Specialist paediatric health services for patients in remote locations: the role of telemedicine in Australia

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Deputy Director

Centre for Online Health

Acknowledgements

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- Centre for Online Health, UQ
Mud-map (Overview)

- Centre for Online Health (COH)
- Australia in context
- Paediatric telemedicine services - logistics
- Recent developments – Government funding
- Future trends

Centre for Online Health

- Broad interest and experience in telehealth
  - New models
  - Service delivery
  - Evaluation
  - Teaching

- Queensland Telepaediatric Service >12y
- Adult/geriatric telehealth services

- SFT Conference
Background

- Queensland - second largest state, pop ~ 4.2 m
- 60% population – SE corner
- 20% major coastal towns
- 15% remote (650,000)

- Indigenous – 520,000
- Qld – 150,000
Telemedicine

Any medical activity involving distance

- can be done in two ways
  - real-time (e.g. videoconferencing)
  - pre-recorded (e.g. email)

Why do telemedicine?

- There may be no alternative
- Telemedicine may be better than existing conventional services
Key issues

- Extensive distances and location of specialist health services
- Equity of access to health services for regional and remote population
- Large videoconference networks – but relatively slow uptake

Telehealth coordination

- INCENTIVE
- Single point of contact
- Manages referral
- Liaises with specialists
- Scheduled appointment
- Facilitates medical records
- Manages videoconference session
- Collects activity data
- Organises follow-up if required

Telepaediatrics in Queensland

(n = 11,250 consultations)
Telepaediatrics in Queensland

- 13,650 consultations over 12 years
- 2400 consultations per y
Telepaediatrics - ENT

- 2 years – 152 consultations (97 pts)
- Retrospective audit of medical notes
- Diagnosis – 99%
- Management – 93%

Indigenous health screening

~90% significant disease/deafness rate

Long-term impact:

- 1-3y; severe disease burden (discomfort)
- 4-5y; slow language
- 5-7y; slow learning
- 10-11y; behaviour problems, truancy
- 15y; illiteracy, substance abuse
Indigenous health screening

- Community health services
- Visiting specialists

- ENT
- Dental
- Dermatology
- Ophthalmology
- Psychiatry
- Respiratory

Indigenous health screening

- Indigenous health workers
- Specialist outreach services and telehealth support

- ENT
- Dental
- Dermatology
- Ophthalmology
- Psychiatry
- Respiratory
Indigenous health screening

- To provide routine health screening for all Indigenous children in Cherbourg and surrounding communities.
- To develop a service which can be managed locally by dedicated Indigenous health workers.
- To improve screening rates – above 90%.
- To ensure early detection (assessment) and treatment of chronic diseases.
Pre: $\frac{380}{980} = 39\%$ (average rate per annum)
Post: 83\% (first 12 months)

Telepaediatrics – Indigenous Health

Overall screening rate \% (n=980)
Telepaediatrics - Burns

- Compare FTF to VC assessments
- 12 months – 25 patients
  - 1. One observer, alternating process FTF/VC - VC/FTF
  - 2. Two observers, FTF consults

<table>
<thead>
<tr>
<th></th>
<th>FTF</th>
<th>FTF / VC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consultant A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Consultant B</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>68</td>
<td>60</td>
</tr>
<tr>
<td>Scar thickening</td>
<td>60</td>
<td>64</td>
</tr>
<tr>
<td>Contractures</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>Range of motion</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>Activity level</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Breakdowns</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>Decision making</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Telepaediatrics - Burns

- 17% of all burns outpatients

Telepaediatrics - Surgery

- Rapidly expanding
- Routine clinics with all paediatric surgeons
- 6 clinics per month, up to 2 hours each
- multi-site appointments
- Pre-admission, reviews and education
- Referrals:
  - Direct to QTS via 1800 number
  - Patients triaged at the RCH OPD according to postcode
  - Appointments held at nearest regional hospital
Telepaediatrics – Home support

