Home Monitoring of Chronic Disease Telehealth Trial

Organisational challenges and moving towards a national deployment model

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Funded by the Australian Government
National Telemonitoring Trial

- CSIRO is lead organisation
- Total project size $5.4m ($3.02m Telehealth Pilots Program)
- Six trial sites in five states (revised 5 Trial Sites in 5 States)
- Focus on chronic disease management in the community
- Four different models of care represented
- Trial duration 20 months – monitoring ended in Dec 2014
CSIRO Telehealth Trial – 6 Sites

- Launceston / Northern Tasmania
- Ballarat and the Grampians (Vic)
- Townsville (QLD)
- Canberra and ACT
- Penrith (NSW)
- Greater Western Sydney (NSW)

Trial Design

- Case Matched controls
- Before-After-Control-Impact (BACI)

Aims of Trial

- To demonstrate how Telehealth services can be successfully deployed Nationally by piloting services in six different settings across five states
- To gather evidence on how Telehealth services can be scaled up to provide an alternative cost effective health service for the management of chronic disease in the community
- Development and deployment of an Automated Risk Stratification System for triaging patients according to their health status
Our partners
At End Dec 2014...

Total enrolled
N=287

Test Group
N=113

Control Group
N=174

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Test</th>
<th>Control</th>
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<tbody>
<tr>
<td>Age (Years) mean (SD)</td>
<td>71.1±9.2</td>
<td>72.0±9.5</td>
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<tr>
<td>Male%</td>
<td>65</td>
<td>56</td>
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<tr>
<td>BMI</td>
<td>30.6±8</td>
<td>28.0±7</td>
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CSIRO e-Health Research Program | Health & Biosecurity Flagship | Rajiv Jayasena
The participants in this trial
(At each test site)

- 25 Test patients connected to fast broadband and supplied with home monitoring telehealth services
- 50 Control patients (case matched to Trial subjects)
- The Test patients’ usual care community nurse/carer
- Clinical Nurse Coordinator(s) – Review patient data and coordinate clinical management of patients
- Project Officer assisting with all non-clinical duties for trial
- Clinical Trial Coordinator (CSIRO Liaison Officer with Trial sites)
- CSIRO Research Teams
  - Project Management
  - Clinical trial execution and data analysis
  - Data management and server technologies
  - Data analytics – Risk Stratification and Decision Support
Our Approach to Telemonitoring

- Health Monitor
- Data Storage
- Mobile Devices
- Clinical Health Portal
- PCEHR
- Family & Carers
- GP
- CARE COORDINATOR
- Community Nurse
- Hospital
- Low Care
- Patients
- High Care
Care Models Trialled

Hospital Based Chronic disease management unit (1 Trial Site)

• Chronic Care Program delivered via team of specialist nurses
• Main goal to improve patient quality of life
• Clinical consultation and patient centred care
• Encourage self-management via education and support
• Encourage collaboration between health providers
• Focus on improving the management of patients with Chronic Obstructive Pulmonary Disease (COPD), Chronic Heart Failure (CHF) and Diabetes
Care Models Trialled

Local Health District and Community/Ambulatory (2 Trial Site)

• Specialist Chronic Disease nurses and/or community nurses perform Care Coordinators for the trial - existing long term clients

• Continue as normal care for their condition by their care team, usually the Community nurse/ carer, GP/Specialist supported when necessary by other health workers

• Community/Ambulatory Health Consultations (both Centre-based and Home-based Care)

• Primary focus to assist people manage their chronic disease and reduce the incident of Emergency Department Presentations and Acute Hospital Admissions
Care Models Trialled

Medicare Local led (2 Trial Site)

• GP and community nursing centred care

• Medicare local providing Care coordination and Telehealth service deployment

• Additional clinical support provided as required by a Clinical Nurse trained in chronic disease home telemonitoring from Medicare Local.

• Facilitate linkages and communication necessary to ensure that GP and other community health providers remain integral to the care of patients
Care Models Trialled

Aged Care Focus (1 Trial Site)

• GP centred care

• Community registered nurse provide ongoing clinical support to patients on this trial on a daily basis.

• Team of *Allied Health professionals* e.g. CNC’s, Physio’s etc that provide additional support when required during this trial
Challenges we have had to manage!

Policy/System/Project Scope Challenges

• Access to hospital data for patient selection required six different Ethics Applications! This caused significant delays!
• Role of Ethics Committees in these projects need to be questioned as their jurisdiction appears to be extending way beyond ethical matters and matters related to patient data confidentiality and well being.
• First 6 months of recruitment needed to be via NBN fiber-to-the-home: NBN rollout patchy and behind schedule. Led to “smearing” of patient numbers and time schedules
• Identifying and recruiting patients proved more difficult than anticipated
• GPs need to consent patient participation. Responses were on occasion very slow and lead to delays in connecting patients.
Challenges we have had to manage!

