Townsville Teleoncology Network

by

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Townsville teleoncology network
Townsville teleoncology Model:

Web based systems adequate for GP or home based consultations
<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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<tbody>
<tr>
<td>Pre 2007:</td>
<td>All patients need to travel to Townsville for reviews, first doses of chemotherapy and complex regimens.</td>
</tr>
<tr>
<td>Staff:</td>
<td>chemotherapy supervised by ED doctors on good will basis, 2 part time chemo competent nurses for selected regimens.</td>
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<tr>
<td>2007:</td>
<td>Commencement of teleoncology services. Enablers-willing specialists, technology and willing rural practitioners,</td>
</tr>
<tr>
<td>2007-2009:</td>
<td>travel only for the first review and complex regimens. 2 chemo nurses competent in most regimens, 0.5 FTE SMO for oncology.</td>
</tr>
<tr>
<td>Enablers:</td>
<td>more funding through “data”, availability of CTs and pathology in Mt Isa, high dependency units and physicians.</td>
</tr>
</tbody>
</table>

Other sites: reviews, oral chemotherapy and follow up.
**2009-current:** No need for travel

**Staff:** Oncology SMO, RMO, Cancer Care Coordinator, 2 chemocompetent nurses, allied health, ALO.

**Enablers:** upskilled rural generalists (nurses and doctors etc), teleoncology coordinator, more staff at the providing end.

<table>
<thead>
<tr>
<th>Town</th>
<th>Specialist cancer clinic via videoconference</th>
<th>Patient types</th>
<th>Chemotherapy</th>
<th>Comment on travel to and from Townsville</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mt Isa</td>
<td>3-4 times a Week and on demand</td>
<td>All new and reviews, urgent ward consults</td>
<td>All solid tumour regimens</td>
<td>No need for travel by patients and specialists</td>
</tr>
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</table>

Table 1: Service capability of Mt Isa hospital in 2012
Need for evaluation of the model to keep improving the service model under the Continuous Quality Improvement Framework.

What have we achieved?

• Safety,
• Acceptability to patients and health professionals,
• Cost comparisons,
• Contribution to survival outcomes.
Research question 1:

Has teleoncology model improved:

(a) Access to specialist medical oncology services for rural patients?

(b) The capacity of rural hospitals to provide specialist cancer services?


Since the project began\textsuperscript{1,2}:

- 200 patients, including 30 Indigenous patients, in >1000 consultations
- The last 80 patients were managed solely via video link
- 12 urgent cases, treated urgently in Mount Isa via V/C, avoiding transfer.----now ward rounds, ward consults
- 95 patients were treated with chemotherapy in Mount Isa.
- Locum cover for Mackay and Cairns


Q2:

Are patients and rural health workers satisfied with teleoncology model?

Background:

Studies with smaller numbers report patient satisfaction,
No studies in indigenous perspectives,
Not sure satisfaction equates to rapport.

Aim is to evaluate patient and health professional satisfaction.


Indigenous perspectives on teleoncology

Same issues and themes as non Indigenous patients,

So, my philosophy is to have the same approach to communication with all patients regardless of black, white or yellow.

Family attendance and opportunity for prevention discussions

Results of qualitative study:

5 Major themes identified:

**Quality of the consultations**

‘I thought it was pretty good, surprising actually. Well I didn’t really know what to expect but you know it was quite easy to understand how it all went. The conversation I had I thought was pretty good.’

**Communication and relationships**

‘He was quite friendly and had things to say to me as a person, not just as a patient, and so he related to things that were happening in my life besides the cancer situation so that sort of gives you a bit of a relationship with the person as well, because they are a person as well and not just your doctor.’

**Familiarity with technology and fears**

‘It was strange the first time, but last time it was alright because I was used to it by then.’
Local services and support

‘I felt that the way the doctor had a nurse assigned to us was a plus. Her being in the room made me feel more comfortable. I knew that I could ask her anything afterwards if you had sort of skipped over something that the doctor brought up.

Coordination of care

‘If you are in Townsville you can make one phone call and get those results straight away. Whereas it’s not easy when you are in a remote hospital and they haven’t got all the gear ready.’

Conclusion:
There were positive responses in relation to first four themes. Coordination of care needed further improvement.

Accepted by J Telemed Telecare 2014
Research question 3:

Is it safe to supervise chemotherapy administration in rural towns via telehealth model?

Chemotherapy is associated with toxicities and death,

Abstract from TCC reports similar safety profiles for rural and urban patients who received chemotherapy,

No report on safety of remote chemotherapy supervision.

Aim:

To compare toxicity rate and dose intensities of remotely supervised vs face to face patients
Safety of remote supervision of chemotherapy:

Same dose intensities and toxicities as the literature

Comparison with Townsville underway.

Research question 4:

What is the cost comparison between teleoncology model and face to face model for the health systems?

