A Pilot Nutritional Counseling and Obesity Prevention Training Program in an Academic Pediatric Dental Clinic Setting

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October 17th 2019
2019 PACHC Conference & Clinical Summit, Lancaster, PA
Outline

- Background of HRSA program
  - Predoctoral Pediatric Training in General Dentistry and Dental Hygiene FOA – January 2017
  - Temple University Maurice H. Kornberg School of Dentistry’s (TUKSoD) Proposal to HRSA - "Pediatric Patient Care, Population Health, and Community Based Training (PPCT) Project" for dental students

- Creating Contents in Nutrition Counseling and Obesity Prevention (NCOP) to train dental students
  - Creating NCOP Handbook – structured multilevel reviews, pilot testing
  - Content of NCOP handbook
  - Didactic training contents – face to face lectures
Outline

▪ Clinical implementation of NCOP protocol
  • Working with IT – integration NCOP screener into pediatric dental clinic
  • Online training module – canvas interface
  • Scheduling
  • Infant duty rotations – assessments
  • Preliminary student outcomes
▪ Dissemination of the NCOP Handbook
▪ Questions
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Health Resources and Services Administration

Bureau of Health Workforce
Division of Medicine and Dentistry

Predoctoral Pediatric Training in General Dentistry and Dental Hygiene

Announcement Type: New
Funding Opportunity Number: HRSA-17-068
Catalog of Federal Domestic Assistance (CFDA) No. 93.059

FUNDING OPPORTUNITY ANNOUNCEMENT
Fiscal Year 2017

Application Due Date: January 30, 2017
HRSA FOA Purpose and Goals

- **Program Purpose**
  - Enhance clinical pediatric *predoctoral dental and dental hygiene training* focusing on children ages 0-5 to improve the oral health of vulnerable, underserved, and rural pediatric populations.

- **Applications must demonstrate how they will:**
  - Integrate or enhance pediatric dental or dental hygiene training in the core student curriculum;
  - Increase or enhance clinical experiences for dental students with pediatric populations in community-based sites; and
  - Incorporate population health and social determinants of health into their training.
  - Programs designed to address risk factors common to childhood obesity and dental caries.
Pediatric Patient Care, Population Health, and Community Based Training (PPCT) Project for Dental Students

Predoctoral Pediatric Training in General Dentistry and Dental Hygiene

Funding Opportunity Number: HRSA-17-068
Health Resources and Services Administration

Funding Granted: $1,559,006 for five years (2017-2022)
PPCT Objectives

- Create and integrate an enhanced pediatric dental health curriculum
- Add new pediatric medical coursework and a rotation in a primary care clinical setting for dental students
- Enhance community clinical rotations to treat children under five
- Enhance public health curriculum - social determinants of health and population health principles in dental practice, culturally competent, oral health literacy in dental
- Add new advocacy coursework and develop an Oral Health Advocacy Toolkit
- Create a Community Engagement and Leadership Honors Program for selected dental students
- Provide scholarships to support financially disadvantaged students
Partners, Collaborators, and Contractors

- Establishing partners site for students training placement
- Created advocacy program and materials
  - North Inc WIC program
  - Philadelphia College of Osteopathic Medicine (PCOM)
  - Doc Bresler’s Cavity Busters Roxborough
  - Bright Side Academy (PreK/Head Start Programs)
  - Norris Square Community Alliance (Early Head start/Head Start Programs)
  - Office of Leadership Development, Temple University
  - Children’s Dental Health Project
Additional Objective

- Develop and implement a nutritional counseling and obesity prevention (NCOP) training protocol at TUKSoD focusing on children 0 to 5
  - *Collaboration with Center for Obesity Research and Education (CORE)*
Background

Dental caries is one of the most common diseases among 5- to 17-year-olds.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries</td>
<td>58.6</td>
</tr>
<tr>
<td>Asthma</td>
<td>11.1</td>
</tr>
<tr>
<td>Hay fever</td>
<td>8.0</td>
</tr>
<tr>
<td>Chronic bronchitis</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Note: Data include decayed or filled primary and/or decayed, filled, or missing permanent teeth. Asthma, chronic bronchitis, and hay fever based on report of household respondent about the sampled 5- to 17-year-olds.
Source: NCHS 1996.
Background – Oral health impact

