health services and support
- Improved appropriateness of patient retrievals or transfers and reduced costs
- Enhanced health resource education, training and clinical network team integration
- Improved ability to support acute/inpatient services in rural and remote locations

“There was a bloke in Tomaree who presented with a red line down his arm because something had bit him whilst he was putting in roof insulation. There was a Telehealth consult and we said there’s no need to retrieve him, just put him on morphine because that’s not toxic”.

Staff Specialist, Critical Care

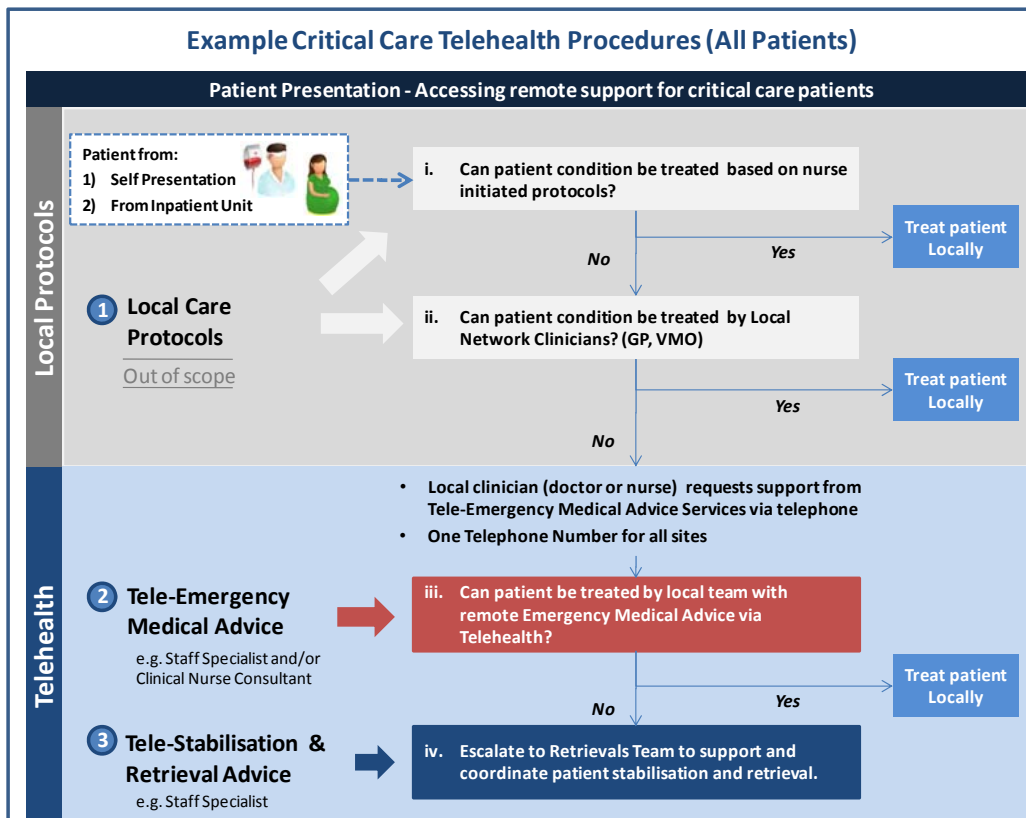
“I was the team lead for a cardiac arrest case for a nurse. I ran it from 400km away. Unfortunately she didn’t survive but I was able to tell the staff at Moree that they had followed my instructions perfectly and there was nothing more they could do. That meant a lot to them”

Staff Specialist, Critical Care

“There was a 36 week pregnant lady who came into Moree frothing at the mouth. We were able to set up a VC with a specialist and an obstetrician in Newcastle and got her airlifted. On arrival we delivered the baby within three minutes. If VC wasn’t available it would have taken much longer”

Staff Specialist Critical Care

The following flow chart illustrates how Telehealth could support existing Local Care Protocols.





**Local Care protocols (out of scope)**

There are a range of strategies (in varying stages of implementation) aimed at enhancing the emergency medical services offered in rural centres (e.g. ED Rural Model of Care, establishing local medical support networks and nurse initiated protocols).

However these strategies lie outside of the scope of this document. It is expected that these strategies will include Telehealth as a point of escalation for Emergency Medical Advice and Stabilisation and Retrieval advice going forward.

**Emergency Medical Advice Service**

Many rural Emergency Departments in HNE Health lack medical resources to provide emergency medical services to rural populations. Currently, Emergency Departments in the acute hospital network currently provide advice via telephone on an ad hoc basis to rural and regional hospitals. However the Director of the Primary and Community Network has flagged that a more comprehensive approach to supporting rural emergency departments is required.

Senior Critical Care clinicians agree that there is a need to establish an Emergency Medical Advice Service that provides support to rural sites via Telehealth. This service would only be accessed when local protocols are not enough and staff feel the need to escalate to the service (e.g. for higher acuity and higher complexity patients).

Senior clinicians in the Critical Care stream have indicated that a combination of a staff specialist/s supported by Clinical Nurse Consultant, Medical Registrar or other specialist (as appropriate) is required to staff the Emergency Medical Advice Service. The staffing model may potentially be a virtual model across multiple sites with formal support arrangements and rosters in place.

**Stabilisation and Retrieval Support**

Currently, stabilisation and retrieval advice is provided via Telehealth to 12 rural ED's by the Tamworth hospital and JHH retrieval teams. Senior Critical Care clinicians have indicated that this footprint needs to be extended to cover the remaining rural sites with emergency departments as shown in the table below:

Current Sites receiving stabilisation and retrieval Telehealth support from Tamworth and John Hunter Hospital			
Northern Region	Status	Southern Region	Status
• Inverell (IP)	Online	• Cessnock (IP)	Online
• Moree (CCC)	Online	• Nelson bay (IP)	Online
• Quirindi (IP)	Online	• Muswellbrook (IP)	Online
• Tenterfield (IP)	Online		
• Wee Waa (IP)	Online		
• Narrabri (IP)	Online		
• Glen Innes (IP)	Online		
• Vegetable creek (IP)	Online		
• Warrialda	Online (Sept 2010)		
Sites for expanding stabilisation and retrieval Telehealth support			
• Gunnedah	• Guyra	• Singleton	• Dungog
• Manilla	• Walcha	• Kurri Kurri	• Bulahdelah
• Barraba	• Boggabri	• Scone	• Merriwa
• Tingha	• Werris Crk	• Gloucester	• Murrurundi
• Bingara		• Denman	• Belmont

\*Source: Connecting Critical Care Project Officer and JHH Telehealth Centre

Legend: CCC – Connecting Critical Care

IP – Internet Protocol

Senior Critical Care Clinicians have indicated that a critical care staff specialist is required to provide stabilisation support / retrieval advice as well as coordinate the retrieval process. This staff specialist role would be prioritised for Telehealth and would be able to support the local team when there is no demand for telehealth support.

### **Single point of access**

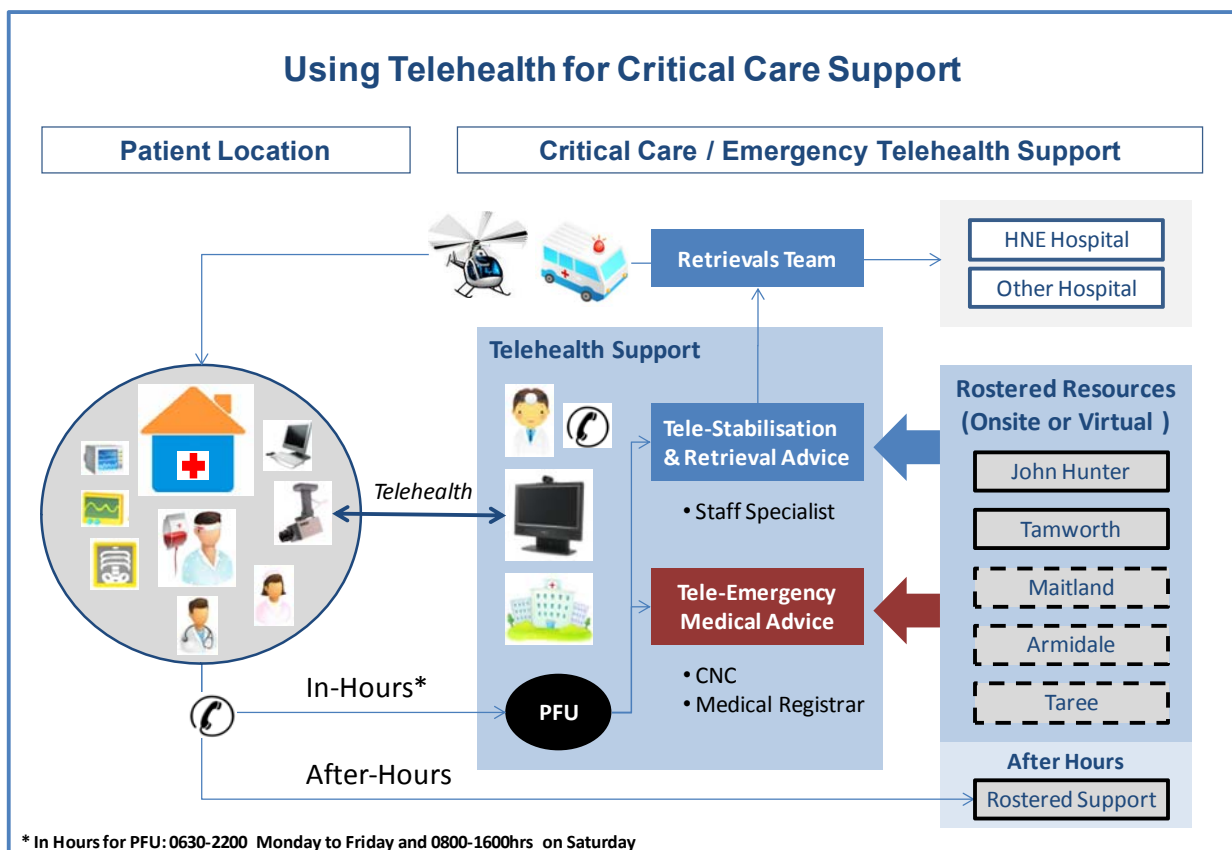
A single point of contact (a single phone number) to access the Telehealth Emergency Medical Advice and Telehealth Retrieval and Stabilisation is proposed. The service could either be set-up with one number for both services or two separate phone numbers for Tele-Emergency Medical Advice and Tele-Stabilisation & Retrieval Advice.

The Patient Flow Unit (PFU) has been identified as the proposed single point of contact for remote sites to access the Tele-Critical Care Service, with staff providing advice either onsite at the flow unit or rostered virtually from their local facilities. It is proposed that advice services leverage existing critical care support networks for rostering:

- Emergency medical advice (via Clinical Nurse Consultant or Staff Specialist) and
- Stabilisation and retrievals support (via Staff Specialist).

The Tele-Emergency Medical Advice resources will take ownership of call resolution and help connect rural staff to the most appropriate support specialist to provide advice (e.g. connect with retrievals team, other specialist skills, etc). It will also be important to provide the patient flow unit and each site receiving Telehealth support with a clear and structured escalation process for critical care support

The following is an illustration of how Telehealth could be used in supporting rural emergency department patients.



Senior staff from Critical care and PFU have requested a review of the Patient Flow Unit's business model and whether the PFU can incorporate Tele-critical care support services (inc. medical skills, rostering, call handing, workflow procedures, escalations, telephony infrastructure, business hours).

The implementation is likely to be achieved in two phases:

1. The current PFU provides in hours support with a rostered arrangement for after-hours supervision
2. The PFU becomes a 24/7 service with protocols

## Human Resources

The key roles for enabling critical care Telehealth support include:

Location	Stabilisation and Retrieval Support	Rural Emergency Care Support
Patient Location	Patient (inc. Families and Carers)	Patient (inc. Families and Carers)
	Referring Clinician	Referring Clinician
	Clinical Support	Clinical Support (as appropriate)
Specialist Location(s)	<b>Staff Specialist (Rostered Support Role)</b>	<b>Nurse Practitioner or Medical Registrar(s) (Rostered Support Role)</b>
	<b>Retrieval Team Resources Retrieval Hospital (as required)</b>	<b>IT Support (as appropriate)</b>
	<b>IT Support (as required)</b>	

Additional resource capacity/funding will be required to ensure that stabilisation and retrieval advice resources are available for Telehealth demands and the service is sustainable and scalable across HNE Health. Whilst it is possible that a virtual team spread across multiple sites can be rostered for the Emergency Medical Advice Service and the Stabilisation and Retrieval Support; it is more likely that the team is located in the major centres such as JHH and Tamworth Rural Referral Hospital (TRRH) as clinical resources are concentrated in these locations. Once this is set up, several factors will need to be considered including:

- **Adequate resource rostering** to prevent staff from ‘juggling’ responsibilities between their primary work location and remote sites (or providing the service based on goodwill). Rosters ‘in hours’ vs. ‘after hours and weekends’ will also need to be considered
- **Expected peaks in workload** (between 10am and 8pm) due to patient presentation activity trends may require multiple staff to be available and require ‘overflow’ arrangements from one site to another (e.g. Tamworth overflow to John Hunter).
- **Monitoring service demand and workload** implications as part of ongoing service rollout is essential to monitor capacity and identify if additional staff are required.

It will be important to develop standard training program for staff providing Tele-critical care support and ensure all staff undergo training prior to providing Tele-critical care support. Provide clinicians with a set of consistent guidelines around consent, privacy and medico-liability. Where possible, patients should be provided with standard privacy, consent and medical liability information regarding use of Telehealth in critical care situations.

## Medical Equipment

No medical equipment implications for supporting critical care Telehealth in ED/ICU areas that have been identified by the project team or clinical stakeholders. It is assumed that all medical equipment already exists in healthcare facilities and any further enhancements would need to be identified as part of service rollout and may be specific to individual sites (e.g. new procedures or other diagnostic devices). Critical Care equipment needs should be considered as part of the evolving support model to ensure staff at patient locations have the appropriate tools to support patient needs locally (e.g. diagnostics equipment, consumables).

It should be noted that medical equipment implications for retrievals services (e.g. ambulance/helicopter) will need to be identified and incorporated into the HNE Critical Care Telehealth service where available and appropriate (e.g. ECG transmissions while patient is in transit). It is assumed that this equipment is out of scope of this strategy.

## Technology

The technology implications to provide the Emergency Medical Advice Service and the Stabilisation and Retrieval Support are likely to include:

- Adding more critical care wall mounted telehealth units at the patient location so that the support people are able to see the patient
- Enabling access close to the clinical workspaces of specialists located in clinical care, retrieval and patient flow units and
- Enabling access from home for critical care specialists when out of hours with adequate video conferencing audio and visual quality

The following table provides an overview of technology implications for Tele-Critical Care advice service.

**Table 15 Technology Required by Location**

Location	Core Telehealth Technology	Other Enabling Technologies
Patient Location	<ul style="list-style-type: none"> <li>• Wall mounted IP Camera and standards based Telehealth VC System</li> </ul>	<ul style="list-style-type: none"> <li>• High Speed Network</li> <li>• Clinical Information Systems</li> <li>• PACS (where available)</li> </ul>
Specialist / Support Location(s)	<ul style="list-style-type: none"> <li>• Clinical desktop Telehealth VC System (with dual large screens)</li> <li>• <i>Potential mobile system or home based connections for after hours</i></li> </ul>	<ul style="list-style-type: none"> <li>• High Speed Network</li> <li>• Clinical Information Systems</li> <li>• PACS (if available at patient location)</li> <li>• Integration with call centre routing systems for call handling</li> </ul>
Patient Flow Unit	<ul style="list-style-type: none"> <li>• Desktop VC System (for staff providing support from PFU)</li> </ul>	<ul style="list-style-type: none"> <li>• Call Centre Systems to manage call handling and routing to rostered resource locations</li> </ul>

In patient locations (e.g. rural facilities) it is important to locate the video conferencing facility in the ED/ICU (e.g. resuscitation bay) of the hospital so that equipment is in a fixed location with close proximity to medical devices and monitoring devices. This will usually be wall/ceiling mounted cameras which can be controlled remotely by the specialist (from any PC on the HNE Health network or through Virtual Private Network (VPN) who can zoom in and out on the patient and diagnostic equipment. It is paramount that the equipment is set-up to ensure ease of use and minimize the need to troubleshoot. Key attributes at the patient location include:

- **One way video** (specialist can see patient) - Camera's can be manoeuvred and can zoom in and out to view patient and diagnostic equipment
- **Relatively inexpensive equipment** - at approximately \$7500 per unit including 2 phones and headsets fully installed( HNE Health staff have identified that the relatively inexpensive Ceiling Mounted Cameras have similar manoeuvrability and image quality as the expensive 'connecting critical care' units.)
- **Cordless phones with wired headsets** need to be worn by clinicians (nurse or doctor) to hear remote specialist
- **In built two way sound** in camera can also be used but issues have been identified by clinical users related to sound delays between sites and patient privacy concerns

The staff providing advice from the patient flow unit or other facility will need to have desktop VC technology with multiple screens to access video images of the patient, other clinical information systems and call handling systems (e.g. as extension of PFU). If these resources providing advice are rostered virtually from a location outside of the Patient Flow unit, considerations will need to be made regarding the locations of VC systems and integration with the patient flow telephony and call routing systems.

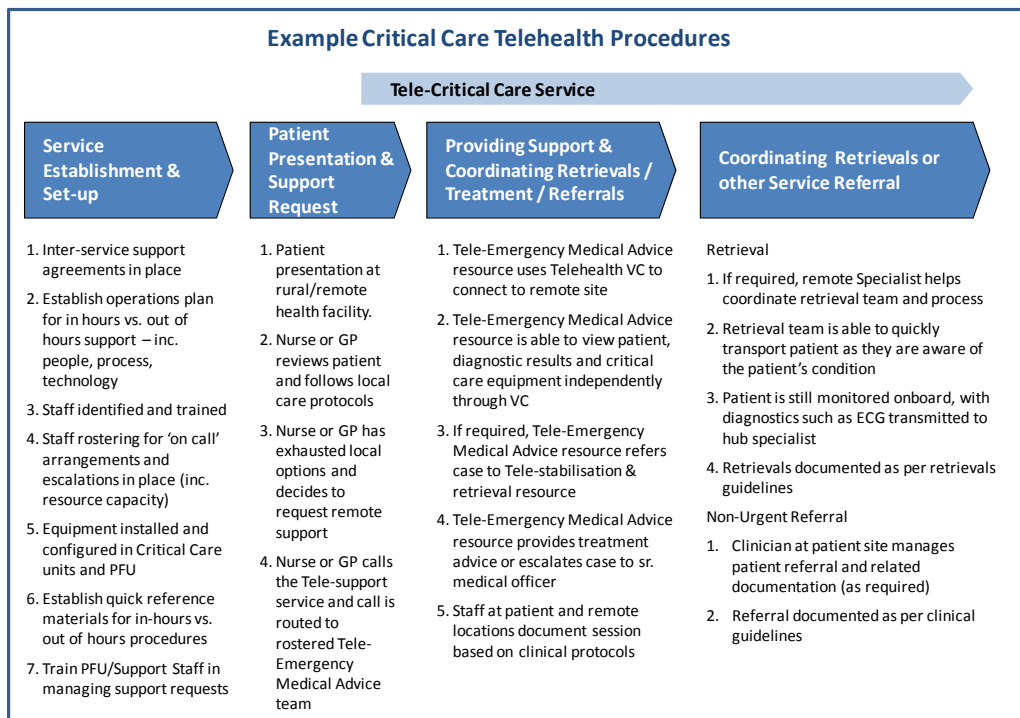
Patients in inpatient areas will need to be moved to ED/ICU for Telehealth critical care support.

**Procedure Implications**

It is important that the procedures for accessing Tele-support services be further developed and refined based on critical care needs, procedure requirements and supporting equipment (as applicable). It is proposed that detailed planning and review be conducted with the Patient Flow Unit as a basis for establishing a standard and scalable procedure for staff in remote locations to access Tele-critical care support services. The ability to introduce one number for critical care ‘priority’ calls, establish call routing capabilities to virtual advice team, managing call routing based on rosters and conducting call recording will need to be included in a review of the patient flow unit.

It is important that efficient call routing and staffing is in place to ensure staff calling the Tele-critical care services are answered promptly, regardless of resource location (e.g. in PFU or other site)

The first point of support is expected to be the Tele-Emergency Medical Advice service. For patients who are identified as needing stabilisation and retrieval support the Tele-Emergency Medical support staff will immediately refer the call to the staff specialist on call to connect with the remote site via VC. Once the staff specialist is connected the Tele-Emergency Medical support staff will hang up from the connection (as appropriate). An example of procedure to support critical care Telehealth use has been provided below.



**Service Volume Estimates**

**From the NSW Health - PRINCIPLES FOR EMERGENCY CARE MODELS IN NSW SMALL RURAL HOSPITALS”:**

“The ‘Yellow Book’ reports a very small number of Multipurpose Service (MPS) facilities in Hunter New England Area Health Service (predominantly level 2) that are reporting through the Emergency Department Data Collection (EDDC). This provides an indicative profile of the types of presentations at these facilities with almost all reporting 90% of the presentations being either within triage category 4 or 5, with the bulk of these presentations being triage 5. The remaining 10% were either triage categories 2 or 3 – with most being triage 3.

**Table 16 Medical Officers, Emergency Department Presentations and Retrievals by HNE Health Location**

		Location	Visiting Medical Officers*	Staff Specialists**	Staff Doctors***	Cat 1 & 2 Presentations (09/10)	Total Presentations (09/10)	ED/Critical Care Camera	Potential Tele-ED support required (12.5% of Total presentations less retrievals) ****	Total Retrievals from Site (09/10)*****
Tertiary Referral Hospital	South	JHH	210	181	361	6,123	63,944			66
	South	Mater	TBC	TBC	TBC	3,658	29,757			45
Rural Referral Hospital or Metro Facility	North	Tamworth	61	33	83	3,414	44,215		TBC	42
	South	Maitland	44	27	76	2,293	40,877		TBC	102
	South	Taree	75	19	32	2,15	22,399		TBC	48
	North	Armidale	30	10	14	772	15,520		TBC	23
	South	Belmont	47	3	29	1,358	23,146		TBC	60
Sites currently receiving Telehealth Support for Critical Care	South	Cessnock	21	0	0	804	17,898	Online	2,233	37
	South	Tomaree	4	0	0	897	13,469	Online	1,682	13
	North	Moree	12	0	0	393	9,716	Online	1,213	15
	North	Inverell	9	0	0	479	9,218	Online	1,151	14
	South	Muswellbrook	25	0	0	287	7,672	Online	956	24
	North	Narrabri	3	0	0	159	5,857	Online	732	5
	North	Glen Innes	8	0	0	222	4,267	Online	533	4
	North	Quirindi	2	0	0	142	3,459	Online	432	4
	North	Wee Waa	1	0	0	74	2,345	Online	293	4
	North	Tenterfield	3	0	0	150	2,030	Online	254	1
	North	Warialda	2	0	0	17	797	Online	100	1
	North	Emmaville	1	0	0	23	246	Online	31	1
Sites not receiving Telehealth support for Critical Care  ----- Initial focus of advice service expansion	South	Singleton	17	0	0	466	12,006		1,499	11
	North	Gunnedah	8	0	0	291	9,174		1,145	12
	South	Kurri Kurri	6	0	0	237	7,018		877	4
	South	Scone	9	1	0	87	4,221		526	14
	North	Manilla	4	0	0	75	3,094		387	0
	South	Gloucester	13	0	0	108	2,369		295	6
	North	Barraba	2	0	0	50	2,217		277	3
	South	Dungog	4	0	0	53	2,219		277	0
	North	Guyra	1	0	0	117	1,950		244	1
	South	Bulahdelah	1	0	0	106	1,541		193	0
	North	Walcha	2	0	0	51	1,459		182	1
	North	Boggabri	1	0	0	15	1,086		136	2
	South	Merriwa	2	0	0	51	994		124	0
	South	Murrurundi	1	0	0	17	886		111	1
	North	Bingara	2	0	0	65	867		108	2
	North	Werris Crk	0	0	0	3	358		45	0
	South	Denman	1	0	0	23	366		46	0
North	Tingha	0	0	0	8	160		20	0	
		Totals	632	274	595	25,239	368,817		18,983	566

**Notes**

\*VMO's include non-staff medical officers providing services to HNE Health.

\*\*Staff Specialists include staff specialists and senior staff specialists

\*\*\*Staff Doctors include registrars, interns, resident medical officers, career medical officers, agency doctors and anaesthetic technicians.

\*\*\*\*12.5% of Total presentations less retrievals – initial estimate based on input from an HNE Health Emergency Nurse Practitioner who had recently conducted a 3 month research assignment on rural ED models of care and initial feedback from the QLD State-wide Telehealth Service. Further planning is needed to validate/confirm this assumption.

\*\*\*\*\*Please note that retrievals from Tertiary Referral & Rural Referral Hospitals are most likely to be coordinated through non HNE Health retrievals service and receiving hospital (e.g. Sydney based). In some cases rural referral hospitals will have patients retrieved to John Hunter Hospital.

**Data sources**

- Southern ED Data presentations 2009/2010 (Financial) Source: iPMS-Emerg\_rhED0240
- Northern ED presentations 2009/2010 (Financial) Source: iPMS-Emerg\_rhED0240
- VMO volume source: Workforce & planning (Figures updated by Rural Critical Care CNC)
- Specialist & Doctor 2010 volume source: Workforce & planning
- Northern Retrieval data 2009/2010 (Financial) Source: Northern Retrieval Team
- Southern Retrieval data 2009/2010 (Financial) Source: JHH Intensive care
- ED camera and support arrangements source: Connecting Critical Care project officer and critical care stream

## Cost Estimates

Please note that cost estimates and underlying assumptions will need to be further reviewed and confirmed based on the agreed operations plan moving forward. It is proposed that the Tele-critical care service initially formalize the support arrangements with rural/remote sites currently online with Telehealth equipment in the ED (e.g. resuscitation bay) and establish the Tele-support resourcing, procedures and equipment for both Tele-Emergency Medicine and Tele-Stabilisation and Retrieval support.

The initial focus for the Tele-critical care advice services is to expand Tele-Stabilisation & Retrievals to support all HNE Health sites via VC units and establish an Emergency Medical Advice Service. Ongoing planning and business case will be required to expand to service and address cost implications to support additional sites past the initial 30 sites identified.

The Tele-critical care service volumes are currently estimated at 1000 stabilisation and retrieval requests for all of HNE Health per year, and approximately 16,000 emergency medical advice requests for the 30 priority sites. Based on these volumes, it is expected that a team of 4 FTE will be required to deliver the advice services.

There may be opportunity to utilize some existing equipment to enable the Tele-critical care support services and not require full investment in new equipment. Additionally, some resources investments may be offset as part of current services (e.g. retrievals team) and only require partial new investment. Service rollout priorities and demand volumes will need to be validated and refined as part of implementing the services. The following table provides a high level cost estimate for the initial rollout of Tele-Critical Care Services.

