EXECUTIVE SUMMARY
FROM THE FINAL EVALUATION REPORT
March 2008
BARBARA AVED ASSOCIATES
Introduction

Dental caries (tooth decay) is the most prevalent chronic infectious disease of children in the United States.¹ Severe dental caries is a particular problem in young children because of the difficulty in managing them in a dental office—or requiring expensive treatment in an operating room—and the multiple visits necessary to treat them. Child health professionals can play a significant role in reducing the burden of this disease if they have the training and support to do so.

This Executive Summary presents highlights from an evaluation of California’s $7 million, 4-year “First Smiles” program, an education and training project funded by First 5 California. The goal of First Smiles was to create greater access statewide to preventive oral health services for children aged 0-5 by training dental and primary care professionals and staff from community agencies (WIC and Head Start) that typically serve families with highest risk for oral disease.

The program was co-implemented by the California Dental Association Foundation (CDAF) and the Dental Health Foundation (DHF) in 2004-2008. BARBARA AVED ASSOCIATES was the evaluator.

Goals and Outcomes

The CDAF and DHF were contracted to reach 75% of California’s dental providers and 50% of the primary care providers with educational strategies (e.g., journal articles, newsletters, website); and 30% of the dental and 20% of the medical providers with training (professional seminars, in-office presentations and online courses). A train-the-trainer model was the primary model used in delivering training for WIC and Head Start agency staff.

Expected outcomes of this project were:

- Knowledge gain and retention
- Increased skills and confidence
- Adoption of desired behaviors and practice changes
- Improvement in systems and coordination of services

Data were collected through training course surveys/posttests (administered right after the training and again 6 months later)

uniquely created for this program, as well as telephone interviews with dentists and focus groups with parents. Surveys were also sent to key dental and medical leaders in California, local dental societies and local First 5 commissions to assess their involvement and perceptions about program impact. The 0-5 pediatric curricula of California dental schools were analyzed to look for changes possibly influenced by First Smiles, and compared to U.S. dental schools.

SPSS Version 15.0 was used for the statistical analysis, with Bonferroni correction to adjust significance levels for sets of related analyses.

Findings

Program Reach

- 17,467 California dental and medical providers (over 100% of the target goal) and 883 staff from community service organizations received training from First Smiles.
- The program drew a diverse group of dentists and physicians: more Latino, African American and female DDSs and MDs participated than the proportion practicing in California.
- Close to half (45%) of the dental professionals had been in practice for 10 years or less, with the remainder about equally divided between 11-20 years and 20+ years in practice.

12% of the dental practices served children from farmworker families, a population of special interest to First 5.

Knowledge Gain and Retention

- Dental and medical providers performed well overall on course posttests (80% average correct scores). The area they least understood was that managing the behavior of children aged 0-5 with special needs is generally no different than it is for all 0-5 children.
- The length of training was important for dental but not medical providers; dental providers appeared to learn more (higher scores) in the in-person 4-hour and online than the in-person 2-hour course.
- There was a general trend overall for course participants to lose information learned from the course over the 6-month follow-up period regardless of length of course.
- More than 90% of the participants expressed satisfaction with the course, found it valuable and expected to apply
what they learned in their practices. Six months later, 57% of dental and 45% of medical providers had recommended the course to a colleague.

- Parents who received oral health education from WIC and Head Start staff perceived they learned a lot about their children’s oral health, and they scored relatively well on both the initial and 6-month follow-up posttests.

- Dental professionals perceived they increased their skills most in learning how to communicate with parents, followed by performing a knee-to-knee exam; the lowest reported increase was in learning how to bill and get reimbursed for procedures.

- There was no difference in the extent to which female and male DDSs reported increasing their skills in managing the behavior of young children as a result of taking the course.

- The medical providers and community agency staff also reported the most improvement in being able to provide oral health education and other anticipatory guidance to parents. Medical providers also reported high levels of increased skills in their ability to conduct a caries risk assessment.

- Dental providers perceived significantly less skill change due to taking the course when they were asked about this again six months later; this was not the case with medical providers or community agency staff, however.

DDS and MD Practice Behaviors

- 16% of general dentists reached at follow up said they were seeing more children aged 0-5 in their practices as a result of taking the course; 3% reported increasing the number of children 0-5 with special needs due to the course, describing having more confidence and comfort with these children.

- The main barriers dentists cited to taking more 0-5 children were managing this age group in a dental office is difficult (e.g., crying/behavior issues) and having too-full or limited-hours practices.

- When asked what it would take to see more 0-5 kids in their practice, dental providers said “more staff and training for providing parent education and managing young children’s behavior.”

- At the time of training, female general dentists were significantly more likely than
their male colleagues to start seeing children at younger ages. At the time of follow-up it appeared all general dentists were starting to see children at younger ages.

- Although female dentists were significantly more likely to say they would take more 0-5 kids in their practice as a result of the course—and dentists in practice longer said they were unlikely to—there were no significant differences in gender or years in practice when it came to intended and actual experience 6 months later.

