Is telehealth video-consultation acceptable and feasible for highly complex paediatric patients?

Ms Susan C Jury (Telehealth Program Manager) **Dr Amanda M Walker** (Director of Nephrology)
The Royal Children's Hospital, Melbourne www.rch.org.au/telehealth

Aims

To determine if telehealth follow-up to children with complex nephrological illness was acceptable and beneficial to stakeholders and if so, at what cost compared to face-to-face consultation.

The intervention

- 50 telehealth video-consultations over 16 months (March 2012 to August 2013)
- 30 children
- Utilising web-based video-conference technology (GoToMeeting)
- All children also had face-to-face consultations during the study period

All consultations included the child's local (regional) GP or paediatrician. The nephrologist led the consultation including requesting specific physical assessment and investigations, which were completed by the regional clinician. The regional clinician provided social and community context, coordinated local investigations (imaging and pathology) and facilitated ongoing care locally.

Study methods

1. A retrospective evaluation via participant survey to parents, regional and RCH clinicians
2. Estimated cost, revenue and time analysis for both telehealth and the face-to-face equivalent.

The survey had a 35% response rate: 2 out of 3 RCH nephrologists, 11 of 30 families, 5 of 25 regional clinicians and one regional administrator.

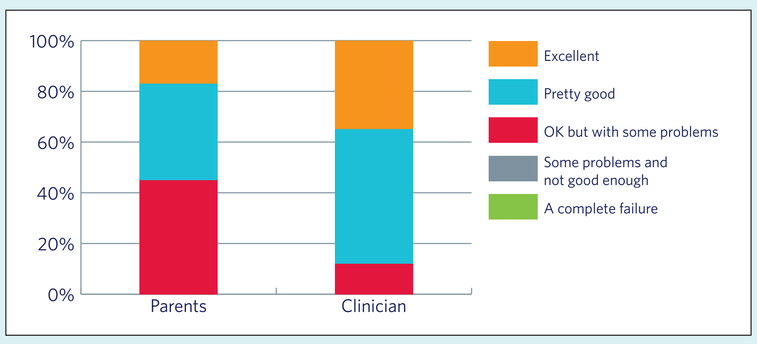
Findings

1 Telehealth offers convenience for families

Families participated in telehealth because

- The RCH suggested it
- To decrease travel time
- It provided a chance for the specialist, GP or paediatrician, and family to consult together.

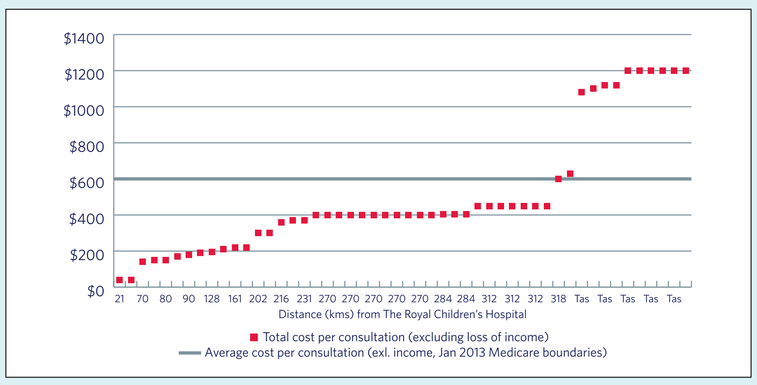
Graph 1 Overall, how would you rate this telehealth video-consultation?



Cost savings

- The average potential savings per consultation was $510 (range $48 to $1,202)
- Maximum $4,015 for one family across 10 consultations

Graph 2 Estimated travel cost savings per consultation to the family or the travel assistance scheme



Less disruption to life

Table 1 Saved travel compared to face-to-face

	In study		Prospective *(Jan 2013 Medicare boundaries)*	
	No. consultations /50	**No. patients** /30	**No. consultations** /41	**No. patients** /22
Day trip of 9+ hours (2 hours at RCH and 7 hours return drive)	74% (n=37)	60% (n=18)	90% (n=37)	82% (n=18)
Flights	20% (n=10)	20% (n=6)	24% (n=10)	27% (n=6)
Overnight stay	22% (n=11)	23% (n=7)	27% (n=11)	32% (n=7)

Table 2 Less time off school (43 school age children)

	Average (per consultation)	Minimum (per child)	Maximum (per child)
Telehealth	1.6 hours	No time off school needed	13 hours (all in part days)
Face-to-face	8.9 hours	1 day	10 full days

Better, and local, care coordination

- 55% (6/11) of parents highlighted the benefits of a joint consultation between the RCH and their local doctor – sometimes because their local doctor knew them better and sometimes because they *didn't*.

