Obesity prevention in the first 1,000 days

Cliff O’Callahan, MD, PhD, FAAP
Middlesex Hospital/Univ
Connecticut/Quinnipiac Univ
Disclosures

• Nothing to disclose
• Faculty salaried general pediatrician
• State AAP Chapter obesity prevention advisor
• Opportunity Knocks medical advisor
• Child Health Development Institute Fellow
Objectives

- What’s the big deal?
- Obesity intervention – fact and fiction
- Timeline of interventions
- 1,000 days
- Know thy challenges
- The 270+ day campaign – investment period
- Day 270-333 – establishing a solid footing
- Day 390-480 – introduction of a new dynamic
- Day 481-635 – establishing patterns
- Day 636-1,000 – parenting and behavior
Our world is changing

• Obesity is more prevalent: 42 million infants and young children overweight or obese in 2013
• Rate of increase is 30% higher in low and middle income countries
• Type 2 Diabetes is affecting younger people

• Only smoking exceeds obesity in its contribution to total mortality rates in the US.
What Are the Health Risks of Overweight and Unfit?

Health problems in childhood
- Type 2 diabetes
- Joint problems
- High blood pressure
- High cholesterol
- Asthma
- Sleep apnea
- Depression
- Low self-esteem
- Eating disorders

Potential increased risk as adult
- Heart attack
- Stroke
- Cancer
- Gallbladder disease
- Kidney stones
- Osteoarthritis
- Pregnancy complications
Chart CO1.7.C: Trends in overweight rates among 15 year-olds by gender, 2001 to 2010
Self-reported data

CT teen obesity was 5% in the 1970’s and now 15%
Prevalence of overweight & obesity among young children.

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Overweight or Obese, ≥85th percentile⁴</td>
<td>31% (n=115)</td>
<td>30% (n=132)</td>
<td>27% (n=122)</td>
<td>30.4%</td>
<td>n/a</td>
<td>22.8%</td>
<td>n/a</td>
</tr>
<tr>
<td>Obese ≥ 95th percentile⁵</td>
<td>12% (n=45)</td>
<td>13% (n=58)</td>
<td>12% (n=56)</td>
<td>14.4%</td>
<td>15.8%</td>
<td>8.4%</td>
<td>10.7%</td>
</tr>
</tbody>
</table>

**School Physical Fitness Tests Middletown CT**
1953-1954: 43% passed 5 parts
1999-2000: 30.8% passed all 4
2000-2001: 25.8% passed all 4 parts
Overweight young children: Belgium is among the least affected in Europe

Belgium is among the least affected countries in Europe when it comes to obesity in young children, according to a study published during the obesity conference in Prague.


PREVALENCE OF OVERWEIGHT (%) IN ADOLESCENTS IN THE FLEMISH REGION (BASED ON SELF-REPORTED DATA ON HEIGHT AND WEIGHT)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>11-year-olds</th>
<th>13-year-olds</th>
<th>15-year-olds</th>
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</thead>
<tbody>
<tr>
<td>Males</td>
<td>15</td>
<td>25</td>
<td>16</td>
</tr>
<tr>
<td>Females</td>
<td>14</td>
<td>15</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: Currie et al. (3).

PREVALENCE OF OVERWEIGHT (%) IN ADOLESCENTS IN THE FRENCH REGION (BASED ON SELF-REPORTED DATA ON HEIGHT AND WEIGHT)

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<tr>
<td>Males</td>
<td>19</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Females</td>
<td>13</td>
<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>

6yr olds: overweight
Males: 19
Females: 18

obese: 6
overtw/obese: 25%

obese: 5
overtw/obese: 23%

The shape of things to come
Analysis of interventions

  – Among the 2006 adults, those with 4 factors of no smoke, BMI <30, >3.5 hr/wk PA, healthy diet, has a 78% less risk of chronic disease

• Influence of individual and combined health behaviors on total and cause-specific mortality in men and women: the United Kingdom health and lifestyle survey. Kvaavik E1, Batty GD, Ursin G, Huxley R, Gale CR Arch Intern Med. 2010 Apr 26;170(8):711-8
  – Among 4886 people followed for 20 yrs those with all 4 risks of smoke, few fruit/veg, <2 hrs/wk PA, and EtOH >14/21 per week has a 3.49 times risk mortality (like being 15 yrs older)

  – Among 111,966 people over 14 years adherence to cancer prevention guidelines for obesity, diet, physical activity, and alcohol consumption is associated with lower risk of death from cancer, CVD, and all causes in nonsmokers.

• But can you change someone already on a different path?