- Infection
- Pain
- Poor Feeding
- Poor Speech
- Poor Self Esteem
- Poor School Performance
Disparities in Dental Caries

Dental Caries Experience and Untreated Dental Caries Prevalence in 12 to 19 years adolescents, 2011-2016 NHANES

- Dental caries experience
- Untreated tooth decay

Total: 56.80%
White, Non-Hispanic: 54.30%
Black, Non-Hispanic: 57.10%
Mexican American: 68.90%
<100% FPL: 64.90%
100% - 199% FPL: 65.30%
≥200% FPL: 48.70%

<100% FPL: 16.60%
100% - 199% FPL: 15.60%
≥200% FPL: 20.40%
<100% FPL: 20.80%
100% - 199% FPL: 22.70%
≥200% FPL: 20.90%

11.10%
Childhood Obesity

- Childhood obesity in the United States is **public health issue**
- Excess body fat
- Children 2-19 years: **18.5%** have obesity
  - *Trends track into adulthood*

Figure 3. Prevalence of obesity among youth aged 2–19 years, by sex and age: United States, 2015–2016

*Significantly different from those aged 2–5 years.*

NOTE: Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#3.

Figure 4. Prevalence of obesity among youth aged 2–19 years, by sex and race and Hispanic origin: United States, 2015–2016

1Significantly different from non-Hispanic Asian persons.
2Significantly different from non-Hispanic white persons.
3Significantly different from non-Hispanic black persons.

NOTE: Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#4.
**Prevalence in Philadelphia**

<table>
<thead>
<tr>
<th></th>
<th>2-5 years (n=473)</th>
<th>6-12 years (n=711)</th>
<th>13-18 years (n=987)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Weight</td>
<td>61.9%</td>
<td>53.3%</td>
<td>51.6%</td>
</tr>
<tr>
<td>Overweight</td>
<td>10.6%</td>
<td>15.8%</td>
<td>18.08%</td>
</tr>
<tr>
<td>Obese</td>
<td>14.0%</td>
<td>24.5%</td>
<td>25.7%</td>
</tr>
<tr>
<td>Severely Obese</td>
<td>3.8%</td>
<td>9.3%</td>
<td>12.6%</td>
</tr>
</tbody>
</table>

N= 2,171
Data from patients seen at 2 FQHC’s from 1/2016-1/12/2018
Connection

- Obesity and dental caries are prevalent, but preventable, chronic childhood diseases
- Share common nutritional risk factors
- Dental professionals are well-positioned to evaluate child dietary and nutritional behaviors, assess risk, and provide appropriate counseling
- Prevent obesity and dental caries in children
- This exemplifies the Common Risk Factor Approach, which operates on the sound principle that few risk factors commonly underlie co-morbid conditions
Common Risk Factor Approach - Obesity and Dental Caries

Common Risk Factors

Connection

- Dental associations have **recognized** dental professionals’ responsibility in understanding their patient’s diet and nutritional behaviors to prevent obesity and dental caries.

- Most U.S. dental schools and dental hygiene programs **do not have integrated specific curriculum on prevention of obesity** and promotion of healthy nutrition for children.
  - *Develop and implement the Nutritional Counseling and Obesity Prevention (NCOP) training protocol for dental students at TUKSoD*
Early Steps: Curriculum Integration

- Find space in the dental curriculum
  - *Identified space in the dental curriculum for both didactic contents and clinical training protocol*
    - Contents integrated into D402 Health Promotions in Populations course – 1 – credit course, Spring of D2/Sophomore year
    - Clinical implementation training protocol begins in D3/Junior year
    - Junior outreach program – junior students have to participate in community engagement, oral health education and promotion activities
      - Infant duty rotations
  - Proposal to the curriculum committee - approval
Internal Committee

1) Vinodh Bhoopathi, BDS, MPH, DScD
   Assistant Professor, Department of Pediatric Dentistry
   and Community Oral Health Sciences, Temple University
   Kornberg School of Dentistry, Philadelphia, PA

2) Maria Cordero-Ricardo, DDS, MS, MPH
   Director of Pediatric Dental Clinic, Department of Pediatric
   Dentistry and Community Oral Health Sciences
   Clinical Associate Professor, Temple University Kornberg
   School of Dentistry, Philadelphia, PA