Tele-Stabilisation & Retrieval Advice	All HNE Health	Notes
Est. Volume of Retrieval Requests	1,000	
Avg. Hours per request	0.4	1
Total Workload (hrs)	400	
Hour per week	7.69	
FTE (@ 70% utilisation)	0.29	2
Avg. Cost Per FTE (e.g. CNC)	\$163,027	
<b>Total Annual Cost</b>	<b>\$47,773.48</b>	

Tele-Emergency Medical Advice	Current Sites with Telehealth Online (12 Sites)	Priority rural sites with Telehealth not currently Online (18 Sites)	Current & Additional Sites (30 Sites)	
Est. 20% of Presentations	9,606	6,492	16,098	3
Avg. Hours per request	0.3	0.3	0.3	4
Total Workload (hrs)	2882	1948	4,829	
Hour per week	55.42	37.45	92.87	
FTE (@ 70% utilisation)	2.11	1.43	3.54	5
Avg. Cost Per FTE (e.g. CNC)	\$92,173	\$92,173	\$92,173	
<b>Total Annual Cost</b>	<b>\$194,596</b>	<b>\$131,514</b>	<b>\$326,110</b>	

<b>Total Annual Costs (recurrent)</b>	<b>\$242,369.93</b>	<b>\$179,287.13</b>	<b>\$373,883.58</b>
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Capital Costs			
<b>Equipment</b>			
Units	7	18	6/7
Cost per Unit	\$3,000	\$7,500	
<b>Total Equipment Costs</b>	<b>\$21,000</b>	<b>\$135,000</b>	<b>\$163,500</b>

<b>Total Costs (Year 1)</b>	<b>\$263,369</b>	<b>\$314,287</b>	<b>\$537,383</b>
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## Notes

1. Average of 24 min (0.4hr) based on estimates provided by ICU staff specialist (e.g. 1 of 5 is an hour, 3 of 5 are 5-10 min and 1 of 5 is 30min of workload)
2. Staff Specialist Average Salary 5th Year
3. Service demand volumes will need to be tracked and reviewed in alignment with workload and staffing levels. 12.5% of Total presentations less retrievals - Please note that 12.5% of Total presentations less retrievals requiring ED support via Telehealth is the midpoint of 10% and 15%. This initial estimate was formed input from an Emergency Nurse Practitioner who had recently conducted a 3 month research assignment on rural ED models of care and initial feedback from the QLD State-wide Telehealth Service. Further planning is needed to validate/confirm this assumption.
4. Average of 20 min (0.3hr) per Emergency Support (TBC based on service pilot)
5. CNC Average Salary - Grade 2 - 2nd Year, Staff Specialist Average Salary 5th Year. It is assumed that there will be 1 medical FTE to every Nursing FTE.
6. Equipment - Additional Sites - Estimated 19 additional sites at \$7500 per site (ceiling mounted camera) including two phones and headsets fully installed
7. Equipment - Current Sites - Est. 7 workstations. Based on 4 for Emergency Support and 3 for Stabilisation and Retrieval. Estimated at \$3000 per unit - including webcam, desktop with two 19" screens, video card, installation and CIS)



**Priority Areas**

	Current state	Future state	Target Benefits
<b>Stabilise and Retrievals Advice</b>	<ul style="list-style-type: none"> <li>12 sites supported by Telehealth</li> <li>Telephone support for other sites</li> </ul>	<ul style="list-style-type: none"> <li>39 sites supported by Telehealth               <ul style="list-style-type: none"> <li>Phase 1 = 30 sites</li> <li>Phase 2 = 39 sites</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Improved remote advice and retrieval coordination for emergency and critical care situations</li> <li>Improved ability for rural practitioners to access specialist health services and support</li> <li>Improved appropriateness of patient retrievals or transfers and reduced costs</li> <li>Enhanced health resource education, training and clinical network team integration</li> </ul>
<b>Emergency Medical Advice</b>	<ul style="list-style-type: none"> <li>Ad hoc Telephone support for sites</li> </ul>	<ul style="list-style-type: none"> <li>Patient Flow Unit as single access point for Tele-advice (resources onsite in PFU or virtual workflow)</li> </ul>	

**Action Plan & Funding Opportunities**

Action Plan	Responsibility	Timeframe	◆ Funding 1,2,3	▣ Priority L,M,H
1. <b>Further Engagement and agreement of Critical Care Stream leadership (&amp; PFU),</b> to confirm preferred model and operations implications for enhancing Telehealth based support and phased implementation approach (e.g. sites with current equipment vs. new sites).	<ul style="list-style-type: none"> <li>Clinical/ Cluster Leadership</li> <li>Tele-Critical Care Service Owner(s)</li> <li>Patient Flow Unit</li> <li>Adoption Support</li> </ul>	2010	1	H
2. <b>Confirm Critical Care Tele-support operations plan and business case</b> in order to gain organisational approval for resources, procedures, equipment, funding and other support requirements.  Collaborate with Queensland Tele-service to support detailed implementation planning (e.g. demand assumptions, patient screening, and workloads).  Confirm technology costs and requirements by site to support and prioritise ongoing rollout plan with HNE Health Tele-IT support (e.g. VC equipment and installation plan).  Support review of patient flow unit and conduct detailed planning for incorporating Tele-critical care services (e.g. call handling, rostering, escalations, etc)	<ul style="list-style-type: none"> <li>Tele-Critical Care Service Owner(s)</li> <li>Patient Flow Unit</li> <li>Adoption Support Team</li> </ul>	2010	1	H
3. <b>Deploy Telehealth Equipment to additional Remote Site and enhance resource capacity</b> (as required) to enable new Tele-support for Critical Care / Emergency Care based on agreed service planning and approved business case. Test Service Procedures, communicate new support arrangements and go-live with revised services as per agreed implementation phasing.	<ul style="list-style-type: none"> <li>Tele-IT Support</li> <li>Clinical/Cluster Leadership</li> <li>Clinical Champion</li> </ul>	2010	2/3	H
4. <b>Further engage Inpatient Acute/Subacute teams to identify key priorities for the future,</b> including: a. Inpatient Transfers of Care b. Sub-Acute Rehabilitation Support c. Virtual Family Visits Conduct Tele-planning, business case and address service requirements to incorporate new uses of	<ul style="list-style-type: none"> <li>Clinical/ Cluster Leadership</li> <li>Patient Flow Unit</li> <li>Other Clinical Tele-Service Owners</li> <li>Change Support</li> </ul>	2011	1/2	M

Telehealth in Acute/Subacute care.	Team			
<b>5. Evaluate Acute Telehealth programs and incorporate learnings into ongoing rollout plans</b>	<ul style="list-style-type: none"> <li>• <b>Change support</b></li> <li>• Clinical/Cluster Leadership</li> <li>• Clinical Champion</li> </ul>	2011 (annually)	1/2	H

♦ Funding Key: 1. Initiative/Action to be implemented without funding 2. Initiative/Action to be implemented with funding from existing resources 3. Enhancement funding required

☑ Priority Key: Strategic Initiatives/Actions that require "Enhancement Funding" (3) are to be prioritised as either Low, Medium or High, based on their contribution to achieving the objective

#### Potential New Funding Sources

- \$1.5m JHH and TBH ICU funding
- Retrieval offsets
- Internal HNE Health Budgets
- National Rural and Remote Health Infrastructure Program

#### Benefits, Measures & Targets

Measures	Targets (To Be Confirmed*)
<ul style="list-style-type: none"> <li>• Rural sites with Video Conferencing in Critical Care</li> <li>• Number of avoidable retrievals and % decrease in retrieval costs</li> <li>• Number of mortalities during Critical Care/Inpatient encounters</li> <li>• % reduction in lead time of retrievals and inpatient transfers</li> <li>• % reduction in delivery of inpatient acute and/or sub-acute care away from rural and remote location (e.g. patient home location)</li> <li>• Staff satisfaction survey</li> <li>• Patient satisfaction survey</li> </ul>	<p><i>For targeted sites/ enrolled patients:</i></p> <ul style="list-style-type: none"> <li>• 80% of rural critical care sites covered (Source: Project Team)</li> <li>• 10% reduction in inappropriate retrieval volumes and cost</li> <li>• 10% decrease in mortality rate</li> <li>• 50% reduction in lead time</li> <li>• 30% reduction in sub-acute care away from rural remote location</li> <li>• 80% increase in staff satisfaction in relation to Telehealth supporting Acute / Critical Care</li> <li>• 80% increase in patient satisfaction in relation to Telehealth supporting Acute Care</li> </ul>

\*Please note: targets will be reviewed and established based on detailed service planning, scope of service roll-out and reporting capabilities.

#### Challenges Risks and Key Dependencies

Challenges / Risks	Key Dependencies
<ul style="list-style-type: none"> <li>• <b>Lack of Funding</b> to address clinical and support workforce capacity constraints and IT infrastructure requirements</li> <li>• <b>Shortage of available resources</b> or funding to establish adequate capacity to answer/respond to advice requests in a timely manner with appropriate skills required to provide Telehealth support</li> <li>• <b>Inadequate training for staff</b> providing advice leading to service gaps and patient incidents</li> <li>• <b>Resistance to change</b> leading to reduced adherence to Tele-workload rostering - limiting service capacity, access efficiency and effectiveness</li> <li>• <b>Inappropriate service requests</b> from rural sites leading to increased demand when patient conditions should be managed by local teams - leading to delays in accessing service, increased service costs and inefficient use of clinical time</li> <li>• <b>Resource scheduling and call routing is not managed effectively</b> and leads to increased delays accessing Tele-service and creates more challenges than solutions for staff providing patient care in rural locations</li> <li>• <b>Shortage of Technology infrastructure / funding</b> required for additional resources (e.g. pc's, VC equipment) limits the support coverage and increases the inequity felt at rural and remote sites who can't access service</li> <li>• <b>Rural GPs reducing local service support onsite</b> due to the availability of the Tele-advice service</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Strong ownership and service governance</b> from critical care clinical leader(s) with strong top down support from executive team</li> <li>• <b>Integrated change management</b> approach so all sites are using the service consistently</li> <li>• <b>Integration with Rural Model of Care</b> (under development in HNE Health)</li> </ul>

### Critical Care 90 Day Plan

A detailed view of the proposed Critical Care 90 Day plan has been articulated below.

	Week													
Critical Care 90 Day Plan (est 13 weeks)	1	2	3	4	5	6	7	8	9	10	11	12	13	
<b>1. Confirm service model and high level cost for Tele-Critical Care Service</b>														<b>Owner</b>
Confirm Service Model and Scope w/ Critical Care Leadership & PFU Team														Critical Care Leadership Team
Establish Service Owner(s)														Critical Care Leadership Team
Review Queensland Service to validate / refine assumptions														Tele-Service Owner(s) / PFU
Confirm Phasing For Service Deployment (e.g. Services, Sites)														Tele-Service Owner(s) / PFU
Revise high level costs based on agreed model and revised cost assumptions														Tele-Service Owners
Receive endorsement for detailed operations planning														Critical Care Leadership / Area Executive
<b>2. Conduct detailed operations planning and update business case implications</b>														
Collaborate with QLD tele-service to support detailed planning														Tele-Service Owner(s) / PFU
Conduct detailed Tele-Service planning (inc. PFU procedures, screening, rostering, escalations, etc)														Tele-Service Owner(s) / PFU
Support review of Patient Flow Unit (as required for tele-service integration)														Tele-Service Owner(s) / PFU
Conduct site based deployment planning (e.g. equipment, training, testing)														Tele-IT Support
Align service with HNE Health Rural Model of Care outcomes (as appropriate)														Tele-Service Owners
Revise business case based on detailed planning														Tele-Service Owner / Innovation Support
Confirm Funding & Approval for Deployment														Critical Care / Area Executive
<b>3. Establish Equipment, Identify &amp; Train Resources and Test Service Workflows (people, process &amp; IT)</b>														
Procure & Deploy Telehealth Equipment to PFU & other sites as per agreed rollout plan														Tele-IT Support
Establish PFU call management capabilities to support Tele-critical Care workflow														PFU / IT Support /
Test Equipment														IT Support / Service Owners
Develop Training Materials for staff (both providers of service and requesters)														Tele-Service Owner(s) / PFU
Identify Resources & Conduct Training														Tele-Service Owner(s) / PFU
Establish initial roster for service														Tele-Service Owner(s) / PFU
Test operations - conduct Mock Sessions with sites to test service procedures														Tele-Service Owner(s) / PFU
Refine Service (as required)														Tele-Service Owner(s) / PFU
Go-live (staged ramp up)														Tele-Service Owner(s) / PFU

## 5.2. Tele- Ambulatory Care

HNE Health faces the challenge of providing health care to areas where there are few health care professionals, due to geography and isolation. A Telehealth enabled ambulatory care service is one option to help provide reasonable and adequate access to health care for patients in remote communities.

**"I've got patients who are travelling hundreds of kilometres for what can be a 5 minute consult"**

Staff specialist, Referral Hospital

Due to challenges recruiting specialist clinical resources in regional and rural locations, new methods of delivery are required, otherwise people will continue to travel to access services or may need to leave communities permanently to be closer to care/services. The main aim of adopting Telehealth for ambulatory care is to provide a viable alternative to the 'traditional' face to face mode of delivering specialist clinics, group based care and/or community based care. In many locations across HNE Health there are no permanent local specialist skills and patients and carers and/or staff travel to either Newcastle or Tamworth to attend a specialist clinic or other ambulatory care session. As can be seen below patients and clinicians are travelling extensively in HNE Health.

### Patient Travel Statistics

Of the top 20 clinics with patients travelling out of LGA during March 2010, there were 1135 patients (approx. 9%) travelling greater than 200km for a return journey by car to attend a specialist clinic. 67% of travelled to JHH and 18% to TBH. (see appendix 2)

### Staff Travel Statistics

Of the 23 Outreach clinics identified during March 2010, just under half had clinicians travelling ~200km or more for a return trip. 7 clinics were from JHH and 3 were from TBH. (see appendix 2)

The key benefits targeted by Telehealth Ambulatory care services include:

- Addressing challenges that patients and carers experience accessing specialist services
- Helping improve the efficient use of clinical time to support regional, rural and remote communities
- Supporting/up-skilling rural clinicians for Ambulatory care

**"The best outcome that came out of this project was that we've really helped Kate [the Tamworth Podiatrist] out. Before she had little links to other podiatrists but now she doesn't feel isolated anymore"**

Clinical Lead Podiatry

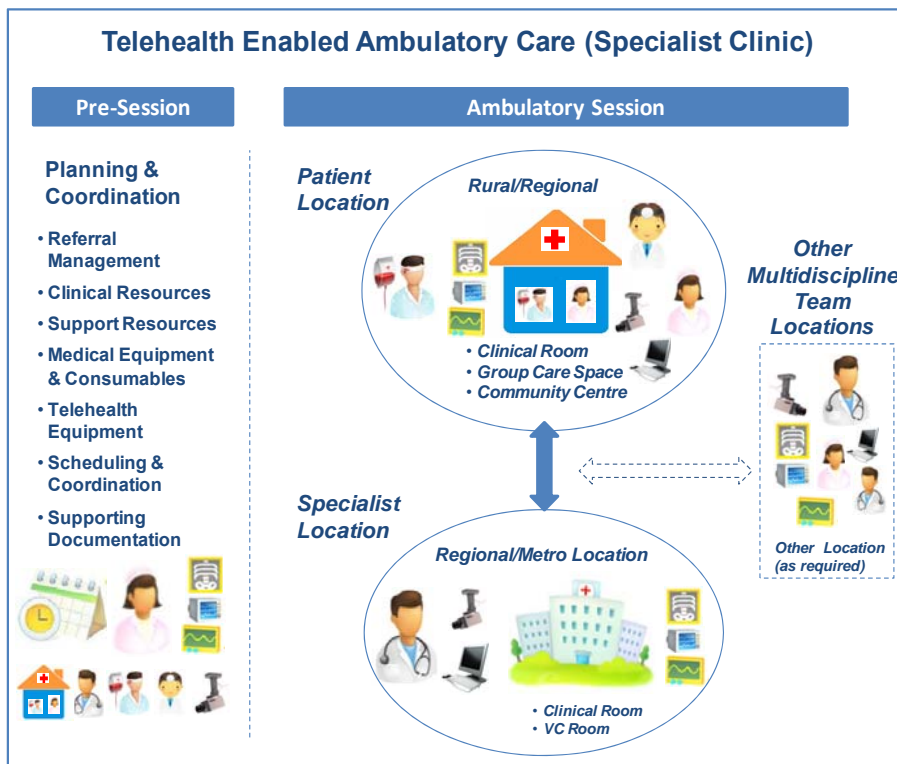
**"The use of Telehealth has resulted in a reduction in clinician and patient travel time However, once every three months clinician will still need to conduct a face to face review"**

GM, Drug and Alcohol Services

Tele-Ambulatory Care: What's different with this strategy...		
	Current State	Future State
<b>1 Access to specialist skills</b>	<b>Limited access to specialist skills in rural locations</b> <ul style="list-style-type: none"> <li>MBS item reimbursements are required for specialists with the right to private practice during Tele-consults (only Telepsychiatry has MBS items available). Clinicians who are solely on a salary do not require MBS items for Tele-consults, but workloads must be addressed</li> <li>Issues with recruiting and retention of skilled staff in rural location</li> <li>High patient travel for face-to-face consults in JHH and TBH</li> </ul>	<b>Increased ability for specialist skills to be accessed</b> <ul style="list-style-type: none"> <li>Intensify lobbying activities, monitoring and planning for MBS items</li> <li>Professional networking via Telehealth to reduce isolation for rural staff</li> <li>Reduce patient travel by increasing Telehealth clinics in areas of high patient travel (e.g. JHH and TBH)</li> </ul>
<b>2 Clinician travel time</b>	<b>Significant specialist time is spent travelling</b> <ul style="list-style-type: none"> <li>Extensive clinician travel for outreach clinics (at least 10 outreach clinics in March 2010 with greater than 200km return travelled required from JHH or TBH)</li> </ul>	<b>Reduction in clinician travel</b> <ul style="list-style-type: none"> <li>Telehealth clinics replace outreach clinics where there is high clinician travel</li> </ul>
<b>3 Impact on clinical workloads</b>	<b>Significant specialist time spent on non-clinical activities</b> <ul style="list-style-type: none"> <li>Clinician time spent on service coordination</li> <li>Clinician time spent on moving between Equipment location and workspace</li> <li>Clinician time spent on planning and business case preparation</li> </ul>	<b>More time for Specialist to focus on clinical workloads</b> <ul style="list-style-type: none"> <li>Extra FTE to provide site/service coordination</li> <li>Equipment located in consult rooms or are mobile</li> <li>Program and change support to provide project management support</li> </ul>

The Scope of this initiative includes Specialist Clinics, Groups Based Care and Community Based Care. As part of detailed service planning for each Tele-ambulatory service the suitability of conducting ambulatory care sessions via Telehealth will need to be validated by clinical service owners (e.g. if the specialist needs to examine the patient in person this cannot be done by VC).

The following diagram provides an illustrative overview of Telehealth enabled ambulatory Care:



It will also be important to acknowledge that some patients may not consent to receiving services via Telehealth and others may be unsuitable due to social, ethnic or other reasons that need to be addressed as part of detailed service planning. Privacy, consent and liability are considered no different than traditional clinical face to face encounters however guidelines need to be provided to clinicians and patients. The clinician at the patient location remains the primary care provider and both locations must complete related clinical documentation.

### Human Resource Implications

MBS item funding for Telehealth consultations is essential for Telehealth adoption if specialists involved to exercise their right to private practice.

The ability for Specialists to be paid session based Medicare funding will be essential for sustaining services. The ability for Mental Health professionals to received MBS funding is a key enabler for ongoing use of Tele-Psychiatry and multidiscipline care planning to help enable chronic disease management programs (e.g. Tele-care planning). For other service areas, short term funding will need to be secured with strategies to help secure ongoing funding from MBS or other state/Health Service sources to provide sustainable remuneration for key staff (e.g. Staff Specialists).

**“What’s a major barrier? Well I need to be able to bill in order to do Telehealth consults.”**

Medical Director/Staff specialist,  
Referral Hospital

Although the human resource implications for Telehealth will depend on the clinical use there are a variety of potential resources and roles that are required to support Telehealth Ambulatory Care session.

The key roles for ambulatory care Telehealth sessions can include:

Location	Resource	Telehealth Session Role
Patient Location	Patient (inc. Families and Carers)	Patient
	Referring Clinician	Primary Care Provider
	Clinical Support	Clinical Support (as required)
	Site Coordinator	Onsite Support and Coordination
Specialist Location(s)	Specialist (inc. Allied Health, Other services)	Specialist Review and Opinion Care Planning / Follow-up
	Service Coordinator	Pre-Session Scheduling and Coordination
	IT Support	IT Helpdesk and Onsite Support

Since Telehealth sessions require nursing and clinical resources at both the patient location and specialist location, clinical resources will need to consider workloads and skills required to effectively manage the patient interaction. This will require detailed review by each clinical group as part of service planning to help address capacity and clinical skill requirements prior to service introduction. Options include:

- **Site Based nursing or other clinical support (e.g. site specific resource)** for multiple clinical users of Telehealth for patients at that site. This option is suited for sites with lower volumes of usage and staff capable of supporting various clinical needs.
- **Service based nursing or other clinical support (e.g. service specific resource)** for sites with high volume of individual Tele-sessions and/or specialist skills for conducting patient interaction

The ability to establish service and site coordinators will be important factors in helping to sustain Telehealth as a viable and supported option for clinical care delivery. The ability to expand the current clinical support capacity will need to consider workload implications and funding support. Key options include:

- Existing Clinical Service Resource(s) take on the role of Service Coordinator for Telehealth Appointment Scheduling and Clinical Coordination for each individual service
- Site Based Telehealth Coordinators are established in high patient volume sites to support Telehealth User Training, Equipment Scheduling, IT Helpdesk
- A Central Support Team provides call centre helpdesk based support remotely and overall Telehealth Service Planning and Adoption support.

### **Medical Equipment**

In many cases, additional medical equipment may be required at the patient site to support the Telehealth based patient assessment, real time information exchange (e.g. otoscope, dermatoscope, stethoscope and ophthalmoscope) or basic treatment (e.g. medical consumables). Key medical equipment implications include:

Location	Medical Equipment Needs
Patient Location	<ul style="list-style-type: none"> <li>• Medical scope based on clinical need</li> <li>• Medical Consumables and/or other service specific medical needed in patient location</li> </ul>
Specialist Location(s)	<ul style="list-style-type: none"> <li>• N/A - as per existing service medical equipment</li> </ul>

### **Technology**

Clinical Specialists need to be able to conduct ambulatory Tele-session from their clinic rooms or other appropriate patient consultation area.

The VC screen requirements for each Tele-ambulatory service will need to be articulated based on clinical service and user needs (e.g. image size, quality, information systems, etc). It is highly likely that clinicians will require at least two screens or a large widescreen to ensure access to patient and diagnostics simultaneously. The technology implications may also create additional needs for larger desks and/or larger clinical rooms at both patient and specialist locations. Technology implications will need to be addressed as part of detailed service planning.

There are demands for Mobile Telehealth capabilities (e.g. laptop videoconferencing) so clinicians have the option to provide services in non-healthcare community based facilities or remote locations without the need for patient (or specialist) travel.

Where there is a need to view the patient via videoconferencing applications and also view other patient information via clinical information systems there will be a need to enable multi-screen viewing of these systems. This may be enabled through multiple screens as part of the desktop VC system or through screen in screen capabilities for clinical users enabled with laptop or other single screen computer systems.

As part of Tele-Health sessions Clinical users may need access to real time diagnostics, PACS system and/or other clinical information systems required to support Telehealth consultations (e.g. Patient History, Diagnostic Results, and Radiology Images). Some disciplines require good image quality so clinicians can observe the non-verbal aspects of patient communication (e.g. Mental Health).

The key technology requirements for enabling highly effective ambulatory care Telehealth sessions include:

Location	Core Telehealth Technology	Other Enabling Technologies
Patient Location	<ul style="list-style-type: none"> <li>• Telehealth Scheduling System(s)</li> <li>• Telehealth VC System</li> </ul>	<ul style="list-style-type: none"> <li>• eReferrals Systems</li> <li>• Clinical Information Systems</li> <li>• PACS or digital camera</li> <li>• Computer / Email</li> <li>• High Speed Network</li> </ul>

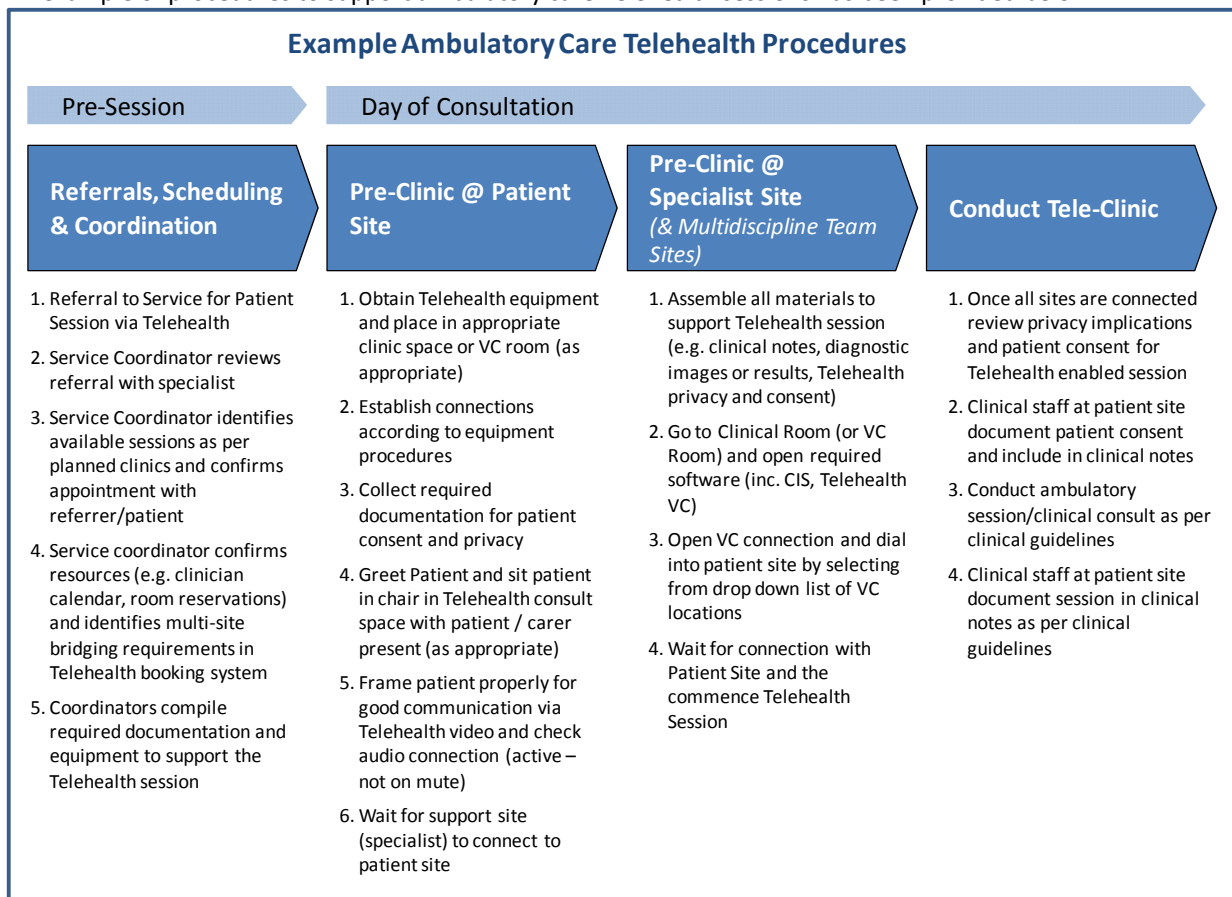
Specialist Location(s)	<ul style="list-style-type: none"> <li>• Telehealth Scheduling System(s)</li> <li>• Telehealth VC System (with multiple screens)</li> </ul>	<ul style="list-style-type: none"> <li>• eReferrals Systems</li> <li>• Clinical Information Systems</li> <li>• PACS</li> <li>• Computer / Email</li> <li>• High Speed Network</li> </ul>
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Technology Implications for Ambulatory care videoconferencing systems will depend on service locations and may include:

- **Expanding HNE Health Facility Clinical Rooms VC workstation** or mobile Laptop VC on HNE Health network based on prioritised clinical pilots (and funding)
- **Enabling Staff with HNE Health Laptop VC Capability**, internet protocol and wireless internet connection
- **Enabling GP Clinic videoconferencing** based on Internet Protocol and standards based VC equipment and internet connection
- **Enabling Community Centre videoconferencing** based on Internet Protocol and standards based VC equipment

**Procedure Implications**

An example of procedures to support ambulatory care Telehealth sessions has been provided below.