Claims of cost effectiveness based on comparison between outpatient costs vs telemedicine costs,

Crowe’s model.

Not taking in to account all the benefits of teleoncology,

Aim: Comprehensive cost analysis including operational and infrastructure cost vs cost prevented by teleoncology model.

### Table 1. Cost analysis of Townsville teleoncology model

<table>
<thead>
<tr>
<th>Type of cost</th>
<th>Cost per centre (AUD)</th>
<th>Cost for 6 centres</th>
<th>Total (AUD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project establishment</td>
<td>6000</td>
<td>6000 x 6</td>
<td>36000</td>
</tr>
<tr>
<td>Equipment</td>
<td>20376</td>
<td>20376 x 6</td>
<td>122256</td>
</tr>
<tr>
<td>Maintenance</td>
<td>750 per year</td>
<td>750 x 6 x 4.6</td>
<td>21015</td>
</tr>
<tr>
<td>Communication</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Teleoncology coordinator for TCC*</td>
<td>48000 per year</td>
<td>48,000 x 4.6</td>
<td>224160</td>
</tr>
<tr>
<td>Nurse in Mt Isa (0.1FTE)</td>
<td>8000 per year</td>
<td>8000 x 4.6</td>
<td>37360</td>
</tr>
<tr>
<td><strong>Total cost for the study period</strong></td>
<td></td>
<td></td>
<td><strong>442,276</strong></td>
</tr>
</tbody>
</table>

*TCC, Townsville Cancer Centre; Study period was 4.6 years.

### Table 5. Analysis of savings of Townsville teleoncology model

<table>
<thead>
<tr>
<th>Description of expenses prevented</th>
<th>Calculation of cost</th>
<th>Total (AUD)</th>
</tr>
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<tbody>
<tr>
<td>Return travel cost for patient and one escort to Townsville.</td>
<td>Mt Isa: 516 x 2 x 600 = 619200  Hughenden: 11 x 2 x 260 = 5720  Winton: 21 x 2 x 320 = 13440  Doomadgee: 3 x 2 x 1150 = 6900  Normanton: 8 x 2 x 480 = 7680  Mornington Island: 4 x 2 x 580 = 4640  Palm Island: 1 x 2 x 110 = 220  Karumba: 1 x 2 x 480 = 960</td>
<td>658760</td>
</tr>
<tr>
<td>Overnight accommodation at Townsville (10% of total consultations)</td>
<td>120 x 30</td>
<td>3600</td>
</tr>
<tr>
<td>Urgent aeromedical retrieval of four patients from Mt. Isa</td>
<td>13100 x 4</td>
<td>52400</td>
</tr>
<tr>
<td>Specialist/registrar travel once every three weeks for 4.6 years</td>
<td>17 x 600 x 4.6</td>
<td>47634</td>
</tr>
<tr>
<td><strong>Total savings for the study period (4.6y)</strong></td>
<td></td>
<td><strong>762,394</strong></td>
</tr>
</tbody>
</table>

Thaker, Olver and Sabesan, MJA 2013.
Limitation:

In-kind support by staff not included,

Longer the distance, larger the savings—may not generate the same savings from shorter travel distances
Change in service capability 
and 
scope of practice

Mt Isa Cancer Care Unit

Staff
Allied health, local senior and junior medical Officers, nursing

Services
Specialist clinics-new, routine and on demand, ward consults, urgent reviews, most cancer types, all chemotherapy regimens, in patient admissions

Figure 1: A model of rural specialist unit with specialist support via telemedicine model of care.

Internal Medicine Journal 2014
Townsville Teleoncology Model

- Feasible to provide comprehensive services
- Acceptable to patients and health professionals
- Safe to supervise chemotherapy remotely
- Saves money to the health system

Expanded rural scope of practice and Improved rural workforce
Mt Isa prior to the TTN:

- Limited access to specialists locally
- Narrow scope of practice
- Rural workforce shortages
- Limited local access to specialist services
- Need for long distance travel
Broader scope of practice

Improved local access to specialists via telehealth

Improved rural work force

Safe model of care,
Acceptable to patients and health professionals,
Saves money to health systems

Improved access to specialist services close to home &
Less need for long distance travel
Conclusions and recommendations:

1. Telehealth models facilitate the provision of specialist care closer to home

2. We can also build rural health systems through telehealth models by shifting specialist services

This opportunity needs to be taken advantage of, to close the gap

3. Rural resources need to be adequate in order to receive the services from tertiary centres

4. Need to be part of core business and should not be left to champions anymore.

This means appropriate KPIs need to be set for THHSs, departments and SMOs

5. New models of care may need incentives to tertiary centres to off set the effect of losing ABF to rural sites

6. Savings on PTSS need to be reinvested in building rural capacity
How do we help smaller towns?

2.7 Million Aus $ from QH-Health Innovation Fund to roll this out in North Queensland.
References:


