Healthy Eating Research

• HER is a national program of RWJF, started in 2005

• Supports strategic, rigorous, policy-relevant research on a wide range of policy and environmental changes

• Overarching goal of funded research is to promote healthy eating among children, especially among lower-income and racial and ethnic populations at highest risk of obesity

• Target populations include children and adolescents ages 0 to 18 and their families
Today’s Panel

Megan Lott, MPH, RDN
Senior Associate of Policy and Research
Healthy Eating Research
Duke Global Health Institute

Tracy Fox, MPH, RD
President
Food, Nutrition & Policy Consultants, LLC
Culver, IN

Rafael Perez-Escamilla, PhD, MS
Professor of Epidemiology and Public Health
Director, Global Health Concentration
Director, Office of Public Health Practice
Yale School of Public Health
Why Expert Panels?

- Timely, policy-relevant research topic
- Issue requires consensus from the field due to limited or conflicting available research
- Allows for a multidisciplinary consensus building process
- Time efficient and budget friendly process
The Expert Panel Process

1. HER (or RWJF) identifies Research Question
2. Identify Expert Panel Chair and Members
3. Background Research
4. Virtual Panel Meetings and Consensus Building
5. Development of final recs/report; Dissemination and Communications
HER Expert Panel Reports

- Healthy Beverages
- Food Marketing
- Minimum Stocking Requirements
- Infant/Toddler Feeding Patterns
Expert Panels: Developing Policy-Relevant Recommendations to Promote Healthy Eating

June 2, 2017

Tracy Fox, MPH, RD
President, Food, Nutrition & Policy Consultants, LLC
Culver, IN
tracy@foodnutritionpolicy.com
www.foodnutritionpolicy.com
@TracyFoxRD
Expert Panels – Why?

- Multidisciplinary decision making
- Consolidation/augmentation of existing (scattered) standards/recs
- Fills a gap in federal rulemaking/rec development
- Nimble/shorter term and cost effective process
- Can pave the way for federal/state/local policy and guidance
Expert Panels – How?

Select members: experts AND team players

Co-Chairs: set the panel up for success:
  • Analyze evidence
  • Develop background resources and questions for panel
  • Convening group
  • Facilitating group discussion
  • Summarize discussion
  • Start over

Draft report; continued discussion

Dissemination plan/webinars/publication/meetings
Expert Panels – What?

What they are: the gold (maybe silver) standard – the high bar

What they are not: community outreach and engagement; strategic planning to develop community strategies
Healthier Beverages (2013)

- Organized by age group
- Reflect a range of options
- Should consist primarily of water, appropriate amounts unflavored nonfat and low fat milk, 100% fruit/veggie juice in limited quantities (if provided at all)
- Other options including lower cal. beverages for certain (older) age groups
Impacts/Implications
Responsible Food Marketing (2015)

- Quantitative measures: child audience (age and audience share)
- Qualitative measures: brand ads, strategies, techniques and qualitative characteristics
- Media platforms
- Child-directed content in other venues
Impacts/Implications

Click here to understand the importance of establishing a comprehensive Wellness Policy.
Minimum Stocking Levels/Marketing Strategies (2016)

Basic and preferred stocking levels by category:

- 4-6 varieties fruit
- 6-8 varieties veggies
- 5-10 gallons qualifying milk
- 4-8 varieties qualifying meat

Marketing strategies:

- Placement of healthier items
- Healthy items at checkout
- Price discounts
- Cross promote
- Signage
Impacts/Implications
Stay tuned...
State and local policies/issues:
- SNAP impacts
- Food insecurity solutions
- Participation rates
- Child Care/After School HEAL gold standard
- SNAP-Ed
- Community-wide obesity prevention strategies – the gold standard
- Water access
Lessons Learned

• Multi disciplinary (and fairly well-known/respected) team players are key
• Homework/homework/homework! Background analysis and teeing up questions prior to calls
• Anchoring docs & justification are key
• Specific agenda and benchmarks for each call
• Minimal burden on expert panel members
• Be open minded – they are experts
• Think about implications – especially in policy opps
• Focus on dissemination and readability
Tracy Fox, MPH, RD
President, Food, Nutrition & Policy Consultants, LLC
Culver, IN
tracy@foodnutritionpolicy.com
www.foodnutritionpolicy.com
@TracyFoxRD
301-922-3570
Expert Panel Leadership

Panel Conveners:
Mary Story, PhD, RD
Director, Healthy Eating Research
Professor, Global Health and Community and Family Medicine
Associate Director of Education and Training
Duke Global Health Institute