3) Jennifer Hill, DDS, Dr.med.dent., PhD
   Chair, Department of Pediatric Dentistry and Community
   Oral Health Sciences,
   Associate Professor, Temple University Kornberg School of
   Dentistry, Philadelphia, PA

4) Erik Langenau, DO, MS, FAAP, FACOP
   Pediatrician and Associate Professor, Philadelphia College
   of Osteopathic Medicine, Philadelphia, PA

5) Marisol Tellez Merchan, BDS, MPH, PhD
   Associate Professor, Department of Pediatric Dentistry
   and Community Oral Health Sciences, Temple University
   Kornberg School of Dentistry, Philadelphia, PA

6) David B. Sarwer, PhD
   Associate Dean for Research
   Professor, Department of Social and Behavioral Sciences
   Director, Center for Obesity Research and Education,
   Temple University College of Public Health,
   Philadelphia, PA

7) Gina Tripechio, PhD, MSED
   Assistant Professor, Department of Social and
   Behavioral Sciences
   Center for Obesity Research and Education
   College of Public Health, Temple University,
   Philadelphia, PA
# Child Healthy Weight and Nutrition Screener

**CHILD HEALTHY WEIGHT AND NUTRITION SCREEENER: CHILDREN 1–5 YEARS**

Please note: The American Academy of Pediatric Dentistry (AAPD) recommends that children establish a dental home by age 1 or within 6 months after the first tooth erupts. Therefore, recommendations are provided for children 1 year of age and older. Specific dietary recommendations for children younger than 1 year are noted in Section 2.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>High Risk</th>
<th>Low Risk</th>
<th>Counseling Prompts and Key Points</th>
</tr>
</thead>
</table>
| Child drinks juice or other sugary drinks daily | Yes | No | **PROMPT:** Tell me a little bit about what your child typically drinks. **KEY POINTS:** 
- Milk and water are sufficient beverages. Juice is not necessary and should be limited. 
- Limit to 4 ounces daily for toddlers age 1–3. 
- Limit to 4 to 6 ounces daily for children age 4–5. 
- Juice is not an ideal way to provide fruits or vegetables (most juices contain very little fruit). 
- Juice and other sugar-containing drinks can increase risk for tooth decay. |
| Child eats fruits and vegetables daily | No | Yes | **PROMPT:** Feeding young children can be challenging. Tell me about what your child typically eats in a day. **KEY POINTS:** 
- Fruits and vegetables are nutrient dense and important for healthy growth and development. 
- Many children will need to be exposed to vegetables many times (sometimes more than 10) before accepting them. 
- Encourage children to try foods but do not force them to eat. 
- Children are more likely to accept foods if they see their parents eating them. 
- Encouraging fruit and vegetable intake early on will promote the continued development of a healthy eating pattern. |
| Child eats sugary or salty snacks daily | Yes | No | **PROMPT:** Tell me about what kinds of foods you offer to your child for snacks; What are some of your child’s favorite snacks? **KEY POINTS:** 
- Toddlers (1–3 years) should be offered 2–3 small healthy snacks per day. 
- Preschoolers (3–5) should be offered 3–5 small healthy snacks per day. 
- Snacks should be used to help young children meet their nutritional needs. 
- Parents should offer a fruit or veggie for at least one snack every day. 
- Snacks should be structured; do not allow continuous snacking throughout the day. 
- This increases caries risk. |
| Parent uses responsive feeding practices | No | Yes | **PROMPT:** Tell me about some strategies you use to feed your children during mealtime. **KEY POINTS:** 
- Responsive feeding guide: “Parents provide, child decides.” 
- Parents should structure meal time but allow children to self-regulate eating (children choose what and how much). 
- Parents should learn to recognize child hunger and fullness cues and respond accordingly. 
- Parents should role model healthy eating behaviors. 
- Parents should avoid using foods (especially unhealthy foods) as rewards or to modify behavior. |

