Effect of Intervention on the Nutrition and Physical Activity Practices in Child Care Centers in Service Planning Area (SPA) 6 in Los Angeles County (LAC)

Eleanor Long, MSPH, Janet Scully, MPH, Magda Shaheen, MD, PhD, MPH,
Nicola Edwards, MS, RD, and Robert Gilchick, MD, MPH

Presenters Disclosures

Eleanor P. Long, MSPH
Magda Shaheen, MD, PhD, MPH

(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

"No relationships to disclose"
Objectives

1) To assess the nutrition and physical activity environment (practices and policies) in child care centers

2) To examine the impact of interventions to promote nutrition and physical activity standards:
   - 4-hour training (Full Intervention)
   - Mailing of guidelines (Limited Intervention)

SUPERSIZING Our Children

Serious Consequences
Obesity Prevalence Among US Low-Income, Preschool-Aged (2 to 4 years) Children

![Bar chart showing obesity prevalence from 1998 to 2008.](chart)


Data from Pediatric Nutrition Surveillance System

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Prevalence of overweight, obesity, and extreme obesity in patients aged 2-11 in Southern California stratified by age

![Bar chart showing prevalence of overweight, obesity, and extreme obesity.](chart)


Data from Kaiser Permanente managed care patients.
Children Develop Health Habits
EARLY!

- Parents who are overweight or obese have children who become overweight and obese (5)
- Children establish food preferences early
- Influences

Design

- This randomized controlled design
  - Three groups of centers were selected:
    1) Control
    2) Limited Intervention (received nutrition and physical activity guidelines by mail)
    3) Full Intervention (received 4 hour training on guidelines plus practice in policy development)

- Nutrition and physical activity environment assessed at baseline and six months after implementation of the intervention (training).
Methods

- 120 Child Care Centers (CCC) were selected, from a list of 345 CCC

- Validated assessment tools published in the Nutrition Physical Activity Self-Assessments for Child-Care (NAP SACC) were used to evaluate the quality of CCC nutrition and physical activity environments.

  - Observation of CCC by trained staff using Environment and Policy Assessment and Observation (EPAO) instrument and document review.

  - A written self-assessment survey questionnaire tool was given to the directors to self-assess their perceptions of nutrition and physical activity practices in their child care centers

Full Intervention

- Four-hour training

  - Present the standards related to nutrition and physical activity
  - Present some sample policies related to the standards
  - Hands-on practice in developing policies
Limited Intervention

After initial assessment – then randomization – centers were mailed the following with a cover letter:

- Summary of the 2010 IOM standards
- Policy and planning worksheets with sample policies supporting standards

What Nutrition Standards are Being Proposed?

- Non-fat or 1% Milk for 2 years and older
- Fruit at each meal and snack
- Two colorful vegetables at lunch
- At least 2 servings of whole-grain products a day such as oatmeal, brown rice, whole-grain pasta or whole-grain tortillas.
- Eliminate deep-frying or fat frying
- Limit fried potatoes
- Promote family-style serving with each meal to teach portion control.
- Restrict processed meats (luncheon meats, hotdogs, bologna, sausage) to reduce unhealthy fats and sodium
Proposed Standards and Policies

Nutrition

• Non-fat or 1% Milk for 2 years and older
• Fruit at each meal and snack
• Two colorful vegetables at lunch
• At least 2 servings of whole-grain products a day such as oatmeal, brown rice, whole-grain pasta or whole-grain tortillas.
• Eliminate deep-frying or fat frying
• Limited fried potatoes
• Promote family-style serving with each meal to teach portion control.
• Restrict processed meats (luncheon meats, hotdogs, bologna, sausage) to reduce unhealthy fats and sodium.

Physical Activities

• Ensure at least 60 minutes or more of structured and unstructured physical activity a day.
• Children should not be sedentary for more than 30 minutes, except when sleeping.
• Limit television (screen time) to no more than 1-2 hours a day.
Current Nutrition Recommendations from the Nemours Health and Prevention Services and Institute of Medicine (IOM 2010)

Childhood obesity is an epidemic in the United States. To address childhood obesity, programs such as MyPyramid and Nemours Health and Prevention Services (Nemours) provide nutrition recommendations for children across age groups. Recently, the Institute of Medicine (IOM) published a set of evidence-based recommendations based on the MyPyramid program. The new IOM recommendations consist of multiple components that share great similarity with the Nemours recommendations.

