TITLE: Pediatric Oral Health Risk Assessments in Primary Care Settings: Clinical Effectiveness and Guidelines

DATE: 25 February 2016

RESEARCH QUESTIONS

1. What is the clinical effectiveness of oral health risk assessment by non-dental health professionals for improving oral health outcomes in pediatric patients younger than six years old?

2. What are the evidence-based guidelines for non-dental health professionals regarding the delivery of oral health risk assessments of children from birth to six years?

KEY FINDINGS

One systematic review, one randomized controlled trial, eight non-randomized studies, and five evidence-based guidelines were identified regarding oral health risk assessment by non-dental health professionals for improving oral health outcomes in pediatric patients younger than six years old.

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 retrieval by publication type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2006 and February 9, 2016. 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.

<table>
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<th>Table 1: Selection Criteria</th>
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<tr>
<td><strong>Population</strong></td>
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<td><strong>Intervention</strong></td>
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<td><strong>Comparator</strong></td>
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<td><strong>Outcomes</strong></td>
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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, non-randomized studies, and evidence-based guidelines.

One systematic review, one randomized controlled trial, eight non-randomized studies, and five evidence-based guidelines were identified regarding oral health risk assessment by non-dental health professionals for improving oral health outcomes in pediatric patients younger than six years old. No relevant health technology assessments were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

One systematic review, one randomized controlled trial, and eight relevant non-randomized studies were identified. The results of these studies are summarized in Table 2. Generally, the results of the studies suggest that dental assessment by non-dental providers was able to detect caries in children but suggested that non-dental practitioners may require further education and training to more accurately identified children at higher risk of early childhood caries.

Five evidence-based guidelines were identified. The guidelines differ slightly in terms of recommending when initial risk assessment should be undertaken. The guidelines recommend dental risk assessment be undertaken by six months of age or by one year of age. One guideline determined there is insufficient evidence to recommend routine screening for dental caries by primary physicians for children five years of age and younger. The recommendations suggest primary care physicians should prescribe oral fluoride supplementation after six months.
of age for children whose water supply does not contain fluoride and should apply fluoride varnish to all primary teeth of all children starting at the age of initial tooth eruption.\textsuperscript{13}

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<thead>
<tr>
<th>First Author, Year</th>
<th>Population/Provider</th>
<th>Results</th>
<th>Conclusions</th>
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<tr>
<td><strong>Systematic Reviews</strong></td>
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<td>Chou, 2014\textsuperscript{1}</td>
<td>Children less than 5 years of age Primary care clinicians</td>
<td>No studies were identified assessing the use of risk assessment tools to identify increased risk of dental caries.</td>
<td>The authors concluded that further research was required to determine the accuracy of oral examination and risk assessment by primary care providers.</td>
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<td><strong>Randomized Controlled Trials</strong></td>
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<td>Slade, 2011\textsuperscript{2}</td>
<td>Australian aboriginal children aged 18 to 47 months Primary health care workers</td>
<td>Dental health program (fluoride varnish, education, dental health promotion) vs no intervention After 2 years, the net dental caries increment per child was significantly lower in the intervention group.</td>
<td>The authors concluded that fluoride varnish applied in the community was effective at preventing dental caries.</td>
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<td><strong>Non-Randomized Studies</strong></td>
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<td>Jackson, 2015\textsuperscript{3}</td>
<td>Children up to 18 months of age Primary care physician</td>
<td>Identification of children at high risk for early childhood caries was improved after the implementation of a quality improvement project.</td>
<td>No authors’ conclusions were provided in the abstract.</td>
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<td>Kranz, 2015\textsuperscript{4}</td>
<td>Kindergarten students Non-dental providers in medical settings</td>
<td>Children with 4 or more medical visits with POHS had significantly fewer than children with no POHS.</td>
<td>The authors determined that POHS by non-dental providers were associated with a reduction in caries but not an increase in subsequent use services in dental settings.</td>
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## Table 2: Summary of Included Studies

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<th>First Author, Year</th>
<th>Population/Provider</th>
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<tr>
<td>Achembong, 2014&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Children 0 to 4 years of age (from primarily low income families) Preventive dentistry program in primary care medical offices</td>
<td>After the implementation of a preventive dental care program, mean dmft per kindergarten student initially increased from 1.53 to 1.84, then decreased to 1.59.</td>
<td>The authors concluded that the program was successful at decreasing dental caries in the targeted, vulnerable study population.</td>
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<td>Dumas, 2013&lt;sup&gt;b&lt;/sup&gt;</td>
<td>15 months to 5 years of age Pediatric health providers</td>
<td>Providers were able to identify visible plaque on maxillary incisors on 39% of children (55% sensitivity, 80% specificity). Agreement with a dental hygienist measured a kappa score of 0.34.</td>
<td>Visible plaque exams performed by clinicians at well child visits were not always accurate. The authors concluded that providers may require further training in conducting oral health exams.</td>
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<td>Long, 2012&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Children less than 36 months of age Pediatricians</td>
<td>Using a POORT, pediatricians assessed risk factors for early childhood caries. Of the children assessed, 6.8% were identified as needing an evaluation by a dentist.</td>
<td>The authors observed low referral rates by physicians and determines that interventions were required to increase the rate of referral of children to dentists.</td>
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<td>Neumann, 2011&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Children less than 3 years of age (non-fl uoridated, rural setting) Community-based dental health intervention</td>
<td>Children in the intervention group (fluoridated toothpaste, educational interventions) experienced fewer dental caries than those in the control group at the first two exams. The differences were no longer apparent at exam 3.</td>
<td>The authors concluded that the intervention was successful for reducing caries earlier in life but became less effective as the participants had less contact with the community health workers.</td>
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<td>Population/Provider</td>
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<td>Minah, 2008&lt;sup&gt;9&lt;/sup&gt;</td>
<td>Children aged 6 to 27 months (low income) Pediatric primary care clinic</td>
<td>Children in the intervention group received preventive services (risk assessment, fluoride varnish, counselling, dental referral) and experienced fewer mean carious dental surfaces.</td>
<td>The authors concluded that administering preventive measures to children of low socioeconomic status was effective to reduce dental caries.</td>
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<td>Grant, 2007&lt;sup&gt;10&lt;/sup&gt;</td>
<td>Children less than 3 years of age Non-dental providers in medical settings</td>
<td>4.4% (29/655) patients were reported to have one or more caries. 14.1% (94/655) patients were referred to a dentist.</td>
<td>The authors concluded that the intervention was effective and also contributed to the financial viability of the clinic in which the intervention took place.</td>
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*dmft = decayed, missing, and filled primary teeth; POHS = preventive oral health services; POORT = priority oral health risk assessment and referral tool*
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses


Randomized Controlled Trials


Non-Randomized Studies


Guidelines and Recommendations

See: Recommendations, page 8

See: Recommendations for the infant's oral health, page 147


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APPENDIX – FURTHER INFORMATION:

Clinical Practice Guidelines


Position Statements


Assessment Tools


Review Articles

PubMed: PM26063555

PubMed: PM26318948


PubMed: PM25422016

PubMed: PM19125889

PubMed: PM19015205

PubMed: PM17393891

PubMed: PM18044377

Additional References


PubMed: PM24587803

