Evidence-Based ECC Prevention: “My Crusade and My Story”

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Introduction

- Trajectory of ECC Research
- Early Interventions of ECC
- IOCP Protocols Med/Dent
- Policy Implications
- Priorities for future studies
Why is it a Global Epidemic?

- Highly infectious and harmful but preventable disease.
- Key pathogen: mutans streptococci (MS).
- Most common chronic childhood disease disproportionately affecting the poor.
Prevalence of ECC globally

- U.S.: 25% children <5 yrs. have decayed baby teeth; 68% have caries by age 8 yrs.
- South America: Among children aged 3-4 in six countries, d2-6mf of 6.16-9.27, d3-6mf of 4.61-7.10.
- Globally over 67% of high risk children have ECC.
THINK GLOBALLY, THINK AND ACT AT UCLA
The Partnership
for Maternal, Newborn & Child Health
Stages of ECC
Prevalence of Dental Decay

Dental decay is the most common chronic disease of childhood.

- **1 Year Olds**: 8% decay, 92% no decay
- **2 Year Olds**: 22% decay, 78% no decay
- **3 Year Olds**: 35% decay, 65% no decay
- **4 Year Olds**: 67% no decay, 33% decay
AGE ONE VISIT OR FIRST BIRTHDAY

www.AAPD.ORG
“Bridging the Gap in Oral Health Care for All Children”

- **1996-2001**
  - FV Study

- **2001-2008**
  - MAYA

- **2008-2016**
  - GIFVT

- **2005-Present**
  - IOCP

- **2015-2020**
  - BEECON

**Policy Implication**
Age one visit is now part of the AAPD and AAP recommendations and fluoride varnish w/ anticipatory guidance is used as standard of care

**Policy Implication**
Successful approach of “Promotoras” in Oral Health as Community Oral Health Care Advisors

**Policy Implication**
Glass ionomer sealants appears promising as a protective method to reduce occlusal caries in primary molars

**Policy Implication**
Integration of oral health into primary care & Standardized establishment of a dental home

**Policy Implication**
Determine cost-effectiveness for insurers/payers to incentivize brushing and preventive behaviors
Study Timeline

1. FV 1996
2. MAYA 2001
3. GIFVT 2007
4. IOCP/CAMBRA/SMG 2005-present
### Study 1: FV UCSF CANDO

| Effect of applying fluoride varnish (FV) 0, 1, or 2 times per year on low-income Chinese or Hispanic San Francisco children aged $1.8 \pm 0.6$ without ECC over two years (n=376) | Limits: Did not address (1) FV application for children with ECC and (2) factors related to mother/caregiver oral health; Initiated design of Study #2 that applied FV to children with precavitated lesions and tracked mother/caregiver MS and impact of CHX rinse use. |
**Table 1.** Mean dfs At Last Follow-Up By # Active FV Applications (n=280)

- **dfs:** p=0.0066
- **log dfs+ws:** p<0.0001

**# Active FV Applications:** # of applications received
Fluoride Varnish Treatments
FV Study Results (Policy Implications)

- Provided the rationale for establishing an early dental visit an prevention to include FV and counseling especially for those at high-risk for ECC.
- FV with Counseling and AG was a very successful intervention for ECC prevention.
- The “age one visit” has since become part of AAPD and AAP recommendations and FV with AG is used as standard of care.
Study Timeline

1  FV  2  MAYA
MAYA and GIFVT Project in San Diego County

SDSU

CHC-OV

SYHC
### Study 2: MAYA (Dual Parallel Track)

| Effect of counseling and therapeutic FV in children with precavitated lesions (control) vs. counseling, chlorhexidine (CHX) oral rinse for mothers, and preventive FV four months post-partum and follow them every six months from age 0-3 (intervention) among a sample of underserved Mexican-American mothers and young children (n=361) |
| Limit: Began to factor in mother/caregiver oral health, but needed to expand to intervention beyond FV and track more than MS with appropriate cultural linguistic counseling. |
# MAYA Study Results

