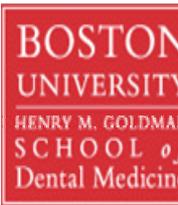




**HEALTHY BABY / HEALTHY CHILD (HB/HC):
Incorporating oral health into a
home-visiting, public health nursing program**

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Boston Public Health Commission
Healthy Baby / Healthy Child Program

Boston University
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Pilot Project:
Northeast Center for
Research to Evaluate and Eliminate Dental Disparities
(CREEDD)

Support: CDC U48/CCU415803; NIH U54 DE14264, K23 DE00454

Objective

- ✦ To describe an oral health program that trains public health nurses to assess the oral health status and reduce *Early Childhood Caries (ECC)* risk factors among clients enrolled as high-risk pregnant women in HB/HC and followed by home visiting public health nurses 3 years postpartum.

Healthy Baby/Healthy Child

- ✦ Innovative home-visiting program
- ✦ Demonstrated success
- ✦ Provides home and community based services to high-risk pregnant and parenting women, children and families while linking clients with systems of care throughout Boston.

Healthy Baby / Health Child

- ✦ Citywide program
- ✦ 18 years
- ✦ Targets families living in communities that are disproportionately impacted by infant mortality and other health disparities.
- ✦ Dedicated to providing social and health care services that:
 - Promote infant survival,
 - Promote birth outcomes and family unity

Healthy Baby / Health Child

- Approximately 1,500 women and their families served annually
- Over 45% residents of Boston public housing,
- over 95% are African-American
- only 20% report having a male partner living within their household.
- Free, voluntary and confidential.
- Languages include:
 - Spanish, Portuguese, Cape Verdean Creole, Haitian Creole, French, Somali, Ibo and English.



Healthy Baby / Healthy Child

17 visiting nurses

14 public health advocates

2 health ambassadors

- provide prevention counseling on a wide variety of health issues
- provide 11 home visits to the women during their pregnancy and the ensuing 3 years.



Healthy Baby/Healthy Child Offers:

- ✿ Childcare
- ✿ Legal Services
- ✿ Emergency Food
- ✿ Mental Health Services
- ✿ ESL and ESOL Classes
- ✿ Mentoring Programs Education
GED Classes
- ✿ Sudden Infant Death Syndrome
- ✿ Pregnancy loss & support
- ✿ Father's Programs
- ✿ Parenting and Support Groups
- ✿ Early Intervention
- ✿ Fuel Assistance
- ✿ Substance Use
- ✿ Health Insurance
- ✿ Violence Prevention
- ✿ Housing
- ✿ Transitional Assistance
- ✿ Immigration Assistance
- ✿ Women, Infant & Children (WIC)
- ✿ Job Training

Home Visiting Model

- ✿ Empowers the clients
- ✿ Builds a bond of trust between the clients and health care providers.
- ✿ Offers the health care professionals a unique insight into the lives of the program participants:
 - evaluating nutritional practices,
 - barriers to dental care
 - oral health practices.



Target Population

- ✦ High risk pregnant women and their children living in communities that are disproportionately impacted by infant mortality and other health disparities.
- ✦ High risk children especially susceptible to developing Early Childhood Caries (ECC) as ECC disproportionately affects poor children from racial/ethnic minority groups.



Healthy People 2010

- ✦ HP 2010 identifies “counseling, reinforcement of health promoting behaviors with care givers of children, and intervention by dental and other professionals to improve parenting practices” as the best available means to prevent this serious oral disease.

Early Childhood Caries (ECC)

- ✦ Also called baby bottle tooth decay, bottle rot, nursing caries.....
- ✦ Occurs at any age after teeth erupt
- ✦ Progresses quickly
- ✦ Particularly damaging
- ✦ Costly to treat
- ✦ Can be prevented!



Early Childhood Caries (ECC)

- ✦ ECC is a serious form of dental caries that affects the primary dentition of young children.
 - Healthy People 2010 reports that one-in-five (18%) two-to-four year olds have visible cavities and that past efforts to reduce this disease burden have failed.
 - *USDHHS. 2000. Healthy People 2010, Second Ed. Volume II, Chapter 21, “Oral Health”,*
- ✦ Early Childhood Caries (ECC) disproportionately affects poor children from racial/ethnic minority groups.
 - Preschoolers from poor and low income families suffer more than twice the tooth decay and twice the dental pain as their affluent peers but are only half as likely to visit a dentist.
 - *Edelstein BL, 2000. Access to Dental Care for Head Start Enrollees. Journal of Public Health Dentistry*

Early Childhood Caries (ECC)

- ✦ Left untreated, this infectious disease can lead to serious illness, infection and pain which in turn can impair weight gain, speech, lead to learning and eating problems, and increase school absenteeism, thus negatively affecting children's and families' quality of life.

Proposed an oral health pilot project:

- ✦ To develop a model program incorporating oral health promotion activities in the Healthy Baby/Healthy Child (HB/HC) Program.
- ✦ To determine the feasibility of building capacity within the Boston Public Health Commission HB/HC personnel to:
 - Carry out simple in-home oral health assessments of pregnant women, mothers, and children:
 - Provide oral health information to clients and to the larger community of public housing residents; and
 - Facilitate referrals for dental care as needed.