80% of interventions made no statistical change
20% that did showed a trivial effect of 0.04 – but not that different from other public health behavior change

These were very intense and averaged 40 hours intervention
Virtually all effects gone by 3 years after intervention

“This pattern of findings attests to the difficulty of altering the health behaviors that increase risk for weight gain and obesity onset, and echoes the modest success of treatment programs for obesity in producing lasting changes in body weight”
Interventions for preventing obesity in children. Waters E et al. 2011 Cochrane Database Syst Rev 7(12):CD001871

55 studies with 27,946 children

**Very small effect** -0.15 kg/m²
Greater effect among the younger groups
0-5 yrs vs 6-12 yrs vs 13-18 yrs

104 studies for children 2-18 yrs

“However, the evidence on the effectiveness of interventions primarily implemented in other settings is largely low or insufficient.”

Concentrate on the youngest
Search thru Jan 2016
45 behavior based interventions w 7,099 youth

- Weight loss interventions must be **26 hours** or more
- Blood pressure improvement s if interventions over **52 hours**
- Metformin and orlistat associated with about **2% BMI** reduction and no cardiometabolic benefit

**Effect sizes small and variable – clinical significance unclear**

233 children followed at birth, 5 and 9 years age

**Most excess weight gained before puberty occurs by 5 yrs**

**Weight/BMI at 5 yrs does not reflect birth weight but predicts 9 yr weight**

whereas weight gain within a specific period adds little. A single measure of weight at 5 years of age provides a pointer to future health for the individual. If metabolic status at 9 years of age means future risk, diabetes/cardiovascular prevention strategies might better focus on preschool-aged children, because the die seems to be largely cast by 5 years of age, and a healthy weight early in childhood may be maintained at least into puberty.

44,622 children followed
Upward crossing of 2 weight-for-length percentiles in the first 6 months is associated with the highest prevalence of obesity 5 and 10 years later.

“**Efforts to curb excess weight gain in infancy may be useful in preventing later obesity.**”
184 children, mix private and public insurance
50% of those becoming overweight reached that dx by 2 yrs and almost all by 10 yrs
Median age onset of overweight was 22 months
25% became overweight by 5 months

559 mother-child pairs
40% predictive prevalence of later obesity if Weight For Length at 6 months was 4th quartile vs 1% in 1st quartile

Weight for length at 6 months more predictive than WFL at birth
Association between WFL at 6m and obesity at 3 years did not vary by birth size
Utility of intervention along the lifespan

- Adults are hard to change
- Adolescents are hard to change
- Bigger children’s parents are hard to change
  - Interventions expensive and rarely are effective
  - Environmental pressures are enormous

- Infants rate of growth determines their future

- Hypothesis that adults during pregnancy and the first year(s) of their first child’s life are more amenable to behavioral change...
Target the first 1000 days

• Amenable to behavioral change despite environmental pressures
• Many areas of intervention
• Already existent intervention points and time
• High likelihood of at least some interventions working
First 1000 Days

- 0 days
  Twinkle in Eye
  Iron
  Folic Acid
  Nutrition
  Emotional Stability

0 days
  Conception
  Egg + Sperm

1-269 days
  Gestation
  Fetal Growth
  Epigenetics

270 days
  Delivery
  Breastfeeding
  Formula

Behavioral Patterns
Routines Habits
Nutrition in the First 1000 Days: The Origin of Childhood Obesity

Chiara Mameli, Sara Mazzantini and Gian Vincenzo Zuccotti *

Department of Pediatrics, V. Buzzi Hospital, University of Milan, Milan 20134, Italy; chiiar.mameli@unimi.it (C.M.); sara.mazzantini@hotmail.it (S.M.)

* Correspondence: gianvincenzo.zuccotti@unimi.it; Tel.: +39-02-5031-9802

Academic Editor: María M. Morales Suárez-Varela

Received: 8 July 2016; Accepted: 18 August 2016; Published: 23 August 2016

Abstract: Childhood obesity is a major global issue. Its incidence is constantly increasing, thereby offering a threatening public health perspective. The risk of developing the numerous chronic diseases associated with this condition from very early in life is significant. Although complex and multi-factorial, the pathophysiology of obesity recognizes essential roles of nutritional and metabolic aspects. Particularly, several risk factors identified as possible determinants of later-life obesity act within the first 1000 days of life (i.e., from conception to age 2 years). The purpose of this manuscript is to review those key mechanisms for which a role in predisposing children to obesity is supported by the most recent literature. Throughout the development of the human feeding environment, three different stages have been identified: (1) the prenatal period; (2) breast vs. formula feeding; and (3) complementary diet. A deep understanding of the specific nutritional challenges presented within each phase might foster the development of future preventive strategies.

To learn more download the full report at www.thousanddays.org
Investment: the first 270+ days


  – Amsterdam Born Children Development cohort of 1727 multi-ethnic pairs
  – Significant correlation between pre-pregnancy BMI and lipid profile with infancy overweight and adiposity


  – Children born to mothers who were obese or overweight before pregnancy were **1.37 to 4.25** times more likely to be overweight themselves.


  – 21% more likely to be obese if their mother gained excessive weight during pregnancy

  – The obesogenic effect lasts a lifetime


  – Interventions during pregnancy seem to be more effective than otherwise
Investment

• Intense self awareness
• Benefits to self and child and grandchildren
• Built-in opportunities to engage

• Time
• Message and strategy
From the Surgeon General

Selected Actions for Doctors to Support Breastfeeding

**Patient Support**

Action 1: Give mothers the support they need to breastfeed their babies.
- Help pregnant women to learn about the importance of breastfeeding for their babies and themselves.
- Teach mothers to breastfeed.
- Encourage mothers to talk to their maternity care providers about plans to breastfeed.
- Support mothers to have time and flexibility to breastfeed.
- Encourage mothers to ask for help with breastfeeding when needed.

**Formula Marketing**

Action 6: Ensure that the marketing of infant formula is conducted in a way that minimizes its negative impacts on exclusive breastfeeding.
- Hold marketers of infant formula accountable for complying with the International Code of Marketing of Breast-Milk Substitutes.
- Take steps to ensure that claims about formula are truthful and not misleading.
- Ensure that health care clinicians do not serve as advertisers for infant formula.

**Quality Clinical Care**

Action 10: Include basic support for breastfeeding as a standard of care for midwives, obstetricians, family physicians, nurse practitioners, and pediatricians.
- Define standards for clinical practice that will ensure continuity of care for pregnant women and mother-baby pairs in the first 4 weeks of life.
- Conduct analyses and disseminate their findings regarding the comparative effectiveness of different models for integrating skilled lactation support into settings where midwives, obstetricians, family physicians, nurse practitioners, and pediatricians practice.

**Care from Hospital to Community**

Action 8: Develop systems to guarantee continuity of skilled support for lactation between hospitals and health care settings in the community.
- Create comprehensive statewide networks for home- or clinic-based follow-up care to be provided to every newborn in the state.
- Establish partnerships for integrated and continuous follow-up care after discharge from the hospital.
- Establish and implement policies and programs to ensure that participants in the U.S. Department of Agriculture’s Special Supplemental Nutrition Program for Women, Infants, and Children have services in place before discharge from the hospital.

**Lactation Care Teams**

Action 11: Ensure access to services provided by International Board Certified Lactation Consultants.
- Include support for lactation as an essential medical service for pregnant women, breastfeeding mothers, and children.
- Provide reimbursement for certified lactation consultants independent of their having other professional certification or licensure.
- Work to increase the number of racial and ethnic minority certified lactation consultants to better mirror the U.S. population.

For more information, see The Surgeon General’s Call to Action to Support Breastfeeding at www.surgeongeneral.gov/library/calls/breastfeeding/index.html
**Healthier Pregnancy: Tools and Techniques to Best Provide ACA-Covered Preventive Services**

**Provider Fact Sheet**

**Preventive Service:** Primary Care Interventions to Promote Breastfeeding  
**Grade:** B

**U.S. Preventive Services Task Force (USPSTF) Recommendation:**  
Interventions during pregnancy and after birth to promote and support breastfeeding.¹

Consider multiple strategies: 1) Formal breastfeeding education for mothers and families 2) Direct support of mothers during breastfeeding 3) Training of primary care staff about breastfeeding and techniques for breastfeeding support 4) Peer support. Among these, strategies that included contacting women before and after delivery were more effective compared to the strategies involved in only one of the periods.²

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Obstetricians
Midwives...more efficacious?
Lactation Consultants
Pediatric Providers
Solid footing from 270-330 days

- First hour
- First few days
- Bonding weeks
- Formula feeders
- Breastfeeding
Is breastfeeding protective against obesity?


105 studies show 26% reduction in odds for future obesity if breastfed

**Weaknesses** = larger the study, smaller the effect; effect varied pre/post 1980

**Strength** = among high quality studies a 13% reduction in obesity risk


35 studies and singled out 10 randomized controls

Small but significant effect of maternal exposure to breastfeeding promotion and support with obesity risk reduction


Body fat creation related to endocrine profile of insulin and leptin – breastfeeding is protective against deposition
Mechanisms...