## Table 2. MAYA Study Results As-Treated – ECC Incidence (Percent (n)) By Follow-Up Time

<table>
<thead>
<tr>
<th>Time (Months)</th>
<th>12</th>
<th>18</th>
<th>24</th>
<th>30</th>
<th>36</th>
</tr>
</thead>
<tbody>
<tr>
<td>(d1+fs) &gt; 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C(n=53)</td>
<td>6.8</td>
<td>19.5</td>
<td>18.6</td>
<td>30.3</td>
<td>26.4</td>
</tr>
<tr>
<td></td>
<td>(10)</td>
<td>(25)</td>
<td>(18)</td>
<td>(23)</td>
<td>(14)</td>
</tr>
<tr>
<td>C+TFV (n=67)</td>
<td>---</td>
<td>30.0</td>
<td>64.5</td>
<td>74.4</td>
<td>76.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3)</td>
<td>(20)</td>
<td>(32)</td>
<td>(51)</td>
</tr>
<tr>
<td>C+CHX+FV(n=58)</td>
<td>8.3</td>
<td>15.8</td>
<td>16.5</td>
<td>29.8</td>
<td>29.3</td>
</tr>
<tr>
<td></td>
<td>(12)</td>
<td>(20)</td>
<td>( 8)</td>
<td>(25)</td>
<td>(17)</td>
</tr>
<tr>
<td>C+CHX+FV+</td>
<td>---</td>
<td>66.7</td>
<td>80.0</td>
<td>81.0</td>
<td>78.5</td>
</tr>
<tr>
<td>TherFV (n=65)</td>
<td></td>
<td>(8)</td>
<td>(24)</td>
<td>(34)</td>
<td>(51)</td>
</tr>
<tr>
<td>(d2+fs) &gt; 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>0.0</td>
<td>4.7</td>
<td>4.1</td>
<td>4.0</td>
<td>13.2</td>
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<td></td>
<td>(0)</td>
<td>(6)</td>
<td>(4)</td>
<td>(3)</td>
<td>(7)</td>
</tr>
<tr>
<td>C+TFV (n=67)</td>
<td>---</td>
<td>20.0</td>
<td>35.5</td>
<td>58.1</td>
<td>50.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
<td>(11)</td>
<td>(25)</td>
<td>(34)</td>
</tr>
<tr>
<td>C+CHX+FV(n=58)</td>
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<td>6.3</td>
<td>3.9</td>
<td>4.8</td>
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</tr>
<tr>
<td></td>
<td>(0)</td>
<td>( 8)</td>
<td>( 4)</td>
<td>( 4)</td>
<td>( 5)</td>
</tr>
<tr>
<td>C+CHX+FV+</td>
<td>---</td>
<td>8.3</td>
<td>60.0</td>
<td>54.8</td>
<td>56.9</td>
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<td>TherFV (n=65)</td>
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<td>(1)</td>
<td>(18)</td>
<td>(23)</td>
<td>(37)</td>
</tr>
</tbody>
</table>
MAYA Study Results (continued)

- Broadened ECC prevention beyond the child by focusing on how MS levels in the mother/caregiver related to MS and ECC in children primarily through saliva transfer.
- Dyad participatory care approach combined with development of Perinatal Oral Health Guidelines (NY and CA)
- Successful Approach of “Promotoras” in OH
MAYA Lessons Learned: Hispanic Traditions

- Personalismo
  - Relationship of trust
  - "La FAMILIA" is the center core

- Patient Navigator/ Promotoras / Community Health Care Advisors
  - Community lay workers
  - Practice of simpatia - respectful interactions

- One Stop comprehensive approach

- Respeto
  - use of formal titles
2010 Perinatal Oral Care
CDA - California Guidelines
www.cdafoundation.org/journal
Study 3: GIFVT - CBPR approach
RANDOMIZED BLINDED CLINICAL TRIAL 2016

Effect of different combinations of glass ionomer sealant and stratification to dental and non-dental clinic treatment settings on ECC in children aged 3-6 receiving FV every six months.

Tracks impact of sealant for ECC prevention in combination with FV, location of service, and assessment of several risk, protective factors and clinical findings.
GIFT – GLASS IONOMER FLUORIDE VARNISH TRIAL

UCSF CANDO CENTER II

www.ucsf.edu/cando

San Ysidro Community Health Center

Community Health Center – Ocean View
Glass Ionomer Sealant Primary Molars
Glass Ionomer Sealant Primary

WORKS IN A WET FIELD

- Moisture -friendly
- Simple Technique
- Easily Identifiable from Tooth Structure
- Great Indicator of Need for Maintenance
- Wears to Protect Natural Occlusion
- Perfect for Sealing and Protecting Newly Erupted Molars
- POLICY IMPLICATIONS ECC prevention
Study Timeline

1. FV
2. MAYA
3. GIFVT
4. IOCP/CAMBRA/SMG
<table>
<thead>
<tr>
<th>Study 4: IOCP/CAMBRA/SMG</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Effect of Infant Oral Care Program Quality Improvement (IOCP) provided through community-based clinic, Early HeadStart and WIC center on preventing ECC in children aged 0-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracks impact of a holistic approach to oral care including “care paths” by risk for ECC and cumulative combination therapy through multi-disciplinary collaboration with pediatricians, nurse practitioners, and community programs.</td>
</tr>
</tbody>
</table>
The Caries Balance