Major differences between Nemours and IOM recommendations include:

- IOM emphasizes 5 meal components for lunch:
  1. 1% milk
  2. ½ cup of fruit
  3. 2 portions of ¼ cup each of colorful vegetables
  4. Whole grains
  5. Lean meat/Alternative

- IOM categorizes the vegetables into 5 categories (dark green, orange, beans/legume, starchy, and others) to promote increasing food variety

- IOM recommends 2 types of vegetables be served during lunch (¼ cup each type) from the 5 categories

Both Nemours and the IOM agree on:

- Serving low-fat or skim milk as one component of a meal
- Serving lean meat or meat alternatives as one component of a meal
- Serving whole grain bread, pasta/noodle, or cereals as one component of a meal
- Having water available for children always
- Serving a variety of colorful vegetables
What Physical Activity Standards are being Proposed?

- Ensure at least 60 minutes or more of structured and unstructured physical activity a day.

- Children should not be sedentary for more than 30 minutes, except when sleeping.

- Limit television (screen time) to no more than 1-2 hours a day.

Results

- Baseline
  - 119 child care centers
    - a mean of 16 children (range 5 – 75), ages 2 - 6 were present during the observation day

- No significant differences in total nutrition score were found between the full intervention, limited intervention and control groups (p>0.05)
Descriptive Statistics Final Observation (N=106)

### Nutrition Environment

<table>
<thead>
<tr>
<th></th>
<th>Full Interv.</th>
<th>Interv.</th>
<th>Control</th>
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</thead>
<tbody>
<tr>
<td>FV</td>
<td>7.8</td>
<td>7.6</td>
<td>9.4</td>
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<tr>
<td>Grains</td>
<td>7.5</td>
<td>6.7</td>
<td>10.0</td>
</tr>
<tr>
<td>HSHF</td>
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<td>14.4</td>
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<tr>
<td>BEV</td>
<td>14.5</td>
<td>13.6</td>
<td>14.0</td>
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<tr>
<td>SBnutr</td>
<td>15.8</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>NutrEnv</td>
<td>13.3</td>
<td>13.3</td>
<td>15.0</td>
</tr>
<tr>
<td>NutrTE</td>
<td>8.0</td>
<td>8.0</td>
<td>13.3</td>
</tr>
<tr>
<td>NutrPol</td>
<td>8.3</td>
<td>6.7</td>
<td>10.0</td>
</tr>
</tbody>
</table>

**FV:** fruit/vegetables  
**Grains:** whole grain  
**HSHF:** high sugar/high fat  
**BEV:** beverage  
**SBnutr:** staff behavior nutrition  
**NutrEnv:** nutrition environment  
**NutrTE:** nutrition training/education  
**NutrPol:** nutrition policy

### Physical Activity Environment

<table>
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<tr>
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<tr>
<td>Act</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
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<tr>
<td>Sed</td>
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<td>SedEnv</td>
<td>6.7</td>
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<td>PortEnv</td>
<td>11.4</td>
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<td>11.4</td>
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<tr>
<td>FixEnv</td>
<td>9.4</td>
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<tr>
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<tr>
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</tr>
<tr>
<td>PaPol</td>
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</table>

**Act:** active opportunity  
**Sed:** sedentary opportunity  
**SedEnv:** sedentary environment  
**PortEnv:** portable play environment  
**FixEnv:** fixed play environment  
**SRpa:** staff behavior phys. activity  
**PaTE:** physical activity training/education  
**PaPol:** physical activity policy

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**Serving 2% Milk**

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<td>Full Interv.</td>
<td>46%</td>
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<td>Limited Interv.</td>
<td>30%</td>
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<td>Control</td>
<td>35%</td>
<td>36%</td>
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**Serving 1% Milk**

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<td>Full Interv.</td>
<td>33%</td>
<td>36%</td>
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<tr>
<td>Limited Interv.</td>
<td>27%</td>
<td>22%</td>
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<td>Control</td>
<td>46%</td>
<td>56%</td>
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**Serving No Fruit**

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<td>Full Interv.</td>
<td>12%</td>
<td>24%</td>
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<td>Limited Interv.</td>
<td>18%</td>
<td>27%</td>
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<td>Control</td>
<td>14%</td>
<td>14%</td>
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**Serving Fruit Once**

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<td>Full Interv.</td>
<td>78%</td>
<td>67%</td>
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<tr>
<td>Limited Interv.</td>
<td>68%</td>
<td>65%</td>
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<tr>
<td>Control</td>
<td>72%</td>
<td>78%</td>
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Descriptive Statistics Final Observation (N=106)

Serving High Fat Meat Once
- Baseline ■ Final Observation

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<td>Full Intervention</td>
<td>39%</td>
<td>44%</td>
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<tr>
<td>Limited Intervention</td>
<td>42%</td>
<td>28%</td>
</tr>
<tr>
<td>Control</td>
<td>36%</td>
<td>27%</td>
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</table>

