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The introduction of web-based video-consultation in a paediatric acute care setting

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Summary

The Royal Children's Hospital (RCH) in Melbourne has been providing web-based video-consultations for a range of paediatric sub-specialties since 2011. There were 346 video-consultations in the first 16 months, from a total of 65 clinicians. Most teleconsultations were with the family at home. Generally, video-consultation was used for follow-up, after at least one face-to-face visit. A total of 132 users (specialist and regional clinicians, patients and families) responded to an online survey. The major reason for both clinicians and families participating in telehealth was the savings in families' travel time. Key factors for the successful implementation of telehealth at the RCH include: a clear organisational vision; simple web-based technology; clinician ownership; sustained support. The RCH experience suggests that telehealth is suitable for both simple and highly complex paediatric patients.

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Introduction

Globally, there is evidence, if rather limited, about the benefits of telehealth in paediatrics.[1] Paediatric video-consultation between urban and regional health services has been successfully practised in Queensland and abroad for more than a decade.[1]

New Medicare funding for video-consultation, advances in web-based video technology and policy demands for more equitable rural and regional access to healthcare were all reasons for the Royal Children's Hospital (RCH) in Melbourne to trial telehealth video-consultation. In 2012 the hospital commenced a 3-year telehealth implementation plan. The present paper summarises the experience of the first year, including methodology, lessons learned and outcomes.

Web-based video-consulting

During 2011–2013, clinicians trialled and began to implement web-based video-consultation in a range of paediatric sub-specialties including neurology, nephrology, respiratory, gynaecology, developmental medicine, oncology and general paediatrics.

Web-based video-consultation enables teleconsultation from any room, keeping telehealth within a clinician's usual workflow. It also allows consultation with patients at home, as long as they have a PC or tablet computer with an Internet connection and a webcam. The simplicity of the technology also reduces the need for IT support and reduces the costs and logistical support associated with using a dedicated videoconferencing unit.

The RCH purchased licenses for commercially available videoconferencing software (GoToMeeting, Citrix). The software could be used through the firewalls common in hospitals. Use of the software required little support from the hospital IT department since no software installation was required and made low demand on the network infrastructure. Other benefits included a free-dial number for patients and clinicians to use for the audio during a consultation if necessary – for example if one party did not have a microphone or speakers, or the bandwidth was low – and a 1800 help line and customer support line.

Consultations are accessed via the RCH telehealth website (http://www.rch.org.au/telehealth), which also contains staff and patient resources, such as tips, troubleshooting, how-to guides and resources for departments setting up their own telehealth service. An online document, 'Consent to bill Medicare', can also be accessed via the website.

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Different service models were utilised, such as telehealth for new and review consultations; telehealth at the start of or outside a face-to-face clinic; entire telehealth clinics and with and without a local doctor. Most consultations were to patients and families in their homes.

A business proposal was drawn up which demonstrated how telehealth would support the hospital's strategic direction and improve access to care. This secured support for a programme manager and the required infrastructure for a three year period.

Early implementation included agreement on revenue distribution, formation of governance structures, a steering committee and a user network.[2] The steering committee is chaired by the clinical leader and includes an Executive sponsor, with representatives from the specialist clinics, IT and finance departments. A less formal network of administrative and clinical telehealth providers – affectionately known as 'the Teletubbies' – provides input to programme development.

Parent promotion materials are available in waiting areas, encouraging a consumer-driven approach to uptake.

Activity

A total of 346 video-consultations were documented as having taken place between February 2012 and May 2013, see Figure 1. 65 clinicians provided at least one video-consultation and approximately 25 different clinicians offer video-consultation each month. At least 14 do so regularly.

Generally, telehealth video-consultation is used for follow-up, after at least one face-to-face visit. In their feedback, clinicians sometimes reported difficulty in gauging the emotional aspects of a consultation via telehealth, suggesting that a face-to-face consultation would enable rapport to be established more easily.

Some outreach activity is now being alternated with telehealth clinics and some regions are now receiving a tertiary service by video-consultation where there was nothing available before. Recently-commenced promotion of telehealth to families in hospital waiting rooms and to referring GPs is likely to start increasing telehealth activity.

Strong leadership and excellent administrative support is associated with better uptake, and non-attendance has been linked with less administrative support for pre-consultation patient contact.

Lessons learned

Working with enthusiastic clinicians is crucial[2] and telehealth 'champions' play varying informal but active roles in promoting telehealth. Along with these champions, a clinical leader – an active clinician and senior head of department – helps to build enthusiasm and gives credibility. Early adopters provided important lessons for the service rollout, along with feedback from an online survey launched at the outset.

For clinician engagement, telehealth must provide value for patients and be of clinical benefit.[3] Early discussions explored the benefits for patients and families, and selection of appropriate patients for telehealth. Medicolegal and indemnity questions were addressed early and a telehealth procedure developed. This was underpinned by the relevant professional body standards and guidelines and include medico-legal considerations, indemnity, informed consent, documentation, processes and additional clinician responsibilities.