**Human milk fed**

- Breastfed infants self regulate energy intake better
- Satiety signals and macronutrients
- Diverse flavor in human milk leading to wider food acceptance – foods with lower density

**Formula fed**

- Parent can control ingested volume – increased WFL velocity
- Relatively high protein content in formula increases insulin and leptin – adiposity
- Microbiome differences
Formula feeders

- Inevitable reality
- Bottle led or composition or both
  - Bottle emptying pressure (Li 2014)
  - Size of bottle related to risk (Wood 2016)
  - Energy content and protein (Hester 2012 and Heinig 1993)

  - Increased volume and density lead to 15-23% higher energy intake in 3-18 month-old formula feeders

- The power of knowing their power
- Visual aides to help parents understand volumes
- Satiety awareness
- Positioning for paced feeding
- Knowing their power to determine their child’s destiny
Breastfeeding is not a one-woman job

- it requires government leadership and support from families, communities, workplaces and the health system to really make it work.
Globally, less than half of all newborns are put to the breast within one hour of birth

Percentage of newborns put to the breast within one hour of birth, by country and region, 2015

Source: UNICEF global databases, 2016, based on MICS, DHS and other nationally representative sources, 2013-2016. * denotes countries with older data between 2005-2009; data from these countries are not included in the regional aggregates except for China (2006) which is used for the East Asia and the Pacific and World averages. Countries shaded in dark grey have estimates from 2004 or earlier and are thus represented as having "no current data"; these countries are not included in the regional aggregates. **CEE/CIS does not include Russian Federation. Note: These maps are stylized and not to scale and do not reflect a position by UNICEF on the legal status of any country or territory or the delimitation of any frontiers. The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined. The final status of the Abyei area has not yet been determined.
Interventions in the first hours

• Skin to skin
• Golden hour
• Delayed bathing
• Immediate pumping and hand expression support
• Creating realistic expectations (Second Night)
• Staff education and commitment to change


• WHO Baby Friendly Hospital Initiative
Belgium - 96 birthing hospitals and 27 BFHI
Vigilance during changes...

Baby Friendly

Skin To Skin in first hour and during stay

Sudden Unexpected Postnatal Collapse SUPC

400 case reports
Most during STS
30% in first 2 hours life
Death in half and disability in majority survivors

Europe: 2.6 to 74 per 100,000 births

24 hour rooming in and falls

Breastfeeding exclusivity and greater weight loss, jaundice..

Pacifier use delay and risk for SUPC

Corresponding Author: Herlenius, E, Kuhn, P, Department of Pediatrics, Newton-Wellesley Hospital, 14 Washington St, Newton, MA 02461. Email: herlenius@nwh.org.

VIEWPOINT

Joel L. Rais, MD
Department of Pediatrics, Newton-Wellesley Hospital, Newton, Massachusetts.

Tina Garlini, MD
Department of Pediatrics, Newton-Wellesley Hospital, Newton, Massachusetts.

Roxald Herlenius, MD
Department of Pediatrics, Massachusetts General Hospital, Boston.

Promoting and supporting breastfeeding during the postpartum period has been an important and appropriate priority for maternity units in recent years. The Ten Steps to Successful Breastfeeding of the Baby-Friendly Hospital Initiative have been implemented by an increasing number of hospitals as the standard of care for optimal support of breastfeeding from birth to hospital discharge. However, some or all of these steps are increasingly being promoted as the standard of care by government agencies (eg, the Centers for Disease Control and Prevention) and by The Joint Commission. It is important to be certain that the basis for the recommendations has been documented in reproducible scientific studies and that the benefits of the practices recommended outweigh the risks. Unfortunately, there is an emerging evidence that full compliance with the 10 steps of the initiative may inadvertently be promoting potentially hazardous practices and/or having counterproductive outcomes.

The wording of the 10 steps themselves may not suggest a potential for risk. However, the specific guidelines for Baby-Friendly designation provide a cause for concern. For example, to comply with step 4 (help mothers initiate breastfeeding within 1 hour of birth), the guidelines state that all mothers should have continuous skin-to-skin contact with their baby immediately after birth until completion of the first feeding and that skin-to-skin contact should also be encouraged throughout the hospital stay. A time period when direct continuous observation by medical care professionals is not likely to occur. Although a recent Cochrane Review provided evidence for the benefits of skin-to-skin care for healthy Full-term and late preterm infants for the first hour after birth. It also suggests that mothers and baby not be left unattended while skin-to-skin care takes place during this early period. Reports of sudden unexpected postnatal collapse (SUPC) in association with the skin-to-skin practice, published over the past several years, have focused attention on the importance of this caution. Reports of SUPC include both severe apparent life-threatening events (recently referred to as brief resolved unexplained events) and sudden unexpected death in infancy occurring within the first postnatal week of life. A comprehensive review of this issue is identified 40 cases reports in the literature, mostly occurring during skin-to-skin care, with one-third of the events occurring in the first 2 hours after birth and the remainder in the subsequent week of life. The review reported death in half of the cases and persistent disability in the majority of survivors. European rates of SUPC varied from 2.6 to 74 cases per 100,000 births, with higher rates related to the length of the inclusion period and infant care practices related to prone sleeping and co-sleeping. Furthermore, anecdot reports from the American Academy of Pediatrics observed that lawsuits have surfaced in US hospitals attributed to unexpected respiratory arrest in apparently healthy newborns during early skin-to-skin care and cautioned that this practice needs to be balanced with the need to implement safe sleep practices with monitoring of infants during skin-to-skin care unless direct observation takes place. While breastfeeding exclusivity (step 6) and 24-hour rooming in (step 7) have demonstrated benefits in the postpartum period, these practices may also engender risk. An over-eager insistence on these steps in order to comply with Baby-Friendly Hospital Initiative criteria may inadvertently result in a potentially hazardous or sedated postpartum mother being persuaded to feed her infant while she is in bed overnight, when she is not physically able to do so safely. This may result in prone positioning and co-sleeping on a soft warm surface in direct contradiction to the Safe Sleep Recommendations of the National Institutes of Health. In addition, co-sleeping also poses a risk for a newborn falling out of the mother’s bed in the hospital, which can have serious consequences. There is also the possibility that usual sleep practices modeled in the hospital may continue at home. The justification for breastfeeding exclusivity is based on the 1989 World Health Organization review of the evidence for the 10 steps. However, that review included evidence that when supplementation was given for medical indication, there was no adverse effect on the duration of breastfeeding. It also concluded, based on the available evidence, that it was not clear to what extent supplementation in other circumstances was a marker of breastfeeding difficulty rather than an actual cause of breastfeeding failure. Another issue of concern is the banning pacifier use (step 9). Compliance requires that mothers be educated repeatedly that pacifiers may interfere with the development of optimal breastfeeding. Because there is strong evidence that pacifiers may have a protective effect against sudden infant death syndrome (SIDS), the American Academy of Pediatrics has suggested avoidance of pacifiers only until breastfeeding is established, at approximately 3 to 4 weeks of age. Because a substantial number of SUPC events occur during the first week of life, this recommendation prescribes the use of pacifiers difficult to defend based on risk. Preventing the unintended serious outcomes from these practices has been made more challenging by the emphasis on breastfeeding exclusivity in the perinatal measures recently promulgated by the The Joint Commission. Measure PC-O5 requires documentation of the...
- 0 days

270 days

Delivery

Breastfeeding

Formula

330d/2 mo

Mom + Baby

Bonding

Satiety Awareness

450d/6 mo

Intro Solids

Nutrition

Autoimmune

390 - 480d

000d/24mo

Behavioral Patterns

Iron

Folic Acid

Nutrition

Emotional Stability

Routines

Habits
331—450 days: the 30 yr effect

- Protection against infections and malocclusion
- Increased intelligence
- Probable reduction in overweight and diabetes
- Protection against breast cancer
- Might protect against ovarian cancer and diabetes II

Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect

Chart CO1.5.B: Proportion of children who were exclusively breastfed at 3, 4 and 6 months, around 2005

Source: National surveys (see section on data and comparability issues).
Notes: Data refer to 2000 for Iceland; 2001 for Denmark and Greece; 2003 for Canada, France and Portugal; 2004 for Australia; 2006 for Cyprus, Mexico, Norway, Spain and Sweden; 2007 for Belgium, Czech Republic, Hungary, Malta, New Zealand, Slovak Republic and Slovenia US. 1) and 2) see notes 1) and 2) to Chart CO1.5.A

OECD Family database www.oecd.org/els/social/family/database
OECD - Social Policy Division - Directorate of Employment, Labour and Social Affairs

Last updated 01-10-2009
Globally, just over two out of five infants are exclusively breastfed 0-5 months, 2015

Globally, less than half of children are still breastfed at 2 years
Early BF discontinuation

- “Baby was not satisfied with breastmilk alone” or “I didn’t have enough breastmilk”, two of top 3 reasons at 1 month, 2 months, and 3-8 months.