- Video links to families at home
- Palliative care, oncology
- Support from medical, nursing and allied health staff
- Logitech video – via broadband connection
- Laptops and PCs - flexible

Telepaediatrics – Robots

- Telepaediatric robots
- Commenced 2004
- Mobile, wireless videoconference systems
  - child-friendly
  - direct to bedside
Telepaediatrics – Robots

- 2005 – Gladstone Hospital, no paediatrician
  - daily ward rounds
  - sub-specialist consultations

Neonatal ward rounds

Round led by neonatologist
Family members may participate
Usually informal educational opportunities

Often full care team attend
- Medical
- Nursing
- Allied Health
- Social work

Mackay Base Hospital

ICN, Townsville Hospital
Cost minimisation analysis

- Child and adolescent psychiatry services
- e-CYMHS
- 30 month period

- Costs of providing telepaediatrics - video
- Costs of providing outreach – visiting psychiatrist
- Potential costs if patients travel to the RCH


### Telepsychiatry

30 months – 606 consultations

<table>
<thead>
<tr>
<th>Method</th>
<th>FTF – Patient travel ($)</th>
<th>FTF Outreach – Visiting Psychiatrist ($)</th>
<th>Telemedicine – Patient seen via videoconference ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost</td>
<td>514,094</td>
<td>299,913</td>
<td>230,753</td>
</tr>
<tr>
<td>Average</td>
<td>1073.25</td>
<td>494.91</td>
<td>380.78</td>
</tr>
<tr>
<td>Marginal</td>
<td>1073.25</td>
<td>494.91</td>
<td>190.01</td>
</tr>
</tbody>
</table>

Telepsychiatry (30 months)

Diagram showing the cost of telepsychiatry, visiting psychiatrist, and patient travel over the number of consultations. The diagram indicates a cost progression for each category with 'Actual' being the highest cost followed by 'Visiting Psychiatrist' and then 'Patient travel'. The diagram also includes a cartoon with the text: 'It is a bit freaky with this wireless technology.'
Developments in Australia

- Medicare items for online consultations recently introduced in July 2011
  - General practice
  - Broad range of health specialties
  - Focus on video consultations

- $620m+ invested by Commonwealth Government
  - Financial incentives – 1st consultation, loadings
  - Funding for training, support
  - *Promising sign for telehealth in Australia*...

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Telehealth uptake

- New MBS telehealth items - what is the prognosis?
- Likely uptake, long-term trends?

- Learn from experience (successes and failures)

- Telepsychiatry in Australia
  - Commonly reported, telehealth friendly
  - MBS items for telepsychiatry - introduced early 2003
Background

- Mental health in Australia
- 1/3 population (7 million) live outside major cities
- Rural and remote population:
  - Higher prevalence of chronic health conditions
  - 16% more likely to report mental problems
  - Prevalence of mental health conditions is about 12%
  - Approx. 800k people...

- Telemedicine potential!

Methods

- Review of MBS activity for psychiatry services
  - Reports via Medicare Australia*
  - July 2002 – June 2011
  - FTF and VC items compared

- Exclusions
  - Services by hospital doctors to public patients in public hospitals
  - Department of Veteran Affairs (DVA) funded services

Methods

- Review of MBS activity* for psychiatry services

- Activity reports included:
  - Services delivered – number of consultations
  - Benefits paid – Medicare costs


Telepsychiatry MBS items

- MBS items (for VC) introduced in 2003

<table>
<thead>
<tr>
<th>Consult time</th>
<th>FTF</th>
<th>VC</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15 min</td>
<td>300</td>
<td>353</td>
</tr>
<tr>
<td>&gt;15 min and &lt; 30 min</td>
<td>302</td>
<td>355</td>
</tr>
<tr>
<td>&gt;30 min and &lt; 45 min</td>
<td>304</td>
<td>356</td>
</tr>
<tr>
<td>&gt;45 min and &lt; 75 min</td>
<td>306</td>
<td>357</td>
</tr>
<tr>
<td>&gt;75 min</td>
<td>308</td>
<td>358</td>
</tr>
</tbody>
</table>