People challenges

• Capacity to implement/participate in novel new programs within Local Health Districts very limited.
• Delays in site specific ethics due to lack of internal communication
• Non suitable patient list from program causing delays in recruitment
• Patient recruitment delayed (undermined)
• Staff willingness to try new methods of care can be very limited
• This site was eventually decommissioned!
• Workplace cultures sometimes in opposition to objectives of the project
• Could only manage 5-8 of the total 25 patients due to model of care
• Providing care than coordinating care
• Additional patient selection criteria introduced without consultation with site PI
Challenges we have had to manage!

Technical challenges

- NBN ??
- Multiple service installation steps/visits
- Connecting patients to range of internet services can be problematic!
- ADSL, ADSL2, VDSL and 3G/4G wireless
  - Depends on who owns the telephone line
  - Additional charges for activation at exchange
  - ADSL speed depends on distance from exchange. Impacting use of HDVC
- Limitation of home wireless network due to where the modem was located
- Video conferencing: VGA vs HD
Three Sites Offering Telehealth beyond trial

Chronic Care program at Canberra Hospital, ACT

• Currently 11 patients continued from trial. Capacity 25 patients
• Care coordination by team of specialist nurses
• Consists of remote monitoring of patients with active follow-up of abnormal results either by contacting patients by phone, home visit or referring them to their GP or hospital
• Daily recording of observations aims to promote self management and stabilisation of the individual’s chronic disease, as well as decreasing the incidence of hospitalisations
• Home Telemonitoring Service will be shaped over the coming months to meet the needs of specific patients in the community with chronic disease who need closer supervision of their health for COPD, CHF and diabetes
Djerriwarrh Health Service in Victoria

• Currently there are 12 patients on Telehealth monitoring. Capacity up to 25 Telehealth patients

• Telehealth has been used more widely than during the trial and three priority areas have been identified
  I. Young mothers with Gestational Diabetes
  II. Diabetics with several co-morbidities to facilitate self management
  III. Patients undergoing chemotherapy

• Daily monitoring of health data via clinical portal by one care coordinator. Will orchestrate care over the phone, home visit or referred to GP/emergency as required

• Funded by HACC (as a short or long consult) and Telehealth equipment and access to clinical portal charges funded internally by Djerriwarrh Health Services
Anglican Retirement Villages in NSW

• Currently there are 5 patients

• Capacity up to 20 Telehealth patients to have a scale-up-ready service for future expansion. To implement up to 5 Telemonitoring patients in each of ARV’s 4 regions
  I. Northern Sydney
  II. Southern Sydney
  III. South Coast
  IV. Greater Western Sydney

• One clinical care coordinator together with a community nurse will orchestrate care over the phone, home visit or referred to GP/emergency as required

• One patient is funded by CDC package and others are funded fully by ARV
National Deployment Model:

1. Clinical Care Coordinator is a Critical Role to the success of Telehealth services

2. CCCs Orchestrate the optimal response from care givers (family, community nurses, GPs etc) but DO NOT provide direct care!

3. Who should manage this critical care coordination role?
   - Best to be as close to the clinical coal face as possible and working closely with Local Health Districts
   - A new role for experienced community nurses?
   - Could be managed by the hospital, the LHD or the organisations providing community nursing services ie Not For Profits such as ARV, RDNS, BCS etc
   - In order to best align those that pay and those that benefit we conclude that the LHD is best placed to manage the care coordination role for all care providers in the local health district. The LHD could also outsource this role to the private sector but maintain governance oversight.
Thank you

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Initiative Funded by the Australian Government
Costing of Telehealth Services

The Numbers - Aged Care Cost Per Patient Per Year:

- Home health monitoring: $1,600 (~$2,000 in Aust)
- In Home Nursing Visitation: $13,121
- Nursing Home: $77,745

Source – US Veterans Health Administration (VHA)

The Numbers: Health Care Cost Per Patient Per Day:

- Telecare: $3.46
- Telehealth: $7.14
- Acute Hospital Bed: $967.00

Source - Feros Care (Aust) – Telehealth Care Pilot Program
Estimated cost of the Telehealth service provided in the CSIRO Telehealth Trial

1. Subscription cost of services $7.00 per day
   (includes video conferencing, messaging and a comprehensive suite of instruments)

2. Monitoring and Triage $4.00 per day

3. Contribution to Internet costs $1.00 per day

4. Total Daily Subscription $12.00 per day

Low cost tablet solutions available that reduce costs for monitoring of early stage chronic disease (single condition) to as low as $3-4 / day