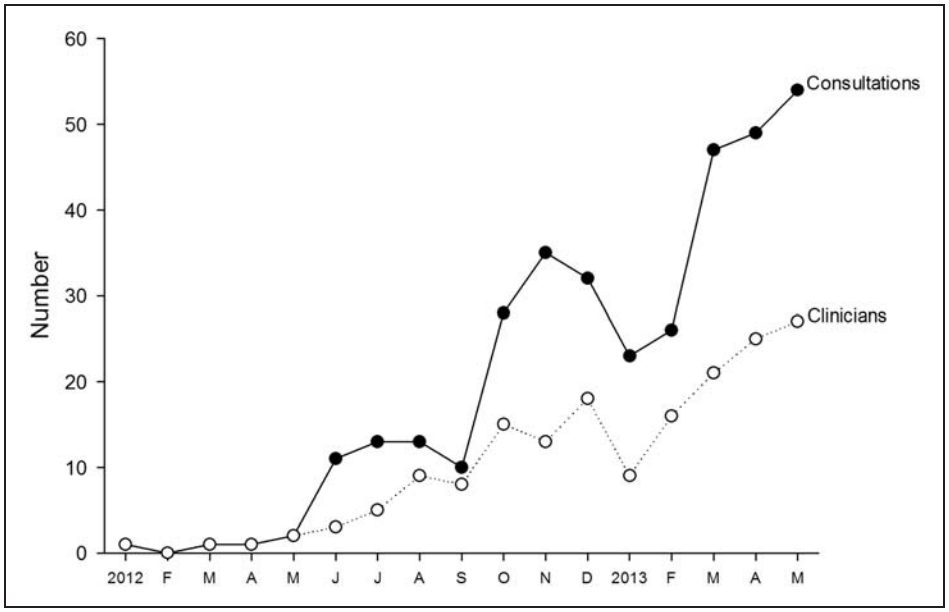

Figure 1. Telehealth activity. Numbers of teleconsultations and clinicians, per month.

A programme manager ensures that departments are supported during the start-up phase until they are ready to run their own service, i.e. there is 'local ownership'[4] within an organisational framework. Processes are developed with participating clinical and administrative staff, aiming to fit telehealth into usual workflows.

The family needs to be committed – a history of poor attendance at face-to-face appointments is unlikely to be improved through telehealth. Engagement challenges have included when the clinician is not convinced of clinical safety or benefit; reimbursement models have not been clear; or administrative support has been lacking. Excellent sustained practical support is vital and many survey respondents described a range of minor to more significant technical challenges such as video and audio connections affecting scheduling.

Commitment is needed to develop evaluation[5], including defining agreed measures for success.[5–8] There continues to be a lack of literature related to telehealth in paediatrics.

Benefits

Clinical reasons for consultation vary greatly, including the diagnosis of simple tics, investigation of allergy, and follow-up. The latter may include both simple and complex paediatric conditions ranging from crying babies to post renal transplant, epilepsy and developmental disorders. Most but not all consultations involve dialogue, such as history taking, care planning or medication adjustments.

An ongoing survey is accessed through the telehealth website. Of the 132 online survey respondents between December 2012 and July 2013, 56 (42%) were the parent or caregiver, 40 (30%) were RCH clinicians, 20 (15%) regional clinicians, 6 (5%) the patient/child and 10 (8%) RCH or patient-end administrators. The major reason for both clinicians and families participating in telehealth was the savings in families' travel time (Table 1 and 2), which has also been the major benefit for families (Table 3 and 4). This is especially the case when travel itself may trigger hospitalisation in an unstable child, or where the child has significant physical or psychological disabilities (such as immobility or high anxiety).

Clinical appropriateness and safety is crucial. Of the 62 families or patients, 85% rated the video-consultation as ''pretty good'' or ''excellent'' and 84% ''agreed'' or ''strongly agreed'' that they received the same standard of care as a face-to-face consultation. None rated it as ''not good enough'' although 6% disagreed that they

Table 1. Reasons given by parents for participating in video-consultations.

	No of responses	No giving this as top reason
Decrease my travel time to the RCH	45	20
Because the RCH suggested it	40	19
Easier to have additional consultations	16	1
Innovative, something new to try	11	1
Chance for specialist, GP and family/patient to consult together	10	2
May see a specialist more quickly than usual	8	0
Because my GP or local paediatrician suggested it	5	1
Other reason	12	5

Table 2. Reasons given by clinicians for participating in video-consultations.

	No of responses	No giving this as top reason
Decrease travel time for families	45	23
Because I was asked	24	10
Innovative, something new to try	23	5
Chance for specialist, GP and family/patient to consult together	22	8
More time effective, e.g. I can work from offices	14	4
Easier to have additional consultations with families	14	0
Funding	12	2
Decreases my travel time for outreach	4	0
Other reason	7	3

Table 3. Estimated travel time saved for families. Responses to the question "How much time would you be away from home for this consultation if it was at the RCH?".