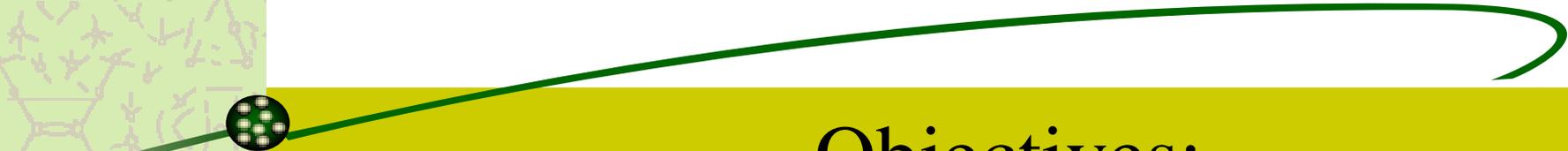


Pilot Project Overall Goal

To reduce Early Childhood Caries among the children served by Healthy Baby/Health Child by training the Healthy Baby/Health Child public health nurses to assess the oral health status and reduce early childhood caries (ECC) risk factors among their families.

Specific Aims

- ✿ 1) To determine if a model of oral health promotion can be effectively delivered by non-dental health care providers as part of an existing home visiting program.
- ✿ 2) To decrease risk factors associated with ECC in young children served by HB/HC by providing in-home oral health assessments and education.
- ✿ 3) Describe the oral health status of the women and children served by HB/HC by incorporating oral health data collection into the existing HB/HC data collection system.



Objectives: HB/HC Oral Health Component

- ✦ Recognize the importance of oral health
- ✦ Understand dental decay
- ✦ Perform caries (decay) - risk assessment
- ✦ Perform dental screening on infants & toddlers
- ✦ Provide preventive recommendations to parent
- ✦ Refer to dentist for necessary treatment

Methods

- ✦ Program Coordinator: Liaison HB/HC and BUSDM
- ✦ Dental hygienists provided ECC specific oral health training to 20 HB/HC nurses, supervisors and staff:
 - 16-item pre and post knowledge test.
 - two hour didactic training session
 - one-on-one training was provided during home-visits accompanied by a dental hygienist.
 - Conduct basic dental screenings
 - Provide oral health education specific to the client's self-reported oral health behaviors and nutritional and child-feeding practices.
 - Refer as indicated
 - Initially the nurses observed the RDH
 - Subsequently, the nurses took a more active role during the oral health component with the RDH observing/providing guidance as indicated
- ✦ The goal was for the nurses to take the lead on the visits, with the dental hygienist acting only in a supportive capacity.

ECC Training

- ✿ Two hour, interactive session
- ✿ Power point presentation, models and puppets
- ✿ Held at HB/HC during regular meeting time
- ✿ Refreshments were served
- ✿ 16 item Pre and post test
- ✿ ECC specific training
- ✿ Conducting a basic dental screening

ECC Training

- ✦ Importance of primary teeth
- ✦ The normal, healthy, primary dentition,
- ✦ Oral systemic connections
- ✦ Oral health and pregnancy
- ✦ Dental decay
 - Prevalence
 - How to recognize signs of dental decay, especially ECC
 - Etiology of dental decay including the transmission of cavity causing bacteria, dietary risk factors, behavioral risk factors
- ✦ Who's at risk for developing ECC?
- ✦ Reducing those risk factors
- ✦ Cleaning a child's teeth
- ✦ Protecting a child's teeth
- ✦ Q & A





16 Item Pre and Post Test Questions: True/False and Multiple Choice

1. Parents should replace a baby's bottle with a sippy cup by age 1 to avoid ECC. (*False*)
2. Mothers can transmit decay causing bacteria to babies. (*True*)
3. Some types of caries can be repaired with fluoride use and don't require fillings. (*True*)
4. Having healthy baby teeth is not as important as having healthy permanent teeth because baby teeth will fall out. (*False*)



Questions:
True/False and Multiple Choice

5. It is recommended that children have first dental visit in year prior to kindergarten. (*False*)
6. Breast feeding at night can be just as harmful as putting a baby to bed with a bottle. (*True*)
7. ECC affects which areas of the child's mouth first?
(*Flat, smooth surfaces of upper front teeth*)
8. Which is not a risk factor for ECC?
(*Sleeping with a bottle filled with plain water*)



Questions:
True/False and Multiple Choice

9. Dental caries is which type of infection? (*Bacterial*)
10. Which of the following drinks do not cause dental caries? (*Milk, fruit juice, and soda all cause cavities*)
11. Which of the following is not needed for dental caries to form? (*Saliva*)
12. When children brush with fluoridated toothpaste, how much should be used? (*pea-sized amount*)



Questions:
True/False and Multiple Choice

13. When should you start brushing a child's teeth?
(When the first tooth erupts)
14. What does a cavity in a child's mouth look like?
(white, yellow, brown and/or black spot)
15. Which snack is least likely to cause decay? *(Cheese)*
16. Which is a good way to prevent cavities in children?
(Help child brush after eating sugary foods/drinks, limit # times child has sugary food/drink in 1 day, give sugary snacks only with meals)

Pre and Post Test Results

Table 1.