Serving No High Fat Meat
- Baseline ■ Final Observation

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<th>Interventions</th>
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<tr>
<td>Full Intervention</td>
<td>59%</td>
<td>58%</td>
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<tr>
<td>Limited Intervention</td>
<td>58%</td>
<td>72%</td>
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<tr>
<td>Control</td>
<td>70%</td>
<td>61%</td>
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Serving Food Family Style
- Baseline ■ Final Observation

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<tr>
<td>Limited Intervention</td>
<td>24%</td>
<td>31%</td>
</tr>
<tr>
<td>Control</td>
<td>16%</td>
<td>23%</td>
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Descriptive Statistics Final Observation (N=106)

Physical Activity
- Median Seated Activity (minutes)
- Median Structured Activity (minutes)
- Median Total Physical Activity (minutes)

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Median Seated Activity</th>
<th>Median Structured Activity</th>
<th>Median Total Physical Activity</th>
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<tbody>
<tr>
<td>Full Intervention</td>
<td>49</td>
<td>55</td>
<td>44</td>
</tr>
<tr>
<td>Limited Intervention</td>
<td>40</td>
<td>40</td>
<td>43</td>
</tr>
<tr>
<td>Control</td>
<td>15</td>
<td>10</td>
<td>13</td>
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IOM ("Gold Standards") Some Success
Structured Physical Activity and Limited TV Time

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>End-of-Study</th>
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</thead>
<tbody>
<tr>
<td>Structured PA</td>
<td>64%</td>
<td>86%</td>
</tr>
<tr>
<td>No TV Viewing Time</td>
<td>64%</td>
<td>90%</td>
</tr>
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</table>

- A significant increase in structured physical activity was observed by the end of the study.
- Only 10% of observed child care centers had TV viewing time by the end of the study.

Some Success .... a Long Way to Go

- Whole grains
- Low-fat milk
- Water availability
- No sweetened beverages
- Structured physical activity appearing
- Eliminating fried/pre-fried meats
- More fruits
- More healthy vegetables
Legislation Works $\checkmark = $ compliance observed
CA Legislation - AB 2084

For Child Care:

$\checkmark$ Low-fat or nonfat milk

$\checkmark$ Eliminate sugary juice (only $\frac{1}{2}$ cup of 100% fruit juice – and not to substitute juice for whole fruit)

$\checkmark$ No beverages with added sweeteners

$\checkmark$ Water provided throughout the day and with meals

Still Absent and Needed

- Lessons on nutrition and physical activity

- Training for staff on these subjects

- Policies supporting guidelines
  - No outside food
  - Healthy options for birthdays and celebrations
Implications

- Intervention
  - Expand training opportunities
  - Implement ‘evidence-based’ interventions
  - Need to understand why the mailed materials showed some negative effect
- Need to train Multiple audiences
  - Not just directors, but staff, cooks, teachers
  - Parents
  - Children (may become instrumental in change)

We Need Nutrition and Physical Activity Standards for Licensed Child Care

- Current standards (for nutrition and physical activity) are nearly non-existent \(^{10}\)

- Standards are needed to ensure licensed providers create an environment that encourages good nutrition and physical activity habits \(^{11}\)
CACFP –
Child and Adult Care Food Program

- USDA reimburses child care providers for meals served to low-income children (similar to the school meal program).
- CACFP requires nutrition standards for reimbursement.
- Research shows meals served through CACFP are healthier than non-CACFP.
- Less than 50% of providers in LA County and California are on CACFP.

We need Consistent Messages and Multiple Interventions

- Recommendations consistent with current recommended dietary guidelines for Americans (DGA)
- Consistent with First Lady Obama’s childhood obesity campaign, involving families in, “Let’s Move!”
Coming together is a beginning; keeping together is progress; working together is success.
Henry Ford

Acknowledgements
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- Los Angeles County
  Department of Public Health
  - Maternal, Child,
    Adolescent Health Division

- California Food Policy Advocates

- Office of Childcare

- Crystal Stairs

- Charles R Drew University

- University of North Carolina at Chapel Hill

- First Five LA

- Nemours

- Community and Family Resource Center
Questions?

Eleanor P. Long, MSPH
Health Education Coordinator
Los Angeles County Department of Public Health
Maternal, Child, and Adolescent Health Programs
TEL. (213) 639-6459

Magda A Shaheen, MD, PhD, MPH
Associate Professor
Charles R Drew University Of Medicine and Science
TEL. (323) 357-3453

Janet Szuly, MPH 1, Nicola Edwards, MS, RD 2, and Robert Gilchick, MD, MPH 1,2,3,
1Maternal, Child and Adolescent Health Programs, Los Angeles County Department
of Public Health, 600 South Commonwealth, Ste. 800, Los Angeles, CA 90005. 2California
Food Policy Advocates, California Food Policy Advocates Organization, 205 S. Broadway
Street, Suite 402, Los Angeles, CA 90012.

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