Megan Lott, MPH, RDN
Senior Associate of Policy and Research, Healthy Eating Research
Duke Global Health Institute

Panel Chair:
Rafael Perez-Escamilla, PhD, MS
Professor of Epidemiology and Public Health
Director, Global Health Concentration
Director, Office of Public Health Practice
Yale School of Public Health

Sofia Segura-Perez, MS, RD (Panel Co-Chair)
Associate Unit Director, Community Nutrition Unit
Hispanic Health Council

Panel Support:
Emily Welker, MPH, RD
Research Associate, Healthy Eating Research
Duke Global Health Institute

Vivien Needham
Program Assistant, Healthy Eating Research
Duke Global Health Institute
Expert Panel Members

Stephanie Anzman-Frasca, PhD  
University at Buffalo

Shari Barkin, MD, MSHS  
Vanderbilt University School of Medicine

Leann Birch, PhD, MA  
University of Georgia

Katrina Holt, MPH, MS, RD, FAND  
Georgetown University

Jennifer Orlet Fisher, PhD, MA  
Temple University

Rachel K. Johnson, PhD, MPH, RD  
University of Vermont

Martha Ann Keels, DDS, PhD  
Duke University & UNC School of Dentistry

Angela Odoms-Young, PhD  
University of Illinois at Chicago

Ian M. Paul, MD, MSc  
Penn State College of Medicine

Lorrene Ritchie, PhD, RD  
University of California

Anna Maria Siega-Riz, PhD  
University of Virginia

Madeleine Sigman-Grant, PhD, RD  
University of Nevada-Reno

Elsie M. Taveras, MD, MPH  
Massachusetts General Hospital for Children

Shannon Whaley, PhD  
Public Health Foundation Enterprises WIC Program
Why These Guidelines?

• Early life feeding behaviors play a central role in establishing food preferences

• Prevalence of unhealthy eating patterns and weight outcomes among U.S. infants and toddlers

• Previous comprehensive guidelines are dated
Presentation Outline

• Infant/toddler feeding patterns
• Infant/toddler obesity patterns
• Responsive parenting framework
• Responsive feeding
• Feeding guidelines
• Research recommendations
Infant/Toddler Dietary Patterns: A Cause for Concern

- FITS study showed that the dietary patterns of U.S. infants and toddlers are especially concerning.
  - low rates of exclusive breastfeeding
  - short breastfeeding durations
  - introduction of solid foods before 4 months of age
  - infrequent consumption of green leafy and yellow vegetables
  - under-consumption of foods rich in fiber
  - excessive consumption of calories, added sugars and sodium.

Siega-Riz et al. (2010); Butte et al. (2010)
Very Low Fruit & Vegetable Intake

Breastfeeding Disparities & Low Exclusive Breastfeeding Rates

Figure 4. Breastfeeding outcomes across U.S. ethnic/racial groups for children born in 2013

<table>
<thead>
<tr>
<th></th>
<th>Ever Breastfed</th>
<th>Breastfed at 6 months</th>
<th>Exclusive breastfeeding through 3 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>83</td>
<td>45.6</td>
<td>40.4</td>
</tr>
<tr>
<td>White</td>
<td>84.3</td>
<td>57.9</td>
<td>51.6</td>
</tr>
<tr>
<td>Black</td>
<td>66.3</td>
<td>39.1</td>
<td>28.9</td>
</tr>
<tr>
<td>Asian</td>
<td>83.8</td>
<td>64.4</td>
<td>41.6</td>
</tr>
<tr>
<td>Hawaiian/Pacific Islander</td>
<td>75</td>
<td>50.2</td>
<td>36.3</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>68.3</td>
<td>41.3</td>
<td>33.1</td>
</tr>
</tbody>
</table>

Note: Data from Centers for Disease Control and Prevention (CDC) National Immunization Survey (NIS).41
Excessive Weight Among 0-2 Year Olds & Associations with Sex, Race/Ethnicity

Figure 3. High weight-for-recumbent length among U.S. infants and toddlers, birth to two years of age

% High Weight-for-Length**

<table>
<thead>
<tr>
<th>Group</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>7.1</td>
</tr>
<tr>
<td>Girls</td>
<td>11.0</td>
</tr>
<tr>
<td>Boys</td>
<td>3.5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>8.8</td>
</tr>
<tr>
<td>White</td>
<td>5.5</td>
</tr>
<tr>
<td>Black</td>
<td>7.3</td>
</tr>
<tr>
<td>Asian</td>
<td>9.6</td>
</tr>
</tbody>
</table>