**Priority Areas**

	Current State	Future State	Target Benefits
<b>Ambulatory Care</b>	<p><b>Existing Services:</b></p> <ul style="list-style-type: none"> <li>❖ Mental Health</li> <li>❖ Podiatry</li> <li>❖ Drug and Alcohol</li> <li>❖ Palliative Care</li> <li>❖ Hunter Genetics</li> </ul>	<p><b>Existing Services:</b> <i>Focus on evaluation, addressing adoption barriers and enhancing capacity.</i></p> <p><b>New Services:</b> <i>Focus on adoption support, funding and change management.</i></p> <p><b>High Priority Areas</b></p> <ul style="list-style-type: none"> <li>• McIntyre Cluster Multi-disciplinary Chronic Diseases Clinic</li> <li>• Women's Health Clinics</li> <li>• Diabetes Clinics</li> <li>• Stroke Rehab Clinics</li> <li>• Aged Care Clinics</li> <li>• Pre-Post Surgical Clinics</li> </ul> <p><b>Other Opportunity Areas</b></p> <ul style="list-style-type: none"> <li>• Aboriginal Health Screening</li> <li>• Clinical Oncology Pharmacy Services</li> <li>• Dementia care management</li> <li>• Rehabilitation clinics</li> <li>• Allied Health Clinics</li> <li>• Paediatrics</li> </ul>	<ul style="list-style-type: none"> <li>✓ Improved patient and carer access to ambulatory health services via Telehealth</li> <li>✓ Reduced unnecessary travel time and cost for patients/carers and clinical staff</li> <li>✓ Improved patient and carer involvement in care planning</li> <li>✓ Improved ability for rural practitioners to access specialist health services</li> <li>✓ Improved ability to conduct multidisciplinary patient care planning when healthcare professionals are in various locations</li> <li>✓ Improved ability to conduct screening and health promotion within remote communities</li> <li>✓ Increased viability of providing services locally in rural and remote communities</li> </ul>

**Action Plan and Funding Opportunities**

Strategic Initiatives	Responsibility	Timeframe	◆ Funding 1,2,3	▣ Priority L,M,H
1. <b>Facilitate clinical stream reviews of models of care</b> to help identify opportunities to adopt Telehealth as a viable option to support care delivery	<ul style="list-style-type: none"> <li>• <b>Clinical Stream Leadership</b></li> </ul>	Annually	1	H
2. <b>Support current clinical Telehealth ambulatory services</b> to enhance service models, adopt standard clinical Telehealth usage guidelines, address resource implications and technology challenges.	<ul style="list-style-type: none"> <li>• <b>Clinical Leadership</b></li> <li>• <b>Tele-Service Clinical Champion</b></li> </ul>	2010	2/3	H
3. <b>Conduct viability assessment, service planning and business case for all services.</b> Clinical service owners to work with Telehealth support and HNE Health leadership to identify opportunities to secure funding for ongoing model of care development and trials for key specialist clinics via Telehealth.	<ul style="list-style-type: none"> <li>• <b>Tele-Service Clinical Champion</b></li> </ul>	2010	1	H
4. <b>Pursue funding for ongoing model of care development</b> in alignment with national / state priorities and conduct pilots for related ambulatory services via Telehealth	<ul style="list-style-type: none"> <li>• <b>HNE Health Leadership</b></li> <li>• <b>Clinical Leadership</b></li> </ul>	2010	1	H
5. <b>Establish partnership with Department of Health and Aging (and Medicare)</b> to help support ongoing refinement of MBS funding items required for key resource remunerations and sustainable delivery of Telehealth services	<ul style="list-style-type: none"> <li>• <b>HNE Health Executive</b></li> <li>• <b>Clinical Leadership</b></li> <li>• <b>Telehealth Support Team</b></li> </ul>	2010	1	M
6. <b>Expand Telehealth enabled services</b> for people identified as having significant challenges accessing	<ul style="list-style-type: none"> <li>• <b>Clinical Leadership</b></li> </ul>	2011	2/3	H

<p>Ambulatory Services and/or significant burden of travel to attend sessions.</p> <ul style="list-style-type: none"> <li>• Stage 1 – Scope Telehealth inclusion in Model of Care</li> <li>• Stage 2 – Pilot / Implement Telehealth Service</li> </ul> <p>Pilot 3-5 new services initially. With ongoing rollouts based on cost/benefit and funding implications.</p>	<ul style="list-style-type: none"> <li>• <b>Tele-Service Clinical Champion</b></li> </ul>			
<p><b>7. Evaluate Telehealth programs and incorporate learning into ongoing rollout plans</b></p>	<ul style="list-style-type: none"> <li>• <b>Clinical Leadership</b></li> <li>• <b>Tele-Service Clinical Champion</b></li> </ul>	<p>2011 (annually)</p>	<p>1</p>	<p>M</p>

◆ Funding Key: 1. Initiative/Action to be implemented without funding 2. Initiative/Action to be implemented with funding from existing resources 3. Enhancement funding required

☒ Priority Key: Strategic Initiatives/Actions that require "Enhancement Funding" (3) are to be prioritised as either Low, Medium or High, based on their contribution to achieving the objective

<b>Potential Funding Sources</b>
<p>Funding will need to be considered on a service by service basis (as per adoption planning toolkit and business case implications). In some cases services may be able to enable Telehealth delivery within current budgets (e.g. salary staff, workload offsets and travel savings) while other services will need to address session based remunerations (e.g. staff specialist, MBS items). A number of potential funding sources have been identified and will need to be further engaged as part of addressing Tele-ambulatory care funding implications and service roll-out requirements:</p> <ul style="list-style-type: none"> <li>• Medicare MBS Items <ul style="list-style-type: none"> <li>○ Medical Specialist Outreach Assistance Program (MSOAP) redirected to MBS re-imburement</li> <li>○ Commence MSAC Application Process</li> </ul> </li> <li>• State and Federal government priority strategic area funding, including: <ul style="list-style-type: none"> <li>○ Mental health</li> <li>○ Rural and remote</li> <li>○ Aged Care</li> <li>○ Paediatrics</li> <li>○ Cancer Services</li> <li>○ Chronic Care Programs</li> <li>○ Others – based on clinical groups/patient needs</li> </ul> </li> <li>• Staff Travel and Accommodation offsets</li> <li>• Internal HNE Health Budget Shifting</li> <li>• Direct Fee for Service: <ul style="list-style-type: none"> <li>○ Other Govt. Services</li> <li>○ Other Area Health Services</li> <li>○ Corrections Facilities</li> <li>○ Patients (travel cost offset)</li> </ul> </li> <li>• National Rural and Remote Health Infrastructure Program</li> <li>• Rural Pharmacy Workforce Development Program</li> </ul>

### **Benefits, Measures & Targets**

<b>Target Benefits</b>	<b>Measures</b>	<b>Targets (To Be Confirmed*)</b>
<ul style="list-style-type: none"> <li>• Improved patient and carer access to ambulatory health services, including specialist care, group care and community based services via Telehealth</li> <li>• Improved patient and carer involvement in care planning</li> <li>• Improved ability for rural practitioners to access specialist health services</li> <li>• Improved ability to conduct multidisciplinary patient care planning when healthcare professionals are in various locations</li> <li>• Improved ability to conduct screening and health promotion within remote communities</li> <li>• Reduced unnecessary travel time and cost for patients/carers and clinical staff</li> </ul>	<ul style="list-style-type: none"> <li>• Patient Travel (KMs) for ambulatory care sessions</li> <li>• Volume of target patients attending ambulatory services</li> <li>• Volume of target patients attending Telehealth sessions</li> <li>• Volume of patients attending emergency department for target conditions supported via Ambulatory Care Telehealth</li> <li>• Clinical Staff Travel Time</li> <li>• Clinical Staff Travel Cost</li> </ul>	<p><i>For Target patient attending clinics:</i></p> <ul style="list-style-type: none"> <li>• Reduce by 40% for target patients</li> <li>• Increase by 10% overall</li> <li>• 60% of target patients</li> <li>• Reduce by 50% for target conditions</li> </ul> <p><i>For staff:</i></p> <ul style="list-style-type: none"> <li>• Reduced by 15%</li> <li>• Reduced by 15%</li> </ul>

\*Please note: targets will be reviewed and established based on detailed service planning, scope of service roll-out and reporting capabilities.

**Challenges Risks and Key Dependencies**

Risks	Key Dependencies
<ul style="list-style-type: none"> <li>• Clinical workload implications are not addressed and staff do not effectively adopt service</li> <li>• Clinical Staff Training for new procedures / roles / use of technology is inadequate and prevents service sustainability</li> <li>• Telehealth equipment is not located close to clinicians work areas and creates barrier for clinician adoption due to challenges managing Telehealth vs. non-Telehealth workloads</li> <li>• Integrated Scheduling Processes between staff and patients for sessions is complicated and leads to inefficiencies in planning and coordination</li> <li>• Privacy and Medical liability is not effectively managed and leads to increased patient complaints due to perception issues</li> <li>• Clinical resource funding implications are fully addressed and leads to pilot programs not being sustained once funding runs out</li> </ul>	<ul style="list-style-type: none"> <li>• Tele-service assessment and business case template</li> <li>• Change Management Support</li> <li>• Telehealth Equipment Footprint and User Training</li> <li>• Clinical Support Resources</li> <li>• Integrated Service Scheduling and Coordination Tools (inc. resources, patients, locations, technology)</li> <li>• User Guidelines including clinical specific procedures (model of care), privacy, medical liability</li> <li>• Resource funding for specialists receiving session based remuneration (e.g. MBS)</li> </ul>

### 5.3. Tele- Home Care

Home based care is the management patients in a home setting. A current focus of home based care is for older patients or patients with a chronic disease. Home based care will become increasingly important in the near future as the number of aged and chronic patients in HNE Health and NSW increase. A key challenge for HNE Health is how to best support this population group - especially when providing care for patients in remote and isolated locations. More than half of this burden is attributable to chronic disease areas including diabetes, cardiovascular disease, chronic obstructive pulmonary disease, musculoskeletal conditions and dementia.

Less expensive non-acute alternatives provide viable and often safer alternatives for many aged/chronic care patients. The use of Telehealth to support home based care is one example of how patients can improve access to health support for their conditions and provide higher patient satisfaction through improved patient self management.

Home based care enabled though Telehealth can improve support for patients (and carers) in managing their own health from home or residential care facility. It offers new abilities to provide increased support frequency, education and monitoring remotely and can be used as an alternative to conventional hospital outpatient visits. Integrated disease management programs can be enabled as a complementary means of maintaining patients in their own community and coordinating care delivery with GPs. The VC component of home based monitoring also has positive benefits in terms of social contact for patients.

**“Telehealth can be used to get GPs and Specialists connected to older people in their homes. Soon there will be 2 million older women living by themselves in Australia “**  
Clinical Lead, Aged Care stream

Telehealth can help bring enormous potential to enhance the delivery of home health care, thereby decreasing the "economic burden of illness" by:

- Reducing unnecessary visits to emergency rooms
- Reducing unscheduled visits to physicians' offices
- Providing early intervention or prevention of repeat hospitalization

Generally Home based care consists of three components:

- **Residential Based Care:** Telehealth can help provide patient improved access to care support for treatment by residential agedcare facility or home based carer. This may also be used to enhance triaging between Emergency departments and the Residential Aged Care Facility and making the patient transfer process more efficient.
- **Health coaching:** Telehealth will enable more frequent and regular health coaching sessions with rural and remote patients. Health coaching is a means to guide a patient to discover and address their own ability to manage their health condition. Programs usually involve health condition education, goal setting, health management coaching, monitoring and review. The key benefit is related to teaching the patient how to manage early symptoms, thus avoiding the development of an acute condition
- **Home monitoring:** Home monitoring via Telehealth includes the collection of physiological data regularly from monitoring devices. This can be effectively used as part of coaching programs (or other need) to help provide increased support and effective identification of patient deterioration. Notifications can be automated and sent directly to patients via mobile phone to help identify risk and take action (e.g. diabetes management). Gathering information on vital signs' data fluctuations within a 24-hour period, an important component of differential diagnosis and early prevention. Telehealth supported home monitoring has the potential to improve the management of chronic illnesses and decrease preventable hospitalizations and associated costs.

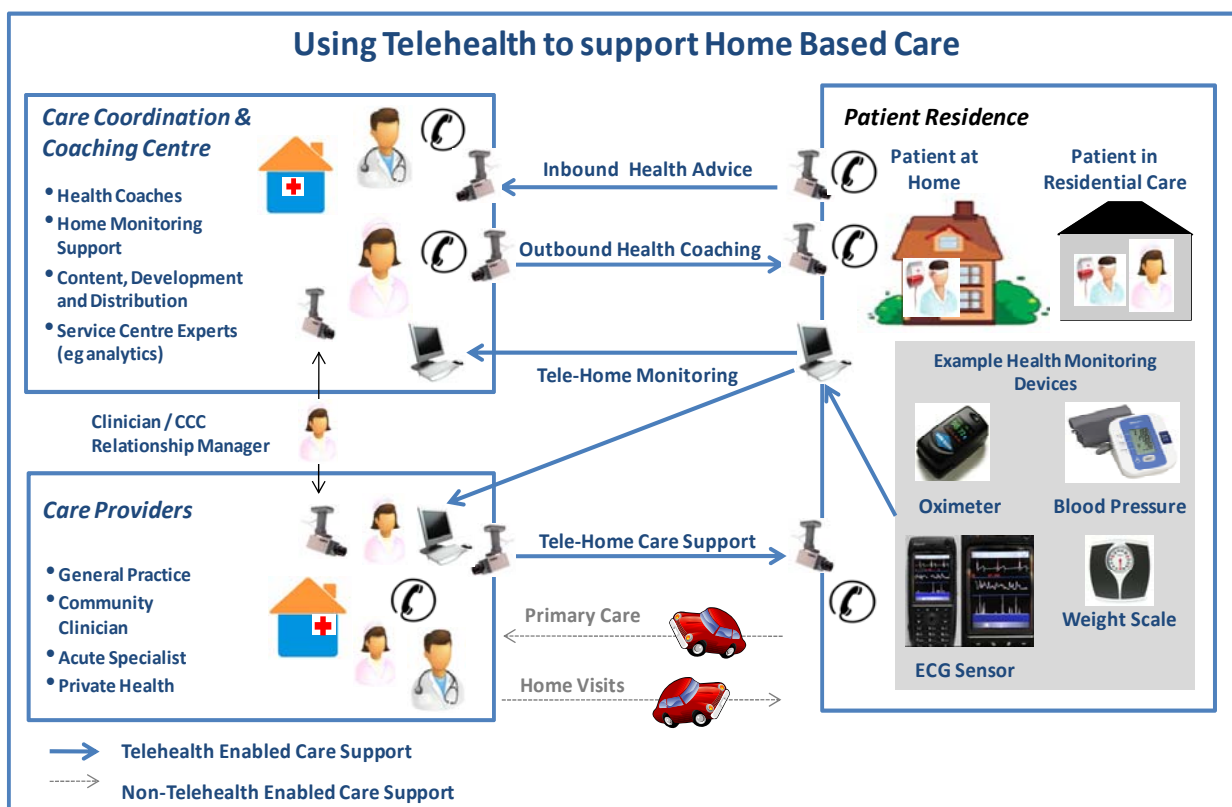
As identified by NSW Health, the Severe Chronic Disease Management Program's mission is to deliver:

- More effective health management for elderly patients over 65 years and Aboriginal patients over 45 years with chronic diseases covered by the program at very high risk or high risk of unplanned hospital or Emergency Department presentation.
- The program's targets to enrol 43,000 patients over the next 4 years to present a new model of joined and shared care across New South Wales. This program will deliver integrated, patient focussed, whole person approach when addressing patient clinical and non clinical functional deficits.' (source: NSW Health)

Telehealth capabilities are a key enabler for improved capabilities to support patients with chronic disease and are an important part of HNE Health adoption of new strategies as part of the NSW Severe Chronic Disease Management Program. It provides a means to educate, monitor and review patients at a distance which is beneficial for patients falling into a chronic group or requiring ongoing rehabilitation support / review. In many cases these patients are elderly and/or frail and whose condition will likely deteriorate if extensive and frequent travel is required. Home Telehealth can be used to gather patient biometric data, provide patients access to this and improve self management reducing the need for in person home visits and ultimately the cost of homecare.

HNE Health Tele-Home Based services will be developed as part of new models of care (e.g. Chronic Disease Management, Hospital in Home) or other evolving support arrangements for home based care providers (e.g. residential care facility support). HNE Health has plans to roll out the Severe Chronic Disease Management (SCDM) program in the near future. The initial rollout will be targeted at the Hunter region during 2011.

The following diagram illustrates the potential role of Telehealth in home based care which is to provide links between the patient and the RIC, but also to provide links between the patient and the Care providers (including general practice).



Integration with General Practice (as primary care provider) is integral in the development of care plans and ongoing roles in coaching and monitoring of patients at home or residential care settings. Who bears the resource implications and cost of the service needs to be clearly defined for each service (e.g. In Home care (in-reach), remote coaching, remote Tele-monitoring). There are implications for clinical networks, general practice as well as nursing support services (e.g. CNC role)

Interviews with several members of the HNE Health Aged Care Network indicated that future priorities for Telehealth in Aged care were:

- To assist Chronic Disease Management
- To set up a 'hub and spoke' care delivery model for rehabilitation, Traumatic Brain Injury and Brain Injury
- To assist in Residential Aged Care Facility to ED triaging and transitions
- Increased usage of mobile video conferencing devices (e.g. laptop on a trolley)
- Increased access to specialists for patients with dementia
- To offer outreach programs by CNC Nurse practitioners and allied health professionals
- As home monitoring devices to support high risk chronic patients
- For Grief and loss social work support

### **Human Resource Implications**

Resource implication will need to be addressed for home monitoring. Currently HNE Health does not have the resources to continuously monitor the outputs of home monitoring devices. Although it is not expected that real time constant monitoring will initially be in place, it needs to be further considered as part of the SCDM rollout and patient needs.

Although the Human resource implications for Telehealth will depend on the clinical use there are a variety of potential resources and roles that are required to support Telehealth Home Based Care sessions.

The key roles for home based care Telehealth can include:

Location	Resource	Telehealth Session Role
Patient Location (Home or Residential Care Facility)	<b>Patient (in Family)</b>	<b>Patient (Family)</b>
	Home Based Carer (as appropriate)	Home Care Provider
	Home Visit Clinician (as appropriate)	Primary Care Provider
Tele-Home Care Support Resources	<b>General Practitioner (as required)</b>	<b>Primary Care Provider</b>
	<b>Health Coaches (e.g. Nurse)</b>	<b>Health Coaching and Monitoring Care Coordination Support</b>
	IT Support	IT Helpdesk and Onsite Support

The specific roles of care providers and integration between services will need to be developed based on disease management and other related models of care within HNE Health and across NSW

### **Medical Equipment**

Tele-homecare requires patients to have the appropriate medical devices to monitor and manage their own health conditions and report the finding to remote monitoring and coaching support teams. This could be enabled using traditional weight scales (or other devices), but increasing integration of health monitoring devices with IT systems and communications technology (e.g. mobile phone or Internet) can create improved quality of medical information and timeliness of alerts based on biometric information.

Key medical equipment implications include:

Location	Medical Equipment Needs
Patient Location (Home or Residential Care Facility)	<ul style="list-style-type: none"> <li>• Health Monitoring Devices (e.g. scales, oximeter, ECG, blood pressure, etc)</li> </ul>

Home visiting clinicians may be able to bring medical devices to patients but this is not considered an ideal situation for ongoing patient self care management.

### **Technology**

The key technology requirements for enabling highly effective home-based Telehealth include:

Location	Core Telehealth Technology	Other Enabling Technologies
Patient Location (Home or Residential Care Facility)	<ul style="list-style-type: none"> <li>Standards based Telehealth VC System</li> <li>Health monitoring tracking system (e.g. with automated alerts to patient and remote support)</li> </ul>	<ul style="list-style-type: none"> <li>Computer / Email and/or               <ul style="list-style-type: none"> <li>Mobile Phone (smart phone)</li> </ul> </li> <li>High Speed Network</li> <li>Digital camera</li> </ul>
Tele-Home Care Support Resources	<ul style="list-style-type: none"> <li>Telehealth Scheduling System(s)</li> <li>Telehealth VC System</li> <li>Health Coaching and Monitoring Systems</li> </ul>	<ul style="list-style-type: none"> <li>eReferral Systems</li> <li>Clinical Information Systems</li> <li>Computer / Email</li> <li>High Speed Network</li> </ul>

The provision of home monitoring support and Tele-coaching will require new hardware and systems that enable devices to be integrated with health provider coaching systems (inc. monitoring) and videoconferencing systems.

Home based Tele-health monitoring devices and coaching support services are expected to be procured as part of the NSW Health Severe Chronic Disease Management (SCDM) program panel arrangements and available funding. There is further planning and coordination required with NSW Health. Resource implications for remote monitoring of home based devices will need to be addressed as part of clinical support models (e.g. central monitoring centre or capacity within regionalised services).

Home monitoring devices are evolving rapidly to support home based chronic disease management and there is increasing evidence of mobile phone based applications (e.g. smart phone medical application) being used by patients to help self monitoring and management of conditions (e.g. Diabetes, COPD). Depending on the application, automated care advice may be provided direct to the patient and health organisations may be sent 'warning' messages if patients self monitoring device indicate that there is risk of an acute episode (or rising acuity level).

Standards based VC equipment and applications will be required to connect with HNE Health network and VC systems. For VC based health coaching services the quality of picture and sound must be of an adequate quality to accommodate for the chronic and aged patients who often have hearing problems, visual impairments and in some instances dementia. High speed broadband or other high speed network connection is required in order to ensure this is available for people in their homes (e.g. health coaching, rehabilitation support).

Ongoing network capacity and gateway implications for connecting home based Telehealth devices and VC coaching sessions will need to be effectively planned to ensure quality of service and overall network capacity. Considerations for Home based Tele-care support might include using a central hub based service model and/or separate IT networks (e.g. private, cloud based) to effectively quarantine network infrastructure capacity and quality of service for Home Based Tele-health IT. This may also provide alternative options/consideration to the current standards based VC requirements and equipment that may be used for delivering home based Tele-coaching. Feasibility and cost implications will need to be further planned with HNE Health IT department as part of overall IT planning and adoption of Chronic Care programs.

Costs of equipment maintenance and upgrades will need to be incorporated as part of service planning to help sustain new infrastructure. Additionally, the network capacity and IT support requirements are expected to increase based on increasing number of Telehealth users located in clinical rooms and using mobile VC devices.

### Priority Areas

	Current State	Future State	Target Benefits
<b>Home Based Care</b>	<p><b>Existing Services (very limited use):</b></p> <ul style="list-style-type: none"> <li>❖ Hospital in the Home (home visits)</li> </ul>	<p><b>New Services:</b> <i>Focus on adoption support, funding, pilot projects and change management.</i></p> <p><b>High Priority Areas</b></p> <ul style="list-style-type: none"> <li>• Chronic Disease Management (monitoring/coaching/home visits)</li> <li>• Residential Aged Care Facility Support Arrangements</li> </ul> <p><b>Other Opportunity Areas</b></p> <ul style="list-style-type: none"> <li>• Healthy at Home</li> <li>• Rehabilitation in the Home</li> <li>• Social Work</li> </ul>	<ul style="list-style-type: none"> <li>✓ Better access to services and improved support for patients (and carers) at home or residential care location for self-management of symptoms (e.g. chronic or rehabilitation)</li> <li>✓ Increased contact between patients (and carers) and local health services for involvement in care planning</li> <li>✓ Limiting unnecessary referrals to help reduce patient travel and improve patient experience (inc. home visits and ambulatory clinics)</li> <li>✓ Reduced complications and exacerbations leading to patient hospitalisation and length of stay</li> <li>✓ Extended system capacity and better use of available home care resources;</li> <li>✓ Improved adherence to drug regimens.</li> <li>✓ Extended geographic reach of the health system</li> </ul>

### Action Plan and Funding Opportunities

Action Plan	Responsibility	Timeframe	◆ Funding 1,2,3	▣ Priority L,M,H
1. Pursue NSW Health funding to support pilot/rollout of SCDM models of care that incorporate Telehealth enablers for related home based service via Telehealth (inc. people, process, technology cost implications)	<ul style="list-style-type: none"> <li>• Clinical Leadership</li> <li>• HNE Health Executive</li> </ul>	2010 (ongoing)	1	H
2. Support NSW SCDM and HNE Health model of care development specifically related to enabling Telehealth requirements for chronic disease management (e.g. target disease groups)	<ul style="list-style-type: none"> <li>• HNE Health CDM Program Leadership</li> </ul>	2010 (ongoing)	2	H
3. Conduct viability assessment, service planning and business case for all home based care Telehealth services. Clinical service owners to work with Telehealth support and HNE Health leadership to identify program requirements and implementation timing	<ul style="list-style-type: none"> <li>• HNE Health CDM Program Leadership</li> </ul>	2010 (ongoing)	2	M
4. Using Telehealth to offer outreach programs (e.g. health coaching) by CNC Nurse practitioners and allied health professionals for patients enrolled in home care programs or requiring short term support to help manage conditions / rehabilitation from home or residential care setting. Incorporate carers into outreach support where appropriate.	<ul style="list-style-type: none"> <li>• HNE Health CDM Program</li> <li>• Aged Care</li> <li>• Other Services (as appropriate)</li> </ul>	2011 (ongoing)	2	H
5. Increase Telehealth based support for Residential Care Facilities to assist care management/planning, coordinate patient transfers (to acute settings) and assist advance care support (where appropriate)	<ul style="list-style-type: none"> <li>• HNE Health CDM Program</li> <li>• Aged Care</li> <li>• Other Services (as</li> </ul>	2010/2011 (ongoing)	2/3	H



Establish support arrangements and address use of mobile video conferencing devices (e.g. laptop on a trolley) to support patients and carers in residential aged care facilities.	<b>appropriate)</b>			
<b>6. Start using home monitoring devices</b> to support chronic care patients for target disease groups (in coordination with primary partnerships, integrated support arrangements and care management protocols). Initial focus may include Diabetes and/or COPD.	<ul style="list-style-type: none"> <li>• <b>HNE Health CDM Program</b></li> <li>• <b>Aged Care</b></li> <li>• <b>Other Services (as appropriate)</b></li> </ul>	2011 (ongoing)	3	M

♦ Funding Key: 1. Initiative/Action to be implemented without funding 2. Initiative/Action to be implemented with funding from existing resources 3. Enhancement funding required

☒ Priority Key: Strategic Initiatives/Actions that require "Enhancement Funding" (3) are to be prioritised as either Low, Medium or High, based on their contribution to achieving the objective

Potential Funding Sources	
<ul style="list-style-type: none"> <li>• NSW Severe Chronic Disease Management Program (SCDM)</li> <li>• MBS Re-imburements (see ambulatory care funding sources section)</li> <li>• Other State and Federal government Aged Care Funding</li> </ul>	<ul style="list-style-type: none"> <li>• Internal HNE Health Budgets</li> <li>• Private partnerships for device provision (e.g. patient monitoring devices bundled as part of public networks call charges)</li> <li>• Rural Pharmacy Workforce Development Program</li> </ul>

### Benefits, Measures & Targets

Target Benefits	Measures	Targets (To Be Confirmed*)
<ul style="list-style-type: none"> <li>• Better access to services and improved support for patients (and carers) at home or residential care location for self-management of symptoms (e.g. chronic or rehabilitation)</li> <li>• Increased contact between patients (and carers) and local health services for involvement in care planning</li> <li>• Limiting unnecessary referrals to help reduce patient travel and improve patient experience (inc. home visits and ambulatory clinics)</li> <li>• Reduced complications and exacerbations leading to patient hospitalisation and length of stay</li> <li>• Extended system capacity and better use of available home care resources;</li> <li>• Improved adherence to drug regimens.</li> <li>• Extended geographic reach of the health system</li> </ul>	For Enrolled patients: <ul style="list-style-type: none"> <li>• ED visits;</li> <li>• Hospitalizations;</li> <li>• Length of Stay.</li> <li>• Home Care Visits</li> <li>• Primary Care Physician Visits</li> <li>• Specialist Physician Visits</li> <li>• Ambulatory Clinic Visits</li> </ul>	For Enrolled patients: <ul style="list-style-type: none"> <li>• Reduce by 2%</li> <li>• Reduced by 40%</li> <li>• Reduced by 5%</li> <li>• Reduced by 20%</li> <li>• Reduced by 1%</li> <li>• Reduced by 1%</li> <li>• Reduced by 2%</li> </ul> <p><i>(Based on 75% of Canada Infoway Evaluation Benefits Realisation)</i></p>

\*Please note: targets will be reviewed and established based on detailed service planning, scope of service roll-out and reporting capabilities.