Mean pre and post test scores out of 16 questions (N=14)

	<i>M</i>	<i>SD</i>
Pre-test	9.21	2.23
Post-test	12.79	1.72

$p < .001$

Pre and Post Test Results

- ✦ Questions answered correctly by all participants in pre and post test: $p < .05$
 - 4. Having healthy baby teeth is not as important as having healthy adult teeth because baby teeth will fall out. (*False*)
 - 13. When should you start brushing a child's teeth? (*As soon as the first tooth erupts*)

Table 2.

*Questions answered significantly more correctly in post test
(N=14)*

Question	% answered correctly (pre-test)	% answered correctly (post-test)	p value
3	29	93	<.001
6	36	100	<.001
8	57	93	.019
9	64	93	.040
15	57	100	.008

Pre and Post Test Results

- ✦ *Five (5) questions answered significantly more correctly in post test (n-14, p< .05)*
 - 3. Some types of caries can be repaired with fluoride use and don't require fillings. (*True*)
 - 6. Breast feeding at night can be just as harmful as putting a baby to bed with a bottle. (*True*)
 - 8. Which is not a risk factor for ECC? (*Sleeping with a bottle filled with plain water*)
 - 9. Dental caries is which type of infection? (*Bacterial*)
 - 15. Which snack is least likely to cause decay? (*Cheese*)

Table 3.

*Questions not answered significantly more correctly in post
(N=14)*

Question	% answered correctly (pre-test)	% answered correctly (post-test)	p value
1	7	43	.189
2	86	100	.165
5	43	50	.671
7	29	43	.336
10	79	71	.583
11	64	71	.500
12	71	93	.082
14	93	100	.336
16	7	21	.165

Pre and Post Test Results

- ✿ *Nine (9) questions NOT answered significantly more correctly in post test ($N=14$, $p > .05$)*
 - 1. Parents should replace a baby's bottle with a sippy cup by age 1 to avoid ECC. (*False*)
 - 2. Mothers can transmit decay causing bacteria to babies (*True*)
 - 5. It is recommended that children have first dental visit in year prior to kindergarten. (*False*)
 - 7. ECC affects which areas of the child's mouth first?
 - (*Flat, smooth surfaces of upper front teeth*)
 - 10. Which of the following drinks do not cause dental caries?
 - (*Milk, fruit juice, and soda all cause cavities*)

Pre and Post Test Results

- ✦ *Nine (9) questions NOT answered significantly more correctly in post test ($N=9$, $p > .05$)*
 - 11. Which of the following is not needed for dental caires to form?
(Saliva)
 - 12. When children brush with fluoridated toothpaste, how much should be used? *(pea-sized amount)*
 - 14. What does a cavity in a child's mouth look like?
 - *(white, yellow, brown and/or black spot)*
 - 16. Which is a good way to prevent cavities in children?
 - *(Help child brush after eating sugary foods/drinks, limit # times child has sugary food/drink in 1 day, give sugary snacks only with meals)*

Family Visits

✿ Total family visits = 82

✿ Had aimed for 100

✿ Procedure:

- Dental hygienists performed clinical examinations on 47 children 0-3 yrs of age and on 22 mothers
- Mothers asked questions regarding oral hygiene and oral health of themselves and their children
- Answers recorded by hygienists

✿ Outcome of family visits

- Determined behavioral risk factors for ECC and the oral health status of mothers and children in participant population



Results

- ✦ 14 nurses completed the pre and post test and scored significantly higher on the post (paired t-test mean pre-test score 9.0/post-test score 13.2, $p < .05$).
- ✦ During 82 home visits, the RDH/RN team provided oral health education to all families and screened 22 mothers and 47 children age 0-3.
- ✦ Debriefing revealed the nurses' perceived need for more training, thus, a Q&A forum was held and more home visits scheduled.

Implications

- Home Visiting Public Health nurses can ensure moms and kids have a dental home
- Risk factor education:
 - Bottle/sippy-cup use
 - Transmission of germs:
 - pacifier, sharing of toothbrushes,

Observations

✿ Home visits

- Privilege to be invited into client's homes
- Wide range of living conditions and family combinations
- Does not ensure access
 - mothers often not home or refused to let us in
- Many fathers very visible
- Many opportunities to naturally weave oral health into visit

Next steps?

- ✦ More training for newly hired nurses and other HB/HC professional staff (social workers, advocates)
- ✦ More one on one training/home visits
- ✦ Refresher training
- ✦ Consultation services

Conclusions

- ✦ This program allowed the nurses to begin to build capacity and successfully incorporate an enhanced oral health component with the potential to decrease ECC prevalence into the HB/HC protocol.
- ✦ This program may serve as a model for non-dental health professionals in oral health promotion and disease prevention.



THANK YOU