	One day (day trip)	An overnight trip	Would not come to this consultation	More than one night away from home	Half a day	2–3 hours	Not relevant
Parent/carer 1	18	9	0	3	5	0	0
Parent/carer 2	8	5	5	3	1	0	2
Sibling 1	3	6	8	3	1	0	2
Sibling 2	1	1	4	2	1	0	7
The child/parent	19	9	0	3	4	0	0
Other	1	0	3	0	0	0	4

Table 4. Estimated cost savings for families. Responses to "Compared to a face-to-face consultation, did this save you any money? (not including the cost of the Internet, camera etc)".

	Not relevant/no money saved	Saved $10–$100	Saved $101–$500	Saved $501–$1000	More than $1000 saved	No of responses
Travel	1	19	13	2	0	35
Accommodation	25	1	9	0	0	35
Lost income	19	2	11	2	1	35

received the same standard of care as a face-to-face consultation. Those who disagreed expressed some concern that the doctor could not physically assess the child or frustrations with the audio that affected communication.

Of the 60 clinicians (RCH and regional), 75% rated the video-consultation as "pretty good" or "excellent" and 60% "agreed" or "strongly agreed" that they provided the same standard of care as a face-to-face consultation. None rated it as "not good enough" although 14% disagreed that they provided the same standard of care as they would have in a face-to-face consultation.

Comments included the importance of good patient selection, for example with children who are able to focus on a video-consultation if needed; and ensuring that parents have siblings cared for or distracted so the parent can focus on the consultation while at home.

Although most RCH teleconsultations have been with the family at home, this depends on the clinician and patient group. All consultations for nephrology include a regional clinician, who manages physical examination and investigations. Other video-consultations involving a local healthcare professional have included allergy first consultation; oncology with regional inpatients and outpatients with the paediatrician; multidisciplinary meetings, including up-skilling, for the regional teams of children with muscular dystrophy.

For these consultations involving the regional clinician, medical links have been established with geographically remote health services. Informal education has enabled local clinicians to better manage care locally. Parents, regional and RCH clinicians all provided very positive feedback regarding the benefits of shared consultations, including better coordination, the opportunity for parent follow-up with the GP after the consultation and both teaching and learning opportunities.

Sustainability

Activity has been rolled out to develop a service that is aligned to current processes as much as possible. Existing forms such as for booking, billing and follow-up were adapted to include telehealth. Telehealth clinics and telehealth appointment types were created in the clinic scheduling program so that telehealth could be booked in the same way as a face-to-face appointment. Clinicians can run their telehealth appointment in the same room as, and as part of, their usual face-to-face clinic, or they can run it from their non-clinical administrative office. Generally, they do not need to go to a special room.

Integrating telehealth scheduling into usual practice has required some additional administrative support. In particular, support is required for coordinating a pre-consultation test run with families, coordinating appointments to suit a local GP or paediatrician, sending instructions on how to access the consultation online and arranging consent to bill Medicare.

Clinician and administrative engagement and leadership have been crucial to the success of telehealth at the RCH. Placing service ownership and delivery with individuals and departments has helped to maintain and build momentum; with the telehealth programme manager facilitating standardisation of processes within an organisational framework and ensuring professional standards in providing telehealth.

Limitations

Telehealth does not work well for all clinicians, all patients or in all scenarios. Some clinicians found patients to be less interactive in a video-consultation and some had difficulty in determining emotional states. Camera angles sometimes affected eye contact and occasional audio delay inhibited the flow of conversation. Telehealth has also not worked well where the local clinician has not been engaged or when responsibilities for follow-up have been unclear. All staff need a clear understanding of processes and agreement to their roles.[6]

Discussion

The RCH experience suggests that telehealth can be well suited to both simple and highly complex paediatric patients at different times in their care path. It can be an excellent option for chronically ill children who find travel difficult. Telehealth involving regional clinicians helps to build the relationship, skills and trust between the family, local and tertiary health services for long term ongoing care. This can have a positive effect on all involved.

The buy-in of all involved is essential – the patient and family, the specialist clinician, administrators, the regional clinician and the regional team. Other factors for success have included Executive support; enthusiastic clinical leaders; simplicity and integration with usual processes; and local ownership, with support to standardise processes and share learning.

The introduction of telehealth at the RCH was timely, since it happened when remuneration became available for Medicare-eligible activity, and the hospital was organisationally ready[6] for innovation following the recent move to a new building.

Through an informal but highly supportive approach, focusing on enthusiastic clinicians and administrative staff and building a wide network of telehealth champions, the uptake of telehealth is growing. We expect that telehealth activity will continue to grow as long as clinicians see the clinical benefits of telehealth and there is good technical and administrative support.

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