Models of care in Teleoncology

Medical models of teleoncology

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Many people live in rural and remote settings
Patient's Journey
Diagnosis, Treatment, Follow-up

Primary Care
Issues:
- Workforce
- Skills
- Training
- Resources
- Specialist support

Local Hospitals

Screening/Preventative Health

Tertiary Care/ Clinical Trials
Issues:
- Distance
- Costs
- Relocation

Specialist travel
Specialist/patient travel, interhospital transfers
S Sabesan, P Piliouras, Disparity in cancer survival between urban and rural patients – how can clinicians help reduce it? *Rural and Remote Health* 9: 1146, 2009
Access to health promotion services,
Social factors - distance, isolation,
Patient factors - socioeconomic, ATSI status.

Access to health services
Referral delays

Symptoms →
Diagnosis →
Specialist →
Treatment start →
Treatment finish →
Follow up →

Intensity of treatment
Access to trials
Compliance

Tele health
Models of care

Rural/remote and Indigenous health journey
Models of care:

1. Teleoncology complementing FTF and outreach,
2. Teleoncology replacing FTF
   Townsville-Mt Isa model, Sabesan et al, J telemedicine and telecare 2014)
3. Teleoncology for reviews, shared care with general practice and for homes
4. Multidisciplinary meetings
Many other centres around the world have embarked on these models.
Townsville Teleoncology Model

- Feasible to provide comprehensive services
  - Sabesan et al, IMJ 2012, Doolittle et al 2006

- Acceptable to patients and health professionals
  - Mooi et al 2012, Doolittle et al

- Safe to supervise chemotherapy remotely
  - Chan et al, APJCO 2013

- Saves money to the health system
  - Thaker et al, MJA, 2013, Doolittle et al 2006

British Columbia model and others

- Improved waiting times
  - Sabesan et al, AJRH 2014

Kansas University model

- Doolittle et al

Expanded rural scope of practice and improved rural workforce

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


Cost savings from teleoncology models

Systematic review by Misra et al - inconclusive benefit

Limitation:

Pooling of various models, countries and travel distances

Townsville Cancer centre and Kansas studies:

Larger volume, long travel distances

Observed cost savings

Thaker et al, MJA, 2013, Doolittle et al, JOP, 2006
Safety of remote supervision of chemotherapy:

Same dose intensities and toxicities as the literature

Comparison with Townsville – same dose intensities and toxicity profiles.

A model of rural specialist unit with specialist support via telemedicine model of care.
Broader scope of practice

Improved access to specialist services close to home &
Less need for long distance travel

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

Improved rural work force

Local access to specialists via telehealth
Improvements in timeliness of access

AJRH, 2014:22, 156-159.

Pre 2007: all patients needed to travel to Townsville,
2007-2009:

Travel to Townsville for first review, 90% of new Townsville patients seen within one week

Median waiting time for Mt Isa patients was 17 days (7-28 days), 50% within one week

<table>
<thead>
<tr>
<th>Patient group</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requiring in-patient inter hospital transfers from Mt Isa to Townsville</td>
<td>6</td>
</tr>
<tr>
<td>Requiring flights within one week for outpatient clinic review in Townsville</td>
<td>8</td>
</tr>
<tr>
<td>Deemed unfit for flying and referred to palliative care in Mt Isa</td>
<td>3</td>
</tr>
<tr>
<td>Requiring reviews through routine clinic process</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
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</tbody>
</table>
### 2009: No need for travel policy

#### Nature of new patients in relation to urgency of reviews: 2009-2011

<table>
<thead>
<tr>
<th>Nature of referral of new patients</th>
<th>Number</th>
<th>Number of patients seen within one week of referral</th>
<th>Examples of cancers</th>
</tr>
</thead>
<tbody>
<tr>
<td>urgent reviews</td>
<td>11</td>
<td>11/11 (All within 24 hours)</td>
<td>Metastatic SCLC, NSCLC, H&amp;N, Colon and GTD</td>
</tr>
<tr>
<td>routine clinic referral process</td>
<td>59</td>
<td>54/59</td>
<td>Most types</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>65/70 (93%)</td>
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</tbody>
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SCLC-Small cell lung cancer, NSCLC-Non small cell lung cancer, H&N-Head and neck cancer, GTD-Gestational trophoblastic disease
Teleoncology for Indigenous patients

Mooi et al, AJRH 2012
Acceptable and culturally appropriate,
Connects rural and urban health workers
Continuity of care
Attended by many family members

Ideal opportunity for embarking on anti-tobacco education and other prevention measures

Ideal tool for rural medical education and supervision
Multidisciplinary models

Queensland remote chemotherapy supervision (QReCS) model

Medical review by oncologist/haematologist CSCF Level 4, 5, 6 cancer services.

Supervised by CSCF Level 4, 5, 6 chemotherapy proficient nurses.

Cancer pharmacist at CSCF Level 4, 5, 6 cancer centre.

Telehealth models

Patient at CSCF Level 3
Supported by family members, rural generalist medical officers, pharmacist and chemotherapy nurses (supervised or capable).

Provision of chemotherapy and cancer care locally.

CSCF = Clinical Services Capability Framework (Cancer Services)