- Also, return to work (6 – 12 weeks)
  - Li et. al. *Pediatrics* 2008;122:S69-S76
Fit WIC Baby Behavior Study

"Helping you understand your baby"

California WIC Program
Final Report
WIC Special Projects Grant

October 2006-September 2009
UC Davis Human Lactation Center
Department of Nutrition

Authors:
M. Jane Heinig, PhD, IBCLC
Jennifer DaSilva, MAS
Jennifer Goldbrom, RD
Jackie Kamp, MSN, RN, PHN

http://www.nal.usda.gov/wicworks/Sharing_Center/gallery/FitWICBaby.htm
Belgium introduced parental leave in 1998

OECD Family Database [http://www.oecd.org/els/family/database.htm](http://www.oecd.org/els/family/database.htm)
OECD - Social Policy Division - Directorate of Employment, Labour and Social Affairs

Last update 04-03-2016
OECD database with selected countries, run Oct 9, 2016
390-480 days: solids food introduction and expansion


- 620 recruited and 307 followed to 10 yrs. Delayed intro solids, maternal non-smoking were predictive of less obesity


- Project Viva following 847 children prenatally through 3 yrs age
- <4m, 4-6m, >6m
- **no** effect from timing of solids for breastfed infants
- formula fed infants the intro of solids before 4 months assoc with **sixfold increase in obesity at 3 yrs**
Taste & Learning

Predilection for sweet, salty, umami

- *Familiarization* learning is getting used to the less preferred tastes
- *Associative* learning of preferences in psycho-emotional atmosphere
- *Observational* learning through curious imitation

Emerging evidence suggests that infants and toddlers learn what and how much to eat based on familiarity with foods in their environment, parental feeding styles, associations of different foods with specific environmental stimuli or stressors, and by observing what others in their immediate surroundings consume.
WHO Commission Ending Childhood Obesity 2016

- Provide and encourage a wide array healthy foods during pregnancy
- Encourage mothers to eat a wide array of healthy foods during lactation
- Awareness about monotone flavor of formula
- Prepare infant cereal with mothers milk
- Offer foods consumed during pregnancy
- Offer new foods multiple times
- Focus on willingness to eat and not facial expressions
- Wide variety of foods
- Limit exposure to added sugar and salt
- Be a good role model in eating wide variety in good settings
The purpose of the B-24/PW project is to inform the development of food-based guidelines for birth to 24 months and pregnant women.

Goals:

1. Review scientific evidence about nutrition and health for:
   a) Birth to 24 month olds (B-24)
   b) Women who are pregnant (PW)

2. Initiate the review of evidence to support the inclusion of these populations into the 2020 Dietary Guidelines for Americans.

The B-24/P Project will address research questions in four broad topic areas:

- Human Milk & Infant Formula Feeding
- Complementary Feeding: Foods & Beverages
- Feeding Practices & Methods
- Taste Development

US Dept Agriculture
Dept Health Human Services
To inform the 2020 Dietary Guidelines
A comparison of preprepared commercial infant feeding meals with home-cooked recipes

Sharon A Carstairs,¹ Leone CA Craig,² Debbi Marais,³ Ourania E Bora,⁴ Kirsty Kiezebrink⁵

Figure 1  Box plots of the median and 2.5% and 97.5% percentiles of vegetable variety score per meal between commercial products and home-cooked recipes for full sample and matched meals. *Significant difference (*p<0.05) between commercial products and home-cooked recipes.

Table 4  The percentage of commercial meals and home-cooked IYCF recipes which meet age-specific recommendations

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Range per meal</th>
<th>Full sample</th>
<th>Matched meals</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Commercial meals</td>
<td>Home-cooked recipes</td>
</tr>
<tr>
<td>Energy density (kcal/g)</td>
<td>&gt;0.6</td>
<td>28.5</td>
<td>13.2</td>
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<tr>
<td></td>
<td>0.6–1.0</td>
<td>64.6</td>
<td>36.6</td>
</tr>
<tr>
<td></td>
<td>&gt;1.0</td>
<td>6.9</td>
<td>50.2</td>
</tr>
<tr>
<td>Total fat (% of total energy)</td>
<td>&lt;30%</td>
<td>52.0</td>
<td>28.9</td>
</tr>
<tr>
<td></td>
<td>30%–45%</td>
<td>47.3</td>
<td>34.1</td>
</tr>
<tr>
<td></td>
<td>&gt;45%</td>
<td>0.7</td>
<td>37.0</td>
</tr>
</tbody>
</table>

Bold text denotes recommended range.
IYCF, infant and young child feeding.
Figure 1: Global distribution of breastfeeding at 12 months
Data are from 153 countries between 1995 and 2013.