### Challenges Risks and Key Dependencies

Key Risks	Key Dependencies
<ul style="list-style-type: none"> <li>• Infrastructure and network capacity in not sufficient for high volumes of home based Telehealth sessions are degrades the service effectiveness and overall speed of HNE Health IT networks</li> <li>• Resources and local partnerships are not in place to support continuity of care and/or address responses required from home monitoring information</li> <li>• Resource capacity planning and patient enrolment volumes not managed based on workload implications</li> </ul>	<ul style="list-style-type: none"> <li>• Funding for Telehealth equipment and IT required to enable home/residential Telehealth Services, including:               <ul style="list-style-type: none"> <li>○ Monitoring devices,</li> <li>○ VC devices (home/mobile)</li> <li>○ Network/gateway capacity</li> <li>○ Coaching systems and integration with CIS</li> <li>○ Maintenance and replacement</li> <li>○ Technical support</li> </ul> </li> </ul>

<p>and leads to staff being overworked and patients under serviced by coaching and monitoring services via Telehealth</p> <ul style="list-style-type: none"> <li>• Patient identification leads to inappropriate patients being identified and enrolled in service and leads to increased costs and reduced patient benefits from the service</li> <li>• Clinical resource funding implications are fully addressed and leads to pilot programs not being sustained once funding runs out</li> <li>• Home based patient Technology (e.g. VC applications, monitoring devices) do not meet HNE Health VC Standards</li> </ul>	<ul style="list-style-type: none"> <li>• Primary care partnerships to support clinical pilots, continuity of care and service integration with HNE Health. GP remuneration based on MBS items for GP Care Planning (multidiscipline).</li> <li>• User Guidelines including clinical specific procedures (model of care), roles and responsibilities, privacy, medical liability</li> <li>• Clinical Support Resources for Home Care Services</li> <li>• Change Management Support</li> </ul>
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## 5.4. Tele-Clinical Workforce Support

HNE Health experiences challenges recruiting, educating, training and sustaining integrated clinical workforce due to the volume of rural and remote locations and large geographic size. These factors contribute to additional challenges in recruiting staff in rural and remote locations due to the relative high levels of isolation that clinical staff experience in comparison to tertiary referral facilities or more urban areas.

Additionally, the geographic size of Hunter New England Health service creates challenges for HNE Health to sustain the appropriate level of support for staff outside of locations where the majority of specialist, medical, senior nursing and/or multi-disciplinary teams are located. Overall, the majority of the clinical workforce is located in the Newcastle Area and some key regional centres including Tamworth, Armidale, Taree, and Maitland. This contributes to clinical staff needing to travel long distances for, in some cases, clinical support or case reviews that could otherwise be done using Telehealth (e.g. Videoconferencing with clinical information sharing).

Clinical Education and Workforce support is important because it ensures that clinician's are receiving appropriate education and training and feel supported when they make clinical decisions. It also provides them with a means to learn how others have handled situations that they might encounter in the future. As rural and remote clinicians are spread out geographically throughout HNE Health, Telehealth is an enabling technology that can assist their involvement in educational activities.

**“The training available via Telehealth and the ability to connect to your peers makes me feel less isolated**  
Physiotherapist, Rural health service

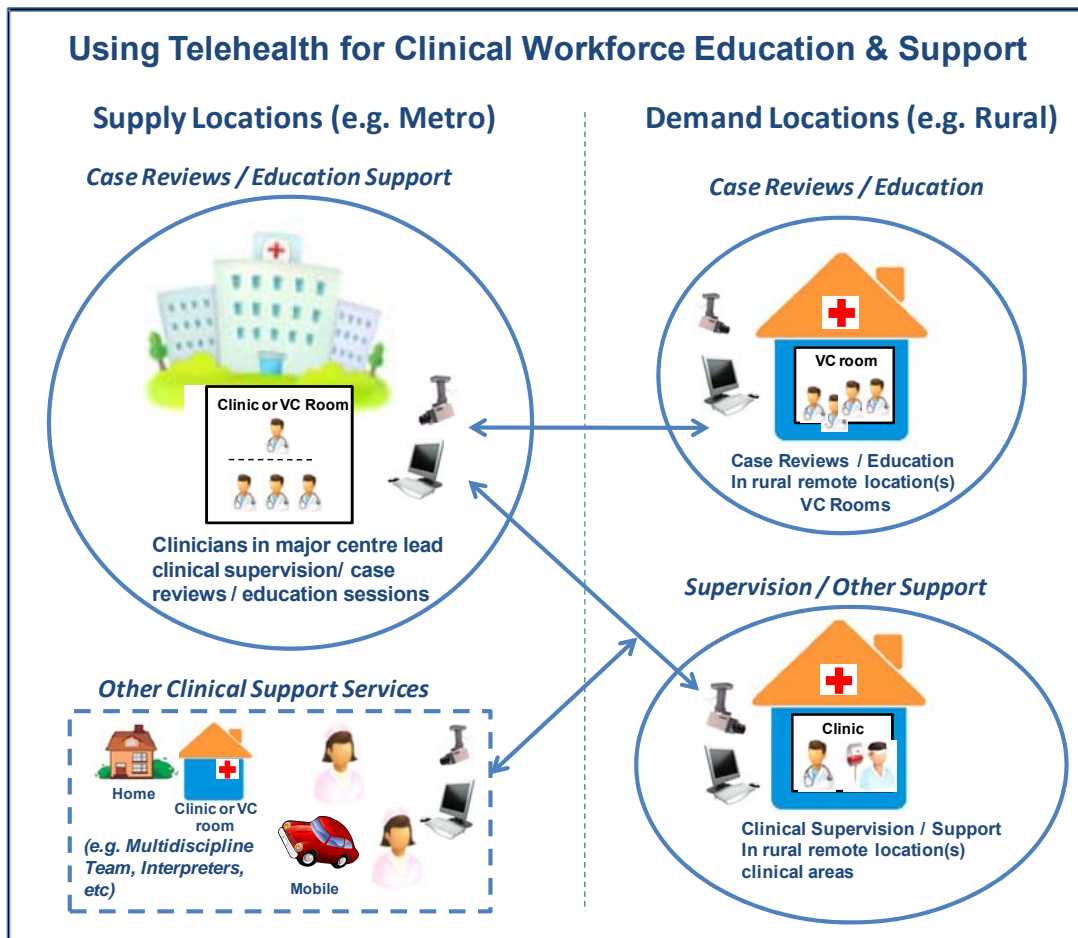
Telehealth enabled clinical workforce support is one strategy to help address the current challenges attracting and maintaining clinical resources and specialist skills in regional and rural centres across HNE Health. Telehealth is already being used across HNE Health to support clinical workforce meetings, education and training to help reduce the need for travel and improve the use of clinical time (for more education capacity and/or direct patient care)

The ongoing adoption of Telehealth to support workforce is aimed at improving the equity of support for staff in locations outside of the metro hubs (e.g. Newcastle Area). This initiative is focussed on continuing to enhance the use of Telehealth to help deliver major benefits to the HNE Health clinical staff knowledge base, skills development, ability to access clinical support and help improve clinical staff retention in remote communities.

Key Tele-services for workforce education and support may include:

- **Education sessions:** Education sessions are crucial for the ongoing education and retention of rural and remote staff. Education sessions provide staff and new recruits with updated knowledge, enhanced access to in-service training. Using Education sessions as a medium, rural and remote clinicians will be able to build professional relationships with their colleagues in major centres, decreasing the probability of feeling professionally isolated and providing basis for rural staff to seek a second opinion, decision making support and complex cases discussions with their counterparts in major centres.
- **Clinical Supervision:** Telehealth can be used to provide clinical supervision. It is an efficient and affordable way to address the issue of supporting rural and remote staff and sole practitioners. Supervision through Telehealth offers the opportunity to maximize the use of direct supervision time while ensuring proper professional education and training.
- **Clinical Case Reviews:** Telehealth can be used to involve rural and remote clinicians in the case review process (including grand rounds). This can potentially reduce the need to travel for many, thus increasing attendance numbers and ensuring that best practice and lessons learnt can be shared throughout the professional workforce in regional and rural areas. For example, a Cancer care service is using Telehealth to support case reviews across the area health service by multi-disciplinary teams for complex tumour conditions.
- **Interpreter Services:** Interpreter services enable doctors to handle patients who are unable to communicate in English or are hearing impaired. Interpreter services have been a pioneer of Telehealth use and are responsible for providing services to HNE Health as well as the north coast and parts of the greater western areas of NSW. The use of Telehealth can often result in reduction in travel time and costs for the interpreter while improving quality of service provided.

The following diagram illustrates how Telehealth can be used to support clinical Workforce Education and Support:



Telehealth based education sessions should form an integral part of clinical workforce education and support delivery. Clinical Stream or profession based education programs should be reviewed to identify access issues, delivery challenges and opportunities to adopt Telehealth to address staff education gaps and/or help reduce the burden of travel

The value of Telehealth is considered the greatest when staff is able to interact with each other. Telehealth might not be the optimal solution if education or training could be better enabled through standard eLearning modules (e.g. interactive computer based training).

HNE Mental Health Service has developed a comprehensive clinical training approach via Telehealth that should be used as a basis for incorporating lessons learnt and supporting adoption in other clinical areas for:

- Basic and Advanced Clinical Care Training via Telehealth
- Junior Medical Officer (JMO) and Registrar Training Programs via Telehealth
- Cross Jurisdiction (e.g. Health Service, State or International) Training Programs via Telehealth

Ongoing workforce education and support planning may consider opportunities to establish fee for service training programs for non-HNE Health resources – including private practice, corrections facilities staff, other area health services and/or residential care facilities staff. This should be based on clinical needs and workforce skills gaps.

### **Human Resource Implications**

Although the Human resource implications for Telehealth will depend on the clinical use and education topics there are a variety of potential resources that would be involved in Education and Support via Telehealth. Onsite IT support resources are important for providing support for educators (connecting multiple sites, IT troubleshooting). The key roles for home based care Telehealth sessions can include:

Location	Resource	Telehealth Session Role
Educator Location(s) <i>(may include Multi-site Team)</i>	<b>Clinical Educator (or Supervisor)</b>	<b>Provide Education or Support</b>
	IT Support	IT Helpdesk and Onsite Support
Clinical Workforce Location(s) <i>(may include Multi-site Team)</i>	<b>Clinical Staff</b>	<b>Receive Education or Support</b>
	IT Support	IT Helpdesk and Onsite Support

### **Medical Equipment**

Medical Equipment may be required based on clinical education needs.

### **Technology**

The key technology requirements for enabling highly effective ambulatory care Telehealth sessions include:

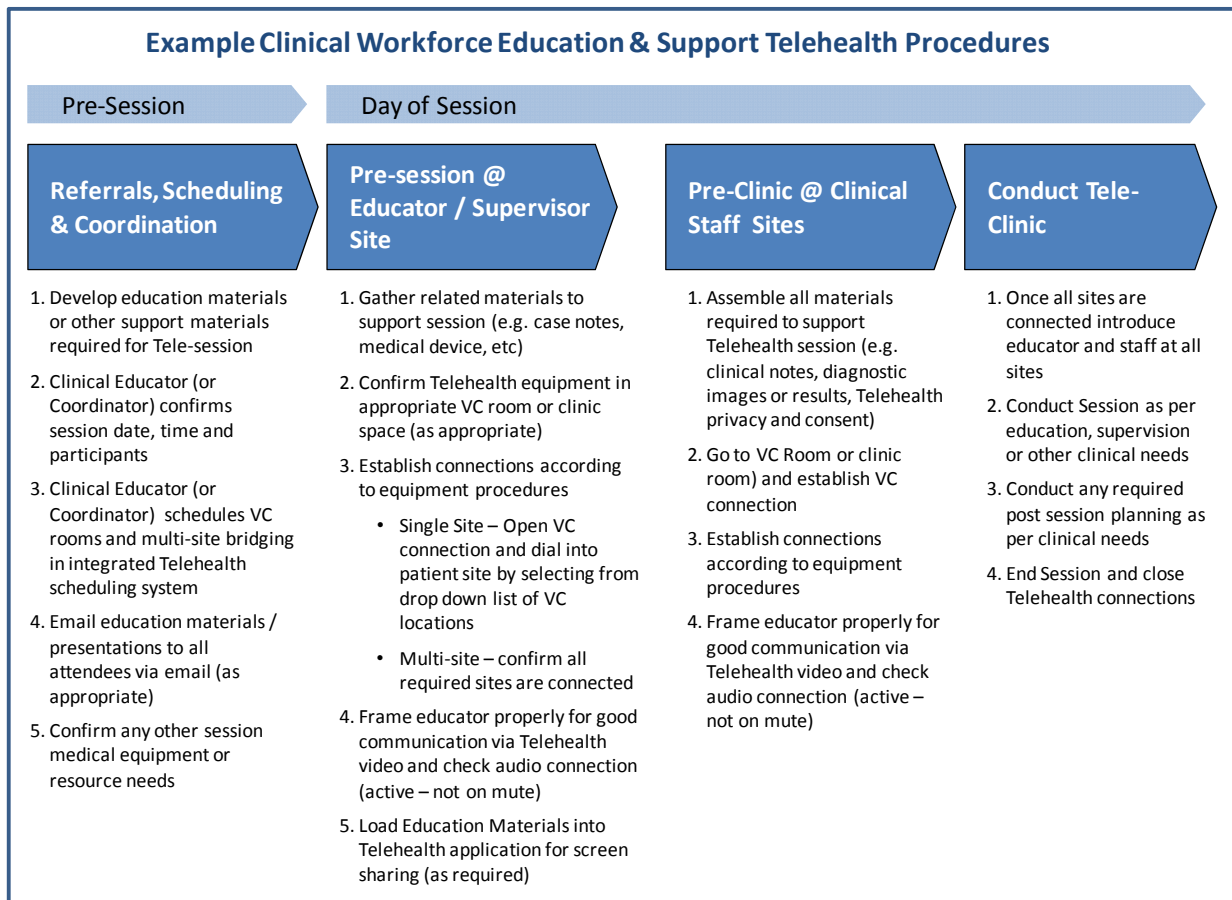
Location	Core Telehealth Technology	Other Enabling Technologies
Educator / Support Location	<ul style="list-style-type: none"> <li>Standards based Telehealth VC System</li> <li>Telehealth Scheduling System(s)</li> </ul>	<ul style="list-style-type: none"> <li>Clinical Information Systems</li> <li>Computer</li> <li>High Speed Network</li> </ul>
Staff Location(s)	<ul style="list-style-type: none"> <li>Telehealth VC System</li> <li>Telehealth Scheduling System(as appropriate)</li> </ul>	<ul style="list-style-type: none"> <li>Clinical Information Systems</li> <li>Computer</li> <li>High Speed Network</li> </ul>

The provision of workforce education and support will be mainly enabled through existing site based VC rooms that are not used for patient care delivery. In some cases, educators or support providers may have access to clinic room systems and will, most likely, use these VC systems when conducting education or support. The existing site based VC rooms are considered adequate to support workforce education.

Clinical spaces should be used to support clinical supervision and/or case reviews. As clinicians identify new opportunities for clinical supervision or case reviews there may be implications to enable users to have VC equipment in their clinic rooms and/or mobile VC equipment that can be used to support patient reviews (e.g. grand rounds, Residential Aged Care Facility support)

The ability to set regularly scheduled Tele-Education sessions across key multiple sites will help reduce complexity planning multi-site bridging and coordination challenges for clinical resources. The delivery of health care is 24/7 service, therefore access to VC facility after business hours and or remotely is essential.

**Example Procedure Implications**



**Priority Areas**

	Current State	Future State	Target Benefits
<b>Workforce Support</b>	<b>Variable level of use in clinical areas for:</b> <ul style="list-style-type: none"> <li>❖ Education and Training Programs</li> <li>❖ Clinical Supervision</li> <li>❖ Case Reviews</li> <li>❖ Interpreter Services</li> </ul>	<b>High Priority Areas for all Clinical Groups to optimise:</b> <ul style="list-style-type: none"> <li>❖ Education and Training Programs</li> <li>❖ Clinical Supervision</li> <li>❖ Case Reviews</li> <li>❖ Interpreter Services</li> </ul> <b>Other Opportunity Areas</b> <ul style="list-style-type: none"> <li>• Education/Training Services Provided to External Providers</li> <li>• Surgical Procedure Support</li> </ul>	<ul style="list-style-type: none"> <li>✓ Improved clinical workforce capability development opportunities for staff in regional/rural/isolated locations</li> <li>✓ Improved ability to access clinical support (e.g. supervision, case reviews, interpreter and other services) for regional, remote, isolated staff</li> <li>✓ Improved ability to conduct multidisciplinary education and capability development across distances</li> <li>✓ Reduced staff travel for education and/or clinical network integration activities that can be accessed/delivered via Telehealth</li> <li>✓ Reduce isolation for clinical staff and improved attractiveness of remote/isolated location</li> <li>✓ Increase revenue generated from education and training programs to external organisations for example NGO's, Prisons, and private health care facilities.</li> </ul>

**Action Plan & Funding Opportunities**

Strategic Initiatives	Responsibility	Timeframe	◆ Funding 1,2,3	☑ Priority L,M,H
1. <b>Promote the usage of Telehealth for the workforce</b>	<ul style="list-style-type: none"> <li>• Telehealth Support Team</li> <li>• Clinical educators and other Clinical Leaders</li> </ul>	2010 (ongoing)	1	H
2. <b>Establish lessons learnt from existing services and early adopters</b> e.g. Mental health have an established Tele-education program, and ICU utilise telehealth for some grand rounds.	<ul style="list-style-type: none"> <li>• Telehealth Support Team</li> <li>• Clinical educators and other Clinical Leaders</li> </ul>	2010	1/2	H
3. <b>Review practices and new opportunities; update plans to include Telehealth where possible.</b> Review the suitability of Telehealth for delivery of workforce education, training and clinical support activities. Update workforce support plans, schedules, supporting materials and guidelines as required.	<ul style="list-style-type: none"> <li>• Telehealth Support Team</li> <li>• Clinical educators and other Clinical Leaders</li> </ul>	2010	1	M
4. <b>Implement Telehealth for education, training clinical streams supervision and case review options</b> Ensure that sessions are tested before go live and there is an evaluation post implementation to give opportunity for refinement	<ul style="list-style-type: none"> <li>• Clinical educators and other Clinical Leaders</li> <li>• Clinical Staff providing supervision support</li> </ul>	2010 (annually)	½	H
5. <b>Promote the use of Telehealth for appropriate area wide support services (e.g. Interpreter Services).</b> Work with Telehealth Centre to help address service use barriers and clinical awareness of service availability via Telehealth.	<ul style="list-style-type: none"> <li>• Support Service Leaders</li> <li>• Telehealth Centre</li> </ul>	2011 (ongoing)	2	M
6. <b>Incorporate Telehealth as part of Recruitment Activities</b> as a strategy to help attract candidates to regional/rural locations and increase ability to screen overseas/interstate applicants via Telehealth (e.g. VC).	<ul style="list-style-type: none"> <li>• Resource Planning</li> </ul>	2011 (ongoing)	2	M

◆ Funding Key: 1. Initiative/Action to be implemented without funding 2. Initiative/Action to be implemented with funding from existing resources 3. Enhancement funding required

☑ Priority Key: Strategic Initiatives/Actions that require "Enhancement Funding" (3) are to be prioritised as either Low, Medium or High, based on their contribution to achieving the objective

Potential Funding Sources
<ul style="list-style-type: none"> <li>• Internal HNE Health Budgets</li> <li>• Staff Travel and accommodation offset</li> <li>• \$20 million election commitment for a new teaching &amp; training facility at Tamworth Hospital</li> <li>• Rural and Remote Priorities</li> <li>• Federal Workforce Funding</li> </ul>

**Benefits, Measures & Targets**

Target Benefits	Measures	Target (To Be Confirmed*)
<ul style="list-style-type: none"> <li>Improved clinical workforce capability development opportunities for staff in regional/rural/isolated locations</li> <li>Improved ability to access clinical support (e.g. supervision, case reviews, interpreter and other services) for regional, remote, isolated staff</li> <li>Improved ability to conduct multidisciplinary education and capability development across distances</li> <li>Reduced staff travel for education and/or clinical network integration activities that can be accessed/delivered via Telehealth</li> <li>Reduce isolation for clinical staff and improved attractiveness of remote/isolated location</li> </ul>	<ul style="list-style-type: none"> <li>Staff Satisfaction</li> <li>Staff travel required to attend Education/Training Sessions</li> <li>Staff travel required to provide clinical support</li> <li>Volume of clinical staff who have completed target education and training programs</li> <li>Volume of supervision and case reviews conducted for target staff</li> <li>Average wait times to access remote support services</li> <li>Staff turnover in regional and rural communities</li> </ul>	<ul style="list-style-type: none"> <li>Increased by 30%</li> <li>Reduce by 40%</li> <li>Reduced by 30%</li> <li>Increased by 10%</li> <li>Increased by 10%</li> <li>Reduced by 40%</li> <li>Reduced by 10%</li> </ul>

\*Please note: targets will be reviewed and established based on detailed service planning, scope of service roll-out and reporting capabilities.

**Challenges Risks and Key Dependencies**

Key Risks	Key Dependencies
<ul style="list-style-type: none"> <li>Staff are not aware of Telehealth enabled options for workforce support and continue to travel for education sessions</li> <li>Telehealth equipment creates added complexity for delivering effective education/workforce support and users do not fully adopt</li> </ul>	<ul style="list-style-type: none"> <li>Clinical Educator Resource Capacity and workload review</li> <li>Telehealth Equipment Availability and Ease of Use</li> </ul>



## 6. SUMMARY OF TECHNOLOGY IMPLICATIONS

As part of the current state review a number of adoption issues were identified by clinicians that were limiting the current and future adoption of Telehealth to support direct patient care. These issues included:

- Lack of Training in using Videoconferencing (VC) Equipment
- Difficulties accessing support for VC equipment
- Limited access to equipment in appropriate clinical workspaces
- Difficulty in scheduling rooms with VC equipment
- Poor image quality and unreliable call connection
- Limited options for establishing VC connections while mobile or at home

The technology priorities identified in this strategy are considered key enablers for Telehealth to become a viable option for delivering direct patient care. The ability to make Telehealth technology easy to use, reliable and available in the most appropriate clinical workspace are key success factors for delivering direct patient care via Telehealth.

Key priorities for VC equipment and network infrastructure, IT Helpdesk and support, scheduling and booking and data analysis & reporting have been further articulated below.

Telehealth Technology Priorities		
	<u>Current State</u>	<u>Future State</u>
<b>1 VC Equipment</b>	<ul style="list-style-type: none"> <li>• Majority of VC Equipment is located in VC rooms and not considered appropriate location for direct patient care</li> <li>• Challenges with establishing VC connections due to IP address requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Telehealth equipment is available in clinical workspaces based on user needs (inc. clinic rooms and mobile connectivity)</li> <li>• VC Equipment is configured to establish connections using 'drop down' list of site/room</li> </ul>
<b>2 Network Infrastructure</b>	<ul style="list-style-type: none"> <li>• Unreliable VC call connections create adoption issues and quality of service implications</li> <li>• Telehealth activity reporting is not fully enabled to support data analysis and planning (e.g. only multi-site connections are tracked)</li> <li>• Telehealth connectivity for patients at home not currently available in HNE Health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital regions network enhancement and ongoing capacity monitoring/planning is coordinated with ITT</li> <li>• Telehealth activity reporting is enabled to support resource capacity planning and service evaluations</li> <li>• Target patients are able to access VC support direct from home (e.g. home based chronic disease management).</li> </ul>
<b>3 Scheduling &amp; Booking</b>	<ul style="list-style-type: none"> <li>• Telehealth scheduling is a complex process using multiple IT systems</li> </ul>	<ul style="list-style-type: none"> <li>• Increased support is provided for clinical Telehealth scheduling. Planning project is conducted for increased integration of scheduling systems</li> </ul>
<b>4 IT Helpdesk &amp; Support</b>	<ul style="list-style-type: none"> <li>• Limited training and difficulties accessing support for VC equipment use</li> </ul>	<ul style="list-style-type: none"> <li>• There is increased capacity for a Telehealth helpdesk to support user training and IT support needs</li> </ul>
<b>5 Home Monitoring Devices</b>	<ul style="list-style-type: none"> <li>• Home monitoring devices not currently supported for patients in HNE Health</li> </ul>	<ul style="list-style-type: none"> <li>• Home monitoring devices are supported for patients in HNE Health based on the NSW Health SCDM program</li> </ul>

Clinical information systems (e.g. iPM, CHIME) and access to the PACS system are also key enablers to support Telehealth sessions when additional patient history, diagnostics or other information is required. Please note that this strategy does not include further details regarding CIS or PACS as they are considered outside of the scope of the Clinical Telehealth strategy. It is assumed that clinicians already have access to the CIS and PACS systems and, if not, this will need to be addressed outside of the Telehealth strategy.

Service specific implications for peripheral medical devices will also need to be addressed for Telehealth depending on the nature of the clinical encounter (e.g. otoscopes, dermatoscopes, stethoscopes, ophthalmoscopes, blood glucose meters, pulse oximeters, scales, blood pressure monitors, and peak flow

monitors). The specific needs will need to be identified based on each new ambulatory service or home care service being deployed. There are no additional needs identified for critical care Telehealth.

Currently, the capital costs for HNE Health Telehealth technology has been mainly sourced from external grants and funding submissions. Recurrent costs become the responsibility of the clinical units. The ability for clinical services to fund ongoing technology maintenance and replacements will need to be addressed as part of service planning to support sustainable services.

Although this funding model is sufficient for current rollout that is supported by funded priorities in Telehealth this approach will need to be reviewed on a service by service basis to ensure there is adequate ongoing budget to sustain Telehealth technology.

External opportunities to fund Telehealth technology exist in areas of National Broadband Network, Medical Specialist Outreach Program (MSOP) and other service specific priorities and investments (e.g. Mental Health). NSW Health has also funded Telehealth technologies and will increasingly play a role in supporting the development of home based Telehealth and home monitoring devices and infrastructure to support chronic disease management.

### 1. VC Equipment

Overall, HNE Health has good video conferencing coverage with all sites having one form of video conferencing facility. Whilst the staff using these facilities for education and administrative purposes can be flexible with the location of the video conferencing unit within the facility, clinical staff often don't share this flexibility.

The key priorities for VC equipment include:

- **Improving VC Equipment Ease of use** by simplifying the configuration of systems through the use of drop down lists as opposed to IP addresses required to make connections
- **Improving VC equipment availability in clinical workspaces** (e.g. clinic rooms, emergency departments)
- **Improving options for clinicians to connect to VC from a mobile location** (e.g. clinician at home, clinician visiting remote locations, community centre)
- **Introducing options for targeted patients to connect from Home** (via standards based products or new arrangements to support proprietary applications (e.g. Skype)
- **Incorporating costs of equipment maintenance and upgrades** as part of service planning and funding management to help sustain new infrastructure.

**"Staff can't afford to walk off the floor to go to the other room to VC"**  
Connecting Critical Care Officer






The core components of videoconferencing equipment include:

- **Camera and Monitor** - lens, image sensor, pixels, resolution, illumination range, video output signal, power zoom
- **Processing Unit, keyboard and Audio Module** – microphone, speakers, headphones, volume and base control
- **Communication platform** allowing compatibility with networks

From interviews and surveys responses, clinicians have indicated that they prefer the video conferencing unit to be close to or in their clinical workspace. Another key challenge is the limited rollout of cameras in Emergency departments which makes it difficult for emergency staff in rural and remote areas without a dedicated ED camera to received support.

The VC equipment implications on clinical workspaces will also need to be fully defined based on proposed Telehealth services and equipment requirements. Some clinic rooms will need larger desks and/or adequate space to support multiple videoconferencing screens and information systems. This is a requirement that is not

fully defined at this stage and will need to be addressed as part of detailed adoption planning with individual clinicians for the rollout of new Telehealth services.