Pathological Factors
- Acid-producing bacteria
- Sub-normal saliva flow and/or function
- Frequent eating/drinking of fermentable carbohydrate

Protective Factors
- Saliva flow and components
- Fluoride, calcium, phosphate
- Antibacterials: - chlorhexidine, iodine?, xylitol, new?
Into the Future: Keeping Healthy Teeth Caries Free: Pediatric CAMBRA Protocols

FRANCISCO RAMOS-GOMEZ, DDS, MS, MPH, AND MAN-WAI NG, DDS, MPH

ABSTRACT Early childhood caries prevalence has increased significantly in children ages 2-5 years. ECC disproportionately affects lower socioeconomic and minority groups, is a predictor for future decay, but is preventable and manageable. Caries risk assessment systematically derives a patient’s caries risk and is important during an infant oral health visit beginning at age 1. Information obtained through a risk assessment can guide a disease management care path tailored to an individual’s age and risk to effectively treat and manage one’s caries disease process.
Six-Step Protocol

1. Caries Management by Risk Assessment
2. Proper positioning of the child (knee-to-knee exam)
3. Age-appropriate tooth-brushing prophylaxis
4. Clinical exam
5. Fluoride varnish treatment
6. Anticipatory guidance, counseling and self-management goals
Evolution of CAMBRA

Version 1.0
2005 CAMBRA Form Developed

Version 2.0
Research Evidence Drives Revisions

Version 3.0
2010 AAPD Adopts Revisions

Version 4.0
2012 CAMBRA Validation
# Caries Risk Assessment Form for Ages 0 to 5 Yrs Old

**Patient Name:**
**I.D. #**
**Age:**
**Date:**
**Assessment Date:**

## 1. Risk Factors (Biological Predisposing Factors)

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>YES</th>
<th>2</th>
<th>3</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Mother/caregiver has had known active dental decay in past year</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Bottle with fluid other than water, plain milk and/or formula</td>
<td>YES</td>
<td></td>
<td></td>
<td>Type(s):</td>
</tr>
<tr>
<td>(c) Continual bottle use</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d) Child sleeps with a bottle, or nurses on demand</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e) Frequent (&gt; 3 times/day) between-meal snacks of sugary/crunchy snacks</td>
<td>YES</td>
<td></td>
<td></td>
<td># times/day:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type(s):</td>
</tr>
<tr>
<td>(f) Saliva-Reducing factors are present, including:</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. medications (e.g., asthma [inhaled] or hyperactivity)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. medical (cancer treatment) or genetic factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g) Child has developmental problems/CHHCN (Child With Special Health Care Needs)</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(h) Parent and/or caregiver has low SES (Socio-economic status) and/or low health literacy, WIC/Early Head Start</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 2. Protective Factors

<table>
<thead>
<tr>
<th>Protective Factor</th>
<th>YES</th>
<th>Zip Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Child lives in a fluoridated community (note zip code)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Takes fluoride supplements</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>(c) Child drinks fluoridated water (e.g., tap water)</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>(d) Teeth brushed with fluoride toothpaste (pea size) at least 2x daily</td>
<td>YES</td>
<td># times/day:</td>
</tr>
<tr>
<td>(e) Fluoride varnish in last 6 months</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>(f) Mother/caregiver understands use of xylitol gum/lozenges</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>(g) Child is given xylitol (recommended wipes, spray, gel)</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>

## 3. Disease Indicators - Clinical Examination of Child

<table>
<thead>
<tr>
<th>Disease Indicator</th>
<th>YES</th>
<th>Teeth:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Obvious white spots, decalcifications, or decay present on the child's teeth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Existing restorations</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>(c) Plaque is obvious on the teeth and/or gums bleed easily</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>(d) Visually inadequate saliva flow</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>(e) New remineralization since last visit (List teeth):</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>

**Child's Overall Caries Risk**

- **HIGH**
- **MODERATE**
- **LOW**

**Child: Bacteria/Saliva Test Results:**
**MS:**
**LB:**
**Flow Rate:**
**mL/min:**
**Date:**

**Caregiver: Bacteria/Saliva Test Results:**
**MS:**
**LB:**
**Flow Rate:**
**mL/min:**
**Date:**

---

**Self-management goals:**
1. ____________
2. ____________

*Assessment based on provider's judgment of balance between risk factors/disease indicators and protective factors

**Clinician's Signature:** __________________________ **Date:** ______________

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CARIES RISK ASSESSMENT FORM FOR AGES 0 TO 5 YRS OLD

Patient Name: ___________________ I.D.#: ___________ Age: _____
Date: ___________ Assessment Date: ___________

NOTE: Any one YES in Column 1 signifies likely “High Risk” and an indication for further tests.

