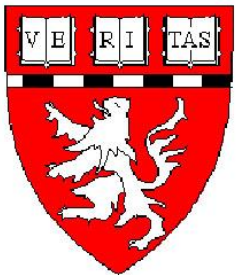


Effective Interventions in the First 1000 Days To Prevent Childhood Obesity

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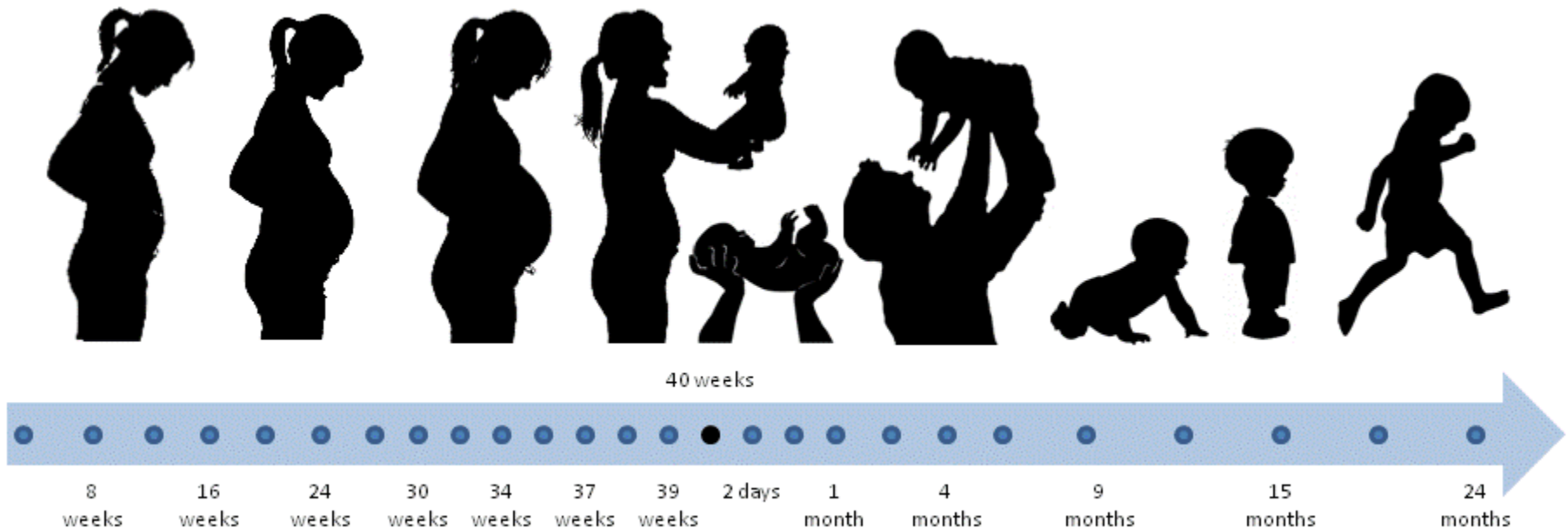
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The First 1000 Days – Preconception to 2 years

- Unique window of opportunity between preconception and age 2 when interventions can help shape a child's future



Goals of this Presentation

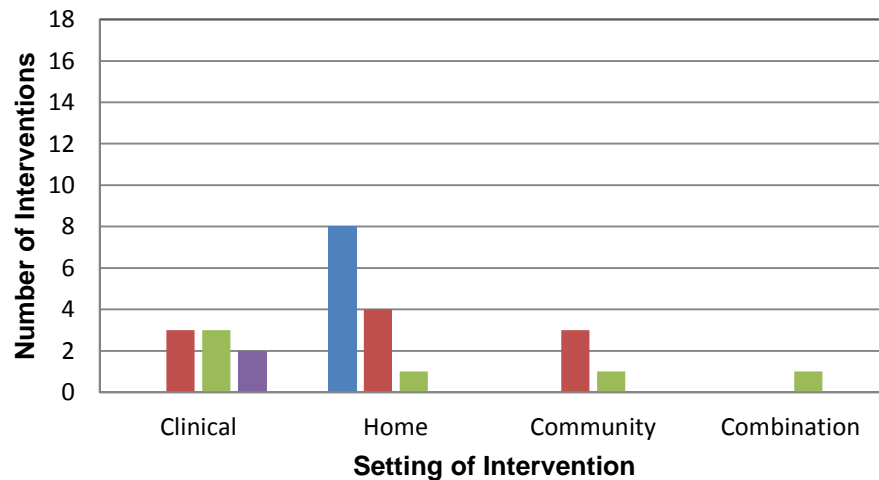
- Systematic review of interventions implemented during pregnancy through age 24 months that aimed to prevent childhood overweight or obesity;
- Summarize the distribution of intervention levels and settings and identification of research gaps;
- Discuss a conceptual framework that could inform and enhance the development of future interventions.

