Modelling the implementation of teledentistry for rural and remote paediatric patients in Victoria, Australia

R Mariño[1], J Teoh[2], A Hsueh[2], D Manton[1], K Hallett[3]

[1]Melbourne Dental School, University of Melbourne, Melbourne, Australia

[2]School of Population Health, University of Melbourne, Melbourne, Australia

[3]Royal Children's Hospital Melbourne, Melbourne, Australia,

THE UNIVERSITY OF MELBOURNE

Backgound

- Face-to-face patient examinations are regarded as the most accurate method for correct oral health diagnosis.
- However, members of specific groups of the community are less likely to have access to a dentist.
  - For example, those living in rural and remote locations.

Backgound

In the Australian state of Victoria:

- general dental services are provided to all school children.
- strict eligibility criteria and waiting times of up to 18 months.
- access to see a pediatric dentist in remote areas is limited.

Teledentistry provides opportunities to supplement traditional methods of oral diagnosis, deliver care and health promotion.

Backgound

- The Royal Children's Hospital Melbourne (RCH) Dentistry Department provides the majority of specialist dental services for children and adolescents in the management of Cleft Lip and Palate (CL&P).
- For rural and regional patients management may involve multiple trips to RCH.
- A significant proportion of these appointments are to monitor and review the patient's oro-dental development, which may not require hands-on examination by a specialist.

Backgound

A study was organised to assess whether a teledentistry consultation using video conferencing and HD intra-oral camera by clinicians based in regional dental clinics, could provide an alternative method to traditional consultation.

2 oral health conditions were selected:

- Cleft lip and palate
- Orthodontics

Aims

To test whether the RCH could increase its capacity (timely appointments) to provide dental services.

To determine the potential clinic time saved by implementing teledentistry at the Royal Children's Hospital Melbourne for rural and regional patients.

Methods

A **model-based analysis** was conducted using data from the Dentistry Department at the RCH.

Population: Victorian rural and regional-based patients who attended the RCH during 2014 for specialist paediatric or orthodontic consultation and assessment under the Medicare CL&P scheme.

Eligible patients would present to their closest TD enabled Community Dental Clinic (CDC) for a TD consultation instead of a face-to-face consultation at the RCH.

Methods

Outcome measure: Timely appointments.

- If the patient was seen within two months of this suggested recall, the patient received a **timely consultation**.

The potential **clinic time saved** was calculated assuming:

- each consultation is 45 minutes long, and
- the chair is operational for 7.5 hours a day.

Results

Of the 1439 consultations at the RCH under the CL&P Scheme in 2014, there were 673 consultations from rural and regional populations.

Of these, 367 (54.5%) could have been conducted as TD appointments:

- 267 patients for a specialist paediatric dental consultation only,
- 32 for an orthodontic consultation only, and
- 68 for both specialist paediatric and orthodontic consultation.

Results

Regarding responsiveness.

- 241 Timely Consultations (65.7%)
- Those who attended on schedule lived closer to the RCH (124km vs. 137km)

Results

Based on postcodes, the TD model :

Time saved in Clinic (hrs)	275.25 hrs (5.3 hrs a week X 52)
Time saved in Clinic (days - 7.5hrs/day)	36.7 days

Results

This time represents the potential clinic time freed up at the RCH by using TD, time that could be used to increase the capacity of the RCH Dental Department.

Conclusion

- There is potential for the RCH Dentistry Department to increase productivity with the implementation of TD, without needing to build additional dental surgeries.
- Whilst there are some study limitations that should be considered, this is a conservative model and it is likely that the TD could free more time for patients requiring consultations at the RCH.
- This study provides evidence supporting the use of TD for appropriate specialist dental consultations.