1. Risk Factors (Biological Predisposing Factors)

(a) Mother/caregiver has had known active dental decay in past year
   YES
(b) Bottle with fluid other than water, plain milk, or formula
   YES
(c) Continual bottle use
   YES
(d) Child sleeps with a bottle, or nurses on demand
   YES
(e) Frequent (>3 timess/day) between-meal snacks of sugary/cooked starch/fermented beverages
   YES
(f) Sake-Reducing factors are present, including: medications (e.g., asthma inhalers), hyperactivity
   YES
(g) Medical (cancer treatment), or genetic factors
   YES
(h) Parent/caregiver has low SES (socio-economic status) and/or low health literacy, WIC/Early Head Start
   YES

2. Protective Factors

(a) Child lives in a fluoridated community (note zip code)
   YES
(b) Takes fluoride supplements
   YES
(c) Child drinks fluoridated water (e.g., tap water)
   YES
(d) Teeth brushed with fluoride toothpaste (age 2 or older)
   YES
(e) Fluoride varnish in last 6 months
   YES
(f) Children understand the use of xylitol gum/lozenges
   YES
(g) Child is given xylitol (recommended wipes, spray, gel)
   YES

3. Disease Indicators - Clinical Examination of Child

(a) Obvious white spots, decalcifications, or decay present on the child's teeth
   YES
(b) Enamel erosion
   YES
(c) Plaque is obvious on the teeth and/or gums bleed easily
   YES
(d) Vascular or inadequate saliva flow
   YES
(e) New remineralization since last visit (List teeth)
   YES

Child's Overall Caries Risk* (circle): HIGH MODERATE LOW

Child: Bacteri/Saliva Test Results: MS: _______ LB: _______ Flow Rate: ______/min: Date: ___________
Caregiver: Bacteri/Saliva Test Results: MS: _______ LB: _______ Flow Rate: ______/min: Date: ___________

Self-management goals:
1. _________________________________
2. _________________________________

* Assessment based on provider's judgment of balance between risk factors/disease indicators and protective factors

Clinician's Signature: ______________________ Date: ___________
### 2013 AAP CAMBRA MODIFIED FORM

- **Visit:**  
  - 6 month,  
  - 9 month,  
  - 12 month,  
  - 24 month,  
  - 30 month,  
  - 3 years,  
  - 4 years,  
  - 5 years,  
  - 6 years,  
  - other

<table>
<thead>
<tr>
<th>RISK FACTORS</th>
<th>PROTECTIVE FACTORS</th>
<th>CLINICAL FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother or primary caregiver had active decay in the past 12 months</td>
<td>Existing dental home</td>
<td>White spots or visible decalcifications in the past 12 months</td>
</tr>
<tr>
<td>Mother or primary caregiver does not have a dentist</td>
<td>Drinks fluoridated water or takes fluoride supplements</td>
<td>Obvious decay</td>
</tr>
<tr>
<td>Continual bottle/sippy cup use with fluid other than water</td>
<td>Fluoride varnish in the last 6 months</td>
<td>Restorations (fillings) present</td>
</tr>
<tr>
<td>Frequent snacking</td>
<td>Has teeth brushed daily</td>
<td>Visible plaque accumulation</td>
</tr>
<tr>
<td>Special health care needs</td>
<td></td>
<td>Gingivitis (swollen/bleeding gums)</td>
</tr>
<tr>
<td>Medicaid eligible</td>
<td></td>
<td>Teeth present</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Healthy teeth</td>
</tr>
</tbody>
</table>

- **Caries Risk:**  
  - Low  
  - High

- **Completed:**  
  - Anticipatory Guidance  
  - Fluoride Varnish  
  - Dental Referral

- **Intended for documenting caries risk**
- **The child is at high risk for caries if any risk factors or clinical findings marked with a sign, are documented yes.**
- **The clinician may also determine if a child is at high risk based on other findings.**
Clinical Findings

⚠️ White Spots/Decalcifications
This child is high risk.
White spot decalcifications present—immediately place the child in the high-risk category.

⚠️ Obvious Decay
This child is high risk.
Obvious decay present—immediately place the child in the high-risk category.

⚠️ Restorations (Fillings) Present
This child is high risk.
Restorations (Fillings) present—immediately place the child in the high-risk category.
Clinical Findings

Visible Plaque Accumulation
Plaque is the soft and sticky substance that accumulates on the teeth from food debris and bacteria. pediatricians can teach parents how to remove plaque from the child’s teeth by brushing and flossing.

