Changing Behaviors to Improve Children’s Oral Health

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Disclosures

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  – None to disclose.

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  – None.
Purpose of Presentation

• Review evidence for changing the behaviors of those who have the potential to help prevent Early Childhood Caries
  – Parents of young, low-income children
  – Clinical care settings
    (physicians and dentists)
  – Community settings
    (Early Head Start and Head Start)

• Informed by our experiences
What we Know?

It can not be said more eloquently...

• “....as we know, there are known knowns -- there are things we know we know.

• We also know there are known unknowns -- that is to say we know there are some things we do not know.

• But there are also unknown unknowns -- the ones we don't know we don't know....”
“It ain’t so much what we don’t know that gets us into trouble as what we do know that ain’t so.”

Will Rogers
My Perspective

• ECC is a major public health problem
• Treatment alone will not solve problem
  – Doesn’t cure disease
• Behaviors mediate all risks factors
• Communication is foundation for change
• Successful resolution of the problem will require a systems approach
Determinants of ECC

Children / Families

Medical Offices

“Glue”
Learning Collaboratives
Practice guidelines
Case managers
Partnerships

Community Resources

Pediatric Dentists

General Dentists

Safety Net Clinics
Development of Integrated System for Early Childhood

- 1997: “Smart Smiles”
- 2000: “Into the Mouths of Babes”
- 2006: “Carolina Dental Home”
- 2007: “Priority Oral Health Risk Assessment and Referral Tool” (PORRT) Initiative
- 2008: “ZOE” Early Head Start Initiative
- 2011: CHIPRA Connect Oral Health Quality Initiative
Parental Behaviors

1. Baby teeth are important!
2. Clean the mouth daily!
3. No bottles or sippy-cups in bed!
4. Limit sugary snacks and drinks!
5. Take child to dentist by 1 year of age!
Prevalence of Risk Factors

**Biological**
- SHCN
- Other clinical
- Cavitated
- Enamel defect
- Non-cavitated
- Plaque

**Behavioral**
- Sleeps with bottle
- Family dental problems
- No F water
- Not brushing with F toothpaste
- Sugary beverages between meals

Percent
Expected Physician Behaviors

• Oral health risk assessment
• Help establish dental home at 12-18 mo.
• Counsel parents

• If no dental home, continue to:
  – Counsel parents
  – Apply fluoride varnish

Preventive Oral Health for Pediatricians.
Effectiveness: *Into the Mouths of Babes*

- High adoption rates among medical providers
- Increased access to preventive services
  - Wide geographic distribution
  - 43% of well-child visits
  - Physician visits 4 times greater than dentists
  - Multiple visits 20 times greater in medical offices
- Improved treatment outcomes
  - 49% reduction before 18 months
  - 18% reduction at 6 yrs with ≥4 visits

Mismatch: Health Literacy & Healthcare Demands

• Many parents have limited health-literacy skills
  – 68% unable to enter names and birth dates correctly on a health insurance form
  – 46% unable to perform at least 1 of 2 medication-related tasks

• Many patients have difficulty understanding and using health information
  – Patients forget up to 80% of what physicians tell them as soon as they leave the office
  – Nearly 50% of what they do remember is incorrect

Physician Counseling Behaviors

- What do physicians talk about with parents?
- What do parents remember?
- What literacy demands do physicians place on the parent with their communication?
  - Medical and dental terminology
    (e.g., fluoride, malocclusion, hypoplasia)
  - Language complexity
    (e.g., words per sentence, passive voice)
  - Structural characteristics of the dialogue
    (e.g., pace, interactivity)
Physician Counseling

Today, did the doctor tell [show] you...

1. ...why baby teeth are important?
2. ...to brush your child's teeth regularly?
3. ...to take your child to the dentist?
4. ...that too many sugary foods and drinks can cause cavities?
5. ...that cavities are caused by an infection in the mouth?
6. ...that fluoride helps prevent cavities?
7. ...that it is important to clean your child’s teeth after they eat or drink?
8. ...not to put your child to sleep with a bottle of milk or juice?
9. ...how to brush your child’s teeth or clean your child's gums?