# Telepsychiatry MBS Items

- **Registered services (July 2002 – June 2011)**

<table>
<thead>
<tr>
<th>Consult time</th>
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<th>VC</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15 min</td>
<td>300</td>
<td>371,501</td>
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<tr>
<td>&gt;15 min and &lt; 30 min</td>
<td>302</td>
<td>2,372,696</td>
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<tr>
<td>&gt;30 min and &lt; 45 min</td>
<td>304</td>
<td>4,319,122</td>
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<tr>
<td>&gt;45 min and &lt; 75 min</td>
<td>306</td>
<td>6,389,628</td>
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<tr>
<td>&gt;75 min</td>
<td>308</td>
<td>358,386</td>
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<tr>
<td><strong>Total</strong></td>
<td>13,811,333</td>
<td>8003</td>
</tr>
</tbody>
</table>


- **Benefits paid (July 2002 – June 2011)**

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<th>FTF</th>
<th>VC</th>
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</thead>
<tbody>
<tr>
<td>&lt;15 min</td>
<td>$12,501,152</td>
<td>353</td>
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<tr>
<td>&gt;15 min and &lt; 30 min</td>
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<td>&gt;30 min and &lt; 45 min</td>
<td>$440,522,059</td>
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<tr>
<td>&gt;45 min and &lt; 75 min</td>
<td>$941,480,922</td>
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<tr>
<td>&gt;75 min</td>
<td>$59,479,219</td>
<td>358</td>
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<tr>
<td><strong>Total</strong></td>
<td>$1,612,128,061</td>
<td>934,489</td>
</tr>
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</table>

Results

- Benefits paid (July 2002 – June 2011)
Results

- Benefits paid (July 2002 – June 2011)

![Graph showing Total MBS Expenditure and VC related services (%).]

Summary

- MBS Activity (July 2002 – June 2011)
- 14 million services (psychiatry consultations)
- $1.6 billion MBS funded psychiatry services

<table>
<thead>
<tr>
<th></th>
<th>FTF</th>
<th>VC</th>
<th>%</th>
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<tbody>
<tr>
<td>Services</td>
<td>13,811,333</td>
<td>8003</td>
<td>0.6</td>
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<tr>
<td>Benefits</td>
<td>$1,612,128,061</td>
<td>$934,489</td>
<td>0.06</td>
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</table>
Findings

- Despite item numbers being available for telepsychiatry since 2003, uptake has been very slow
- Considering reported telehealth success in psychiatry – results may be surprising?
- Telehealth success factors

Critical factors

- Funding
- Clinical services (clinicians)
- Infrastructure, equip and telecommunications
- Administrative and clinical systems

Telehealth ingredients

- Careful design – clinical requirements
- Organisational support – willingness to change
- Re-engineering conventional referral processes
- Complementary (with outreach, patient travel)
- Incentives – must be comparable (or better than FTF)
- Clinician support (near and far)
- Perseverance


Potential

- MBS psychiatric services (July 2002 – June 2011)

<3000 consultations per y
Practical tips

- Develop new services systematically
- Start small and gradually develop

- New applications:
  - Feasibility, technical, user satisfaction
  - Clinical efficacy – comparable to FTF
  - Economic evaluation – patient, health service, society

- Learn from experience – successes and failures

Conclusions

- MBS funding for telehealth is welcomed in Australia

- Based on telepsychiatry experience, realistically - the uptake of MBS telehealth items is likely to take time

- A whole of system approach is essential for the successful integration of telehealth
Conclusions

- Model used for telepaediatrics in Queensland is likely to be useful for other states and countries
- Service delivery models should include a combination of telehealth, outreach, local and tertiary services
- Opportunities to strengthen clinical networks and deliver high quality specialist services in the most efficient manner

Dōmo arigatō

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