	Videoconferencing Systems Options	Use Recommendations
<b>Wall Mounted Connecting Critical Care system</b>	 <ul style="list-style-type: none"> <li>• Two way video (specialist site and patient site can see each other)</li> <li>• Camera's can be manoeuvred and can zoom in and out to view patient and diagnostic equipment</li> <li>• Expensive (\$70,000)</li> <li>• Ability to use either speakers or headsets</li> </ul>	<ul style="list-style-type: none"> <li>• Continue use where already installed in critical care units</li> <li>• Costs are expensive and ongoing rollout is not considered necessary as IP cameras can support user needs for critical care</li> </ul>
<b>Wall Mounted IP cameras</b>	 <ul style="list-style-type: none"> <li>• One way video (specialist can see patient)</li> <li>• Camera's can be manoeuvred and can zoom in and out to view patient and diagnostic equipment (TBC)</li> <li>• Inexpensive (\$3000 to \$8000)</li> <li>• Blue tooth audio headsets (phone) need to be worn by clinicians</li> </ul>	<ul style="list-style-type: none"> <li>• Preferred option for ongoing rollout for critical care patient sites</li> </ul>
<b>Clinician Workstation enabled VC</b>	 <ul style="list-style-type: none"> <li>• Clinician can connect via VC unit, Desktop VC unit and PC with VC software installed</li> </ul> <p>Key options:</p> <ul style="list-style-type: none"> <li>• VC Room Systems (e.g. lecture room)</li> <li>• VC on Mobile Trolley</li> <li>• VC Desktop Systems</li> <li>• PC with VC software and desktop monitors</li> </ul>	<ul style="list-style-type: none"> <li>• Preferred option for enabling critical care support from specialist location (e.g. clinic rooms)</li> <li>• Preferred option for enabling non-urgent emergency support in patient locations (e.g. from ED based clinic room)</li> <li>• Preferred option for enabling ambulatory care (e.g. clinic rooms)</li> </ul>
<b>Mobile Laptop (or PC) enabled VC</b>	 <ul style="list-style-type: none"> <li>• Clinician can connect via any HNE Health PC or Laptop through VPN. Dial IP address</li> </ul>	<ul style="list-style-type: none"> <li>• Preferred option for enabling home care (e.g. home visits)</li> <li>• Viable option to support on-call arrangements for critical care after hours (support from home) and/or community based screening</li> </ul>
<b>Home Based Patient Computer Systems</b>	 <p>(NOT CURRENTLY ENABLED)</p> <ul style="list-style-type: none"> <li>• Patient can from home via their own PC or Laptop with web camera and IP connectivity</li> </ul>	<ul style="list-style-type: none"> <li>• Planning considerations for <i>home based care</i> will need to be made between: <ul style="list-style-type: none"> <li>○ 'Standards based' VC applications that patients will need to purchase (or be provided with) to connect with HNE Health systems</li> <li>○ Proprietary VC systems that patients may currently own (e.g. Skype) but are not supported by HNE Health</li> </ul> </li> </ul>

## 2. Network Infrastructure

Telecommunications technology networks provide the means to link Telehealth sites and to transfer Telehealth information from one site to another. The network capacity and IT support requirements will increase based on the growing number of devices and increasing use of Telehealth to support patients from home or non-HNE Health facilities.

**“If I am the specialist on call and I am at home and try to access the Telehealth link, there are major picture quality issues, the frame rates are so slow that you can’t see if the patient is breathless or not”**

Staff Specialist Critical Care

The Digital Regions proposal has recently secured funding to upgrade 7 remaining isolated sites in HNE Health to 4Mbps (up from 128kps) and another two to 4MPS (up from 2Mbps). Now all sites in HNE Health have a minimum speed of 4Mbps. Isolated areas with significant indigenous populations are now enabled to access healthcare through Telehealth. Some issues and considerations for the strategy going forward are whether there is enough bandwidth available for the next wave of Telehealth rollout.

The key priorities for Telehealth network and infrastructure include:

- **Managing network capacity and “quality of service” so that there are:**
  - **Minimal dropouts and high quality connections**
  - **Good image and sound quality when necessary.**
- **Ensuring that the IT Network is scalable and can grow to sustain future Telehealth adoption**

Telehealth volume projections will need to be coordinated with ongoing IT network capacity planning and addressed as part of service planning to ensure adequate funding to maintain Tele-service quality and capacity. Capital and recurrent cost implications for network capacity will need to be addressed as part of all planning and service roll-out in alignment with overall HNE Health network capacity planning and ‘quality of service’ for Telehealth videoconferencing.

In the area of home based care there may also be opportunities to enhance network scalability and based on private networks and virtual network computing (e.g. cloud computing) from a telecommunications provider such as Telstra. Some considerations may be to establish home based health coaching VC systems, health monitoring technologies and supporting infrastructure on a different IT network to help quarantine the network traffic and gateway traffic volumes.

High speed broadband or other high speed network connection is required in order to ensure this is available for people in their homes (e.g. health coaching, rehabilitation support). Feasibility and cost implications will need to be further planned with HNE Health IT department as part of overall IT planning and adoption of Chronic Care programs.

Additional investments will be required to make enhancements to the HNE network infrastructure to support Telehealth enabled home based care services. The national broadband network is a key partnership opportunity to help support the infrastructure implications for home based Telehealth in regional and rural areas.

## 3. Scheduling & Booking

Currently, patient scheduling is done in Clinical Information Systems (e.g. iPM, CHIME or Aria) while Telehealth rooms & equipment are scheduled based on local site facility booking processes and multi-site bridging is scheduled through the HNE Health online systems for multi-site video-conferencing (e.g. HNE Bridge booking system). The ability to make this process easier for clinicians, or enable administrative support for managing service scheduling, will be important to help address clinician adoption barriers for technology ease of use.

The key priorities for Telehealth scheduling & booking systems include:

- **Increasing support resources for service scheduling & booking**
  - **Reduce Clinical time spent coordinating scheduling**

- **Reduce complexity of multiple scheduling systems for Telehealth**
  - **Improve systems integration**
  - **Introduce Telehealth ‘one stop’ scheduling portal**

Ongoing development and refinement of the Telehealth scheduling systems should identify opportunities to standardise and streamline the scheduling process (and data collection) for all HNE Telehealth services, while capturing appropriate information as required through relevant clinical information systems. Additionally, scheduling system information can be used to help analyse demand trends, identify service support requirements, manage capacity planning, resource management and provide performance insights to support evaluation.

#### 4. Helpdesk & IT Support

Telehealth education materials are available to staff on the HNE Health website and a Telehealth IT support number is provided in VC rooms. However, HNE Clinicians still identified limited Telehealth training and difficulties accessing support for VC equipment as key adoption barriers for clinical use.

Currently, there are 3 FTE providing Telehealth support (2 in John Hunter Hospital and 1 in Tamworth Rural Referral Hospital). Currently, these resources are understaffed and need to juggle providing support with other tasks such as rolling out equipment, leaving reduced time to provide adequate support for users.

Current challenges continue to become increasingly accentuated as the user base increases along with demands for Telehealth IT training, helpdesk and IT support for clinical users adopting for the first time.

New funding will be required to increase the IT Helpdesk resource capacity and provide a service that can adequately keep up with Telehealth support for increasing volumes of clinical user and services. It is proposed that the Telehealth IT Support report directly to the Manager HNE Telehealth under the direction of the Chief information Officer.

The key priorities for Telehealth Helpdesk and IT support include:

- **Increasing resource capacity for helpdesk and onsite IT support.** There are several options:
  - Enhance the IT Helpdesk resource capacity via central contact centre (e.g. resources onsite or rostered virtually)
  - Provide dedicated onsite support in high volume locations (e.g. John Hunter, Tamworth)
  - Provide a hybrid onsite/helpdesk support solution in low volume locations with onsite resources during initially adoption period and helpdesk support once users are trained and self sufficient
- **Revise standard training materials and put on website and in all VC workspaces** (e.g. glossy attached to VC units). Communicate to all known users of Telehealth
- **Introduce formal training to support new adopters** understanding of Telehealth equipment use and support arrangements

Telehealth Helpdesk and IT support availability is a key issue needing to be addressed to drive clinical adoption as many clinicians have indicated that they will not use Telehealth if it doesn't work the first time. Additionally, helpdesk availability and onsite support are identified as key adoption barriers that have limited sustainability of piloted Tele-services when something went wrong. If clinical staff have a bad experience with the technology and are not able to easily access support to address the problem they will not continue to use the Telehealth technology.

**“There were three cases in Moree where they tried to connect to us but they couldn't connect. The medical and nursing staff had to spend their time troubleshooting IT instead of resuscitating. They just needed an on off button on the wall. The more functionality you offer, the more complicated it gets”**  
Staff Specialist Critical Care

## 5. Home Monitoring Devices

The provision of home monitoring support and Tele-coaching will require new hardware and systems that enable devices to be integrated with health provider coaching systems (inc. monitoring) and videoconferencing systems.

Home based Tele-health monitoring devices and coaching support services are expected to be procured as part of the NSW Health Severe Chronic Disease Management (SCDM) program panel arrangements and available funding. Further planning and coordination required with NSW Health.

Home monitoring devices are evolving rapidly to support home based chronic disease management. There is also increasing evidence of mobile phone based applications (e.g. smart phone medical application) being used by patients to help self monitoring and management of conditions (e.g. Diabetes, COPD). Depending on application automated care advice may be provided direct to the patient and health organisations may be sent 'warning' messages if patients self monitoring device indicates that there is risk of an acute episode (or rising acuity level).

Please refer to section 5.3 **Tele-home Care** for more information on home based technology implications.

### Action Plan & Funding Opportunities

Strategic Action Plan	Responsibility	Timeframe	◆ Funding 1,2,3	☑ Priority L,M,H
1. Continue to engage potential external partners to help address funding for Telehealth technology (inc. capital and recurrent) based on HNE clinical adoption plans and required business cases.	<ul style="list-style-type: none"> <li>Director Clinical IT Support &amp; Development</li> <li>Telehealth IT Support</li> </ul>	2010 (ongoing)	1	H
2. Enhance Telehealth reporting capability to track service volumes and VC sessions based on A) sites and B) services	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> </ul>	Oct-Nov 2010	2	M
<b>VC Equipment</b>				
3. Support Critical Care to confirm equipment needs for ongoing rollout of ED VC cameras to additional sites. Estimated installation of 19 additional cameras required in rural facilities.	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> </ul>	Sep-Oct 2010	3	H
4. Collaborate with clinical users to help identify technology needs and business case implications to support pilots for new ambulatory care services (e.g. desktop VC units, mobile VC enabled devices).	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> </ul>	Sept-Dec 2010 (ongoing)	2	H
5. Configure VC systems with drop down menus or pre-configured menus to make connections	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> </ul>	Sep-Oct 2010	1	H
<b>Network Infrastructure</b>				
6. Complete 'Digital Regions' enhancements as a key enabler for expanding Telehealth network capacity (current investments)	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> </ul>	Sep-Oct 2010	2	H
7. Conduct regular Telehealth network capacity planning into overall IT planning. Identify implications of mobile connections and home based adoption plans.	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> </ul>	2011 (ongoing)	2	M
8. Enhance IT Network & Infrastructure capacity to enable home based Telehealth connections and service access for patients and staff (based on service plans and pilots)	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> </ul>	2011 (ongoing)	3	M
<b>Scheduling &amp; Booking Systems</b>				
9. Determine if current decentralized room and equipment scheduling system is adequate or if it requires an upgrade to support direct patient care. Confirm workload implications vs. potential centralised system	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> </ul>	Oct-Dec 2010	2	M
10. Conducting IT planning study to help improve ease of use for Telehealth scheduling systems	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> <li>ITT Dept</li> </ul>	2011	2/3	M
<b>Helpdesk &amp; IT Support</b>				
11. Increase IT Helpdesk resources and establish call centre rosters from key sites (eg. JH, Tamworth). Revised	<ul style="list-style-type: none"> <li>Telehealth IT Support</li> </ul>	Oct-Dec 2010	3	H

training for all helpdesk and IT support resources.				
12. Develop responsibilities for providing IT support to rural sites (inc. onsite support and user training)	• Telehealth IT Support	Oct-Nov 2010	1	M
13. Update education material and establish training program for all clinical users based on existing service needs and new pilot Tele-services	• Telehealth IT Support	Oct-Nov 2010	2	M
14. Introduce tools to support technology and helpdesk performance reporting for Telehealth (e.g. enhancement of current helpdesk data tracking, metrics and business objects reporting)	• Telehealth IT Support	By early 2011	2/3	M
<b>Home Monitoring Devices</b>				
15. Support clinical planning for home based Telehealth and home monitoring technology implications (inc. devices, network and support)	• Telehealth IT Support • Director Clinical IT Support & Development	2010/2011	1	H
16. Commence rollout and support for home based Telehealth in alignment with NSW Health SCDM program	• Telehealth IT Support	2011 (ongoing)	3	H

◆ Funding Key: 1. Initiative/Action to be implemented without funding 2. Initiative/Action to be implemented with funding from existing resources 3. Enhancement funding required

☐ Priority Key: Strategic Initiatives/Actions that require "Enhancement Funding" (3) are to be prioritised as either Low, Medium or High, based on their contribution to achieving the objective

#### Potential Funding Opportunities

- NSW Health (inc. MSOAP funding)
- Federal Funding (Doha)
- NBN Funding (e.g. Digital Regions)
- Private Public Partnerships
- Internal HNE Health Budgets

#### Measures & Targets

Measures	Target (To Be Confirmed*)
<p><b>VC Equipment</b></p> <ul style="list-style-type: none"> <li>• % of Telehealth services with VC equipment available in appropriate clinical workspaces for patient care (clinic room or mobile)</li> <li>• % of VC units with 'drop down' list or pre-configured menu to enable connections with other HNE VC sites</li> <li>• # of complaints due to making connections</li> </ul> <p><b>Network Infrastructure</b></p> <ul style="list-style-type: none"> <li>• # of VC connection failures / drop outs reported</li> <li>• # of complaints regarding connection quality limiting clinical effectiveness</li> </ul> <p><b>Scheduling &amp; Booking</b></p> <ul style="list-style-type: none"> <li>• # of issues identified due to scheduling systems</li> </ul> <p><b>IT Helpdesk &amp; Onsite Support</b></p> <ul style="list-style-type: none"> <li>• % of clinical resources who have received training from IT support (inc. equipment use and helpdesk support)</li> <li>• IT Helpdesk Call Response Rate</li> <li>• IT Helpdesk first call resolution rate</li> <li>• # of unresolved issues</li> <li>• # of onsite support in major centres</li> <li>• Proportion helpdesk staff to VC enabled units</li> <li>• Staff Satisfaction Rate</li> </ul>	<p><b>VC Equipment</b></p> <ul style="list-style-type: none"> <li>• 80% in appropriate clinical workspace for patient care</li> <li>• 100%</li> <li>• Reduction in connection complaints from clinical staff</li> </ul> <p><b>Network Infrastructure</b></p> <ul style="list-style-type: none"> <li>• Reduction in failures / drop outs reported</li> <li>• Minimal connection issues limiting clinical effectiveness</li> </ul> <p><b>Scheduling &amp; Booking</b></p> <ul style="list-style-type: none"> <li>• Reduction in scheduling system issues identified by clinical staff</li> </ul> <p><b>IT Helpdesk &amp; Onsite Support</b></p> <ul style="list-style-type: none"> <li>• 95% of staff delivering Telehealth session have received training from IT support</li> <li>• As per Patient Flow Call response (e.g. 80% in 20 sec)</li> <li>• 95% first call resolution for equipment issues</li> <li>• 40% reduction in unresolved issues</li> <li>• Minimum of 1 Telehealth onsite support officer per major centre</li> <li>• 1 helpdesk officer to 70units's (currently 1 officer to 200 unit's)</li> <li>• Increased staff satisfaction rates</li> </ul>

\*Please note: targets will be reviewed and established based on detailed service planning, scope of service roll-out and reporting capabilities.

### **Risks & Key Dependencies**

<b>Risks</b>	<b>Key Dependencies</b>
<ul style="list-style-type: none"> <li>• Lack of funding to support rollout of IT equipment and Network capacity</li> <li>• Demand planning is not accurate and an inadequate or excessive support workforce capacity is hired</li> <li>• Clinical staff continues to experience challenges troubleshooting technology issues which negatively impacts adoption.</li> <li>• Complex and time consuming scheduling process hinders the use of Telehealth equipment</li> <li>• New Helpdesk resources don't have the right skill set and motivation to handle helpdesk and onsite support issues across multiple sites.</li> <li>• Champions and JMO's are unable to/don't have time to transfer simple troubleshooting skills over to their clinical workgroups requiring a the helpdesk and onsite support to be sustained indefinitely</li> <li>• Scheduling system is time consuming and not streamlined. This may hinder clinical adoption or require additional administration/scheduling support</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate IT Helpdesk support and on site IT support</li> <li>• Adequate training and education on how to use and troubleshoot Telehealth equipment</li> <li>• Availability of funding or private partnership models to finance additional equipment, and network capacity</li> <li>• Funding for additional resources and helpdesk software</li> <li>• Funding to customize, streamline, or replace scheduling system</li> </ul>



## 7. GOVERNANCE, PROGRAM & CHANGE MANAGEMENT

As part of the strategy development it was identified that there were limiting effectiveness of overall Telehealth governance, more importantly support for program and change management. Support for the program and change management includes planning for new services, addressing technology requirements, accessing new funding opportunities and overall change support for clinical staff deploying new services

The ability to reinvigorate the HNE Health governance and oversight arrangements for Telehealth will play a key role in supporting clinical plans for new Telehealth services, business case requirements, program and change support and service evaluations.

The overall governance model will include representatives across clinical users of Telehealth, IT support, workforce planning, external partners (e.g. funding bodies), program and change support. Key priorities for Telehealth governance, program and change support include:

Telehealth Governance, Program & Change Management Priorities		
	<u>Current State</u>	<u>Future State</u>
1 Oversight Committee	<ul style="list-style-type: none"> <li>• Telehealth governance is decentralised and not fully integrated between clinical users, IT support workforce planning and executive</li> <li>• No clear point of escalation to help support new funding implications</li> </ul>	<ul style="list-style-type: none"> <li>• Oversight committee is established with representation from clinicians using Telehealth, IT support, workforce planning and executive</li> <li>• Oversight committee is a point of escalation for review and approval of new funding requests</li> </ul>
2 Program Management & Change Support	<ul style="list-style-type: none"> <li>• Clinicians experience difficulties navigating planning requirements, IT implications and funding opportunities</li> <li>• There is limited adoption and change management support for new clinical services</li> <li>• Clinicians not fully aware of Tele-guidelines, planning tool and business case templates</li> </ul>	<ul style="list-style-type: none"> <li>• Standard service planning and business case approach (and templates) are utilised for all services</li> <li>• Program adoption and change support officers are available to assist clinical service planning, status reporting and change management implications</li> <li>• Support team and clinical 'champions' provide communication and education to other clinicians for planning new Telehealth services</li> </ul>
3 Workforce Planning	<ul style="list-style-type: none"> <li>• Workforce planning not fully integrated with Telehealth service planning</li> </ul>	<ul style="list-style-type: none"> <li>• Workforce planning liaison is included as part of program governance for approved Tele-service resource plans</li> </ul>
4 Service Evaluation	<ul style="list-style-type: none"> <li>• Tele-Service Evaluations are done on an adhoc basis</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation is a formal part of all services and conducted regularly to identify benefits, issues and justify ongoing funding</li> </ul>
5 External Partnerships	<ul style="list-style-type: none"> <li>• External partners are engaged on a service by service basis and lack formal HNE Health oversight</li> </ul>	<ul style="list-style-type: none"> <li>• External Partners are engaged as part of oversight committee to support planning, evaluation and ongoing funding</li> </ul>

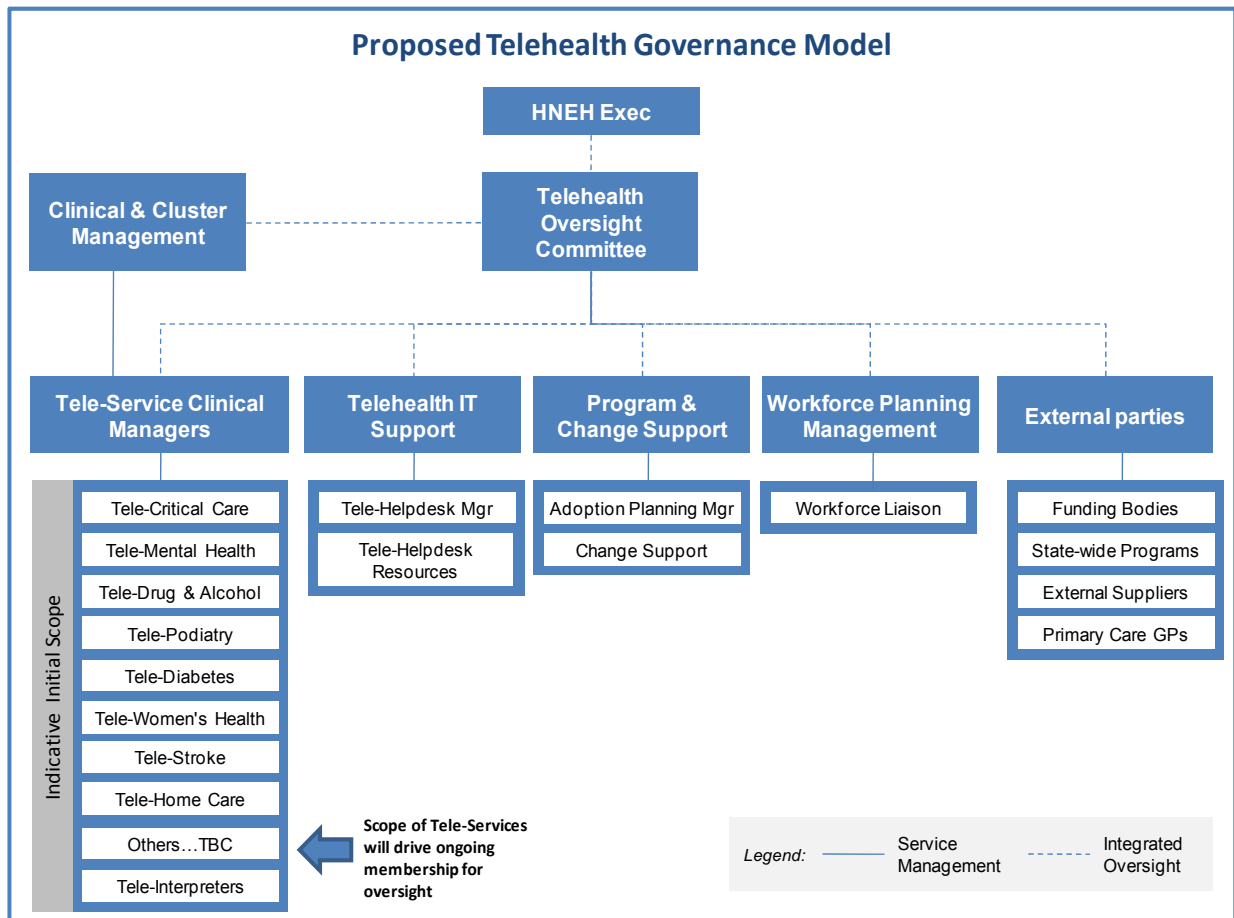
### 1. Telehealth Governance & Oversight

The enablement of the HNE Health oversight committee will help enhance HNE Health Telehealth governance arrangement from the current 'decentralized' model to a more consolidated approach. The future state may be a combination of BAU role based governance responsibilities with a more formal committee to conduct periodic reviews and provide oversight for issues/opportunities that require an integrated response across numerous workgroups (e.g. clinical, workforce, IT and external parties).

The following table provides an overview of strategies to enable the future state of Telehealth governance in HNE Health with a proposed combination of Role based and Formal committee processes.

	Current State of Telehealth Governance	Proposed Future State of HNE Health Telehealth Governance	
	Decentralized Governance	Consolidated Governance (with BAU approval process)	Consolidated Governance (with steering committee)
Description	<ul style="list-style-type: none"> <li>Each Clinical Stream/Network/Group independently determines their own governance model, strategic direction, and what project elements need to be sustained.</li> <li>Each assumes responsibility for providing the necessary human, financial, and technical resources to sustain the project within their organization.</li> </ul>	<ul style="list-style-type: none"> <li>Clinical Streams/ Networks/ groups will provide Telehealth oversight with Telehealth project proposals</li> <li>Telehealth governance/oversight provided by key individuals as part of their roles for internal funding approvals, coordination with workforce planning, IT enablement and external parties.</li> <li>Change support team assists clinical champions (service managers) in this process.</li> </ul>	<ul style="list-style-type: none"> <li>Telehealth Oversight is a central decision-making body that meets every month as a steering committee to formally approve Telehealth projects and provide direction</li> <li>Clinical Streams/Networks/groups will provide Telehealth oversight with Telehealth project proposals</li> <li>Change support team assists clinical champions (service managers) in this process and acts as coordinator for monthly committees</li> <li>Workforce planning, External Partners and IT support are all included (as required)</li> </ul>

The following diagram provides as overview of the proposed Telehealth governance model. More information on potential resources and proposed responsibilities has been articulated in the table below.