<table>
<thead>
<tr>
<th>Agreement</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recalled correctly that advice was given</td>
<td>22.2%</td>
</tr>
<tr>
<td>Recalled correctly that advice was not given</td>
<td>41.4%</td>
</tr>
<tr>
<td>Thought that advice was given, but was not</td>
<td>32.5%</td>
</tr>
<tr>
<td>Thought that advice was not given, but was</td>
<td>3.7%</td>
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</tbody>
</table>

Incorrect recall = 36.2%
Physician Counseling

- Overall, literacy demands on parents are low
  - Least difficult dental words
  - Dialogue pacing and interactivity (2.2 turns / minute)

- Clinicians used questions to assess oral health habits and provided tailored preventive messages

- However, the messages were inconsistent across different providers and often incomplete
  - e.g., brushing – fluoride, frequency, quantity

- Oral health education by pediatric providers needs to focus on delivering concise and consistent messages
Possible Interventions

• Make practice patient-friendly

• Improving interpersonal communication
  – Slow down
  – Use plain, nonmedical language
  – Show or draw pictures
  – Limit the amount of information
  – Use the “teach-back” technique
  – Create a shame-free environment: encourage questions

• Create and use patient-friendly written materials
Screening and Referral Behaviors

- Identify disease or not with 93% accuracy
- Referral practices
  - Overall rate = 2.8%
  - With tooth decay = 33% (vs. 0.2%)
- Referral effectiveness
  - 3-fold increase in use (36% vs. 12%)

Pahel et al. 2008.
Guidelines for Referrals

Medical visit

Dental screening/
Risk assessment

High Risk
or Disease

Counseling/
Dental referral

Low Risk or
No Disease

Counseling/
No referral

Use of
dental care

Available workforce and other community characteristics

Carolina Dental Home

• Develop risk based referral guidelines
  – Train physicians in their use
  – Feedback

• Train dentists in infant oral health care
  – BoHP (Baby Oral Health Program)
  – In-office training by pediatric dentist

• Learning collaboratives

• Develop support system
  – Referral process
  – Case workers
A. Questions for the Parent / Guardian:

1. Do you brush your child’s teeth at least once a day using toothpaste with fluoride? Yes / No

2. If you brush your child’s teeth, do you use toothpaste with fluoride? Yes / No

3. Does your child drink tap water most of the time? Yes / No

4. Does your child drink juice or sweetened drinks between meals? Yes / No

5. Have you or anyone in your immediate family had dental problems? Yes / No

6. Does your child sleep with a bottle filled with drinks other than water? Yes / No

B. Questions for the Provider:

7. Does the child have cavities? (cavitated lesions) Yes / No

8. Does the child have white spot lesions? (non-cavitated lesions) Yes / No

9. Does the child have enamel defects? Yes / No

10. Does the child have visible plaque on the teeth? Yes / No

11. Does the child have any other oral conditions? Yes / No

12. Does this child have special health care needs? □ Yes □ No

If yes, please describe:

13. On a scale of 1 to 10, what is this child’s caries risk? Please circle the number that indicates the level of risk.

14. Does this child need to be evaluated by a dentist as a result of this assessment? □ Yes □ No

a. If yes, how urgent is it for this child to be evaluated by a dentist?

1. Not urgent at all
2. Urgent
3. Very Urgent
4. Don’t know

Provider signatures:

15. This section is to be completed by the Dental Office and faxed back to the referring physician.

1. Date of dental appointment: __/__/____
2. Did the patient show up for dental appointment? Yes □ No □
3. Did patient call to cancel the appointment? Yes □ No □

4. If yes, what reason was given:

5. Next dental appointment: Date: __/__/____ Time: ___:___

Provider initials (circle one number): 1 2 3 4 5 6 7 8 9 10
Prevalence of Risk Categories

Cavitation or SHCN

- Yes (8%; 4%) Pediatric dentist
- No

White spot lesions
Enamel defects
Other concerns
≥3 risk factors

- Yes (31%; 15%) General dentist
- No (61%; 80%)

<3 risk factors

Physician manages caries risk
Percent of Screened Patients Referred at Baseline and Follow-up, By Type of Risk

![Bar graph showing percent of screened patients referred at baseline and follow-up, by type of risk. The graph has three categories: Behavioral Risk Factors, Incipient Disease, and Advanced Disease.]

- **Behavioral Risk Factors**:
  - Baseline: 9%
  - Follow-up: 13%

- **Incipient Disease**:
  - Baseline: 20%
  - Follow-up: 58%

- **Advanced Disease**:
  - Baseline: 63%
  - Follow-up: 63%

CCC Follow-up
Percent of Patients Referred and Percent with Dentist Visit, By Risk Category

- Low risk: 8% referred, 58% visit
- Moderate risk: 26% referred, 66% visit
- High risk: 50% referred, 65% visit

CCC and ECIM
Conclusions

Medical Home

1) Screening
2) Risk assessment
3) Guideline-based referral

Referral System

1) Make appointment
2) Monitor visits
3) Provide support

Dental Home

Visit

1. Intervention effects
   a. Use structured checklists
   b. Increase in referral of early disease, but not advanced

2. Still under-refer patients with elevated risk
   a. Less likely to refer for behavioral risk factors than disease
   b. Hesitant to refer if anticipate lack of parental follow through