Gingivitis
Gingivitis is the inflammation of the gums. pediatricians can teach parents good oral hygiene skills to reduce the inflammation.

Healthy Teeth
Children with healthy teeth have no signs of early childhood caries and no other clinical findings. They are also experiencing normal tooth and mouth development and spacing.
STEP 1 - CAMBRA
Self Management Goals for Parent/Caregiver

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>DOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular dental visits for child</td>
<td>Brush with fluoride toothpaste at least 2 times daily</td>
</tr>
<tr>
<td>Family receives dental treatment</td>
<td>Healthy snacks</td>
</tr>
<tr>
<td>Healthy snacks</td>
<td>Brush with fluoride toothpaste at least 2 times daily</td>
</tr>
<tr>
<td>No soda</td>
<td>Less or no juice</td>
</tr>
<tr>
<td>Less or no juice</td>
<td>Wean off bottle (no bottles for sleeping)</td>
</tr>
<tr>
<td>Wean off bottle (no bottles for sleeping)</td>
<td>Only water or milk in sippy cups</td>
</tr>
<tr>
<td>Drink tap water</td>
<td>Less or no junk food and candy</td>
</tr>
<tr>
<td>Less or no junk food and candy</td>
<td>Use xylitol spray, gel or dissolving tablets</td>
</tr>
</tbody>
</table>

Self-management goals 1)

2)

On a scale of 1–10, how confident are you that you can accomplish the goals? 1 2 3 4 5 6 7 8 9 10

Signature  
Practitioner signature
Self-Management Goals

Self Management Goals for Parent/Caregiver

Patient Name ____________________________ DOB ____________

- Regular dental visits for child
- Family receives dental treatment
- Healthy snacks
- Brush with fluoride toothpaste at least 2 times daily
- No soda
- Less or no juice
- Wean off bottle (no bottles for sleeping)
- Only water or milk in sippy cups
- Drink tap water
- Less or no junk food and candy
- Use xylitol spray, gel or dissolving tablets

Important: The last thing that touches your child’s teeth before bedtime is the toothbrush with fluoride toothpaste.

Self-management goals

On a scale of 1–10, how confident are you that you can accomplish the goals? 1 2 3 4 5 6 7 8 9 10

Signature ____________________________ Date ____________

Practitioner signature ____________________________ Date ____________

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IOCP Study Results

- Show reduced ECC and increase incidence of remineralization of white spot lesions.
- Provided further validation of the factors requisite to improve the specificity and sensitivity in caries risk assessment.
- Emphasize ECC prevention with combination therapeutics.
## IOCP Patient Results 2015

<table>
<thead>
<tr>
<th>Code Change</th>
<th>Number</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>III → I</td>
<td>4</td>
<td>Better</td>
</tr>
<tr>
<td>II → I</td>
<td>120</td>
<td>Better</td>
</tr>
<tr>
<td>III → II</td>
<td>11</td>
<td>Better</td>
</tr>
<tr>
<td>I → III</td>
<td>14</td>
<td>Worse</td>
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<tr>
<td>I → II</td>
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<td>Worse</td>
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<tr>
<td>II → III</td>
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<td>Worse</td>
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<td>I → I</td>
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<td>Maintenance</td>
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<tr>
<td>II → II</td>
<td>29</td>
<td>Maintenance</td>
</tr>
<tr>
<td>III → III</td>
<td>23</td>
<td>No Improvement</td>
</tr>
</tbody>
</table>

335 cases averted
138 cases maintained, no decay
49 cases worsened
29 maintained at white spots, possibly arrested
13 still showed caries

**CARIES REDUCTION OF 39%**

<table>
<thead>
<tr>
<th>Code I = Low Risk</th>
<th>Code 2 = Medium Risk</th>
<th>Code 3 = High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IOCP Study Results (continued)

- Partnerships with community-based organizations and programs
  - Ie: Community clinics, Early Headstart, and WIC
- Reduced costs
- Early establishment of dental home
- Integration of oral health into primary health care
- Child/Caregiver acceptance to dental environment
Goals

- Reduce ECC by promoting early access
- Regular utilization of dental services
- Oral health education
- Easily accessible sites
- Self-Management Goals/ “Care Paths” according to Risk rating for ECC
  - Ie: Use of fluoridated toothpaste, tap water and good oral health hygiene start early – “Two is too late”
Goals (continued)

- Six Step Protocol Development and CAMBRA
- Continued validation of the CAMBRA tool
  - Motivational Interview
    - Help parents gain an understanding of how their oral hygiene can impact oral and overall health.