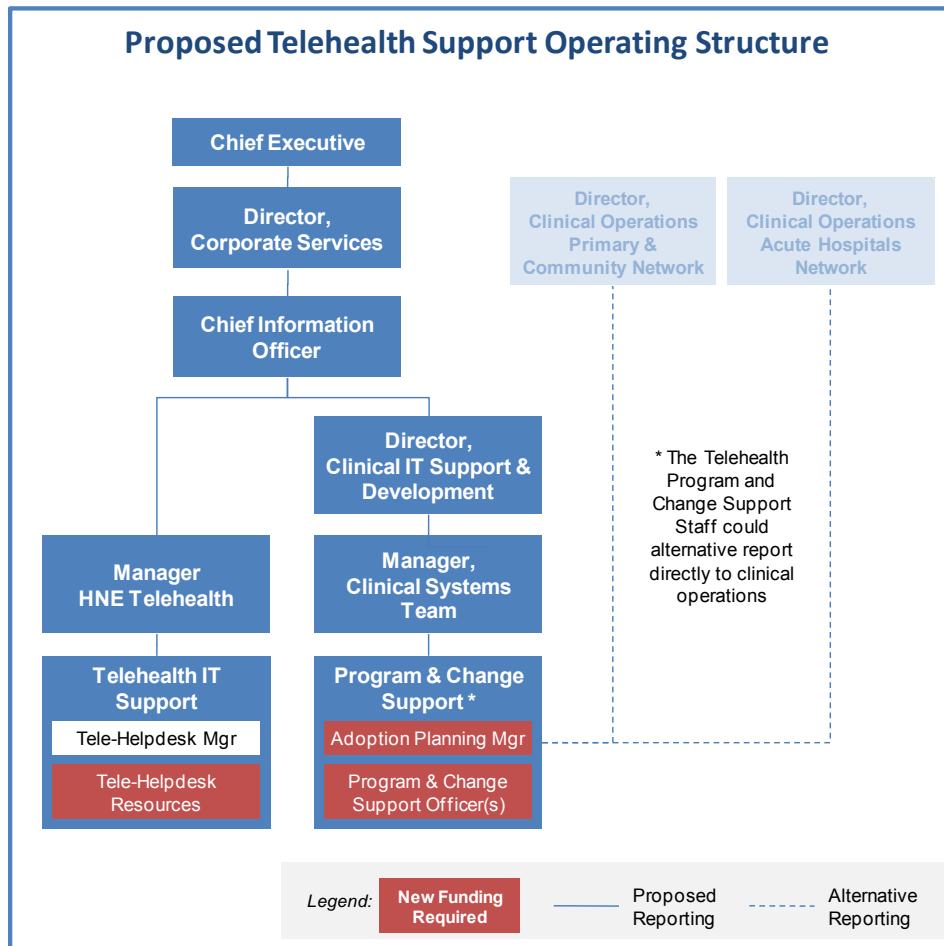


The proposed key responsibilities for enabling the integrated governance model, including program and change support, include:

Group	Potential Resources	Responsibilities
<b>HNE Health Exec</b>	<ul style="list-style-type: none"> <li>HNE Health Executive Team Representative</li> </ul>	<ul style="list-style-type: none"> <li>Provide strategic guidance</li> <li>Pursue funding for Telehealth</li> </ul>
<b>Telehealth Oversight Committee</b>	<ul style="list-style-type: none"> <li>Medical Information Officer and/or</li> <li>Committee with Clinical, IT, workforce planning, adoption support and executive stakeholder</li> </ul>	<ul style="list-style-type: none"> <li>Telehealth project approval process</li> <li>Pursue funding opportunities for Telehealth</li> <li>Point of coordination for prioritising new Tele-services, business case approvals, technology implementation and change management support</li> </ul>
<b>Stream and Cluster Management</b>	<ul style="list-style-type: none"> <li>Clinical Stream Leads and Cluster Managers (as required for approvals, issues, etc)</li> </ul>	<ul style="list-style-type: none"> <li>Assess and track clinical workforce supply capacity for Telehealth services</li> <li>Provide approval that projects are in-line with stream/cluster strategies and plans.</li> </ul>
<b>Tele-Service Clinical Managers (Clinical Champions)</b>	<ul style="list-style-type: none"> <li>Clinician who is owner/contact for the Tele-service</li> </ul>	<ul style="list-style-type: none"> <li>Identify and put forward Telehealth projects</li> <li>Manage Tele-service</li> <li>Conduct post implementation and annual service evaluations (e.g. needs/outcomes)</li> <li>Identify issues, opportunities and requirements for ongoing use and sustainability</li> <li>Motivate other clinicians to adopt Telehealth (where relevant)</li> </ul>
<b>Program &amp; Change Support</b>	<ul style="list-style-type: none"> <li>Support Staff with Telehealth insights / experience to support clinical planning and change management needs</li> <li>Assumed short term role in year 1 with ongoing review of workload and resource demands</li> </ul>	<ul style="list-style-type: none"> <li>Track list of telehealth projects in the pipeline</li> <li>Assist Clinical Champions with the assessment, business case and approval process for new projects</li> <li>Create library of internal/external Telehealth clinical use case studies to support clinical adoption and planning (e.g. Telemedicine Journal, Provider Case Studies, Evaluations of provider Tele-programs, etc)</li> <li>Provide change management support including "how to use Telehealth" training programs and support for initial adoption (e.g. coordination, mobilisation, IT and procedure testing)</li> <li>Track Telehealth progress and support/conduct post implementation evaluations</li> </ul>
<b>IT Management</b>	<ul style="list-style-type: none"> <li>Telehealth IT support staff managing helpdesk phone queries and onsite support</li> <li>Assumed primarily based from John Hunter &amp; Tamworth Hospitals but may need further coverage as sites /use increase</li> </ul>	<ul style="list-style-type: none"> <li>Manage helpdesk and on-site support</li> <li>Manage customisation of Telehealth equipment for ease of use</li> <li>Review and update VC equipment training materials and deliver training to new users as part of service adoption</li> <li>Provide Onsite technical support during initial adoption of new service (as required)</li> <li>Explore mobile connectivity to Video Conferencing network so clinicians (and eventually patients) can connect from home</li> <li>Monitor Telehealth usage and identify network capacity implications</li> <li>Manage IT chargeback implications for Telehealth with clinical users</li> <li>Rollout, maintain and replace Telehealth equipment</li> </ul>
<b>Workforce Planning Management</b>	<ul style="list-style-type: none"> <li>Workforce Planning Officer (Telehealth liaison as part of existing planning roles)</li> </ul>	<ul style="list-style-type: none"> <li>Integrate Telehealth workforce planning implications into overall workforce planning</li> </ul>
<b>External parties</b>	<ul style="list-style-type: none"> <li>NSW Health</li> <li>NSW Health SCDM Program</li> <li>DoHA / Medicare</li> <li>MSOP Program</li> <li>Other Funded bodies (e.g. Cancer Council, Diabetes)</li> </ul>	<ul style="list-style-type: none"> <li>As appropriate, include representatives from external funding bodies (e.g. Department of Health and Aging), statewide programs (e.g. NSW Severe Chronic Disease Management) and/or external partners (e.g. devices, service providers, infrastructure)</li> </ul>

The enhancement of support services, including Telehealth IT Helpdesk and Program and Change Support, will need to be incorporated into existing management responsibilities and may require new reporting relationships to effectively balance IT and clinical needs.

The following diagram provides an overview of the proposed Telehealth Support Operating Structure.



## 2. Program Management & Change Support

As part of the current state review Change Management support was identified as a key adoption barrier as clinical users are not fully aware of HNE Health Telehealth support arrangements, how to best plan for Telehealth services and/or address funding implications for new services. Currently, there is limited resource capacity in place to support clinical users planning and development of business cases for Telehealth services due to the key resources workloads being prioritised to provide IT support. It is important the resource capacity is in place to enable the stated guidelines (e.g. site coordinators) and adequate support is provided in the initial service planning and deployment period.

This strategy proposes that a centralised program and change support team be established to help drive program consistency and a standard approach to supporting clinicians in planning and enabling Telehealth services. The need for centralised program and change support will need to be reviewed ongoing based on the volume of new Telehealth services being planned and the workload implications for program and change support.

The program and change support team will need to have clinical skills and be able to coordinate clinical needs with clinical, IT, workforce and external parties (as necessary). It is assumed that this will ***initially required two to three new FTE nursing staff*** with Telehealth experience/understanding to work with clinical Tele-service owners.

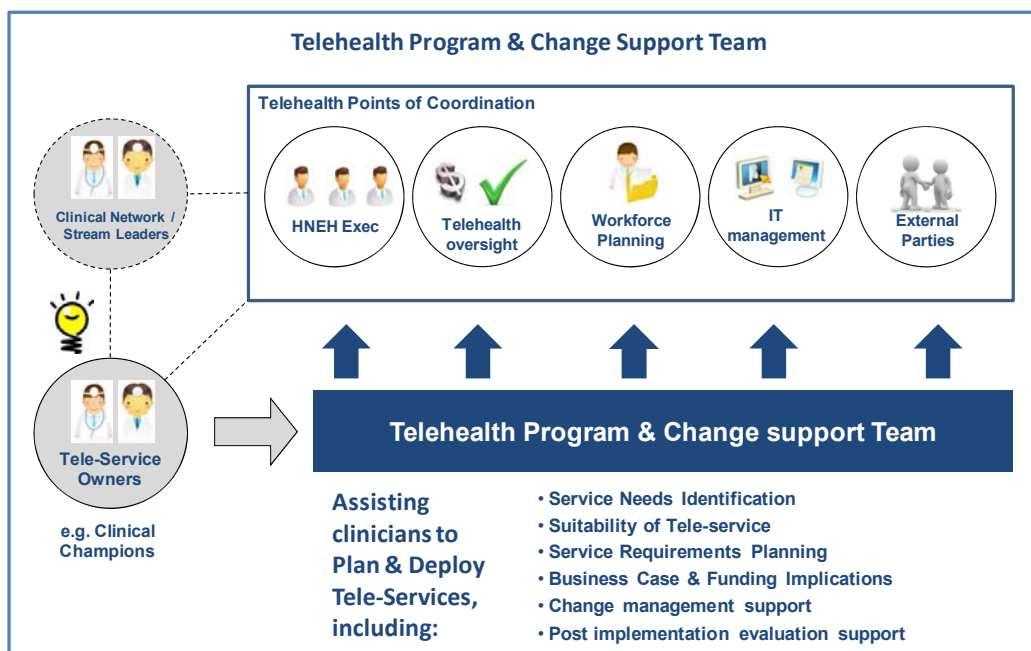
New funding will be required to establish these roles. It is assumed that there is currently 1 FTE supporting this role in Tamworth and 2 additional FTE support officers will need to be recruited. The role will require a senior nursing equivalent resource and rosters should consider split shift so that staff has the opportunity to keep up clinical skills (e.g. 1-2 day per week on direct patient care).

It is proposed that the Program and Change Support resources report to the Manager Clinical Systems Team under the direction of the Director Clinical IT Support and Development. An alternative option would be to have the program and change support resources report to clinical operations if the role requires increased clinical planning reporting. (e.g. Director of Primary & Community Network or Director Acute Hospital Network).

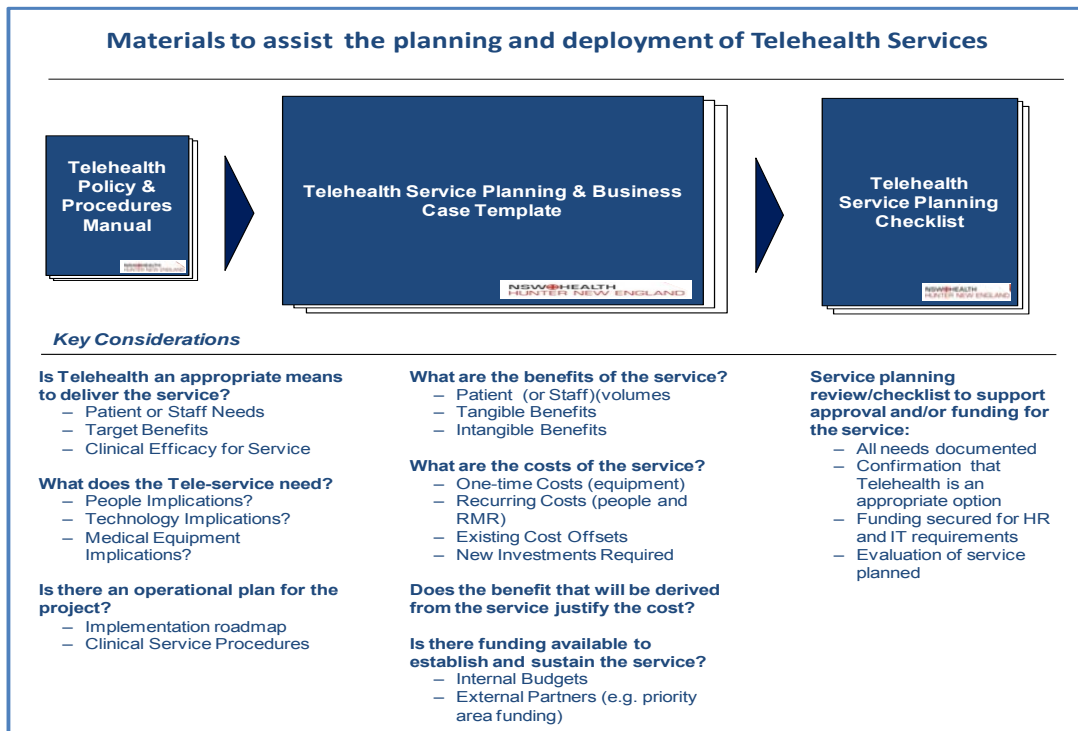
The support team's role is to guide clinical streams and clinical champions who are interested in Telehealth to:

- Track the demand and supply of services
- Implement standard tools and templates for service planning and business case
- Support clinical users (service managers) for planning and business case development
- Introduce adoption checklist to help ensure all factors have been addressed before services are deployed
- Help implement data tracking to support evaluation and activity reporting
- Support and conduct post implementation evaluation (annual reviews)

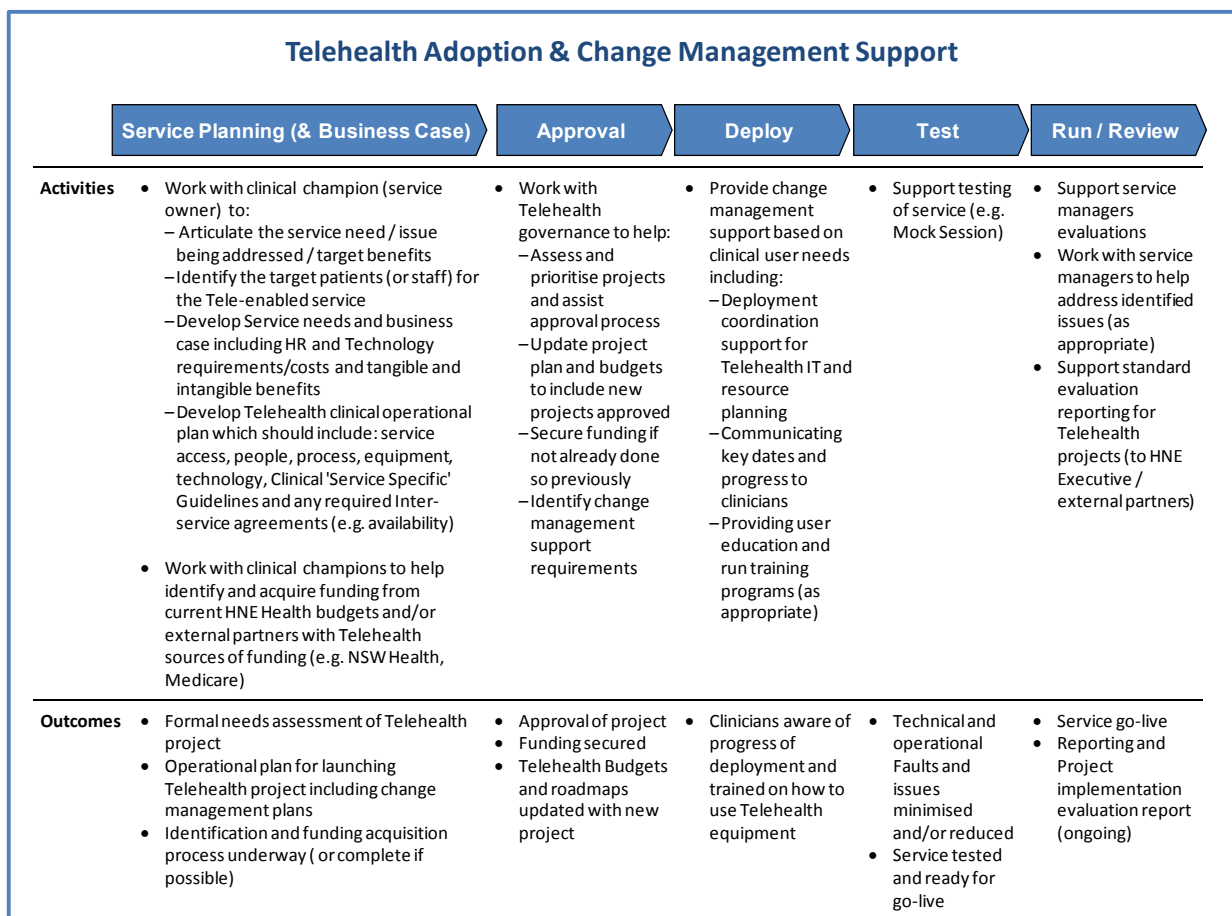
The following diagram illustrates the role an Adoption and Change Support team would have in the planning, deployment and post implementation evaluation of HNE Health Telehealth enabled services.



The following diagram identifies the key materials and considerations to support planning and deployment of Telehealth services. Please refer the appendix for more information and examples of Telehealth planning templates, including Telehealth Service Planning & Business Case Template and Telehealth Service Planning Checklist.



The adoption and change support team will need to support Tele-service owners (e.g. clinical champions) and leadership to navigate and coordinate service requirements based on a standard approach. The following diagram illustrates the proposed process for supporting clinical users in the planning and adoption of Telehealth enabled services.



### 3. Workforce Planning

As HNE Health clinicians increasingly identify Telehealth as a strategy for providing patients with new way to access healthcare services there are expected to be additional clinical and support resource implications for enabling these services. The key aims are to ensure alignment of HNE Health workforce planning with Telehealth clinical service resource planning. The HNE Health Telehealth strategy proposes to:

- **Establish a workforce planning liaison role as part of Telehealth Oversight to help address workforce implications for approved Tele-service resource plans**

In some cases Telehealth services will be resourced based on current clinical resource capacity and workload improvements (e.g. reduce travel to offset workload impacts). However, Telehealth services are expected to require additional clinical resources to effectively enable:

- Additional clinical capacity to supply Telehealth enabled services (e.g. direct patient care)
- Additional clinical support and/or administrative resources for coordination of services

In some cases services may be able to offset current workloads and ineffective use of clinical time through reduced unnecessary travel. However, the impacts on clinical workforce will need to be identified on a service by service basis and, where required, workforce planning activities to include clinical Telehealth resource plans to effectively establish resource capacity to balance existing non-Telehealth service delivery workloads with additional Telehealth workloads.

Additionally, Telehealth may be considered as a means to enhance cost effectiveness of recruitment and help reduce unfilled clinical workforce vacancies. Telehealth may also be considered as an option to help clinical recruitment efforts and improve cost effectiveness of recruitment by using VC equipment to help improve the ability to interview applicants who are overseas or unable to visit the proposed work location. In some cases it might help the interviewing process by linking the candidate with clinical and support resources in the proposed work location via Telehealth as part of recruitment process. The use of Telehealth for recruitment purposes will need to be further explored

### 4. Service Evaluation

The benefit of implementing Telehealth will only be realized through evaluation and outcome measurements. Evaluation of the implementation process is important to determine what worked, what didn't work, what could have been done more efficiently. This information will prove beneficial when implementing other services/programs. Evaluation of ongoing service delivery will be required as well. The following evaluation requirements were identified as part of the stakeholder engagement process:

- **Defined Evaluation Framework** – For evaluation of the implementation of the strategy and evaluation framework for ongoing evaluation - to be developed and conducted by an expert evaluator.
- **Outcomes Based** – The outcomes of the evaluation will be essential to determine effectiveness, efficiencies, cost benefit, productivity, risk management indicators and other areas that will be used to further define Telehealth services. This information will be used to potentially expand Telehealth programs, and to plan for budget allocation.
- **Alignment with Current Evaluations** – The evaluation of Telehealth should align with other evaluation objectives, methodology and process and be designed in a way so as not to increase workload of frontline staff if at all possible.
- **Culturally Sensitive** – Telehealth programs should be implemented and evaluated with awareness and sensitivity to culturally sensitive issues.

The following are suggested indicators for evaluating Telehealth:

- **Quality** – the degree to which Telehealth increases the desired health status for patients, (including physical and mental health and general well-being), clinical outcomes and socio-economic benefit.

- **Access** – the availability of the appropriate care, at the appropriate time for patients, as well as the receipt of timely, accurate, pertinent patient information for health care professionals.
- **Acceptability** – degree to which patients and their families, care providers, administration and others are satisfied with Telehealth and wish to continue to use it.
- **Cost** – financial value of implementing a service based on the resources used, the cost of implementing the service, and the capital investment required. The outcomes would include cost savings and cost avoidance. The analysis would also include the capture of non-monetary and unintended consequences.

Each of these indicators would require further definition of measurements, e.g. quality could be further defined to include quality of life and health status, and access could include utilization of other health care services while using Telehealth. The more detailed measurements would be defined in a comprehensive evaluation plan during the implementation phase. It is anticipated that an evaluation of process will occur during the implementation phase, and outcomes measurement will occur during the time the service is operational. Both qualitative and quantitative methodologies will be required to capture the necessary information to determine if Telehealth is of benefit.

Program and Change Support Officers will work with clinical service managers to help support development of evaluation plans and conduct service evaluations.

## 5. External Partnerships

The ability to identify external partnerships to support Telehealth will be important to help address funding implications, potential infrastructure partnerships and potential fee for service arrangements for non HNE Health organisations.

The inclusion of these external partners as part of the Telehealth oversight committee will help integrate these partners into the overall governance, program and change support. External partnerships with funding programs generally require that evaluation is part of pilot program funding to help build a case for ongoing funding. By including external partnerships through a formal oversight committee it will enhance HNE Health ability to build relationships with external partners, access funding, and target key outcomes to support ongoing funding and help identify new opportunities for Telehealth service deployments.

The key opportunities for establishing external partnerships include:

- Developing strong relationships and/or influence organisations that can assist HNE Health continue to expand funding and raise awareness of the crucial role that Telehealth can play in models of care. This would include:
  - Engaging with NSW Health model of care design work to raise awareness of Telehealth at the state agenda, which in turn may result in further funding for Telehealth initiatives that HNE Health can capitalise on
  - Lobbying for additional commonwealth and state funding via Telehealth programs, rural care priority strategies, MBS Items and other state funding related to providing increased capacity for patient care and/or workforce support. In NSW, funding is split between the NSW Department of Health for public sector services and the NSW Rural Doctors network for private sector services. NSW Health is also responsible for the local management of key commonwealth assistance programs, including the Medical Specialist Outreach Assistance Program (MSOAP). NSW Health also provides the 'Isolated Patients Travel and Accommodation Assistance Scheme (IPTAAS)' that may be targeted to help fund service based on patient travel offsets.
  - Exploring Private Public Partnerships to help fund Telehealth infrastructure and reduce initial CAPEX outlay.
- Identifying and building relationships with organisations that have an appetite for Telehealth services but do not have the capacity to build their own infrastructure. There is a potential to adopt a fee for service model here to generate new revenue streams in order to fund future Telehealth projects. Some initial opportunities include:



- Correctional facilities
- Local government agencies/organizations at rural remote areas (e.g. police and schools)

### **Action Plan & Funding Opportunities**

NEW FUNDING REQUIRED FOR....

<b>Strategic Initiatives</b>	<b>Responsibility</b>	<b>Timeframe</b>	<b>◆ Funding 1,2,3</b>	<b>☑ Priority L,M,H</b>
<b>Telehealth Governance &amp; Oversight Committee</b>				
1. Establish oversight and governance model and responsibilities and procedures for HNE Telehealth oversight support, including: <ul style="list-style-type: none"> <li>• Resources / Accountabilities</li> <li>• Operating Processes &amp; Escalations</li> <li>• Reporting Requirements</li> <li>• Supporting Templates (e.g. activity reporting, approvals checklists)</li> </ul>	<ul style="list-style-type: none"> <li>• HNE Health Executive</li> <li>• Director-Clinical IT Support &amp; Development</li> </ul>	Sep-Oct 2010	1,2	H
<b>Program Management &amp; Change Support</b>				
2. Gain AET Endorsement. IDENTIFY & SEUCRE FUNDING	<ul style="list-style-type: none"> <li>•</li> </ul>			
3. Establish program and change support officers. Confirm change support team scope, accountabilities and initial resource allocations.	<ul style="list-style-type: none"> <li>• Telehealth oversight</li> <li>• Director Clinical IT Support &amp; Development</li> </ul>	Sep 2010	3	H
4. Confirm change support approach and planning templates (inc. business case). Develop reporting template to support program reporting to governance committee. Train support officers as required.	<ul style="list-style-type: none"> <li>• Telehealth oversight</li> <li>• Change Support Team</li> </ul>	Sep-Oct 2010	2	H
5. Mobilize and launch change support activities – including communications with clinicians, planning and business case development, change management support.	<ul style="list-style-type: none"> <li>• Change Support Team</li> </ul>	Sep-Nov 2010	2	H
6. Develop and monitor demand and workload implications for Telehealth program and change support and revise resource levels as required	<ul style="list-style-type: none"> <li>• Change Support Team</li> <li>• Telehealth oversight</li> </ul>	Monthly	1/2/3	M
<b>Workforce Planning</b>				
7. Enhance workforce planning and related processes to incorporate resource demands to support Telehealth service workloads – including Clinical, IT and other support resources.	<ul style="list-style-type: none"> <li>• Workforce Planning</li> <li>• Telehealth Service Managers</li> </ul>	2010 (annually)	1	M
8. Incorporate Telehealth as part of Recruitment Activities as a strategy to help attract candidates to regional/rural locations and increase ability to screen overseas/interstate applicants via Telehealth	<ul style="list-style-type: none"> <li>• Workforce Planning / Recruitment</li> </ul>	2010 (ongoing)	1	M
<b>Service Evaluation</b>				
9. Conduct ongoing service evaluations and executive reporting based on Tele-service roll-out and post implementation evaluations.	<ul style="list-style-type: none"> <li>• Clinical Service Owner</li> <li>• Change Support Team</li> <li>• Telehealth Oversight</li> </ul>	2010	1	M
<b>External Partnerships</b>				
10. Quantify funding requirements for Telehealth projects based on planning and business cases. Determine funding sources that can provide funding for Telehealth projects	<ul style="list-style-type: none"> <li>• Clinical Service Owner</li> <li>• Change Support Team</li> <li>• Telehealth Oversight</li> </ul>	2010 Annual	1/2	H

11. Identify a long list of potential partners (e.g. Department of Health and Aging, NSW Health, Rural Doctors Network, MSOAP, IPTASS, Medicare MBS Items, Medical Services Advisory Committee, Australian and NZ Horizon Scanning Network)	<ul style="list-style-type: none"> <li>• Telehealth oversight</li> <li>• Change Support Team</li> </ul>	2010	1	H
12. Identify existing relationships within HNE Health with target partners and/or contact target partners directly to establish relationship	<ul style="list-style-type: none"> <li>• HNE Health Executive</li> <li>• Telehealth oversight</li> <li>• Change Support Team</li> </ul>	2010	1	H
13. Lobby for funding, develop private partnership model or create revenue generation opportunity	<ul style="list-style-type: none"> <li>• HNE Health Executive</li> <li>• Telehealth oversight</li> <li>• Change Support Team</li> </ul>	2011	2,3	H

♦ Funding Key: 1. Initiative/Action to be implemented without funding 2. Initiative/Action to be implemented with funding from existing resources 3. Enhancement funding required

☐ Priority Key: Strategic Initiatives/Actions that require "Enhancement Funding" (3) are to be prioritised as either Low, Medium or High, based on their contribution to achieving the objective

#### Potential Funding Sources

- Internal HNE Health Budgets
- As portion of Direct Service Investments (e.g. Priority Areas)

#### Measures & Targets

Measures	Target (To Be Confirmed*)
<p><b>Governance &amp; Oversight</b></p> <ul style="list-style-type: none"> <li>• Staff are aware of the governance structure and who they need to engage in each stage of their plan to launch a Telehealth Project.</li> </ul> <p><b>Program Management &amp; Change Support</b></p> <ul style="list-style-type: none"> <li>• An up to date log of future demand and supply of Telehealth services</li> <li>• % of identified services with adoption planning and business case documentation completed</li> <li>• % of approved Telehealth services that pilots are launched successfully</li> <li>• Staff Satisfaction survey</li> </ul> <p><b>Workforce Planning</b></p> <ul style="list-style-type: none"> <li>• % of Telehealth resource demands identified in workforce planning</li> <li>• Recruitment costs for overseas and interstate candidates</li> </ul> <p><b>Service Evaluation</b></p> <ul style="list-style-type: none"> <li>• Accurate Post Implementation Evaluations that are completed in a timely manner</li> </ul> <p><b>External Partnerships</b></p> <ul style="list-style-type: none"> <li>• Number of funding sources identified and amount of funding received</li> <li>• Number of revenue opportunities identified and \$ revenue produced</li> </ul>	<p><b>Governance &amp; Oversight</b></p> <ul style="list-style-type: none"> <li>• 80% of staff are aware and satisfied with the governance structure and support arrangements</li> </ul> <p><b>Program Management &amp; Change Support</b></p> <ul style="list-style-type: none"> <li>• Accurate log that contains up to date information</li> <li>• 80% of identified services with clinical owner have completed planning and business case templates</li> <li>• 95% approved pilots launched successfully</li> <li>• 80% of staff surveyed satisfied with change team</li> </ul> <p><b>Workforce Planning</b></p> <ul style="list-style-type: none"> <li>• 100% of approved Telehealth resource demands incorporated into workforce planning</li> <li>• Reduced by 10%</li> </ul> <p><b>Service Evaluation</b></p> <ul style="list-style-type: none"> <li>• Post Implementation evaluations completed based on evaluation plans and funding requirements (eg. Within 1 month of target date)</li> </ul> <p><b>External Partnerships</b></p> <ul style="list-style-type: none"> <li>• Funding target TBC</li> </ul>

\*Please note: targets will be reviewed and established based on detailed service planning, scope of service roll-out and reporting capabilities.