3. Some referrals don’t get into system

4. Difficult to engage

5. Once in system, referral is moderately effective

6. Dentists' willingness to see patients exceeded referral demand
EHS Potential for Preventing ECC

1. Health disparities begin in childhood
2. Child Development literature:
   
   By 4 years of age children can understand a simple etiologic model of tooth decay, i.e., they are able to identify factors that contribute to toothache such as not brushing their teeth. [Myant & Williams. J Health Psychol. 2005]

3. Manageable size
4. Committed staff
5. Comprehensive programs
6. Federal program performance standards
Expected EHS Staff Behaviors

• Classroom behaviors
  – Brushing
    • Infants: Once during program day, staff must wipe infants’ gums with a gauze pad or soft cloth
    • 1 year olds: Once daily after a meal, staff must brush children’s teeth with a soft bristled toothbrush using a small smear of toothpaste that contains fluoride (F)
    • 2 years & older: Once daily after a meal, staff assist children brushing using small smear of F toothpaste
  – Education

• Parent-related behaviors
  – Advise on oral health
  – Dental home
Traditional Health Education

“Advice-giving sessions conducted by professionals and/or the dissemination of information via pamphlets, posters and media campaigns.”

Effectiveness

• Increase knowledge
• Little long-term effect on behaviors
• Little effect on oral health outcomes

Bader JD et al., AJPM 2004;26:315-25.
Staff-Parent Communication

- Staff and parents both express frustration in their efforts to communicate with each other about oral health.

- Parents:
  - Value oral health in their children
  - Believe that they are not well understood
  - Feel criticized and judged

"They can give us advice, but this is our child so we’re going to still do it the way that we believe is right. I mean, I’ll listen to the advice that they give me, but I’m still going to have my own opinions about it, and deal with that in my manner."

“I would take friendly advice, but not like criticism, like you’re doing it wrong. Like maybe suggestions or something.”

Motivational Interviewing

“Directive, person-centered counseling style that aims to help people explore and resolve their ambivalence about behavior change.”

Effectiveness [72 RCTs since 1991]
• Changed outcomes (75%)
• Out performed advice (80%)
• Psychologists & physicians effective (80%)
• Brief encounters of 15 min (64%)

Spirit of Motivational Interviewing

- Collaboration
  - Working in partnership

- Evocation
  - Draw out ideas and solutions from the individuals

- Autonomy
  - Decision making left to the person
Effectiveness of MI in Oral Health

- Systematic review of 37 studies
  - Diet & exercise
  - Diabetes
  - Oral health

- “Motivational Interviewing shows promise as a behavioral intervention to promote preventive dental health behaviors in mothers of young children at high risk for caries.”

Freudenthal & Bowen Study

- 6-24 mo. old WIC clients randomized to:
  - MI group (n=40): 20-30 min by hygienist; follow-up phone calls at 1 & 2 wks
  - Control group: pamphlet (n=32)
- Baseline and follow-up at 4 weeks
- No change in oral health beliefs (RAPIDDD)
- No change in most feeding practices
- Improvement in child tooth brushing

_J Dental Hygiene_. 2010:84;29-34.
Weinstein et al. Study

- 6-18 mo. olds (n=240) randomized to:
  - MI group: pamphlet & video; 45-min session by lay workers; 6 phone calls & 2 postcards in 6 mo.
  - Control group: pamphlet & video

- 46% reduction in 2-year ECC increment

- Conclusions: (1) MI mastered with minimal training; (2) does not require health worker

Baby Those Baby Teeth!
EHS Oral Health Update

Kelly Close, RDH, MHA
NC Oral Health Section
Jill Snyder, RDH
ZOE Dental Project, UNC
MITT Moments

“Motivational Interviewing Tooth Talk” Moments

• Pilot tests with EHS staff
  – Saw need
  – Did not grasp MI concepts
  – Could not apply concepts to specific issues

• Professional trainer

• Three-staged training of EHS staff
  – Introductory (10 staff / program ~ 150)
  – Advanced (5 staff / program ~85)
  – Dissemination and adoption plan
Successful Behavior Change

- Address low-health literacy, ambivalence and resistance
- Use effective communication techniques
- Follow evidence-based guidelines
- Promote cross-profession interventions
...coordination of preventive and treatment services among physicians, dentists and community programs will help communities to manage and improve the oral health of all children so that they begin school with no untreated tooth decay...and...start children on a lifelong path of better oral health that can prevent the ravages of dental disease ............

Dental Museum: Temple U
http://curiousexpeditions.org/?p=873
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