

**medicare local**  
Townsville - Mackay  
Connecting health to meet local needs

**Randomised controlled trial of an in-home monitoring intervention to improve health outcomes for type 2 diabetes: trial protocol**

Dr Karen Carlisle  
Townsville-Mackay Medicare Local

The Trial is supported by funding from the Australian Government under the Digital Regions Initiative National Partnership Agreement, and the Queensland Government.

Medicare Locals gratefully acknowledge the financial and other support from the Australian Government Department of Health and Ageing.

**Type 2 diabetes**

**medicare local**  
Townsville - Mackay  
Connecting health to meet local needs

- Worldwide prevalence of diabetes is on the increase
- Type 2 diabetes accounts for over 85% of cases in Australia
- Annual cost for people with type 2 diabetes is estimated at \$6 billion
- Can be controlled through healthy lifestyle and regular monitoring
- The NBN (National Broadband Network) diabetes trial is one approach to managing type 2 diabetes

**Townsville**

**medicare local**  
Townsville - Mackay  
Connecting health to meet local needs

**Map of Townsville NBN Rollout areas**

- Area A: Service available
- Area C: Work commenced

Source: <http://www.nbnco.com.au/rollout/rollout-map.html>

**medicare local**  
Townsville - Mackay  
Connecting health to meet local needs

People with type 2 diabetes  
HbA1c  $\geq$  7.5%  
Living in NBN rollout area

Control patients

Intervention patients

Usual care

Remote monitoring +  
Trial Diabetes Care Co-ordinator  
+ HD videoconferencing  
to complement GP care

12 months

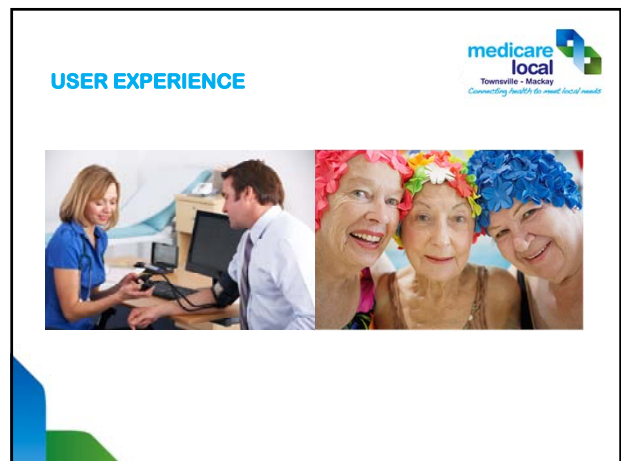
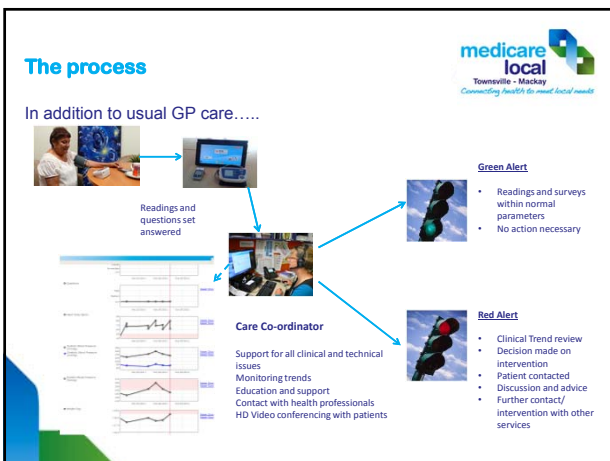
**Outcomes measured:**

- Change in patient biomedical, psychological, self-management and quality of life
- Patient and GP satisfaction with care model
- Use of technology and HD videoconferencing
- Cost-effectiveness of intervention