Systematic review of studies 2000-2011:
Significant increase of energy-dense and nutrient poor foods w higher intake of total sugars..
Majority studies found NO evidence of relationship between snacking behavior and obesity
*Weakness – older youth and perhaps unable to capture the effect during the time when it may affect metabolic set control*

Starting to do more research on snacking and the different parenting practices – permissive, structure, autonomy, coercive...
635-1,000 days: parenting is key

• Assessment and teaching tools
• Common messaging with oral health changes
• Using the WFL or BMI chart to monitor and teach
• Family meals
• Parental decisions against the tide of influence
• Surrogate parents – daycare provider influence
Figure 2: Breastfeeding indicators by country income group in 2010
Data are from national surveys that used standard indicators, and were weighted by national populations of children under 2 years. Data for up to 153 countries.
135 countries have some legal measures in line with the Code - yet most of these need to be further strengthened.


Source: WHO, UNICEF, IBFAN. Marketing of Breast milk Substitutes: National Implementation of the International Code. Status Report 2016. Geneva: World Health Organization; 2016. (* denotes countries have no dedicated Code legislation, but have Code-related provisions incorporated in other legal measures.). The regional summaries indicate the number of countries with a full provision or many provision law (green circle) out of all countries in the region (blue circle). *Other refers to mainly high income countries not included within UNICEF programme regions (see annex 2). Note: These maps are stylized and not to scale and do not reflect a position by UNICEF on the legal status of any country or territory or the delimitation of any frontiers. The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined. The final status of the Abyei area has not yet been determined.

- Informational and educational materials aimed at educating mothers on infant feeding should state the superiority of breastfeeding, the difficulty of reversing the decision not to breastfeed, and recommendations on the proper use of infant formula.
- Labels of formula products should provide only the necessary information and should not discourage breastfeeding.
- Neither the container nor the label should contain pictures of infants or phrases that idealize the usage of infant formula.
- The messages on product labels should be easily readable and understandable to the person acquiring it.
- There should be no advertisement or promotion to the general public of products within the scope of the code.
- Manufacturers and distributors should not provide directly or indirectly sample products to pregnant women or members of their families.

WHO Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children (2016)

- Products that function as breast-milk substitutes should not be promoted. A breast-milk substitute should be understood to include any milks (or products that could be used to replace milk, such as fortified soy milk), that are specifically marketed for feeding infants and young children up to the age of 3 years (including follow-up formula and growing-up milk).
- Messages should always include a statement on the importance of continued breastfeeding for up to two years or beyond and the importance of not introducing complementary feeding before 6 months of age.
- Messages should not include any image, text or other representation that might suggest use for infants under the age of 6 months (including references to milestones and stages).
- The packaging design, labelling, and materials used for the promotion of complementary foods must be different from those used for breast-milk substitutes so that they cannot be used in a way that also promotes breast-milk substitutes (for example, different color schemes, designs, names, slogans, and mascots other than the company name and logo should not be used).
- Companies that market breast-milk substitutes should refrain from engaging in the direct or indirect promotion of their other food products for infants and young children by establishing relationships with parents and other caregivers (for example through baby clubs, social media groups, childcare classes and contests).
Market baby & toddler food and drink $6.5 billion
Advertising to this segment $77 million (73% to TV) - $20.7 million on Pediasure!

Fruit, vegetable, and meal products qualified 100% as nutritious!!
Baby toddler snacks rarely are nutritious and >80% had sweeteners

Toddler formulas w higher fat, Na, protein and added sugar
Advertising increased 74% from 2011-2015
Targeting Hispanic families

Misleading nutrition-related package messaging
Package labels confusing
Pouch packaging does NOT promote good habits/skills

http://www.uconnruddcenter.org/BabyFoodFACTS
Portion Distortion

20 YEARS AGO  TODAY  DIFFERENCE

-- Hamburger
333 Calories  590 Calories  257 MORE CALORIES
Lifting weights for 1 HOUR AND 30 MINUTES burns approximately 257 calories*  *Based on 130-pound person

-- Pizza
500 Calories  850 Calories  350 MORE CALORIES
Playing golf (while walking and carrying your clubs) for 1 HOUR burns approximately 350 calories*  *Based on 160-pound person

-- Pasta
500 Calories  1,025 Calories  525 MORE CALORIES
Housecleaning for 2 HOURS AND 35 MINUTES burns approximately 525 calories*  *Based on 130-pound person

20 YEARS AGO  TODAY  DIFFERENCE

-- Soft Drink
85 Calories  250 Calories  165 MORE CALORIES
Working in the garden 35 MINUTES burns approximately 165 calories*  *Based on 160-pound person

-- Muffin
210 Calories  500 Calories  290 MORE CALORIES
Vacuuming for 1 HOUR AND 30 MINUTES burns approximately 290 calories*  *Based on 130-pound person

-- Popcorn
270 Calories  630 Calories  360 MORE CALORIES
Doing water aerobics for 1 HOUR AND 15 MINUTES burns approximately 360 calories*  *Based on 160-pound person

Source: “Portion Distortion” by the National Heart, Lung, and Blood Institute, http://www.nhlbi.nih.gov
5-2-1-0 Survey for Patients at Well-Child Visits

Your child’s doctor wants to know about his or her health habits. Please answer the questions below as best you can. Your doctor will review this with you during your next visit.