#### Risks & Key Dependencies

Risks	Key Dependencies
<ul style="list-style-type: none"> <li>• Governance structure is too centralized and is unable to be responsive to local and community needs</li> <li>• Governance structure is too decentralized and is unable to have</li> </ul>	<ul style="list-style-type: none"> <li>• Agreement and cooperation from existing oversight bodies as well as clinicians to formally adopt a governance structure for</li> </ul>

<p>economies of scale to pursue funding</p> <ul style="list-style-type: none"> <li>• Clinical owner does not take overall responsibility for service planning and business case development</li> <li>• Clinicians bypass the toolkits because training is inadequate, toolkit is too time consuming or not enough support provided</li> <li>• Insufficient funding is sourced to support Telehealth program and change team putting ongoing clinical adoption at risk</li> <li>• Clinical staff identify additional resource requirements that do not get approved and staff do not continue to pursue Telehealth services establishment</li> </ul>	<p>Telehealth</p> <ul style="list-style-type: none"> <li>• Amount of funding available to fund the initiative and the number of FTE that management decide is required to adequately support clinical champions.</li> <li>• Adequate change management support</li> <li>• Telehealth service managers (clinical or IT) identification of resource demands to support workforce planning/approvals</li> <li>• Telehealth Equipment Availability and Ease of Use</li> </ul>
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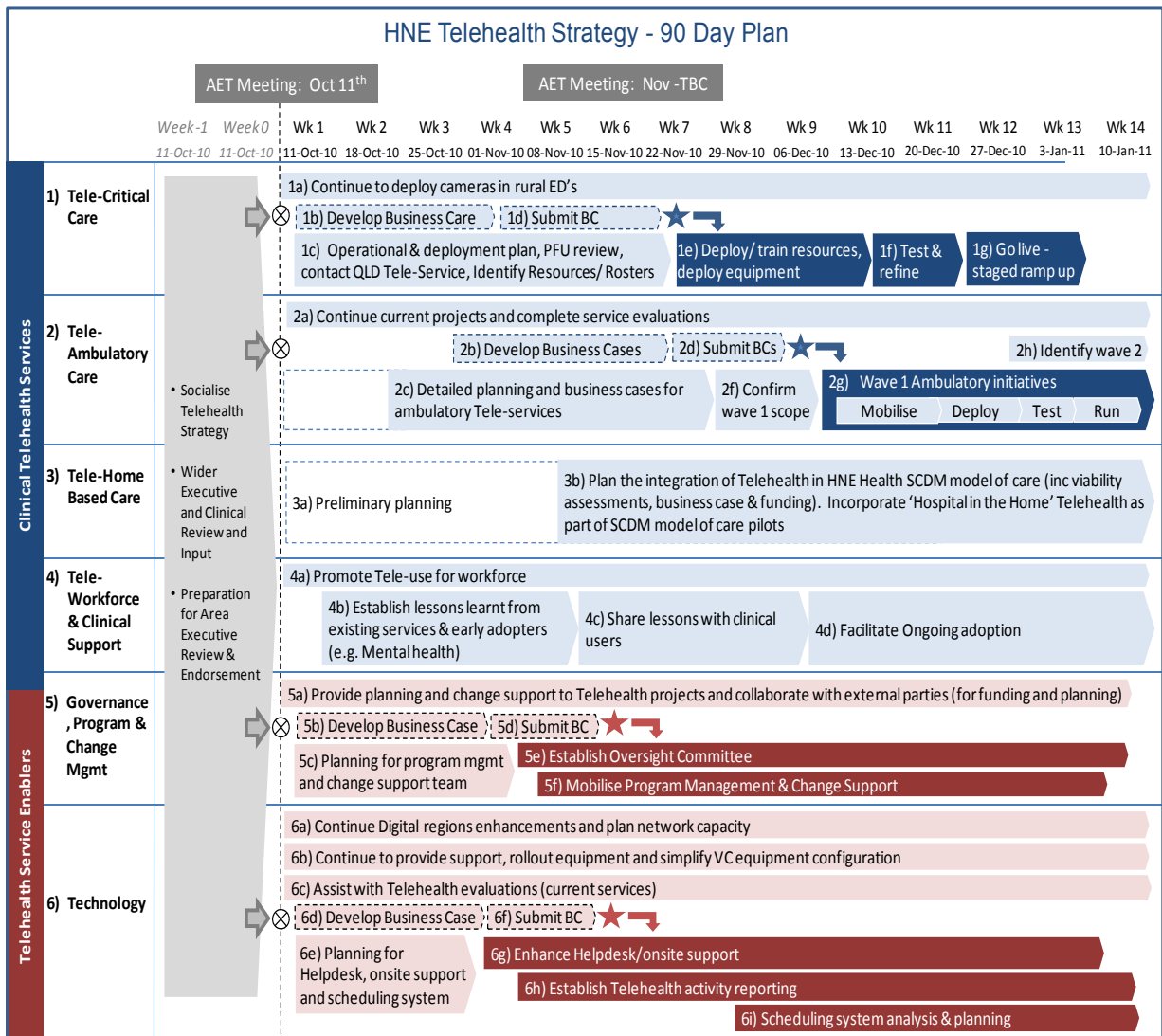
## 8. HIGH LEVEL IMPLEMENTATION ROADMAP

As noted by HNE Clinicians, increased adoption of Telehealth for clinical use and patient care will be most successful if led by clinicians with support from HNE Health related to service planning templates, business case development and support for funding implications, change management and ease of use for Telehealth equipment (and access to Clinical Information Systems). Therefore, the implementation approach moving forward will need to start with clinical services assessing Tele-service viability, service requirements and business case implications.

**A 90 day roadmap and a high level 3 year roadmap have been developed in this section.** The plans will need to be updated on an ongoing basis and part of overall program and change management activities.

### 90 Day Plan

This Initial 90 day plan aims to identify detailed requirements and service models. As this is refined, the business case will need to be reviewed and updated. This 90 day plan includes formal checkpoints to endorse ongoing planning. The following table illustrates the 90 day plan and is divided into actions to develop clinical Telehealth services (blue) and Telehealth service enablers (red):



Please note: timing of services/initiatives will need to be confirmed based on detailed planning and funding implications.

**Legend**

Telehealth Clinical Service

Telehealth enabler

⊗ Area Executive Team Review/Endorsement

★ Secure Required Funding

**90 day plan notes:****1) Tele-Critical Care**

- a) Continue with current critical care equipment deployments based on pre-existing rollout plans
- b) Confirm service planning, resource assumptions and validate funding implications. Revise funding request as required.
- c) Secure funding required to deploy new services.
- d) Critical Care Stream & PFU to confirm operational plans (inc. business case, business owners, phasing for deployment and site based deployment planning, collaboration with Queensland State-wide Telehealth Service to validate/refine assumptions and detailed planning, align operational plans with "Rural Model of Care" outcomes). Organization to conduct a review of the patient flow unit and identify resources and set rosters
- e) Develop training materials, secure and train resources, deploy Desktop PC units for staff providing Telehealth services in the PFU or in staff's work area (e.g. JHH or TBH) and integrate with PFU (i.e. call escalation processes and IT)
- f) Test Service procedures & new support arrangements through mock sessions and further refine service as required
- g) Commence Stabilisation and Retrieval and Medical Advice Service for existing sites and extend to new sites as they come online. Deploy Telehealth Equipment to additional 19 Remote Sites,

**2) Tele-Ambulatory Care**

- a) Complete existing service evaluations and continue to support current projects
- b) Identify funding opportunities based on service planning and external opportunities.
- c) Develop funding applications based on clinical service plans.
- d) Secure funding required to deploy new services.
- e) Facilitate clinical stream reviews of models of care and, Conduct viability assessment, service planning and business cases., Pursue funding for ongoing model of care development
- f) Confirm projects that will be included in phase 1 rollout
- g) Once Wave 1 projects have been identified conduct detailed implementation planning, deployment, testing and run the projects in a phased approach according to clinician timelines
- h) Confirm projects that will be included in phase 2 rollout

**3) Tele-Home based Care**

- a) Preliminary planning may be conducted, based in timeframes of HNE Health SCDM program
- b) Incorporating Telehealth in SCDM and pursuing funding to enable this. This involves conducting viability assessments, service planning and business case for all home based care Telehealth services

**4) Tele-Workforce/Clinical Support**

- a) Continue to promote the usage of Telehealth for education, supervision, case reviews, interpreter services and recruiting with clinical workforce
- b) Mental health has an established Tele-education program and ICU conduct several grand rounds via Telehealth
- c) Communication plan required to disseminate information to interested clinicians. May include publicising through email, intranet and word of mouth.
- d) Facilitate and assist clinical stream leads and champions to commence/increase Telehealth usage for Workforce and clinical support

**5) Governance & Support Initiatives**

- a) Support Adoption Planning, Service Viability and Requirements Analysis, Business Case Development, Change Management and Service Evaluations. Develop and monitor demand and workload implications for Telehealth program and change support and revise resource levels as required. Potential partners may include Department of Health and Aging, NSW Health, Rural Doctors Network, MSOAP, IPTASS, Medicare MBS Items, Medical Services Advisory Committee, Australian and NZ Horizon Scanning Network.
- b) Confirm governance, program and change support planning, resource assumptions and validate funding implications. Revise funding request as required.
- c) Secure funding required to deploy program and change support.
- d) Scope up workloads and FTE requirements for Program Mgmt and Change support team (baseline demand for service). Review planning and business case tool as well as Diabetes case example to assess if suitable for wider dissemination for education purposes
- e) Establish Oversight and Governance committee and formalize Resource Accountabilities, Operating Processes & Escalations and Reporting Requirements
- f) Mobilise Program mgt and Change support team potentially to have 2 FTE initially (to be confirmed – cost model will need to be updated) – to be ramped up as required. Develop project management plan to incorporate future demand for program. Develop and refine cost and business case for overall program. Support ongoing adoption planning for clinical users.

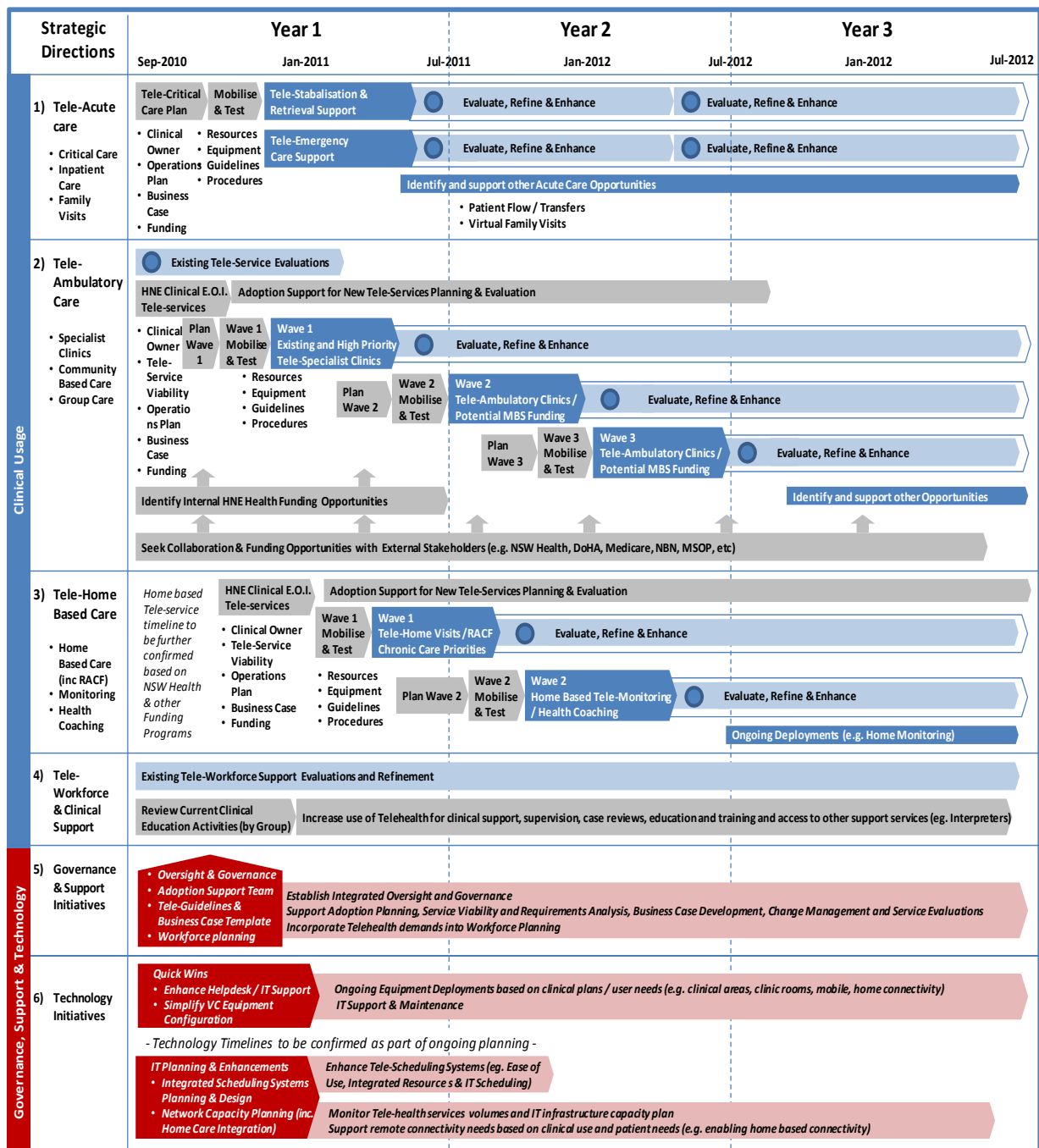
**6) Technology Initiatives**

- a) Continue to support Critical Care to confirm equipment needs for ongoing rollout of ED VC cameras to additional sites. Complete currently funded 'Digital Regions' enhancements as a key enabler for expanding Telehealth network capacity for critical care and ambulatory care. Conduct regular Telehealth network capacity planning into overall IT planning. Identify implications of mobile connections and home based adoption plans.
- b) Continue to provide Telehealth support when required and Configure VC systems with drop down menus or pre-configured menus to make connections. Estimated installation of 19 additional cameras required in rural facilities and Collaborate with clinical users to help identify technology needs and business case implications to support pilots for new ambulatory care services (e.g. desktop VC units, mobile VC enabled devices).
- c) Provide assistance to current clinical services conducting Telehealth evaluations (as required)

- d) Confirm IT Helpdesk and onsite support resource assumptions and validate funding implications. Revise funding request as required.
- e) Secure funding required to deploy IT Helpdesk and onsite support.
- f) Detailed planning into helpdesk FTE sizing and location and planning on whether a scheduling system/process analysis is required
- g) Increase IT Helpdesk resources and establish call centre rosters from key sites (e.g. JH, Tamworth). Develop responsibilities for providing IT support to rural sites (inc. onsite support and user training). Update education material and establish training program for all clinical users based on existing service needs and new pilot Tele-services
- h) Enhance Telehealth reporting capability to track service volumes and VC sessions based on A) sites and B) services
- i) Study to determine if current decentralized room and equipment scheduling system is adequate or if it requires an upgrade to support direct patient care. Confirm workload implications vs. potential centralised system

**3yr Roadmap (Indicative)**

The ongoing rollout of resources and technology will need to be based on clinical Tele-service requirements, strategic priorities and target outcomes. The following diagram provides an overview of the proposed implementation roadmap for HNE Health ongoing clinical adoption of Telehealth.



## 9. HIGH LEVEL COSTS & FUNDING OPPORTUNITIES

The following table provides indicative costs for the initiatives proposed. Please note that these need to be validated and refined going forward (as the 90 day plan is updated and refined). The overall costs will need to be consistently reviewed based on new business cases and ongoing clinical planning.

Initiatives			Capital Costs*	Recurring Costs*	New funding required ?	Potential Target Funding sources
<b>B) Clinical Telehealth Services</b>						
1	<b>Critical Care Initiative</b>	<ul style="list-style-type: none"> <li>4 FTE Advice Services               <ul style="list-style-type: none"> <li>S&amp;R = .3FTE</li> <li>EMA – 2.1 FTE (12 existing sites) +1.5 (18 new sites)</li> </ul> </li> <li>Equipment = 7 VC units in metro sites, 18 VC in rural EDs</li> </ul>	<b>Current Sites:</b> \$21,000 <b>New Sites:</b> \$135,000	\$195,00  \$132,00	Yes  Yes	<ul style="list-style-type: none"> <li>Retrieval &amp; PFU offsets</li> <li>HNE Health Internal budget</li> <li>National Rural and Remote Health Infrastructure Program</li> <li>State \$1.5m JHH &amp; TBH ICU bed funding</li> <li>NSW Health and/or MBS Items</li> </ul>
2	<b>Ambulatory Care</b>	<ul style="list-style-type: none"> <li>Diabetes clinic pilot</li> <li>Other clinics TBC</li> <li>Other clinics TBC</li> <li>Other clinics TBC</li> </ul>	\$43,000 TBC TBC TBC	\$239,00 TBC TBC TBC	Yes TBC	<ul style="list-style-type: none"> <li>Staff travel and accommodation cost offsets</li> <li>MBS Item re-imbursements (through short term means such as, MSOAP/RDN, \$400m Labor party election campaign promise and/or through Medicare)</li> <li>Charging direct fee for service</li> <li>HNE Health Internal budgets</li> <li>National Rural and Remote Health Infrastructure Program</li> <li>Rural Pharmacy Workforce Development Program</li> <li>State and/or Federal Priority Funding</li> </ul>
3	<b>Home based care</b>	<ul style="list-style-type: none"> <li>TBC – Home Monitoring / Health coaching systems</li> <li>TBC – resources to support monitoring &amp; coaching</li> </ul>	TBC	TBC	Yes	<ul style="list-style-type: none"> <li>NSW Severe Chronic Disease Management Program (SCDM)</li> <li>MBS Item re-imbursements</li> <li>Private partnerships for devices</li> <li>Rural Pharmacy Workforce Development Program</li> <li>HNE Health Internal budgets</li> <li>State and/or Federal Priority Funding (Aged care)</li> </ul>
4	<b>Workforce education, training and clinical support</b>	<ul style="list-style-type: none"> <li>Use existing resources and budgets</li> <li>Use/refine existing training/support content for Telehealth</li> </ul>	n/a TBC	n/a TBC	No	<ul style="list-style-type: none"> <li>Internal HNE Health Budgets</li> <li>Staff Travel and accommodation offset</li> <li>Rural and Remote Priorities</li> <li>\$20 million election commitment for a new teaching and training facility at Tamworth Hospital</li> <li>Federal Workforce Funding</li> </ul>
<b>B) Telehealth Service Enablers</b>						
5	<b>Governance, Program &amp; Change Mgmt</b>	<ul style="list-style-type: none"> <li>Oversight and governance Telehealth Resource</li> <li>Telehealth adoption and change support team 2 FTE (initially for year 1)</li> <li>Collaborate with external partners</li> </ul>	n/a n/a TBC	TBC \$160,00 n/a	TBC Yes No	<ul style="list-style-type: none"> <li>Internal HNE Health budgets</li> <li>State and/or Federal Priority Funding</li> </ul>
6	<b>Technology</b>	<ul style="list-style-type: none"> <li>Telehealth IT helpdesk and onsite support 3 FTE (two in JHH one in Tamworth hospital)</li> <li>Telehealth scheduling and booking process and tools Planning assignment to identify requirements and options for the future</li> <li>Telehealth Equipment Telehealth equipment &amp; infrastructure planning</li> </ul>	\$10,000  \$350,000  Based on Tele-service business cases and available funding for new equipment	\$240,00  TBC	Yes  Yes	<ul style="list-style-type: none"> <li>Internal HNE Health Budgets</li> <li>NBN funding (e.g. Digital Regions – new funding applications)</li> <li>Public Private Partnerships</li> <li>NSW Health (inc. MSOAP funding)</li> <li>Federal Funding (Doha)</li> </ul>
<b>Total</b>			<b>\$559,000</b>	<b>\$966,000</b>		

\*All costs have been rounded to nearest \$'000.

**Notes by initiative:**

1. **Critical Care** – costs have been provided based on establishing the Tele-Emergency Medical Advice and Tele-stabilisation and retrieval advice as a priority for non-referral sites with limited medical staff onsite. The costs have been split between:
  - Establishing services for sites with existing Telehealth equipment (in ED/ICU) – 12 sites
  - Establishing services and equipment to sites not currently online (in ED/ICU) – 18 sites
 Please refer to section 5.1 Tele-Critical Care for more details on service sizing and cost estimates.
  
2. **Ambulatory Care** - Please note Ambulatory care costing is only for the proposed diabetes clinic as additional clinics are added cost analysis will need to be performed and included. The diabetes pilot involves providing a hybrid outreach/Telehealth clinic to 6 rural locations from JHH and Tamworth hospital. For more detailed costing information please refer to Appendix 5 – example Tele-Diabetic Clinic Adoption
  - Ongoing planning is a high priority over the next 4-8 weeks with identified ambulatory care clinics. The ability to offset current costs will require further identification with clinicians who are planning to deploy new Telehealth service (e.g. travel savings). In some cases additional costs will need to be funded to provide adequate support and coordination for services and/or address session based remunerations via MBS items.
  
3. **Home Based Care** – Costs will need to be further developed based on specific clinical user needs (e.g. home visits via Telehealth) and NSW Health SCDM program partnership with HNE health.
  
4. **Workforce education, training and clinical support** - assumed to be cost neutral based on utilizing current staff, equipment and network costs.
  
5. **Governance**
  - **Oversight and governance Initiative** - It is assumed that no capital or recurring costs will be incurred for the Oversight and governance Initiative
  - **Telehealth adoption and change support team** - Costs are assumed to be incurred by HNE Health initially for 2 FTE to support clinical user's development of service plans and business cases, help identify and navigate funding opportunities and support change management. Annual cost estimate of \$80,000 per FTE.
  - **Telehealth Resource Capacity requirements** - It is assumed to be funded based on existing resource responsibilities and no new capital or recurring costs will be incurred
  - **Collaboration with External Partners** - It is assumed that this initiative will be funded from existing budgets and no new capital or recurring costs will be incurred.
  
6. **Technology**
  - **Telehealth IT helpdesk and onsite support** - It is assumed that double the FTE in the Helpdesk are required (i.e. an increase of 3 additional IT helpdesk staff (annual salary estimate of \$80,000 per FTE). Initial funding for 2FTE for JHH and 1FTE for Tamworth Hospital). It is assumed that each staff will require a laptop with webcam (\$1975) as well as have power and network installation set up (\$1200) for them. Assumed to be self funded by HNE Health or as part of external funding for new services to help address adoption challenges and provide increased Telehealth IT support and training for clinical users
  - **Telehealth scheduling and booking process and tools** - A planning assignment needs to be conducted to identify potential options for the future development of the scheduling system and process. Estimated at \$350,000 to provide adequate budget for internal resources and/or external support.
  - **Telehealth Equipment** - costs will be incorporated into service business cases based on needs (e.g. critical care, diabetes clinic, etc). Overall costs will need to be managed based on available capital and recurrent funding and clinical priorities for Tele-enabled services.



## FUNDING OPPORTUNITIES

Funding opportunity areas have been identified as part of strategic directions. This section provides a summary of all potential funding opportunities that have been identified as part of the strategy development. More engagement and validation of available funding will be required to validate the availability of funding and ongoing commitment of government towards Telehealth (e.g. Labor Federal Election promise to expand Telehealth MBS items but July 2011).

The following table provides descriptions for each of the potential funding sources identified in the table above:

Funding Source	Description
1 HNE Health New Funding	Funding that is available for supporting new and or improving methods of meeting the organisational strategic directions
2 NSW Health SCDM Program	NSW Health funding opportunities for health coaching and self management for NSW Health Severe Chronic Disease Management Program
3 Federal Health (Department of Health and Aging) Funding for Priority Areas	Commonwealth funding opportunities for Health (Department of Health and Aging) priority areas.
4 Federal MBS Items	Medicare services subsidised by the Australian government – Mental Health, Multidisciplinary Care Planning, new items not yet added  Federal \$400m campaign pledge (Labour Party) Election campaign pledge by Julia Gillard, Australian Labor Party, to invest \$392 million in online consultations and Telehealth for rural areas  Federal MSOAP pilot Medical Specialist Outpatient Assistance Program funding opportunities by partnering with the Rural Doctors Network pilot program until June 1011.
5 Federal Workforce Funding	Commonwealth funding opportunities that support workforce innovations to improve recruitment and retention.
6 Federal - National Rural and Remote Health Infrastructure Program	The National Rural and Remote Health Infrastructure Program is a competitive grants program that enables eligible organisations and individuals to apply for funding that will assist with the provision of essential health and medical infrastructure, equipment and service planning.
7 \$1.5m ICU bed funding	\$1.5m ICU bed funding (JHH and TBH) HNE Health funding identified by the Director of Primary and Community Networks as potentially available to support the Critical Care Network.
8 Federal - National Broadband Network (NBN)	The NBN is an Australian Government initiative which will deliver high speed broadband to all Australians.  Federal Digital Regions program Digital Regions Initiatives funds innovative digital enablement projects with state, territory and local governments. It takes a collaborative approach to improve the delivery of education, health and/or emergency services in regional, rural and remote communities.
9 Offset - Staff Travel and accommodation	Reallocation of funds which were identified to support staff travel and accommodation, when staff travel and accommodation is no longer required due to the use of Telehealth technologies.
10 Offset - Retrieval	Reallocation of funds which were previously identified to support retrievals. Funds become available as retrieval numbers are reduced as a result of Telehealth technologies.
11 Private - Charging Fee for service	Generating funds by charging for specific services and or use of facilities. Such as the provision of education and training.
12 Federal Rural and Remote Pharmacy Workforce Development Program	Funding available under the Rural and Remote Pharmacy Workforce Development Program which was established in recognition of the key role pharmacists play in maintaining the health of all Australians, particularly in rural and remote Australia.
13 Private - Private Public Partnerships	Funds generated by partnering with the private sector.
14 NGO institutes e.g. Cancer Institute	NGO's offering funding for specific disciplines
15 Others TBC	Other funding opportunities not otherwise specified.

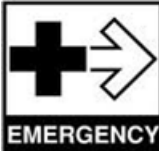

The following table provides an initial alignment of potential funding sources to Telehealth Strategy Initiatives (e.g. Strategic Directions).

Source of funding	Telehealth Initiatives					
	1. Acute Care	2. Ambulatory Care	3. Home Based Care	4. Workforce & clinical support	5. Governance	6. Technology
1 HNEH Internal Funding	◆	◆	◆	◆	◆	◆
2 NSW Health SCDM program			◆			
3 State and/or Federal Priority Funding		◆		◆	◆	◆
4 MBS Items (, MSOAP, \$400m Labor pledge, Medicare)		◆	◆			
5 Federal Workforce Funding				◆		
6 National Rural and Remote Health Infrastructure Program	◆					
7 \$1.5m ICU bed funding (JHH and TBH)	◆					
8 Digital Regions budget (and other NBN funding)						◆
9 Staff Travel and accommodation offset		◆				
10 Retrieval offsets	◆					
11 Charging Fee for service		◆				
12 Rural Pharmacy Workforce Development Program		◆	◆			
13 Private Public Partnerships			◆			◆
14 NGO institutes e.g. Cancer Institute		◆				
15 \$20 million election commitment for a new teaching & training facility at Tamworth Hospital				◆		
16 Others						

## 10. APPENDICES

### 10.1. Appendix 1 – Current Examples of Clinical Telehealth Adoption in HNE Health

#### Critical Care

**Mode of use**

- High definition Real-time video for stabilisation and retrieval support that can view patient and diagnostics with clarity
- Real time monitoring of ECG in several ambulances


**Overview**

- 2 out of 5 major centres (40%) provide stabilisation and retrieval support via Telehealth to 9 out of 58 rural remote sites (~16%)
- This not only has positive benefits for patients but also empowers staff and increases local morale. 12 Ambulances fitted with ECG transmissions.

**Staff Quotes**

- “VC is good for cases where complex cases require several specialists to get involved. We had this patient with an artificial lung issue and we set up a virtual session through Telehealth and got all the required people together to make a quick decision. A Hercules was then sent to pick up the patient. That would have taken much longer over the telephone” (Staff Specialist, Major Hospital)
- “I was the team lead for a cardiac arrest case for a nurse. I ran it from 400km away. Unfortunately she didn't survive but I was able to tell the staff at Moree that they had followed my instructions perfectly and there was nothing more they could do. That meant a lot to them” (Staff Specialist, Major Hospital)

#### Podiatry



**Mode of use**

- Store and forward of clinical photographs by local podiatrist
- Follow up VC with Metro podiatrist/MDT for diagnostic review and care plan

**Overview**

- Podiatry & Foot care Services are running a 6 month (Oct 2009 to Sep 2010) High Risk Foot Clinic Telehealth Pilot between Tamworth and Newcastle to improve the foot health of clients with diabetes and complex lower limb co-morbidities in the Tamworth Area (reducing the need to travel to Newcastle).

