Barriers to Adoption of Oral Preventive Procedures by NC Medical Providers

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Background

- In a national survey of pediatricians, over 90% reported having an important role in identifying oral problems and counseling families on prevention.
- One half of these pediatricians reported no previous oral health training.
- Overall knowledge was low, particularly for recent advances.

Lewis et al., *Pediatrics* 2000
Background
North Carolina Initiative

- Training of medical primary care clinicians
- Medicaid reimburses medical providers providing services for up to 6 visits for each child before the 3rd birthday
- Required services
  - Screening & risk assessment
  - Referral for dental care
  - Caregiver counseling
  - Fluoride varnish
Background

Randomized Controlled Trial

- Prospective, randomized controlled trial
- 118 medical practices that treat Medicaid children 0-2 years of age assigned to one of 3 CME interventions
  - CME
  - CME + learning collaborative (monthly calls)
  - CME + learning collaborative + in-office “hands-on” demonstration and technical support
Purpose

Describe barriers to providing preventive dental services in medical practices and their relationship to adoption
Methods

- Study design
  - Follow-up survey of primary care providers in CME trial 12 months after training

- Study Population
  - 118 practices
  - 69 pediatric; 49 family medicine
Methods:
Data Collection

- Self-administered questionnaire completed by mail in 2001 and 2002 after CME training
- 229 questionnaires
Methods:
Study Variables--Adoption

<table>
<thead>
<tr>
<th>Study Variables</th>
<th>Adopter</th>
<th>Partial Adopter</th>
<th>Non-Adopter</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the last 12 months, have you ever provided services to patients &lt; 3 yrs of age?</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Provided services routinely?</td>
<td>Yes</td>
<td>No</td>
<td>--</td>
</tr>
<tr>
<td>Still providing services?</td>
<td>Yes</td>
<td>Yes</td>
<td>--</td>
</tr>
</tbody>
</table>
Methods:
Study Variables--Barriers

- 11 barriers based on focus groups
- Response items
  - Has never been an obstacle
  - Was an obstacle, but was overcome
  - Was and still is an obstacle
Barriers to Adoption of Preventive Services

Sequence of Behavior change

Knowledge → Attitudes → Behaviors

Barriers to Adoption and Adherence

Provider characteristics
- Specialty type
- Sex
- Experience
- Business

Lack of familiarity

Lack of awareness

Lack of parent interest
- Too many other problems

Lack of outcome expectancy
- Physician believes providing services will not lead to desired outcome

Lack of self-efficacy
- Physician believes they cannot provide services

External barriers
- Patient factors
- Too few patients
- Too little decay
- Environmental factors
- Lack of time
- Organized constraints
- Lack of reimbursement

Adapted from Cabana et al., JAMA 1999
Methods: Analysis

- Descriptive analysis of frequency of barriers
- Relationship of barriers to adoption
  - Mean number of barriers by barrier status
  - 1 or more barriers in knowledge, attitudes or external barrier categories
Results:

% Reporting Each Item as Barrier

- Difficult To Integrate: 42%
- Fluoride Application Difficult: 28.6%
- Resistance From Colleagues: 25.7%
- Referral Too Difficult: 22.8%
- Too many Other Problems: 15.1%
- Lack of Knowledge: 14.5%
- Lack of Parental Interest: 12.8%
- Insufficient Payment: 6.2%
- Too Few Medicaid Patients: 4.8%
- Not Enough Decay: 1.8%
- Services Not Effective: 1.2%
## Results:

### % Reporting a Barrier & Overcome

<table>
<thead>
<tr>
<th>Barrier</th>
<th>% Barrier</th>
<th>% Overcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack knowledge about services</td>
<td>14.5</td>
<td>84.2</td>
</tr>
<tr>
<td><strong>Attitudes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applying fluoride difficult</td>
<td>28.6</td>
<td>61.5</td>
</tr>
<tr>
<td>Too many other problems</td>
<td>15.1</td>
<td>38.4</td>
</tr>
<tr>
<td>Lack of parental interest</td>
<td>12.8</td>
<td>34.3</td>
</tr>
<tr>
<td>Not effective</td>
<td>1.2</td>
<td>33.3</td>
</tr>
<tr>
<td><strong>External</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficult to integrate into practice</td>
<td>42.0</td>
<td>46.9</td>
</tr>
<tr>
<td>Referral too difficult</td>
<td>22.8</td>
<td>40.7</td>
</tr>
<tr>
<td>Resistance among colleagues/staff</td>
<td>25.7</td>
<td>51.7</td>
</tr>
<tr>
<td>Insufficient reimbursement fee</td>
<td>6.2</td>
<td>50.0</td>
</tr>
<tr>
<td>Too few Medicaid patients</td>
<td>4.8</td>
<td>2.0</td>
</tr>
<tr>
<td>Not enough decay in practice</td>
<td>1.8</td>
<td>5.5</td>
</tr>
</tbody>
</table>
Results: Adoption