2 Telehealth can enable the local clinician to become a true partner in care

The local doctor can add valuable social context and provide, in partnership with local diagnostic services and the specialist, **immediate local investigation and follow-up for children with highly complex medical needs.**

This:

a Enables more convenient and cost effective access to care for the child and family

b Facilitates ongoing local provision of other routine medical care and

c Better utilises local diagnostic services.

3 A range of factors impact on 'patient appropriateness' for telehealth

Appropriateness may be affected by the:

- Quality or availability of local diagnostic services (imaging, pathology)
- Clinical requirements of the consultation
- Skills and confidence of the local clinician *and* specialist
- Pre-existing relationship between all participants

The family and local clinician must *want* to participate in telehealth video-consultation and be engaged in and committed to the collaborative process.

4 Revenue generation for telehealth will drop substantially but remains viable

Additional Medicare revenue for telehealth marginally offsets the costs (for the number and type of consultations in this study; for specialist and regional clinician).

Regional paediatricians may need to charge out-of-pocket fees to match comparable face-to-face revenue.

Ongoing costs are not substantial.

The major saving is to the patient or travel assistance scheme.

Table 3 Approximate overall costs and revenue (50 consultations)

	Actual		Forecast		
	Costs	**Revenue** (clinicians) **Savings** (families)	**Costs**	**Additional revenue** (clinicians)	**Total revenue** (clinicians) **Savings** (families)
RCH#	$1,208	a) $8,954 b) $17,554	$880	$2,013	$6,038
Regional clinicians^	$1,920	$8,943	$639	$1,452	$5,864
Patients and families*	—	a) $25,504 b) $34,696	—	n/a	a) $26,269 b) $35,736

\# RCH summary
Excludes any additional administrator costs;
a) Excluding start-up bonuses b) Including start-up bonuses for each clinician
^ Regional clinician summary
Excludes start-up bonuses Forecast revenue based on averages
* Patient and family summary
a) Excluding potential lost income
b) Including potential lost income for 1 parent based on the average female salary
RCH costs are for ongoing licensing fees and webcam replacement every 3 years (webcam also included in regional clinician costs).
Additional revenue for regional clinicians is based on the average between GP and paediatrician Medicare billable fees for comparable face-to-face, excluding any out-of-pocket fees.

5 Service funding and delivery models would benefit review

Telehealth funding may be a cost-effective use of travel assistance funds: An estimated $25,503 in travel costs was saved through utilising telehealth for 50 consultations.

Medical specialists may not always be the most appropriate providers of telehealth. Others such as allied health, nurses and GPs not with the patient at the time could equally utilise telehealth for more convenient care provision.

6 Medicare boundary changes have excluded patient groups in need

- 8 of the 25 patients in this study are now ineligible for Medicare-funded telehealth despite a lack of subspecialty paediatric services in the region.
- All these children would have required a full day off school to attend the RCH – compared to between no to two hours off school for the same consultation by telehealth.
- Regional paediatricians and GPs could retain management of their patients locally with subspecialist input by telehealth with significant ongoing benefits.

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Conclusion and recommendations

This study has shown that telehealth is convenient for families, saving cost, time and disruption to life. Telehealth can encourage use of local services, reducing demand on tertiary services. Telehealth with the participation of the regional clinician can foster a long-term partnership in care, with benefits far beyond the one consultation.

Telehealth is not suitable for every patient, in every situation and with a range of factors – not only clinical – affecting that decision. The regional clinician must be *engaged* in and committed to the collaborative process. Mapping of local services may be helpful in future implementation of a telehealth service.

Although additional telehealth revenue from Medicare only marginally offsets the costs, for this number of consultations, ongoing costs to provide telehealth video-consultation are not substantial and the benefits to families are significant.

How telehealth is funded would benefit review, with scope to potentially expand funding to other healthcare professionals and patient geography. The potential clinical and financial flow-on effects of increased local provision of medical care through this collaborative model would benefit further study.

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