- Six months after training, dental providers significantly increased the frequency of performing the following procedures for children 0-5: application of fluoride varnish and discussion of an infant’s bottle or breast feeding practices. For pregnant patients: discussion of breast feeding practices and recommendations to chew xylitol gum more often increased significantly.

- At the time of the course, medical providers reported more frequently than dental providers “always” performing a formal oral health risk assessment on new patients aged 0-5. This did not change at the time of follow-up; 29% of general dentists compared to 42% of medical providers said they “always/almost always” did a formal risk assessment.

- Six months after the training, 52% of the medical providers reported “always/almost always” referring pregnant patients to a dentist, up from 18.5%. Frequency of coordinating care with a pregnant patient’s dental provider also increased, from 12% to 20%.

- At the time of the course, 25% of medical providers “never/almost never” inquired about the oral health of the child’s caregiver. However, 6 months later only 10% reported such low frequency.

- When asked what it would take to see more 0-5 kids in their practice, dental providers said “more staff and training for providing parent education and managing young children’s behavior.”

- Despite recommendations from the American Academy of Pediatrics and American Dental Association that children should be seen for a first oral health visit by age one, only 16.1% of the medical providers reported typically making a referral to a DDS at that age; however, 6 months later, the proportion increased to 25.8%, a 60% positive change.

- Community agency staff anticipated being able to apply what they learned from the training; however, lack of administrative support for enough time to deliver oral health education to parents was the key barrier to integrating the new component.
Parent Behavior Change

- In the initial survey, one-third of parents reported not taking their 0-5 child to a dentist in the prior year. Six months later, the proportion of matched sample parents who took their 0-5 child to the dentist increased from 60.8% to 64.1%, likely reflecting the benefit of receiving oral health education from WIC and Head Start.

- Parents’ reasons for not taking their aged 1-5 child to a dentist in the last year were primarily due to not having dental insurance, not knowing how or where to find available dental services and believing a child age 1-5 was too young to need a dentist. The percent not knowing how to find a dentist as the reason dropped to 2% from 9% 6 months later.

- The number of parents wiping or brushing their children’s teeth after every meal increased significantly 6 months after receiving oral health education, from 14% to 21%.

Access Issues/Systems Change

- Nearly all of the medical providers and community agency staff reported some level of difficulty in finding dentists willing to see children who were low-income, uninsured, had a disability or other special needs or needed anesthesia for treatment. These access issues were still the same extent of problem 6 months later.

- Healthcare professionals’ attitudes can influence access to services. Medical providers thought the main reasons more of their colleagues don’t get involved in young children’s oral health are: belief that parents have low motivation and values about baby teeth (38%); oral health is not really the role of the physician—“dentists should take care of it”—(29%); and “children that young don’t need to see a dentist” (19%).

- While collaboration among WIC, CHDP (Child Health and Disability Prevention Program), Head Start, other early childhood stakeholders and local First 5 commissions had been ongoing and preceded the First Smiles program, the collaboration and technical assistance opportunities First Smiles offered contributed to more support for children’s oral health on the local level.

- Although Medi-Cal began reimbursing medical providers for fluoride varnish application for children under age 6 in June 2006—which should be a major incentive for increasing MD willingness to offer the procedure—ambiguity about
reimbursement (how to bill/whether it is part of managed care capitation rates) largely accounted for physicians’ lack of follow through in providing it.

- The exposure California dental students get to the 0-5 age group, particularly children with special needs, is still relatively small compared to their exposure to older children and adult patients. The dental schools’ 0-5 curricula haven’t been updated in the last several years. There was little difference between California and other U.S. dental schools.

### Key Recommendations

1. Strengthen the First Smiles curriculum (and advise future trainers) where overall scores were relatively low, e.g., managing the behavior of children 0-5 with special needs compared to all children that age.

2. Obtain continued funding to keep the curriculum updated—which would result in the course having a longer shelf life and maximizing the First 5 investment.

3. Support more opportunities for training of dental professionals concerning children with disabilities and other special needs.

4. Provide support for more joint training of medical and dental providers; incorporate a hands-on component in fluoride varnish application for the medical providers.

5. Support appropriate ways of helping California dental schools to update and increase the proportion of didactic and clinical curricula focused on children aged 0-5.

6. Continue support for the program website. Although reading professional journals was the most commonly mentioned source for dental and medical providers (75% and 69%, respectively), one-third of dental professionals and one-quarter of medical professionals cited the project website as a source for maintaining knowledge about children’s oral health.

7. Work with Healthy Families to ensure fluoride varnish is covered as a medical procedure by its health plans, and that both Healthy Families and Medi-Cal cover anticipatory guidance in their medical and dental plans.

8. Market future trainings to female general dentists as a way of possibly expanding access to care as they were slightly more likely than their male colleagues to say they would see more 0-5 children in their practice, and follow through with doing it.
GRAPHICS TO BE CONSIDERED:

Graphic #1

<table>
<thead>
<tr>
<th></th>
<th>Dental Professionals</th>
<th>Medical Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dentists, dental hygienists, and dental assistants</td>
<td>Primary care providers (pediatricians, family practice, OB-GYNs, pediatric nurse practitioners)</td>
</tr>
<tr>
<td>Education*</td>
<td>75% (34,097)</td>
<td>50% (7,174)</td>
</tr>
<tr>
<td>Training</td>
<td>30% (13,683) (99% reached as of February 2008)</td>
<td>20% (2,900) (117% reached as of February 2008)</td>
</tr>
</tbody>
</table>

*The evaluation was not tasked with measuring distribution of educational materials (brochures, journal articles, etc.).