**Primary outcome is effect on HbA1c**

### Research questions

Research question	Sub questions	How we will measure benefits
Does remote access to clinical staff supported by telehealth technologies over high speed broadband lead to improved diabetic control in a way that benefits patients, carers and clinicians and improves the overall health system?	Does it improve health outcomes?	<ul style="list-style-type: none"> <li>Biomedical measures (eg HbA1c, BP)</li> <li>Lifestyle measures (eg smoking, nutrition, alcohol, physical activity)</li> <li>Psychological measures (eg quality of life, mental health, wellbeing, social support)</li> <li>Self management</li> </ul>
	Does it improve the care or experience for patients, carers and clinicians?	<ul style="list-style-type: none"> <li>Patient satisfaction</li> <li>Carer satisfaction</li> <li>Clinician satisfaction (eg clinician confidence with telehealth)</li> </ul>
	Does it improve primary care capacity and integration of care?	<ul style="list-style-type: none"> <li>Access to primary care (eg number of Care Coordinator sessions, diabetes educator sessions, allied health professional sessions)</li> <li>Use of secondary and tertiary care (eg number of referrals to specialists)</li> <li>Percentage of clinicians using cycles of care</li> </ul>
	Does it improve service utilisation and efficiency of the healthcare workforce?	<ul style="list-style-type: none"> <li>Cost of care per patient</li> <li>GP visit costs</li> <li>Care Coordinator costs</li> </ul>
	Does it utilise ubiquitous high speed broadband?	<ul style="list-style-type: none"> <li>Adoption of technology (eg number of video conferences)</li> <li>Acceptability (eg ease of use of technology, satisfaction with technology)</li> </ul>



**medicare local**  
Townsville - Mackay  
*Connecting health to meet local needs*

### Patient K

- Male, married, aged 64
- Ex-smoker, moderate drinker, poor diet
- Engages in minimal physical activities
- Personal goal to lose weight and avoid going on insulin
- High blood glucose readings at the start of the trial
- Through education and support from care co-ordinator Patient K reduced alcohol intake and portion size
- More recent readings show a marked decrease in blood glucose
- Patient K has lost weight
- 3 monthly HbA1c reduced by 1.6%

**Blood Glucose**  
Levels and trends between 0.0 and 0.0 (Target: Level between 0.0 and 0.0)

Date	HbA1c%	New HbA1c mmol/mol
May 2012	8.5	69
Sept 2012	6.9	52

**medicare local**  
Townsville - Mackay  
*Connecting health to meet local needs*

### Patient J

- Male, married, aged 73
- Ex-smoker, occasional drinker
- Engages in minimal physical activities, recently started using a wheelchair due to MS
- Personal goals, better health and take a trip to visit a friend
- Ill health has impacted on achievement of goals
- Focus on more social interaction such as taking trips to local shopping centre and joining local mens group
- Feels reassured that his health is being monitored
- Little or no change in blood glucose levels

**Blood Glucose**  
Levels and trends between 0.0 and 0.0 (Target: Level between 0.0 and 0.0)

Date	HbA1c%	New HbA1c mmol/mol
August 2011	8.6	70
April 2012	6.6	49
Sept 2012	7.2	55

**medicare local**  
Townsville - Mackay  
*Connecting health to meet local needs*

### Challenges so far?

Government Strategy

- National Digital Economy Strategy/National E-health Strategy
- RACGP Standards for General Practitioners offering video consultations/MBS telehealth items
- Is it enough to drive the change required for widespread implementation?

Technology

- NBN not mainstream yet
- High definition video conferencing very new
- New technology highly sensitive and complex

Organisational factors

- Organisational readiness
- Clinical buy-in
- Relationship building

**medicare local**  
Townsville - Mackay  
*Connecting health to meet local needs*

### In conclusion

- The trial aims to provide a robust evidence based to extend this model into other health conditions and into regional areas
- Challenges of implementation similar to other telehealth trials
- Future benefits for:
  - GPs and Allied Health Professionals
  - Rural/remote & multi-cultural communities/ethnic diversities
  - Aged care