Expanding to 22 clinics in LA

- Overcoming access barriers
  - Insurance status

- Language Cultural Competencies
<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Periodic Oral Exams</th>
<th>Radiographs</th>
<th>Saliva Test</th>
<th>Diagnostic</th>
<th>Preventive Intervention</th>
<th>Restorative Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low</strong></td>
<td>Annual</td>
<td>Posterior bitewings at 12-24 month intervals if proximal surfaces cannot be examined visually or with a probe</td>
<td>Optional Baseline</td>
<td>In office: No Home: Brush 2x day w/ pea size of F toothpaste</td>
<td>Not Required</td>
<td>No</td>
</tr>
<tr>
<td><strong>Moderate</strong></td>
<td>Every 5 months</td>
<td>Posterior bitewings at 6-12 month intervals if proximal surfaces cannot be examined visually or with a probe</td>
<td>Recommended</td>
<td>In office: F Varnish initial visit &amp; recalls Home: Brush 2x day w/ pea-size of F toothpaste Caregiver: OTC Sodium Fluoride treatment rinses</td>
<td>Child: xylitol wipes/ products to substitute for sweet treats or when unable to brush. Caregiver: 2 sticks of gum or 2 mints 4x/day</td>
<td>Fluoride releasing sealants recommended on deep pits and fissures</td>
</tr>
<tr>
<td><strong>Moderate; Non-Compliant</strong></td>
<td>Every 3-6 months</td>
<td>Posterior bitewings at 6-12 month intervals if proximal surfaces cannot be examined visually or with a probe</td>
<td>Required</td>
<td>In office: F Varnish initial visit &amp; recalls Home: Brush 2x day w/ pea-size of F toothpaste combined w/ pea-size of 900 ppm calcium-phosphate paste leave-on at bedtime Caregiver: OTC Sodium Fluoride treatment rinses</td>
<td>Child: xylitol wipes/ products to substitute for sweet treats or when unable to brush. Caregiver: 2 sticks of gum or 2 mints 4x/day</td>
<td>Fluoride releasing sealants recommended on deep pits and fissures</td>
</tr>
<tr>
<td><strong>High</strong></td>
<td>Every 3 months</td>
<td>Anterior (#2 occlusal film) and Posterior bitewings at 6-12 month intervals if proximal surfaces cannot be examined visually or with a probe</td>
<td>Required</td>
<td>In office: F Varnish initial visit &amp; recalls Home: Brush 2x day w/ pea-size of F toothpaste combined w/ pea-size of 900 ppm calcium-phosphate paste leave-on at bedtime Caregiver: OTC Sodium Fluoride treatment rinses</td>
<td>Child: xylitol wipes/ products to substitute for sweet treats or when unable to brush. Caregiver: 2 sticks of gum or 2 mints 4x/day</td>
<td>Fluoride releasing sealants recommended on deep pits and fissures</td>
</tr>
<tr>
<td><strong>High; Non-Compliant</strong></td>
<td>Every 1-3 months</td>
<td>Anterior (#2 occlusal film) and Posterior bitewings at 6-12 month intervals if proximal surfaces cannot be examined visually or with a probe</td>
<td>Required</td>
<td>In office: F Varnish initial visit &amp; recalls Home: Brush 2x day w/ pea-size of F toothpaste combined w/ pea-size of 900 ppm calcium-phosphate paste leave-on at bedtime Caregiver: OTC Sodium Fluoride treatment rinses</td>
<td>Child: xylitol wipes/ products to substitute for sweet treats or when unable to brush. Caregiver: 2 sticks of gum or 2 mints 4x/day</td>
<td>Fluoride releasing sealants recommended on deep pits and fissures</td>
</tr>
<tr>
<td><strong>Extreme</strong></td>
<td>Every 1-3 months</td>
<td>Anterior (#2 occlusal film) and Posterior bitewings at 6-12 month intervals if proximal surfaces cannot be examined visually or with a probe</td>
<td>Required</td>
<td>In office: F Varnish initial visit &amp; recalls Home: Brush 2x day w/ pea-size of F toothpaste combined w/ pea-size of 900 ppm calcium-phosphate paste leave-on at bedtime Caregiver: OTC Sodium Fluoride treatment rinses</td>
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Conceptual Framework of Children’s Oral Health
Child, family, & community influences on child oral health outcomes

Child Level Influences
- Development
- Use of Dental Care
- Biologic and Genetic Endowments
- Use of Dental Care Development
- Dental Insurance

Family Level Influences
- Socioeconomic Status
- Social Support
- Physical Attributes
- Health Behaviors and Practices
- Genetic Endowments
- Social Capital
- Physical Safety

