Teledentistry: Increasing Access to Oral Health Services for Children in Rural Populations

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ABSTRACT

Objectives: The objective of this study was to evaluate the impact of teledentistry consultation on access to oral health services in primary dental clinics among children living in rural upstate New York following a teledentistry consultation.

Methods: The study was based on dental information collected for 144 children with serious dental decay who had a specialty teledentistry consultation at one of the Finger Lakes Community Health clinics in 2015-2016. Associations between access to oral health services in primary dental clinics and children’s sociodemographic characteristics as well as teledentistry consultation and clinical outcome covariates were evaluated using Fisher Exact and Mann-Whitney U tests in SAS v9.4.

Results: The majority of study subjects were white children (70%), non-Hispanic (75%), under 6 years of age (75%) at the time of the teledentistry consultation. The study results indicate that most children completed a recommended treatment plan (97%) and subsequently accessed follow-up oral health services at one of the FLCH general dentistry clinics (77%). The findings suggest that children’s access to oral health services in primary dental clinics was positively and significantly associated with a dental treatment recommendation using nitrous oxide (P=0.028), fewer case management interventions (P=0.003), and shorter time to treatment initiation (P=0.012) or completion (P=0.020). Children’s demographics and travel distance to the dental clinic were not associated with their access to oral health services in the community.

Conclusions: The study findings show that teledentistry consultation promoted access and utilization of specialty oral health care as well as follow-up services at local dental clinics for rural children.

INTRODUCTION

The current study included 144 children living in the Finger Lakes region of New York with a teledentistry consultation at one of the FLCH general dentistry clinics located in Geneva, Newark, Livonia, Port Byron, and Sodus.

METHODS

Study Location: Finger Lakes Community Health (FLCH), headquartered in Penn Yan, New York. Has provided telehealth services since 2002 and teledentistry services since 2010 for rural populations.

Study Objectives:
- Evaluate whether children who received a teledentistry consultation and treatment with a pediatric dentist specialist accessed follow-up oral health services at general dentistry clinics.
- Assess the factors influencing access to oral health services in primary dental clinics among children living in rural upstate New York following a teledentistry consultation with pediatric dental specialists.

RESULTS

Most study children accessed a specialty dental treatment plan (97.2%) and subsequently accessed follow-up oral health services at one of the FLCH general dentistry clinics (77.1%). Children with follow-up visits had 1 to 5 visits (mean=2.2) after the specialty dental treatment (over a period of up to 2.3 years).

Overall, slightly more subjects who accessed follow-up oral health services at the FLCH general dentistry clinics:
- were older, older, of ethnicities other than Hispanic, living in a two-parent family, had no history of a behavioral or developmental disorder (however, differences were not statistically significant).

Most study children had a specialty teledentistry consultation (97.2%), and subsequently accessed follow-up oral health services at one of the FLCH general dentistry clinics (77.1%). Children with follow-up visits had 1 to 5 visits (mean=2.2) after the specialty dental treatment (over a period of up to 2.3 years).

TABLE 1. Characteristics of Study Subjects by Utilization of Follow-Up Oral Health Services at One of the Finger Lakes Community Health (FLCH) General Dentistry Clinics

<table>
<thead>
<tr>
<th>Characteristic of study subjects</th>
<th>All children (n=144)</th>
<th>Utilization of follow-up oral health services at FLCH General Dentistry Clinics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Age (years)</td>
<td>Mean (range)</td>
<td>Mean (range)</td>
</tr>
<tr>
<td>Travel distance to one of the FLCH general dentistry clinics (miles) 0.17</td>
<td>144, 4.9 (1.0-15.9)</td>
<td>131, 4.9 (1.0-15.9)</td>
</tr>
<tr>
<td>Treatment recommendation</td>
<td>General anesthesia</td>
<td>Oral sedation, local anesthesia</td>
</tr>
<tr>
<td>Duration of treatment initiation</td>
<td>P=0.012</td>
<td>P=0.012</td>
</tr>
<tr>
<td>Required significantly fewer contacts by CHWs to complete the case management services, clinical outcomes, and distance learning.</td>
<td>106, 2.0 (0.0-34.4)</td>
<td>106, 2.0 (0.0-34.4)</td>
</tr>
</tbody>
</table>

CONCLUSIONS

- The study findings show that that teledentistry consultation promoted access and utilization of specialty oral health care as well as follow-up services at local dental clinics for rural children with serious dental decay.
- The results indicate that case severity and compliance to treatment are predictors of ongoing utilization of oral health services in general dentistry clinics.
- The study findings also suggest that case management interventions are important in facilitating specialty dental care as well as follow-up care at community dental clinics, particularly in rural, underserved communities.
- A study of the long-term dental utilization patterns of these children who experience a teledentistry consultation and a surgical intervention in early childhood would be instructive.

REFERENCES

Langelier M, Rosset CL, Moreau J. Case studies of 6 teledentistry programs: strategies to increase access to general and specialty dental services. Researcher (NIH) Dental Workforce Research Center, Center for Health Workforce Studies, School of Public Health, SUNY Albany, 2015.