TITLE: Telehealth for Autism Spectrum Disorder Diagnosis in Pediatric Patients: Diagnostic Accuracy, Cost-Effectiveness, and Guidelines

DATE: 22 July 2015

RESEARCH QUESTIONS

1. What is the diagnostic accuracy of telehealth diagnosis of Autism Spectrum Disorder in pediatric patients?

2. What is the cost-effectiveness of telehealth diagnosis of pediatric patients with suspected Autism Spectrum Disorder?

3. What are the evidence-based guidelines regarding the use of telehealth for diagnosis of pediatric patients with suspected Autism Spectrum Disorder?

KEY FINDINGS

One randomized controlled trial and three non-randomized studies were identified regarding telehealth diagnosis of Autism Spectrum Disorder in pediatric patients.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2010 and July 8, 2015. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.
SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

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<th>Table 1: Selection Criteria</th>
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<td><strong>Study Designs</strong></td>
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RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials (RCTs), non-randomized studies, economic evaluations, and evidence-based guidelines.

One randomized controlled trial and three non-randomized studies were identified regarding telehealth diagnosis of Autism Spectrum Disorder in pediatric patients. No relevant health technology assessments, systematic review, meta-analyses, economic evaluations, or evidence-based guidelines were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

One randomized controlled trial and three non-randomized studies were identified regarding telehealth diagnosis of Autism Spectrum Disorder (ASD) in pediatric patients. All of the identified studies indicated the usefulness and clinical utility of their respective modes of obtaining an ASD diagnosis for children in remote or underserved regions.

The clinical utility and validity of conducting an ASD assessment protocol for diagnostic purposes using video conferencing (VC) was examined in the identified RCT. Excellent inter-rater agreement between clinicians using VC and the in-person interdisciplinary teams was reported for pediatric ASD diagnosis, suggesting that VC may be a viable alternative for children in remote areas.

One of the non-randomized studies developed and tested an asynchronous system whereby families and diagnosticians could accurately diagnose ASD remotely. The system is comprised of a mobile phone-based application (NODA SmartCapture) that allows parents to record video of their children’s behaviour and a Web portal (NODA Connect) allowing the diagnostian
access to the aforementioned video and developmental history, in addition to conducting an assessment (using the Diagnostic and Statistical Manual of Mental Disorders criteria). Through an in-field assessment, this system demonstrated a success rate of correct ASD diagnosis in 91% of assessments, demonstrating the clinical validity for obtaining evidence of ASD behaviour and subsequent accurate diagnoses.²

A second non-randomized study³ reported that the Integrated Systems Using Telemedicine Model was both well-received and cost-effective for families in rural areas requiring access to ASD diagnostic services.

The third non-randomized study⁴ reported on the clinical utility and validity of interactive VC when compared with an in-person assessment using standardized ASD diagnostic tools; namely the Autism Diagnostic Observation Schedule -Module 1 and the Autism Diagnostic Interview-Revised. No significant differences were observed in either the diagnostic accuracy or reliability when obtained in-person or remotely.⁴ In addition, parents were equally satisfied with both of the observational conditions.⁴
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials

Non-Randomized Studies


Economic Evaluations
No literature identified.

Guidelines and Recommendations
No literature identified.

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APPENDIX – FURTHER INFORMATION:

Systematic Reviews and Meta-analyses – No Specific Mention of Pediatrics


Non-Randomized Studies - Specific for Adults


Additional References