Community Level Influences
- Community Oral Health Environment
- Dental Care System Characteristics
- Health Care System Characteristics
- Physical Environment
- Health Status of Parents
- Family Function
- Health Behaviors, Practices, and Coping Skills of Family

Microflora
Host & Teeth
Substrate (diet)

Fisher-Owens, Gansky et al. 2007
Glass Ionomer & Fluoride Varnish Trial (GIFVT)
Stuart Gansky, UCSF PI; Francisco Ramos-Gomez, UCLA PI

FV REACH
Peggy Walsh, PI

Salt Fluoridation Feasibility
Judith Barker, PI

Metagenomics (Metagene)
Ling Zhan, PI

CenteringPregnancy® Oral Health Promotion Extension (CPOPE)
Lisa Chung, PI

Mediation Modeling
Jing Cheng, PI

Data Coordinating Center
Community-Engaged Disparities Research Advances Caries Prevention in Young Children: Example of UCSF Fluoride Varnish Research

- **Phase III RCT Fluoride Varnish (FV)**
- **Phase III RCT Maternal Chlorhexidine & Child FV (MAYA)**
- **Phase II RCT Glass Ionomer Sealant & FV Trial (GIFVT)**

**BEECON**

- Dissemination & Implementation Research (FV REACH)

**Health Policy & Clinical Guidelines**

- **ec4**
- **CAN DO**
- **UCLA**

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BElhavioral ECOnomics for Oral health iNnovation (BEECON)

Pis: Dr. Francisco Ramos-Gomez (UCLA)

PIs: Dr. Stuart Gansky (UCSF)
Dr. James G. Kahn (UCSF)
Dr. Francisco Ramos-Gomez (UCLA)

Other key team members: Drs. Jenny Liu, Justin White & Bonnie Jue

Project Manager: Alexandra Hollihan

Support: US DHHS/NIH/NIDCR UH2DE025514
2 vs 8,039
Randomized Research Groups

- 75 Participants will be randomized by a computer into one of three different groups that will have slightly different opportunities
  - **Fixed reward group**: Earns prizes for brushing children’s teeth regularly
  - **Lottery reward group**: Entered into a lottery for brushing children’s teeth regularly
  - **Control group with delayed intervention**: Not eligible for prizes or lottery during the first three months, but may earn rewards later during months 4-6 for brushing children’s teeth regularly
What can we do?

- Need to reach parents with more than awareness and education

- Micro-incentives have proven to promote positive health behavior changes:
  - Specifically in vaccination and maternal child health
What are we aiming to achieve?

- Increase tooth brushing
  + Increase dental attendance

Change Behaviors

Reduce Cavities
Pilot

STUDY SCHEDULE

- Baseline Clinic visit (about 2 hours)
- 3-month Follow-up Clinic Visit (about 2 hours)
- Sync electric toothbrush to app in between
  - Families are compensated:
    - $30 for each clinic visit
    - $2 every week they sync the toothbrush to the app
  - Will also complete a self-report calendar of when they brush
Rewards

- Rewards earned by participants in the two reward groups will receive their earnings at the follow-up appointment.

- All participants will receive a free electric toothbrush for the enrolled child, extra electric toothbrushes for other eligible children, toothpaste, dental screening and fluoride varnish application, health education, and participation certificates.
“Bridging the Gap in Oral Health Care for All Children”

1996-2001
FV Study

2001-2008
MAYA

2008-2016
GIFVT

2005-Present
IOCP

2015-2020
BEECON

**Policy Implication**
Age one visit is now part of the AAPD and AAP recommendations and fluoride varnish w/ anticipatory guidance is used as standard of care

**Policy Implication**
Successful approach of “Promotoras” in Oral Health as Community Oral Health Care Advisors

**Policy Implication**
Glass ionomer sealants appears promising as a protective method to reduce occlusal caries in primary molars

**Policy Implication**
Integration of oral health into primary care & Standardized establishment of a dental home

**Policy Implication**
Determine cost-effectiveness for insurers/payers to incentivize brushing and preventive behaviors

Visit us: [www.UCCOH.org](http://www.UCCOH.org)
NEXT STEPS AND FUTURE PLANS FOR ECC QUALITY IMPROVEMENT EFFORTS
PROMOTING INFANT ORAL CARE
TWO IS TOO LATE !!!
Creating a New Generation of Pediatric Dentists: A Paradigm Shift in Training