Note: Data from the 2011-2012 National Health and Nutrition Examination Survey (NHANES). Adapted from Ogden et al. (2014).**

** High Weight-for-Length defined as Weight-for-Length ≥ 97.7th percentile of WHO 2006 growth charts.
Obesity Prevention Needs to Start Even Before the Offspring is Conceived

Figure 1. Maternal-child life-course obesity framework

Key Guidelines’ Audience

• Parents and caregivers

• Health professionals
  • Nurses, OBGYN’s, Pediatricians, etc…

• Food assistance programs
  • Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

• Early childhood care centers
Guidelines Development Process

1. Review of key studies on topics identified as crucial, including how children learn to eat

2. Review of responsive feeding randomized control trials

3. Review of infant and toddler feeding guidelines from diverse countries including the U.S.

4. Interviews with experts in the field, including academic researchers and maternal-child health program delivery/evaluation professionals

5. Development of messages on what and how to feed infants and toddlers following an expert panel consensus process methodology
<table>
<thead>
<tr>
<th>Age Groups</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 0 to ~6 months</td>
<td>• Breastfeeding, infant formula, cow’s milk</td>
</tr>
<tr>
<td>• ~6 to 12 months</td>
<td>• Complementary feeding (solids)</td>
</tr>
<tr>
<td>• 12 to 24 months</td>
<td>• Beverages</td>
</tr>
<tr>
<td></td>
<td>• Transition to family meals</td>
</tr>
<tr>
<td></td>
<td>• Soothing &amp; sleep</td>
</tr>
<tr>
<td></td>
<td>• Play/physical activity</td>
</tr>
<tr>
<td></td>
<td>• Screen time</td>
</tr>
<tr>
<td></td>
<td>• Food allergies</td>
</tr>
<tr>
<td></td>
<td>• Food safety</td>
</tr>
<tr>
<td>Approach</td>
<td></td>
</tr>
<tr>
<td>• Responsive parenting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Responsive feeding</td>
</tr>
</tbody>
</table>
What is Responsive Parenting?

Responsive Parenting is a parenting style that is meant to foster the development of self-regulation and promote cognitive, social, and emotional development.

Self-regulation includes overlapping constructs that can affect feeding behaviors, including:

- self-control
- will power
- effortful control
- delay of gratification
- emotional regulation
- executive function
- inhibitory control
Responsive Parenting Framework

RESPONSIVE PARENTING DIMENSIONS

- Feeding
- Soothing
- Sleep
- Physical Activity/Screen Time

OUTCOMES FOR INFANTS AND CHILDREN

- Caloric Intake
- Infant and Toddler Diet
- Child’s Weight
- Caloric Expenditure

Note: Original figure developed by authors of this report.
Responsive Feeding is a key dimension of responsive parenting involving reciprocity between the child and caregiver during the feeding process.

It is grounded upon the following three steps:

1) the child signals hunger and satiety through motor actions, facial expressions, or vocalizations;

2) the caregiver recognizes the cues and responds promptly in a manner that is emotionally supportive, contingent on the signal, and developmentally appropriate; and

3) the child experiences a predictable response to signals.
Responsive Feeding Framework

Figure 5. Key factors that influence the reciprocal relationships between parent feeding practices and infant feeding

Maternal/parent factors
- Parenting style
- Weight status concerns
- Food preferences

Physiological factors
- Innate taste preference
- Appetite
- Growth stage

Intrinsic infant factors
- Temperament
- Neonatal history
- Feeding history

Early parent feeding practices
- Food exposure (type, amount, timing)
- Response to infant feeding behavior

Infant feeding behavior food preferences
- Acceptance
- Regulation
- Intake

Eating habits
- Child
- Adults

Family characteristics

Demographic factors

Development stage
- Independence
- Control
- Neo-phobia
- Self-feeding

Note: Reproduced with permission from “The NOURISH randomised control trial: Positive feeding practices and food preferences in early childhood - a primary prevention program for childhood obesity,” by L.A. Daniels, A. Magarey, D. Battistutta et al., 2009, BMC Public Health. License at http://creativecommons.org/licenses/by/2.0.
The First 6 Months

Breastfeeding

- The AAP recommends that infants be breastfed exclusively from birth until about 6 months.
- Once complementary foods are introduced, it is recommended that breastfeeding continues until the child is at least 1 year old.

The AAP recommends that infants be introduced to complementary foods when they are developmentally ready, which usually happens between 5 and 6 months of age.