**CHILD HEALTHY WEIGHT AND NUTRITION SCREEENER: CHILDREN 6–18 YEARS**

<table>
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<th>Low Risk</th>
<th>Counseling Prompts and Key Points</th>
</tr>
</thead>
</table>
| Child’s weight status height (ft. in.) | Yes | No | **PROMPT:** Tell me a little bit about what your child typically drinks. **KEY POINTS:** 
- Milk and water are sufficient beverages. Juice is not necessary and should be limited. 
- Limit to 4 ounces daily for toddlers age 1–3. 
- Limit to 4 to 6 ounces daily for children age 4–5. 
- Juice is not an ideal way to provide fruits or vegetables (most juices contain very little fruit). 
- Juice and other sugar-containing drinks can increase risk for tooth decay. |
| Child eats fruits and vegetables daily | No | Yes | **PROMPT:** Feeding young children can be challenging. Tell me about what your child typically eats in a day. **KEY POINTS:** 
- Fruits and vegetables are nutrient dense and important for healthy growth and development. 
- Many children will need to be exposed to vegetables many times (sometimes more than 10) before accepting them. 
- Encourage children to try foods but do not force them to eat. 
- Children are more likely to accept foods if they see their parents eating them. 
- Encouraging fruit and vegetable intake early on will promote the continued development of a healthy eating pattern. |
| Child eats sugary or salty snacks daily | Yes | No | **PROMPT:** Tell me about what kinds of foods you offer to your child for snacks; What are some of your child’s favorite snacks? **KEY POINTS:** 
- Children and teens need to eat every 3–4 hours to meet their nutritional needs; this is about 1 snack per day depending on meals. 
- Snacks should be used to meet nutritional needs and include fruits, vegetables, whole grains, dairy and/or healthy fats. 
- Offer snacks at structured times and ensure they are eaten while seated. 
- Children should not eat snacks on the go or continuously throughout the day (this increases caries risk). 
- Avoid offering snacks too close to meal times. |
| Parent uses supportive feeding practices | No | Yes | **PROMPT:** Tell me about some strategies you use to feed your children during mealtime. **KEY POINTS:** 
- Avoid eating while watching TV or being on other screens (e.g., phones, computers). This can lead to mindless eating. 
- Parents should role model healthy eating behaviors; children will “do as you do” not “do as you say.” 
- Structure when food is available and when it can be eaten, but not which foods or how much. 
- Prepare family meals at home and engage in social conversation around eating. 
- Teach about eating and health (e.g., cooking, making food choices, buying food). |
Developing a Professional Handbook

▪ **Create NCOP handbook**
  - Evidence-based resource for interested dental schools and dental hygiene programs to increase the knowledge and skills of students, residents
  - Useful resource for practicing dental professionals, oral health-related organizations, community health centers with dental clinics, and other academic programs

▪ **Lead by the internal committee**

▪ **Multiple levels of review**
  - *Students*
  - *Professionals (conference)*
  - *External Committee*

https://dentistry.temple.edu/NCOP_Handbook
Stakeholder Feedback

What did we ask about:
- Communication of content
  - Literacy, language, examples
- Relevance for dental providers
- Handbook design and utility
- Edits and additional comments/feedback

What did we learn:
- Targets that aligned for both dentistry and nutrition
- Evidence-based recommendations
- Specific examples and language
- Embedded resources, links to additional resources and references
Didactic Content: Lecture 1

- Child Nutrition and Obesity Etiology: Applications in Dentistry
Didactic Content: Lecture 2

- Child Healthy Weight and Nutrition: Monitoring, Assessment, and Counseling in Pediatric Dental Practice

- Assessment of Risk
- Screening and Diagnosis
- Approaches to Counseling (MI)
- Patient Communication
- Referral to Primary Care

[Charts showing body mass index (BMI) for age and gender]
Clinical Implementation

- Pre-rotation training
  - Complete 20 min video at least one day prior to infant duty rotations
    - Pre-requisite prior to completing a 5 question quiz
  - After watching the 20-minute video – complete a 5 question quiz on canvas (assessment)
    - Pre-requisite prior to infant duty rotation
    - 2 attempts to get a 80% pass score
Structure of the program

- Infant duty rotations
  - Complete a minimum of **ONE** infant duty rotation-assess nutritional health behaviors and categorize the infant using a standardized screening instrument (NCOP screener) as low or high risk for improper nutritional health behaviors
  - Based on risk assessment, provide nutritional counseling using best communication and counseling techniques to at least **ONE** infants/parents

