

Extending a tertiary paediatric telemedicine service beyond the centralised hub and spoke:

preliminary investigation of a centrally managed multi-regional hub model



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Introduction

The Royal Children's Hospital (RCH) in Brisbane is a tertiary facility providing specialist paediatric services across Queensland. A number of regional hospitals provide secondary level paediatric services to families within their local catchment area. Since 2000, RCH clinicians have provided services at a distance using telemedicine from a single hub at the RCH with spokes to hospitals across the state. All consultations are centrally co-ordinated and managed by the Centre of Online Health (COH), a University of Queensland centre based in the RCH.

Aim

Recognising that some paediatric services are regionalised, the aim of this work was to ascertain whether the centralised telepaediatric service model could be scaled beyond the single hub to support multiple regional hub centres while retaining the benefits of central co-ordination and management at the COH.

Methods

We established two regional hubs. The first hub, in a tertiary neonatal intensive care unit (NICU) in North Queensland (1300km north of Brisbane), provided a weekly neonatal ward round with a referring hospital 380km to the south. During these sessions, the clinical teams at both hospitals discussed the progress of infants which had been transferred to the NICU for treatment. The second hub, in a regional general hospital with paediatric facilities (100km north of Brisbane) provided a daily ward round conducted as needed with a smaller referring hospital without a permanent paediatrician (70km to the north of the regional 'hub' hospital). Both hubs were managed entirely from Brisbane including link coordination, system testing, power-up, linking and shut-down.

Results

Both new hubs generated regular activity (NICU-hub over 12-months: 37 sessions, 96 consultations; general-hospital-hub over 20-months: 116 sessions, 214 consultations). No difficulties were experienced in co-ordinating and managing the activities from the central hub.

Conclusions

In this small study we successfully expanded our centralised model to remotely co-ordinate and manage the telemedicine activity of two geographically distant hub sites both administratively and technically. The benefits of this approach include the use of a single central hub to provide telemedicine services without additional coordinating and technical staff in the remote hubs. Further research is required to formally evaluate the economies-of-scale and scope this model presents.