No introduction of solids before 4 months of age

Source: AAP 2013
How to Tell When a Baby is Ready to be Introduced to Complementary Foods?

**Key Developmental Milestones**

- Sits without support and has good head and neck control
- Munches or chews and uses the tongue to move pureed foods to the back of the mouth for swallowing
- No longer has extrusion reflex
- Brings hands and toys to the mouth for exploration
- Indicates a desire for food (e.g., eagerness to participate in family mealtimes, trying to grab food to put in her/his mouth)
<table>
<thead>
<tr>
<th>Age</th>
<th>Hunger Signals</th>
<th>Satiety signals</th>
</tr>
</thead>
</table>
| Birth through 5 months | ■ Wakes and tosses  
                     ■ Sucks on fist  
                     ■ Cries or fusses  
                     ■ Opens mouth while feeding to indicate wanting more | ■ Seals lips together  
                     ■ Turns head away  
                     ■ Decreases or stops sucking  
                     ■ Spits out the nipple or falls asleep when full |
| 4 through 6 months   | ■ Cries or fusses  
                     ■ Smiles, gazes at caregiver, or coos during feeding to indicate wanting more  
                     ■ Moves head toward spoon or tries to swipe food towards mouth | ■ Decreases rate of sucking or stops sucking when full  
                     ■ Spits out the nipple  
                     ■ Turns head away  
                     ■ May be distracted or pays more attention to surroundings |
| 5 through 9 months   | ■ Reaches for spoon or food  
                     ■ Points to food | ■ Eating slows down  
                     ■ Pushes food away |
| 8 through 11 months   | ■ Reaches for food  
                     ■ Points to food  
                     ■ Gets excited when food is presented | ■ Clenches mouth shut or pushes food away |
| 10 through 12 months  | ■ Expresses desire for specific food with words or sounds | ■ Shakes head to say “no more” |
| 1 to 2 years         | ■ Combines phrases with gestures such as “want that” and pointing  
                     ■ Can lead parent to refrigerator and point to a desired food or drink | ■ Uses words like “all done” and “get down”  
                     ■ Plays with food or throws food when full |
6 to 12 Months

- Breast milk or formula continues to be the most important source of nourishment
- Nutrient contribution from a variety of healthful complementary foods should increase with age
  - Offer a variety of vegetables and fruits and avoid foods of limited nutritional value.
  - Solid foods rich in iron and zinc are important for exclusively breastfed babies.
  - Gradually transition from pureed or mashed food to lumpy and soft finger food (6-8 months), to chopped food and hard finger food (8-12 months).
How Children Learn to Like Healthy Foods

- Maternal diet during pregnancy and lactation
  - Flavors passed through amniotic fluid and breast milk
- Associative learning
- Observation of caregivers’ eating behaviors
- Repeated exposure
  - May take as many as 20 tries for some veggies to be accepted
12 to 24 Months

- **Focus on increasing dietary diversity**
  - Variety of fruits and vegetables, lean proteins, and whole grain foods
- **Developmentally appropriate portion sizes**
- **Cow’s milk**
  - AAP recommends pasteurized whole milk with no added sugars
- **Foods to avoid or limit:** SSBs, fruit juice, added sugars, high sodium, trans fats
Responsive Parenting/Feeding Works!

Responsive Parenting/Feeding Randomized Control Trials

- SLIMTIME (Paul et al. 2011) - U.S.
- INSIGHT (Savage et al. 2016, Paul et al. 2016) – U.S.
- NOURISH (Daniels et al. 2012, 2015) - Australia
- Healthy Beginnings (Wen et al. 2012) - Australia
- Prevention of Overweight in Infancy (Fangupo et al. 2015) – New Zealand
Responsive Parenting/Feeding Works!

- All studies found impacts on desirable caregivers’ responsive parenting/feeding behaviors and four trials found improvements in weight outcomes at 1 to 2 years of age.
Responsive Parenting/Feeding Works!

- The RCTs indicate that teaching parents to correctly interpret infant hunger and satiety cues is key for allowing the child to learn to self-regulate food intake properly.
  - Anticipatory guidance

- Also important for caregivers to understand the sleeping patterns of infants and how rapidly they evolve during the first year of life.
Responsive Parenting/Feeding Works!

- RCTs consistently emphasized the importance of allowing the infant and toddler to participate in family meals, and to avoid distractions during meal times.

- Meal times should be a pleasant experience with plenty of verbal and non-verbal interactions between the caregiver and the child.
Responsive Parenting/Feeding Works!

