The Impact of a Child Care Healthy Beverage Intervention on Beverage Intake and Obesity

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Presentation Goals

- Importance of healthy beverage intake in child care
- Intervention development and study design
- Intervention impact on beverage intake and obesity
- Conclusion and next steps
Background
Why Encourage Healthy Beverage Intake in Child Care?

- Sugar sweetened beverages contribute to:
  - Excessive intake of sugar and calories
  - Obesity
  - Dental Caries
- Child care ideal for influencing early diet
- It’s the law in California (Assembly Bill 2084)
Letter of the Law
Letter of the Law
Spirit of the Law
Spirit of the Law
Objective

To examine how an intervention to translate the “Healthy Beverages in Child Care” law into practice impacts 2-5 year olds:

• Beverage intake
• Prevalence of overweight
Methods
Study Design

- Randomized controlled trial in four child care centers
- San Mateo County, California
  - Low-income areas with highest obesity rates
- Pre-post design
  - Evaluation before and after the intervention
Intervention Development

- Community advisory board
- Formative research
  - Child care provider interviews
  - Parent interviews
  - Child care facility observations
Intervention: Child Care Environment Change

- Drinking water testing and remediation
- Water available for self-serve indoors and outdoors during the day
- Reusable water bottles for home
- Only 1% or skim plain milk and water
Intervention: Education and Promotion

- Child, parent, staff education
  - “Potter Drinks Water” books
  - “Drink More Water” song
  - BMI/beverage reports for centers, parents
- Sugar training for staff, parents
- Posters for childcare
- Handouts for home
In Fall 2013, researchers from the University of California, San Francisco measured your child’s height and weight. Your child was _38_ inches tall and weighed _41_ pounds. This suggests that your child may be overweight and at risk for health problems. You should talk to your child’s doctor about his or her weight.

- Doctors worry about children being overweight because 6 out of 10 overweight children already have high cholesterol, high blood pressure, or early signs of diabetes.
- Overweight children will usually become overweight or obese adults and have a high risk for heart disease, diabetes, high blood pressure, and some types of cancer.
- The good news is that even small changes can make a big difference in getting children to a healthy weight.
Education: Beverage Reports

Beverage Report Card for:

What is your child drinking?

In Fall 2013, pediatric researchers at the University of California, San Francisco asked you to tell us what beverages your child drank at home on a normal school day. You said that:

 Ваш ребенок пил примерно 3 стакана разных напитков дома. Эти напитки включали:

Whole milk, Danimals smoothie, and bottled water

Your child drank _____________________________ Whole milk. Remember, if you serve your child milk, doctors recommend you serve only plain (non-flavored) 1% or skim milk.

The drinks your child drank had a total of about 4 teaspoons of sugar. That’s as much sugar as 2 lollipops.
Intervention: Policy

- Child care center beverage policy
- Staff and family beverage contract
Study Outcomes

- Children’s beverage intake at home
  - Beverage diaries
- Percentage of overweight children
  - Age and gender adjusted BMI%
Analyses

- Demographic characteristics of child care centers
- Changes in outcomes from pre- to post-intervention between intervention and control centers
  - Ounces of beverages consumed
  - Percent of overweight children (BMI ≥ 85%)
# Baseline Child Care Center Characteristics by Intervention Status

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>INTERVENTION (n=10)</th>
<th>CONTROL (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean years)$^a$</td>
<td>4.07</td>
<td>4.32</td>
</tr>
<tr>
<td>Female</td>
<td>53%</td>
<td>53%</td>
</tr>
<tr>
<td>Latino</td>
<td>62%</td>
<td>52%</td>
</tr>
<tr>
<td>Overweight</td>
<td>43%</td>
<td>38%</td>
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</tbody>
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$a.$ P-value <0.05  
$b.$ n=155
### Intervention Impact on Water Intake

#### Change in Water Intake (Oz/Child)

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tap Water</strong></td>
<td>-1.41</td>
<td>0.76</td>
</tr>
<tr>
<td><strong>Bottled Water</strong></td>
<td>2.43</td>
<td>2.09</td>
</tr>
<tr>
<td><strong>Total Water</strong></td>
<td>3.19</td>
<td>0.68</td>
</tr>
</tbody>
</table>

**P-values:**
- Tap Water: 0.28
- Bottled Water: 0.85
- Total Water: 0.35
Intervention Impact on Milk Intake

Change in Milk Intake (Oz/Child)

- Whole and 2%: Intervention -1.64, Control 0.97 (P-value 0.66)
- 1% and Skim Milk: Intervention 0, Control 0.97 (P-value 0.80)
- Total Milk: Intervention -1.03, Control -0.67 (P-Value 0.15)
Intervention Impact on 100% Fruit Juice Intake

Change in 100% Fruit Juice Intake (Oz/Child)

Intervention Impact:
- Change: -0.51
- P value: 0.10

Control Impact:
- Change: 0.56

Graph showing the difference between Intervention and Control groups.
Intervention Impact on SSB Intake

Change in SSB Intake (Oz/Child)

<table>
<thead>
<tr>
<th>Change in SSB Intake (Oz/Child)</th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>P Value 0.68</td>
<td>1.02</td>
<td>1.60</td>
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</tbody>
</table>

P Value 0.68
Intervention Impact on the Percentage of Overweight Children

- N=155

P Value 0.68
Conclusion
Discussion

- A child care-based healthy beverage intervention led to *positive trends* in children’s intake of beverages at home including:
  - ↑ water
  - ↓ whole/2% milk
  - ↑ 1%/skim milk
  - ↓ 100% fruit juice

- The intervention also had a positive trend in reducing overweight
Limitations and Next Steps

Limitations

- Small pilot study
- Beverage intake based on self-report
- Results may not be generalizable

Next steps

- Intervention will be refined and tested in a larger randomized controlled trial
Thank you!