- Post-assessment
  - Complete a minimum of **ONE** post-rotation assessment for one infant
**CANVAS PAGE FOR ONLINE TRAINING AND ASSESSMENTS**

- **INFANT DUTY ROTATIONS**
  - NCOP_Handbook.pdf

- Nutrition Counseling and obesity prevention (NCOP) screener Video
  - Nutrition Counseling and obesity prevention (NCOP) screener Video

- NCOP Post-Training Video Quiz
  - Post NCOP Video Training Quiz
    - 5 pts | View

- Post Infant Duty Rotation Assessment
  - Post Infant Duty Rotation Assessment 1 (Mandatory)
    - 3 pts
  - Post Infant Duty Rotation Assessment 2 (Optional)
  - Post Infant Duty Rotation Assessment 3 (Optional)
    - 3 pts
Structure of the program

- Duty Assigned on a rotating basis by Clinical Affairs – 1 junior and 1 senior per session
- Patients 3 and under are scheduled for 30 minute appointments
Structure of the Appointment

1. Review entire record for an existing patient
2. Greet parent and review medical history and chief complaint
3. Present to attending
4. Interview including caries risk assessment, nutritional counseling obesity prevention screener, and anticipatory guidance
5. Knee to knee examination and toothbrush prophy
6. Examination and finding reviewed with faculty
7. Preventive treatment plans to include fluoride varnish and minimally invasive caries management
Clinic Integration of Screener into aXium

- NCOP screeners integrated into aXium – electronic health record system – pediatric dental clinic
Student implementation in clinic?

- **Pilot in Infant Care**: July 2018
- **Phase 1 Infant Care Rollout**: July 2019 – required curriculum in outreach limited to infant care clinic
- **Phase 2 Full Clinic Rollout**: November 2019 – complete implementation in pediatric dentistry clinic
Student Feedback - What information was provided in the NCOP training module that you applied in your counseling session with the patient?

- Most common discussion points were **juice and snacking behaviors** in the shared context of caries risk and healthy nutrition
- Frequently cited that the screening tool was helpful in **guiding conversations** and **setting goals**
- Special mention of the benefits of discussing **sleep**
Student feedback - What information did you need, in order to deliver effective counseling, but did not receive in the NCOP training module?

- Most feedback supported the **quality of the instrument**
- Common requests:
  - More techniques related to caregiver behavior change, particularly disengaged caregivers or difficult conversations
  - More resources to reference or share with caregivers
Student feedback - Do you have any additional thoughts on the NCOP screener or the NCOP training module?

- Overall reinforced that it was **helpful and beneficial** to the education
- Some comments suggest that it was not clear that this was an obesity prevention screener and not caries risk assessment adjunct
- Outliers and dissent
  - Some felt it was not a comprehensive enough resource
  - One comment felt it did not replace the hands-on assistance of an experienced operator (aka senior student)
Faculty and Staff Feedback

- They feel they need more training as there is always a gap between learning and practice.
- Staff would like hands-on instruction in measuring height and weight as this is not a typical dental assistant skill.
- Faculty like the handbook structure and appreciate the print information as an instructional adjunct.
Dissemination

- **Online**
  - *Online link disseminated through*
    - DPH listserv – Upitt
    - Dental deans, academic dental deans
    - Dental hygiene program directors
    - Dental assisting directors
    - Pediatric dental residency program directors
    - Advanced education in general dentistry program directors
    - Association of State and Territorial Dental Directors (ASTDD)
    - Oral Health coalitions - nationally
      - Pennsylvania Oral Health coalition

- **Online dissemination**
  - March 2019
  - Downloaded more than 900 times so far

- **NCOP Hard Copies**
  - *National Oral Health Conference*
  - *International Association of Dental Research conference*
Acknowledgements

- Gina Tripicchio, PhD, MSEd
  - Assistant Professor, Department of Social and Behavioral Science,
  - Center for Obesity Research and Education,
  - Temple University College of Public Health

- Maria Cordero-Ricardo, DMD, MS, MPH
  - Clinical Associate Professor, Department of Pediatric Dentistry
  - Temple University Maurice H. Kornberg School of Dentistry
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Thank You and Questions

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