Abstract: The University of California, Los Angeles (UCLA) School of Dentistry has implemented a Health Resources and Services Administration-funded program to prepare dentists for the complex and comprehensive needs of pediatric patients within rapidly changing demographics and a paradigm shift in dentistry. Traditional dental education has focused on how to respond to oral disease, whereas UCLA’s program shifts the paradigm to emphasize early assessment, risk-based prevention, and disease management. A holistic approach to dental care that considers social and environmental determinants is used with minimally invasive techniques for restorative care. To support this change, pediatric dental residents receive traditional training combined with new didactics, advocacy opportunities, and applied learning experiences at community-based organizations. These new elements teach residents to recognize the causal factors of disease and to identify interventions that promote oral health at the individual, family, community, and policy level. Consequently, they are better prepared to treat a diverse group of patients who historically have faced the greatest burden of disease as well as an increased number of barriers to accessing oral health care; these consist of low-income, minority, and/or pediatric populations including children with special health needs. The program’s ultimate goal is for residents to deploy these skills in treating vulnerable populations and to demonstrate greater interest in collaborating with non-dental health providers and community organizations to increase access to dental services in private or public health practice settings.

www.uclachatpd.org


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Program Overview
Francisco Ramos-Gomez, DDS, MPH, MS
Program Director
The Pediatric Dentistry Advanced Clinical Training Program provides foreign-trained dentists who wish to return to an academic setting with postgraduate training. This highly sought after program supplements the knowledge and experiences gained from earlier training and subsequent professional experiences.

- Rotate weekly at The Venice Family Clinic and may perform patient treatment
- Audit all courses offered by the Section of Pediatric Dentistry during your enrollment
- Course topics: oral pathology, histology and embryology, growth and development, interceptive orthodontics, behavior management, preventive dentistry, minimally invasive dentistry, pediatric diagnosis and treatment, sedation and anesthesia, pediatric medicine, practice management, and research methodology

www.uclachatpd.org

Program Length: 1 year, beginning in the Summer Quarter
Number of Positions: Maximum of 4 per year

Trainees Participate In:
- Craniofacial Clinics
- Infant Oral Care Program
- Intravenous General Anesthesia
- Medical/Dental Interprofessional Training

Contact Us
Erin Hakim
Program Coordinator & International Advisor
Email: postdds@dentistry.ucla.edu
Website: www.dentistry.ucla.edu/postdds
Oral Health Priorities

1. Oral Health and Well-Being—Changes on Demographics
2. Prevention and Early Diagnosis /Treatment
3. Precision Individualized and Family-Centered Care – CAMBRA
4. Reimbursement value based
5. Patient Quality of Care - QI
6. Effective Communication and Care Coordination- SMG
7. Medical/Dental Integration
8. Access to OH Care and Affordable Care
9. FDI POLICY RECOMMENDATIONS EQUITY, Social Justice and Human Rights!!
Introduction

Early Childhood Caries (ECC) is a very common bacterial infection and multifactorial disease characterized by marked decay of the teeth of children 6 years of age or younger. Dental caries is the single most common chronic childhood disease, and its prevalence has increased recently in children aged 2-5 years in the US, as well as globally, making this age group a priority action area for the FDI.

A child’s oral health begins in utero. Poor oral health and malnutrition during pregnancy might lead to preterm birth or low birth weight, disruptions in enamel formation and a predisposition to ECC. Bacteria contributing to ECC are easily transmitted from parent/care givers to child, and when left untreated, ECC can lead to pain and infection, as well as difficulty eating, speaking, and even learning. These difficulties can have effects on cognitive development, school readiness, and self-esteem, reducing the child’s quality of life. The effects of ECC, including a dramatically increased risk of caries in the mixed and permanent dentition, often persist into adulthood.
Acknowledgements

Team members from the University of California CANDO II San Francisco, UC Los Angeles and San Ysidro Community Health Center MAYA / GIFT TEAM

Jane A. Weintraub, DDS, MPH, PI
Stuart Gansky DrPH
John Featherstone PhD
Rocio Gonzalez MPH
Mario Orozco, DDS, MPH
Bonnie Jue DDS
Ed Martinez CEO
Tracy Finalyson PhD
Deb Tom RA
DCC UCSF Group

Support from NIDCR U54DE019285
PEDIATRIC ORAL HEALTH RESEARCH SCIENTIFIC GROUP

This group will integrate research from all fields that are applicable to pediatric populations, and will hold symposia and research presentations at future IADR meetings.

Scientists, field researchers and interested clinicians are welcome to participate.

Look for our program in South Africa, soon to be announced

To join:
www.iadr.org

For info:
Tegwyn H. Brickhouse thbrickhouse@vcu.edu
Yasmi O. Cristal yoa1@vcu.edu
CAVITY-FREE GENERATION
QUESTIONS?