- Full Adopter: 65.2%
- Partial Adopter: 10.7%
- Non-Adopter: 24%
## Results:
### Mean Number of Barriers

<table>
<thead>
<tr>
<th></th>
<th>Full Adopter</th>
<th>Partial Adopter</th>
<th>Non-Adopter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>9.6</td>
<td>8.4</td>
<td>8.4</td>
</tr>
<tr>
<td>Overcome</td>
<td>0.9</td>
<td>1.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Still</td>
<td>0.4</td>
<td>1.5</td>
<td>1.8</td>
</tr>
</tbody>
</table>
## Results

<table>
<thead>
<tr>
<th>Variable (vs. Never)</th>
<th>Odds Ratio</th>
<th>(95% CI)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overcome</td>
<td>0.64</td>
<td>(.225, 1.824)</td>
<td>0.405</td>
</tr>
<tr>
<td><strong>Attitudes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overcome</td>
<td>0.88</td>
<td>(.420, 1.861)</td>
<td>0.747</td>
</tr>
<tr>
<td>Still</td>
<td>0.25</td>
<td>(.120, .519)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>External</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overcome</td>
<td>1.19</td>
<td>(.574, 2.474)</td>
<td>0.636</td>
</tr>
<tr>
<td>Still</td>
<td>0.12</td>
<td>(.064, .250)</td>
<td>&lt;0.001</td>
</tr>
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</table>
Conclusions

- Adoption rates are high (65-75%)
- ¾ or more of barriers were ‘never’ considered an obstacle to adoption
- Most common barriers
  - Difficulty integrating into practice
  - Difficulty in applying fluoride varnish
  - Resistance from co-workers
  - Referral difficulty
Conclusions

- Non-adopters had a greater number of obstacles than adopters and were less likely to be able to overcome them
  - Attitudes
    - Patients have too many other problems
    - Lack of parent interest
  - External barriers
    - Difficult to integrate into practice
    - Referral too difficult
    - Too few Medicaid patients
    - Not enough decay in practice
Conclusions

- Integration into practice
  - Conduct CME at the site (office, health dept, residency program)
  - Require all staff to attend training session
  - Recommend all staff participate in implementation
  - Determine when the procedure will be offered
    - Well-child visits
    - Other medical visits
    - Separate procedure
  - Provide ‘starter kit’ of supplies
  - Encourage flexibility!
Conclusions

- Difficulty applying varnish
  - Demonstrate procedure on a child
  - Demonstrate on a dentoform
  - Recommend finger splint under glove for protection and easing apprehension
  - Emphasize importance of positioning and parent restraint
  - Remind providers that they already deal with children’s behavior!
Conclusions

- Resistance of staff and colleagues
  - Recruit an oral health ‘champion’
  - Offer an incentive system
  - Dispel myths of time required for procedure
Conclusions

- Referral difficulties
  - Provide written guidelines
  - Encourage providers to make personal contact with potential referral sources
  - Suggest forming a community coalition with other professionals to promote the health and well-being of children
Conclusions

- CME may need to be tailored to address the different barriers encountered in:
  - Pediatric practices
  - Family medicine practices
  - Health departments
  - Federally funded primary care clinics
  - Residency programs
Questions?

“Dental varnish has become an integral part of our preventive care.”

...NC Pediatrician
Results:
% Reporting a Barrier

* >50% overcame barrier

- Difficult to Integrate: 22.3%
- Fluoride Application Difficult: 11%
- Resistance from Colleagues: 12.4%
- Referral to Difficult: 12.5%
- Too many Other Problems: 9.3%
- Lack Knowledge: 5.8%
- Lack of Parental Interest: 12.3%
- Insufficient Payment: 4.4%
- Insufficient Medicaid Patients: 3.1%
- Not Enough Decay: 0.1%
- Not Effective: 0.8%
Methods:
Study Variables--Independent

- Practice characteristics
  - Business
- Provider characteristics
  - Type, sex, years in practice
- CME group assignment
## Results:

### % Reporting a Barrier

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