• Responsive parenting/feeding trials that included soothing and/or sleeping components were successful at improving sleeping patterns and feeding behaviors, especially at night.

• Trials highlight the need to respond to infant crying and distress with feedings only when the infant is hungry.
  - They also discourage the use food as a reward as this will condition the infant to expect to be fed when waking up or in distress even when not hungry.
Guidelines Implementation: Systems Changes Needed

Collective Impact Activities
- Common agenda
- Shared measurement
- Mutually reinforcing activities
- Continuous communication
- Backbone support

System-Level Impacts
- Better coordination of health messaging
- Improved systems
- Trained professionals
- Improved organizational practices
- Health promoting environments

Modifiable Conditions
- Maternal prepregnancy BMI
- Prenatal smoking
- Gestational weight gain
- Maternal-infant relationship
- Rapid infant weight-for-length gain
- Infant feeding
- Infant activity and sleep

Outcome
- Childhood obesity prevention

Note: Reproduced from “Interventions for childhood obesity in the first 1,000 days a systematic review,” by T.L. Blake-Lamb et al., 2016, Am J Prev Med, 50, p.786.
Research Recommendations

• Conduct responsive infant/toddler feeding studies among low socioeconomic and ethnic/racial minority groups in the United States, as they have been seriously underrepresented in responsive feeding research.

• Studies should help understand how best to support families with low incomes in implementing the RWJF HER responsive infant and toddler feeding guidelines.
Research Recommendations

- Conduct studies to determine ideal mode or combination of modes of delivery of the RWJF HER infant/toddler feeding guidelines to parents and child-care providers
- WIC, health care, CACFP, home health care workers, promotoras, etc.
Research Recommendations

• **Conduct systems studies**
  • Intersectional coordination to provide the right environments for caregivers of infants and toddlers to implement the RWJF HER responsive parenting/feeding guidelines.
How to Access Report

The Full Report and Executive Summary are available on the Healthy Eating Research website

http://healthyeatingresearch.org
Feeding Infants and Young Toddlers: Using the Latest Evidence in Child-Care Settings

ECE settings

Health Professionals

WIC settings

Introduction
Early childhood is a critical period in the development, growth, and health of young children. The most recent data indicates that 69 percent of children aged 0 to 5 in the United States were underweight, underweight at child-care centers (PAM), home care for a relative (PAM), or other home care (PAM). These child-care settings are part of the network of Early Care and Education (ECE) programs. ECE programs include both appropriate counseling and one-on-one feeding sessions, making ECE providers key players in the implementation of feeding and dietary guidelines targeting infants and toddlers.

ECE diet and feeding strategies play an important role in establishing healthy food preferences and behaviors. As there is a lack of evidenced-based guidelines for infant and toddler feeding practices in the United States, it is important to address the prevention of childhood overweight and obesity, as a significant proportion of children aged 2 to 5 years are already at risk. While there is strong justification for comprehensive infant and toddler feeding guidelines, current Dietary Guidelines for Americans (DGAs) do not address the age group of infants and toddlers.

In 2016, Healthy Eating Research, a national program of the Robert Wood Johnson Foundation, convened an expert panel to review the evidence that has emerged over the past two decades for promoting healthy nutrition and feeding patterns for infants and toddlers. The expert panel’s full report, “Feeding Guidelines for Infants and Young Toddlers: A Responsive Parenting Approach,” is available on the Healthy Eating Research website.

This issue brief summarizes the evidence presented in the expert panel’s full report as it relates to the ECE setting.

Feeding Guidelines for Infants Young Toddlers: A Responsive Parenting Approach

http://healthyeatingresearch.org
Inform 2020 DGAC

Executive summary: evaluating the evidence base to support the inclusion of infants and children from birth to 24 mo of age in the *Dietary Guidelines for Americans*—“the B-24 Project”\(^1\text{-}^3\)

*Am J Clin Nutr* 2014;99(suppl):663S–91S.

Daniel J Raiten, Ramkripa Raghavan, Alexandra Porter, Julie E Obbagy, and Joanne M Spahn

---

**Phase I**
(2012-2013)

Develop key topics and questions to serve as a basis for future DGA for B-24 population (B-24 Project)

**Phase II**

Conduct systematic review using existing and new data

**Phase III**
(2018)

Develop unified dietary guidelines for B-24 for use by the DGA Advisory Committee 2020

**Phase IV**
(2020)

Publish DGAC for Americans including B-24 population
Thank you!