Patient Name: ____________________________ Age: ______

Parents

My child is offered 5 or more servings of fruits and vegetables a day.

My child watches TV, videos or plays computer games more than 2 hours a day.

My child has a TV in her or his bedroom.

My child is active (moving, running, walking, playing games) for at least 1 hour every day either at home or at school.

My child drinks juice, soda or punch.

My child drinks milk. If yes, what kind: Whole, 2%, 1%, other ________

My child eats breakfast every day.

My child eats dinner at the table with the family at least 2 nights a week.

My child eats take-out food (fast food places, restaurants) ________ a week.

Please write your answer:

What is one thing that you like about your child’s eating?

What is one thing you do not like about your child’s eating?

The numbers 5-2-1-0 are important to your child’s health!

They are an easy way to remember the basic building blocks for healthy habits.

5

Parents should offer children the chance to eat 5 or more servings of fruits and vegetables on most days. Children may not always choose to eat them. Keep offering without pressuring your child. For help with picky eaters, and to encourage a healthy diet, you can read Child of Mine: Feeding with Love and Good Sense by Ellyn Satter. It is available at many CT libraries.

2

Children should be limited to 2 hours or less of TV, videos or computer games a day.

Children who have a TV in their bedroom watch more TV than children who do not.

1

Children should be active (moving, running, walking, playing games) at least 1 hour every day either at home or at school.

0

Sugar sweetened drinks can lead to cavities. Milk and water are the best drinks for children.

If you offer your child juice, be sure it is 100% fruit juice, offer it with meals or snacks and limit it to 4 ounces a day.

• Babies, up to 1 year old, should only drink breast milk, formula or water.
• Toddlers, 1-2 years old, should drink whole milk or water.
• Children older than 2 should drink skim (non-fat) or 1% milk or water.

Other tips

Eating breakfast every day helps children pay attention in school and helps maintain a healthy weight.

Families who eat together at least 2 times each week are closer, their children are less likely to get into trouble and more likely to stay healthy.

Eating home-cooked meals is often healthier and cheaper than eating out or bringing home take-out food. If you do eat out, try not to do so more than 1 or 2 times a week and choose wisely.

Adapted from the Maine Center for Public Health, Healthy ME 01/08
Brief Negotiation

Open the Encounter

Ask Permission
- Would you be willing to spend a few minutes discussing your weight? / Are you interested in discussing ways to stay healthy and energized?

Ask an Open-Ended Question – Listen – Summarize
- What do you think/How do you feel about your weight? / What have you tried so far to work toward a healthier weight?

Share BMI / Weight (optional)
- Your current weight puts you at risk for developing heart disease and diabetes. / Your BMI is at the 92nd percentile. The recommended level for your age is 85 or below.
- Ask for the patient’s interpretation: “What do make of this?”
- Add your own interpretation or advice as needed AFTER eliciting the patient’s / parent’s response.

Negotiate the Agenda

5. Eat at least 5 servings of fruits and vegetables on most days.
2. Limit screen time to 2 hours or less daily.
1. Participate in at least 1 hour or more of physical activity every day.
0. Avoid soda and sugar-sweetened drinks; limit fruit juice to half cup or less per day. Instead, encourage water and 3-4 servings/day of fat-free milk.
- Is there one of these you’d like to discuss further today? Or perhaps you have another idea that isn’t listed here?

Assess Readiness

- On a scale from 0 to 10, how ready are you to consider [option chosen above]?
- Straight question: Why a 5?
- Backward question: Why a 5 and not a 3?
- Forward question: What would it take to move you from a 5 to a 7?

Explore Ambivalence

Step 1:
- Ask a pair of questions to help the patient explore the pros and cons of the issue.
  - What are the things you like about ___? AND What are the things you don’t like about ___? OR
  - What are the advantages of keeping things the same? AND What are the advantages of making a change?

Step 2:
- Summarize ambivalence: Let me see if I understand what you’ve told me so far… (begin with reasons for maintaining the status quo, end with reasons for making a change)
- Ask: Did I get it all? / Did I get it right?
Challenges and Limitations

• Less research on the power of interventions in the first 1,000 days

• Uniformity of interventions and inertia

• Countering the power of corporations

• Child friendly legislation – future investment

• Drops in the ocean