**Staff Quotes**

- “Initially we had to lure them [the Newcastle MDT] with Morning Tea... It was hard to get 7 doctors in a room to look at one screen... the younger doctors were able to really engage with the technology.” (Manager, Podiatry and Footcare Services )
- “The best outcome that came out of this project was that we've really helped Kate [the Tamworth Podiatrist] out. Before she had little links to other podiatrists but now she doesn't feel isolated anymore.” (Manager, Podiatry and Footcare Services )

## Drug & Alcohol



### Overview

- The Drug and Alcohol Network have been using Telehealth for 2 to 3 years to provide Opioid Maintenance Pharmacotherapy consultations.
- Specialists located in Newcastle, Tamworth and Armidale have patients based in Glenn Innes, Moree, Narrabri, Inverell and Muswellbrook and use Telehealth to regularly connect with them.

### Mode of use

- Real-time video for initial and follow up consults

### Staff Quotes

- “The use of Telehealth has resulted in a reduction in clinician and patient travel time. However, once every three months clinician will still need to conduct a face to face review” (GM, Drug & Alcohol Services)
- “Telehealth helped fill the gap left by a local pharmacotherapy specialist leaving the northern region, by allowing specialists in Tamworth and Armidale to provide care to his previous patients.” (GM, Drug & Alcohol Services)

## Mental Health



### Overview

- Mental Health is using Telehealth on a limited basis to conduct consults with patients and also to conduct clinician to clinician consults.
- Mental health has 10-15 units in VC rooms, and plans to buy 25 Desktop VC units and 25 laptops with webcams in the near future to bolster Telehealth adoption.
- Mental Health is the only discipline with MBS items for Telehealth consultations

### Mode of use

- Real-time video for Tele-psychiatry consults

### Staff Quotes

- “You need to be confident that it [Video Conferencing] works each time and every time” (Staff specialist, Major Hospital)
- “There was an initial reluctance to Telehealth in the past... clinicians were not sure if it would be as good [as face to face consults] ... a kind of fear of the unknown” (Staff specialist, Major Hospital)
- “The success factors for Telehealth are access, speed and quality” (Staff specialist, Major Hospital)

## Palliative Care



### Overview

- Palliative Care is involved with a research trial of Telehealth in conjunction with Greater Western Area Health Service and the local University
- Telehealth consult is provided to the patient and carer with the Palliative Care Specialist. The GP has provided a complete physical assessment within 1 week of appointment and a nurse is on site with the patient and carer
- Future vision is reducing outreach clinics and the increasing Telehealth clinics

### Mode of use

- Real-time video for Tele-psychiatry consults
- Nurse on site with patient
- GP providing complete physical assessment within 1 week of appointment

### Staff Quotes

- "There is a significant impact to providing outreach clinics to my staff, they end up doing 12 -14 hour days. By introducing Telehealth clinics I can improve the use of my staffs time and the money saved in travel cost can be redirected to their ongoing education" (Staff specialist, Major Hospital)
- "The risk with increasing the use of Telehealth services is that it may end up as being the only option care." (Staff specialist, Major Hospital)

## Clinical Education



### Overview

- The Hunter New England Training (HNET) is the only regional based psychiatry training program in Australia and New Zealand.
- The major training programs include Royal Australian and New Zealand College of Psychiatrists program, International Medical Graduate (IMG), Junior Medical Officer (JMO) & Registra Training Program and Hospitalist Program.

### Mode of use

- Real time videolinking multiple local, national and international sites
- Sessions recorded and stored on DVD

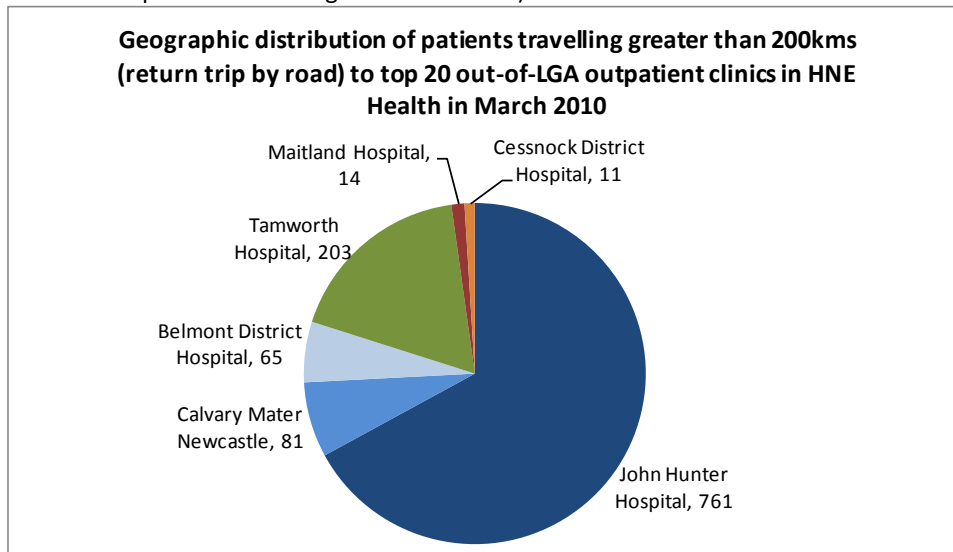
### Staff Quotes

- "The outcomes of the program are excellent, with our regional trainees having a 95% success rate and our rural trainees having a 85-95% success rate. Compared to the Australian and New Zealand standard success rate of 57%." Director, Training Unit
- "It makes it hard when you are delivering training when not all of your sites have the same standard of equipment. For example some sites can see the presenter and the PowerPoint material, which is excellent, but other sites can either see one or the other." Project Officer, Training Unit

## 10.2. Appendix 2 – Summary of Activity Data

### Patient Travel

The following graph identifies the key sites that patients are travelling more than 100km to attend a specialist clinic (top 20 clinics with patients travelling from out of LGA).



Data Source: HNE Health IPM. Snapshot Data March 2010 Outpatient Clinics, Patients and Home Suburb locations.

The following table provided details of the top 20 clinics and count of patients by travel distances incurred to attend the clinic.

Table of top 20 clinics by patients travelling out of LGA to attend outpatient clinic in HNE Health during March 2010								
Distance from patient suburb to hospital (km) Return trip by road	0 - 200	201 - 400	401 - 600	601 - 800	801 - 1000	1001 - 1200	1201 - 1400	Total
# of patients	12214	832	167	82	37	15	2	13349
% of patients	91%	6%	1%	1%	0%	0%	0%	

Orthopaedic Clinic JHH	2158	90	13	10	7	3	1	2282
TMH Antenatal Clinic EXT- 52096	864	12		2				878
JHH Antenatal Clinic - ext 13600	1160	47	2	2	2			1213
JHH Neurology Medicine Clinic	613	84	20	8	9	1	1	736
Mater Melanoma Unit	533	61	13	5	2			614
Belmont Midwifery Group Practice Clinic	997	55		10				1062
Tamworth Plaster Clinic	371	58	10	10				449
JHH Infusion Clinic	481	19	2					502
Rheumatology Clinic	601	31	6	1	1			640
Sleep Disorder Centre - JHH	460	47	3	6	3			519
JHH Ears, Nose & Throat Clinic	349	65	6	1	2			423
Tamworth Paediatric Clinic	426	37	18					481
CDH Pre Admission Clinic EXT- 10548	341	11						352
JHH Peri Operative Clinic	359	29	14	7	2	3		414
JHH Eye Clinic	415	41	4	1		3		464
JHH Immunology Clinic	408	40	4	5	4			461
Tamworth Gynaecology Clinic	265	40	28	2				335
JHH Neurosurgery Clinic	213	42	20	12	4	2		293
JHH Diabetic Clinic	597	14	4			2		617
Dermatology Clinic	603	9			1	1		614

Note: Table excludes patient travelling between 0 and 200kms

**Staff Travel**

The following table shows the number of kilometres travelled, the number of clinics and the number of patients for a snapshot of Outpatient clinics in March 2010.

	Facility Providing Service	Outreach Clinic	km travelled	Number of clinics	total km travelled	No of Patients	average km per patient
1	John Hunter Hospital	Tamworth Transplant Access Outreach Clinic	563	4	2252	35	64
13	Tamworth Hospital	Quirindi Obstetric Clinic	143	4	572	29	20
2	John Hunter Hospital Children's Hospital	Tamworth Paediatric Outreach Clinic	563	1	563	14	40
23	The Maitland Hospital	Cessnock Anti Natal clinic	56	9	504	107	5
15	Rankin Park	Nelson Bay Geriatric Clinic	120	4	480	18	27
12	Tamworth Hospital	Gunnedah Paediatric Clinic	156	3	468	24	20
16	John Hunter Hospital	Port Stephens Antenatal Clinic	116	4	464	63	7
3	Armidale	Tenterfield Geriatric Clinic	382	1	382	7	55
19	Manning Base Hospital	Forster Pre-Op Clinic	76	5	380	51	7
4	Tamworth Hospital	Coonabarabran Paediatric Clinic	366	1	366	7	52
5	John Hunter Hospital Children's Hospital	Taree Paediatric Outreach Clinic	336	1	336	17	20
6	John Hunter Hospital	Taree General Medical Outreach Clinic	336	1	336	8	42
7	John Hunter Hospital	Singleton Renal Clinic	304	1	304	12	25
8	John Hunter Hospital	Muswellbrook Respiratory & Sleep Medicine Clinic	246	1	246	39	6
9	John Hunter Hospital Children's Hospital	Muswellbrook Paediatric Outreach Clinic	246	1	246	10	25
10	Tamworth Hospital	Armidale Nephrology Clinic	221	1	221	8	28
11	Armidale	Glen Innes Geriatric Clinic	197	1	197	9	22
22	The Maitland Hospital	Raymond Terrace Paediatric Outreach	60	3	180	9	20
14	Tamworth Hospital	Quirindi Gynaecology Clinic	143	1	143	8	18
20	John Hunter Hospital	Maitland Diabetes Centre - HADS	63	2	126	45	3
17	Calvary Mater Hospital	Tomaree Medical Clinic	109	1	109	4	27
18	The Maitland Hospital	Dungog Paediatric Clinic	102	1	102	7	15
21	John Hunter Hospital Children's Hospital	Maitland Paediatric Outreach Clinic	63	1	63	11	6

Data source: March 2010 IPM. Snapshot of outpatient clinics during March 2010

### 10.3. Appendix 3 – Tele-Service Planning Considerations

Many lessons can be learnt from international Telehealth programs regarding an overall approach for supporting Telehealth adoption and change management. The following information are lessons learnt from Canada based on their experiences with CHIPP-Funded Telehealth Projects. More information can be found at [http://www.hc-sc.gc.ca/ohih-bis/about\\_apropos/chipp-ppics/proj/projprov\\_e.html](http://www.hc-sc.gc.ca/ohih-bis/about_apropos/chipp-ppics/proj/projprov_e.html)

- A modest amount of contingency funding can be used effectively to install additional hardware or make simple changes to cabinetry and other resources to help ensure positive acceptance.
- Keep technology options open - consider leasing as an option in the short term.
- Develop a Telehealth education package; disseminate to those potentially affected by Telehealth in order to educate them and prepare them for the Needs Assessment questionnaire.
- Review, establish and formalize relationships with potential Telehealth sites review the previous Telehealth activities that have occurred in the region and other similar locations. Learned from their success/mistakes;
- Conduct a resource inventory including any current Telehealth technologies and telecommunications; people resources (those involved in Telehealth and those interested in participating (referral and remote).
- Conduct a needs assessment of all sites potentially affected by Telehealth. The results will help determine what clinical, educational and administrative needs have priority, and will help identify those interested in Telehealth including 'champions';
- Match identified needs to the ability to meet these needs via Telehealth (this ability includes having health professionals who want to use Telehealth).
- Review types of Telehealth technology and telecommunications links at all potential sites; ensure new technology is interoperable with the referral centres, meets the technical requirements including security, is compatible with the referral sites, and meets the needs of the community;
- Choose a well qualified Coordinator to support the Tele-service;
- Technical aspects--i.e. the ordering, receiving and installation of the equipment--must be reasonably mastered before one starts providing services
- Good communication, education, technical support, commitment from key decision-makers, regional governance, and clinical and technological areas working together, are the primary factors that contributed to the development of the network;
- Leadership from program "champions" and clinical coordinators in each clinical area and at each Telehealth site are essential for continued development and optimal implementation; there is an ongoing need to identify and support these clinical champions;
- The size of the network can hamper its implementation. A strategy may be to limit initial implementation to fewer sites but those with strong commitment and leadership; and then increase the network size;
- Telehealth projects should not be developed and implemented in isolation of other related projects within the province.
- Implementation must be driven by and sensitive to local needs, cultures and resources;
- Scheduling a telemedicine appointment must be as easy as scheduling a face-to-face consultation and the referral process should be automated;
- Physicians must be appropriately reimbursed and credentialed by appropriate licensing bodies to deliver telemedicine services;
- There is a need for a comprehensive risk identification process early in the project start up. The process of identifying risks and creating a planned mitigating strategy allows for easier identification and resolution of risks and issues as they arose.
- The willingness of consulting physicians to provide Telehealth consultations should be ascertained before beginning a needs assessment survey;
- A Telehealth program is very complex and represents major organizational change, especially for providers. Involvement of the consulting and referring physicians in all aspects of Telehealth, attention to ease of access and use, and appropriate incentive utilization mechanisms are requirements for success.



## 10.4. Appendix 4 – Tele-service Adoption Checklist

The following adoption checklist has been created to support ongoing evaluation of new proposals and business cases for Telehealth enabled services.

DETERMINATION OF NEEDS		
In developing the project consider the following:	Yes / No	Comments
The clearly identified health care needs		
Anticipated health outcomes of the project		
Clinical and administrative needs of all parties involved		
Organizational infrastructure needs; for example, a facility upgrade and/or change to accommodate the project		
Human resource needs		
Financial resource needs		
Training and education requirements		
Technical infrastructure requirements – Telehealth equipment, telecommunications and network technologies		
Medical Equipment and/or Medical Consumables required to deliver the service		
CONFIRMATION THAT TELEHEALTH IS AN APPROPRIATE OPTION		
Will the Telehealth project/service:	Yes / No	Comments
Align with requirements of HNE Health care policy and directions?		
Help Address NSW Health Goals?		
Help meet HNE Health strategic plans and goals?		
Meet specific national, provincial and regional objectives?		
Improve levels of health service delivered?		
Improve equity of access to health services?		
Help reduce unnecessary patient travel?		
Improve the quality of health services delivered?		
Promote efficiency and effectiveness of health services delivered?		
Maintain or support existing referral patterns?		
Address rural practitioner recruitment, retention and support needs?		
Help reduce unnecessary practitioner travel?		
Has the service 'Clinical Champion':	Yes / No	Comments
Reviewed lessons learned from other local and international Telehealth project experiences?		
Identified project leaders and champions at all sites?		
Considered practitioner reimbursement, licensure and liability issues?		
Assessed existing telecommunication infrastructure and confirmed that appropriate access is/will be possible at all sites?		
Conducted a risk management assessment?		
Considered procedures to ensure quality assurance, control and improvement?		
Confirmed that the technologies to be used meet common and open standards?		
Considered whether the technologies to be used will contribute to the inter-connectivity and interoperability of area, state and national health technology infrastructure?		
Considered strategies to ensure privacy, confidentiality and security of information?		
Considered ethical, cultural and linguistic issues at all sites?		
Considered strategies to ensure informed consent?		
Identified implications medico-liability for specific service/advice?		
Identified requirements for clinical documentation to support Telehealth based service (e.g. clinical notes)?		
FINANCIAL AND ADMINISTRATIVE CONSIDERATIONS		
Have the following been addressed:	Yes / No	Comments
Preparation and acceptance of a business case?		
A cost benefit and impact analysis?		

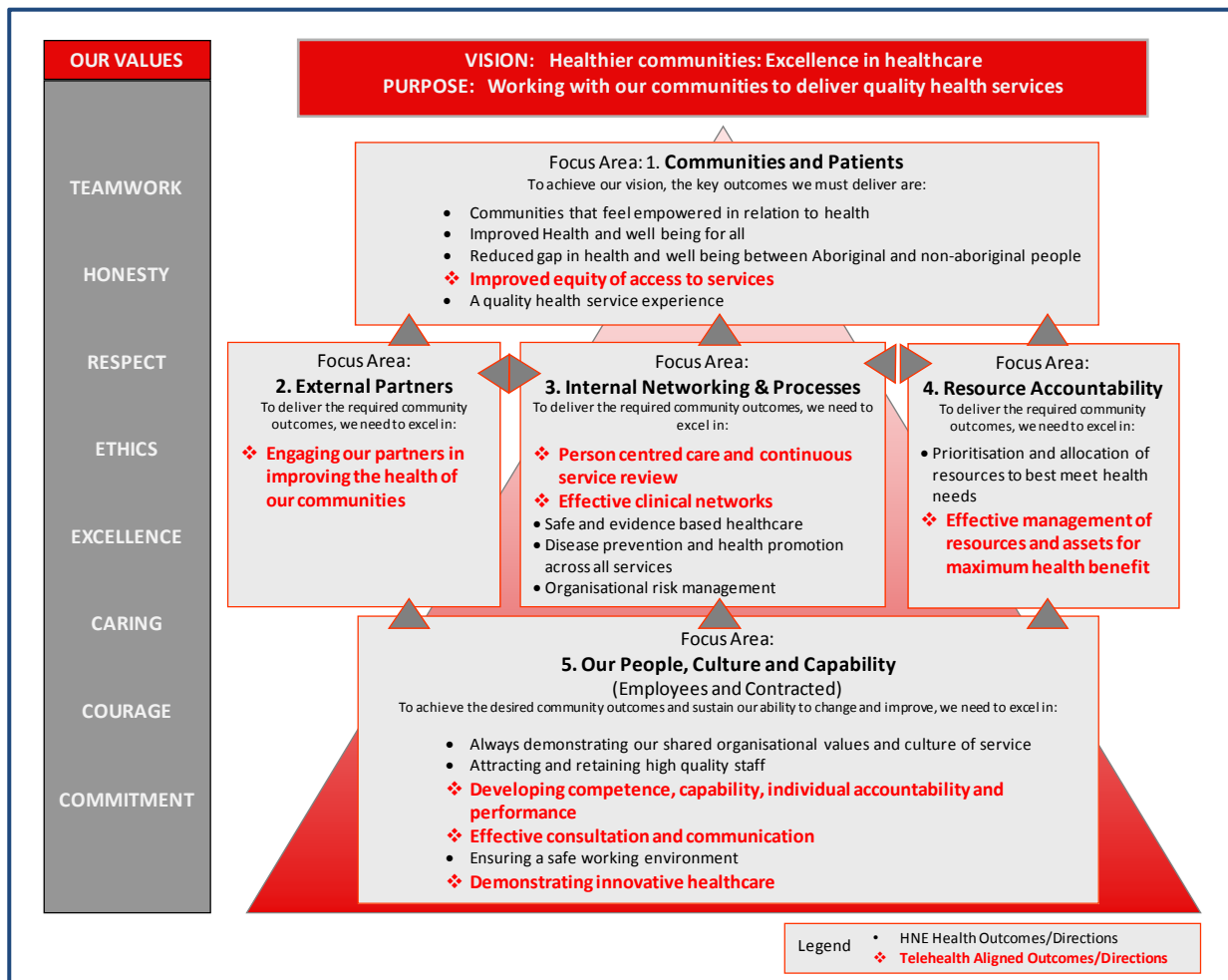
Potential partnerships?		
Identified funding sources?		
Project sustainability - can ongoing operational costs of the project be met from existing funding or is additional funding required?		
Membership for service steering and/or advisory committee?		
Project budget established that identifies both implementation and ongoing operational costs?		
Implementation plan that identifies timelines and critical milestones?		
Development of a strategy for project communication?		
<b>EVALUATION</b>		
As part of the project evaluation requirements, has:	Yes / No	Comments
A project evaluation framework been established?		
Base-line data against which the project can be quantifiably evaluated been collected?		
A technology assessment component been included in the evaluation?		

## **10.5. Appendix 5 – Example: Tele-Diabetic Clinic Adoption**

*Please refer to external document – ‘Diabetes Example Assessment Toolkit v.1.doc’*

### 10.6. Appendix 6 – Alignment to HNE Health Strategic Directions

Based on the HNE Health Strategy Map, this strategy has identified HNE Health outcomes / directions that are supported by the Telehealth strategy and initiative areas.



### 10.7. Appendix 7 – Key Clinical Focus Areas for Telehealth

Through the engagement process, stakeholders identified numerous new potential applications for accessing specialists/specialty services through Telehealth. The following table identifies key focus areas and priorities that have been identified by HNE Clinicians for ongoing adoption of Telehealth enabled services.

**Acute Care**

Care Type	Clinical Area	Emerging Telehealth Opportunity	Target Tele-Service Volumes	Clinic (Patient) Locations	Specialist Primary Location	MBS Funding Issue	Service Clinical Lead	Current Status
Critical Care	Stabilisation and retrievals support	Extend stabilisation and retrieval support to priority sites	Estimate of 1,000 requests per annum for all rural and regional sites	TBC - 6 sites in the north and 6 sites in the south. See critical care section for more data	Patient flow unit (JHH, TBH TBC)	No	Critical care Stream	Expressed interest
	Emergency medical advice	Commence non-urgent emergency support	Estimate of 18,983 requests per annum for all HNE Health sites	TBC	Patient flow unit (JHH, TBH TBC)	No	Critical care Stream	Expressed interest
Inpatient	Clinical oncology pharmacy services	Medication review via Telehealth	1 consult for 95% of patients 2 consults for 5% of patient # of patients total and consults per month TBC	Taree Muswellbrook Moree Armidale	Mater Calvary	No	Rosemary James	Expressed interest. Additional resources required.
	Organ Donation	Carer Consent	6 per year	Various	JHH	No	Nicole Coleman	Expressed interest.
	Subacute	Rehabilitation Support: Tele-stroke	TBC	Initially McIntyre and Tablelands then peel and MEHI	Armidale	No	TBC	Expressed interest

**Ambulatory Care**

Care Type	Clinical Area	Emerging Telehealth Opportunity	Target Tele-Service Volumes	Clinic (Patient) Locations	Specialist Primary Location	MBS Funding Issue	Service Clinical Lead	Current Status
Specialist Clinics	Podiatry	High Risk Foot Clinic	6 patients 2 clinics per month	Tamworth	JHH	No	Nicole Martin Chris Perfrement	Pilot being evaluated
	Gynaecological Cancer/ John Hunter Perioperative Service	Referral Assessment Pre and Post Operative Clinics	45 new patients/yr 3 to 4 consults/patient	Tamworth	JHH	Yes - TBC	Dr Geoff Otton and Dr Ross Kerridge	Proposal submitted
	Drug and Alcohol	Extend to areas outside of pharmacotherapy	TBC	TBC	JHH/TBH	Yes – TBC	Vi Hunt	Interest expressed
	Mental Health	Addition of ~20 new desktops / laptops with webcams	TBC	TBC	JHH/TBH - TBC	No	Dr Dinesh Arya	In progress
	Genetic Counselling:	Re-establish previous pilot relating to developmental	TBC	TBC	TBC	TBC	TBC	Previous pilot

Care Type	Clinical Area	Emerging Telehealth Opportunity	Target Tele-Service Volumes	Clinic (Patient) Locations	Specialist Primary Location	MBS Funding Issue	Service Clinical Lead	Current Status
		disability						
	Diabetes	Type 1 diabetes clinics	15 patients in total 5 consults per month	Narrabri	JHH	Yes	Dr. Sham Acharya	In progress but no MBS item funded by goodwill
		Ante-natal Type 2	10 patients and 10 consults/patient for 9 months	TBC	JHH	Yes	Dr. Sham Acharya	Assessing suitability for MSOAP Pilot trail with Rural Doctors Network
		Ante-natal Gestational	100 patients each with 2 consults in the last trimester of pregnancy	TBC	JHH	Yes	Dr. Sham Acharya	Assessing suitability for MSOAP Pilot trail with Rural Doctors Network
		Infusion pump Type 1	TBC	TBC	JHH	Yes	Dr. Sham Acharya	Assessing suitability for MSOAP Pilot trail with Rural Doctors Network
	Palliative Care	Adult and Paediatric Outreach	TBC	Cessnock Muswellbrook Manning Tamworth Toronto Morisset Singleton	Mater Calvary JHH Children's	Yes	Professor Katie Clark – Adult Dr Sharon Ryan – Paediatric	Expressed interest, separate academic research project into Telehealth. Guidelines for pilot being developed
	McIntyre Multi Specialist Clinic	Multi Specialist Clinic	Approx. 20 per month – TBC phase 2	McIntyre Cluster	Various based on the patient need	Yes	TBC	Early planning phase in the Rural Health Services Program
	Women's health	Colposcopy diagnosis	55 patients in 2004, 52 consultations. 2 had repeat visits	TBC	Tamworth 1 doctor 1 nurse	Yes	Dr Keith Hollebhone and Jenny Bath	Interest to reinstate 2004 pilot
	Dementia	Care management	TBC	HNE Health area-wide	Northern Area	No	Vicki Brummell	Early Planning and Design Phase
	Rehabilitation	Consultancy via a hub and spoke model to remote/rural locations. Targeting non rehabilitation staff across the area.	TBC	HNE Health area-wide	RNC Rankin Park Tamworth Rehab Unit Wingham Rehab Unit	Yes	Ian O'Dea	Early Planning and Design Phase
	Cancer	Post Discharge Psycho-oncology	TBC	TBC	TBC	TBC	Brian Kelly	Funding application to the Cancer

Care Type	Clinical Area	Emerging Telehealth Opportunity	Target Tele-Service Volumes	Clinic (Patient) Locations	Specialist Primary Location	MBS Funding Issue	Service Clinical Lead	Current Status
		Support						Institute
Group Based Care	Aged Care	Falls Clinic – exercise class	Future Target: 2 groups/ week with 24 per group (1 hub and 2 remote sites)	Narrabri	Rankin Park	No	Megan Lancaster	Pilot in progress.

### Home Based Care

Care Type	Clinical Area	Emerging Telehealth Opportunity	Target Tele-Service Volumes	Clinic (Patient) Locations	Specialist Primary Location	MBS Funding Issue	Service Clinical Lead	Current Status
Residential Aged Care Support	Outreach to residential Care Facilities	Conducting Residential Aged Care Facility emergency triaging by Telehealth	TBC	TBC	JHH, TBH - TBC	TBC	TBC	TBC
Home Based Care	Hospital in the Home	Specialist Consult to the home	25 patients	TBC - Various locations - Patient's Home	Newcastle Community Health Centre	No -TBC	Chris Geraghty	Equipment received and initial trial of video conferencing into the home soon to commence
	Chronic Disease Management (e.g. Diabetes, CHF, COPD)	Home Monitoring / Health Coaching	TBC	TBC - Various locations - Patient's Home	TBC	TBC	TBC	

## 10.8. Appendix 8 – HNE LGA Population Data

The following table has been sourced from:

- Australian Bureau of Statistics: Local Government Area (LGA) Population Statistics (2010)

The metro centres for Health services are identified as the LGAs of Armidale, Greater Taree, Maitland, Greater Newcastle (inc. Newcastle & Lake Macquarie) and Tamworth.

LGA	Pop_2010	Metro Centre for Health Services	Rural Locations for Health Services
Armidale Dumaresq	24723	<b>24723</b>	
Cessnock	50414		50414
Dungog	8576		8576
Glen Innes Severn	9044		9044
Gloucester	5009		5009
Great Lakes	36412		36412
Greater Taree	48225	<b>48225</b>	
Gunnedah	11805		11805
Guyra	4404		4404
Gwydir	5338		5338
Inverell	16237		16237
Lake Macquarie	196872	<b>196872</b>	
Liverpool Plains	7817		7817
Maitland	71545	<b>71545</b>	
Moree Plains	14273		14273
Muswellbrook	16268		16268
Narrabri	13339		13339
Newcastle	154795	<b>154795</b>	
Port Stephens	68196		68196
Singleton	24033		24033
Tamworth Regional	57583	<b>57583</b>	
Tenterfield	6846		6846
Upper Hunter Shire	13594		13594
Uralla	6029		6029
Walcha	3268		3268
	<b>874645</b>	<b>553743</b>	<b>320902</b>
	<b>100%</b>	<b>63%</b>	<b>37%</b>