Graphic #2

Dentists’ Feedback About the Training 6 Months Later

- “The course helped me a lot with technique”
- “I’ve implemented the fluoride varnish procedure described at the training”
- “I was already seeing young kids but the course definitely improved the quality of care I provide”
- “I feel so much more comfortable with being able to see younger children”
- “I learned that kids need to come in at a younger age than I previously thought”
- “The information about disabilities and special needs made me more comfortable with being able to see these children”
- “Now I can explain to parents why it’s important to bring the kids in early”
- “I don’t see any new children in my older practice but I opened a new practice where I accept children 0-5”

Source: First Smiles DDS telephone interviews (N=102).
Graphic #3

Table __. Increase in Self-Perceived Skill Level Among Dental Providers

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Initial Survey (n = 3369)</th>
<th>Already Had Skill n*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>a) Performing a knee-to-knee exam</td>
<td>2.52</td>
<td>.62</td>
</tr>
<tr>
<td>b) Knowing when to treat and when to refer an oral health problem</td>
<td>2.40</td>
<td>.65</td>
</tr>
<tr>
<td>c) Knowing how to treat a problem I identify</td>
<td>2.39</td>
<td>.63</td>
</tr>
<tr>
<td>d) Managing behavior of very young children</td>
<td>2.34</td>
<td>.66</td>
</tr>
<tr>
<td>e) Providing education and other anticipatory guidance to parents</td>
<td>2.56</td>
<td>.58</td>
</tr>
<tr>
<td>f) Learning how to bill and get reimbursed for procedures</td>
<td>2.09</td>
<td>.77</td>
</tr>
<tr>
<td>g) Organizing the dental office for success</td>
<td>2.22</td>
<td>.70</td>
</tr>
</tbody>
</table>

Specifically with regard to children 0-5, to what extent did this course increase your skills in:

a) Performing a knee-to-knee exam
b) Knowing when to treat and when to refer an oral health problem
c) Knowing how to treat a problem I identify
d) Managing behavior of very young children
e) Providing education and other anticipatory guidance to parents
f) Learning how to bill and get reimbursed for procedures
g) Organizing the dental office for success

Item mean scores reflect the following response choices: 1 = very little, 2 = some, and 3 = a great deal.

* Those who indicated “very little because I already had this skill” (a choice on the original survey) were excluded from the computation of means and standard deviations

Graphic #4

Figure __. What it would take for DDS to See More Children 0-5 (Telephone Interviews, n=102)
### Graphic #5

#### Table ___ . Age at Which Medical Providers Typically Refer Young Children to a Dentist

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Initial (N = 1646)</th>
<th>Matched Sample</th>
<th>Initial (n = 155)</th>
<th>At Follow-up (n = 155)</th>
<th>% Chg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>At what age do you typically refer young children to a dentist?</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>233</td>
<td>14.2</td>
<td>25</td>
<td>16.1</td>
<td>40</td>
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<tr>
<td>2</td>
<td>343</td>
<td>20.8</td>
<td>41</td>
<td>26.5</td>
<td>35</td>
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<tr>
<td>3</td>
<td>467</td>
<td>28.4</td>
<td>50</td>
<td>32.3</td>
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<td>4</td>
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<td>6.5</td>
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<td>56</td>
<td>3.4</td>
<td>3</td>
<td>1.9</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>0.4</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>No Response / Missing Data</td>
<td>429</td>
<td>26.1</td>
<td>27</td>
<td>17.4</td>
<td>23</td>
</tr>
</tbody>
</table>

### Graphic #6

#### Table ___ . Age of Child When First Accepted by General Dentists

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Matched Sample (n = 169)</th>
<th>% Change</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Initial</td>
<td>At Follow-up</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>At what age do you typically start to see young children in your practice?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>37</td>
<td>22.8</td>
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<tr>
<td>2</td>
<td>35</td>
<td>20.7</td>
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<td>55</td>
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<td>5.9</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>No Response/ Missing Data</td>
<td>7</td>
<td>4.1</td>
</tr>
</tbody>
</table>
QUOTES THAT COULD BE ADDED:

“Medical-dental collaborations, although they take time, need to be promoted and can result in important clinical care outcomes for children.”—Martha Molina-Bernadett, MD, MBA, Molina Healthcare

“My child doesn’t need to see the dentist; I’m waiting until his teeth finish coming in.” — Parent attending a WIC oral health education session

“This [project] was really all about changing the paradigm of children’s oral health in California.” – Jared Fine, DDS, MPH, Chair, First Smiles Scientific Advisory Committee

“I do my own kids’ dental check-ups” – A WIC mother responding to the survey question, “Did you take your child to a dentist in the last year? If not, why not?”