Systematic Review of Interventions in the First 1000 Days

- Systematic review of existing interventions implemented during the First 1000 Days that included prevention of childhood overweight and obesity;
- Inclusion criteria was English-language studies:
 1. Intervention study with a control group
 2. Intervention implementation in first 1000 days
 3. Study outcome including childhood overweight or obesity collected between age 6 months and 18 years.
- Identified 34 completed studies from 26 unique interventions; 9 were found to be effective in improving childhood weight status.

Distribution of Completed and Ongoing Obesity Prevention Interventions in the First 1000 Days by Intervention Level and Setting

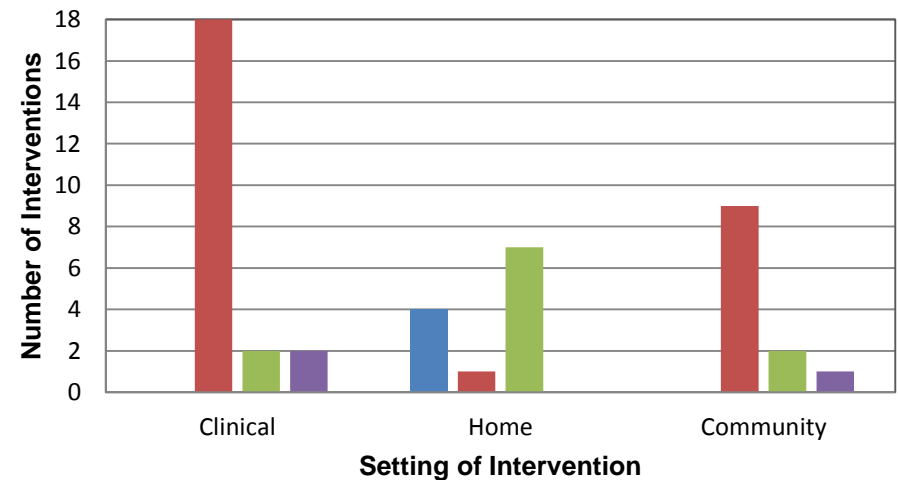
Completed Interventions



Level of Intervention:

- Biologic
- Individual
- Family
- Systems

Ongoing Interventions



Level of Intervention:

- Biologic
- Individual
- Family
- Systems

What Works?

- Interventions that worked demonstrated an effect by primarily focusing on **individual-or family-level behavior** changes;
- Interventions in **homes, clinical settings**, or group sessions held in **community-based settings** in the First 1000 Days were equally effective.

What Works?





- Healthy Beginnings (Wen et al., 2012 and 2015)
 - 667 first time mothers and their infants; socially and economically disadvantaged areas of Sydney, Australia
 - 8 home visits lasting 1-2 hours each by a community nurse (1 visit prenatally and 7 visits up to 24 months after birth);
 - Targets: Breastfeeding, infant feeding and activity, family nutrition and activity;
 - At age 2 years: BMI was 0.29 kg/m² lower in intervention group vs. controls;
 - At age 5 years: No sustained effects on BMI and no effects of the early intervention on dietary behaviors, quality of life, physical activity, and TV viewing time.

What Works?



- NOURISH RCT (Daniels et al. 2012, 2013, 2015)
 - 698 first-time mothers and their healthy term infants;
 - Two, 3-month group education modules starting at ages 4-6 and 13-15 months: skills-based program focused on parenting practices that mediate children's early feeding experiences; "protective" complementary feeding practices;
 - At 13-15 months: Lower BMI z-score in intervention group (0.23 vs. 0.42);
 - At 2 and 5 years: Increased use of protective feeding practices but no difference in BMI z-score or prevalence of overweight or obesity.

What Works?

	Introduction of Solids 	Control
Soothe/Sleep 	N = 42 2 interventions	N = 39 1 intervention
Control	N = 38 1 intervention	N = 41 0 interventions

- SLIMTIME RCT (Paul et al., 2011)
 - 2x2 intervention design with 160 mother-infant dyads
 - 1) Soothe/ Sleep: Mothers taught to use alternate soothing strategies in response to fussiness;
 - 2) Introduction of Solids: mothers instructed to delay complementary foods until 4 months, avoid putting infant cereal into bottles; and pay attention to hunger/satiety cues;
 - At 12 months: Lower weight-for-length % in the group who received both interventions compared to other 3 groups.

What Works?

- Special Turku Coronary Risk Factor Intervention Project for Children (STRIP)
 - 1062 infants randomized at 7 months of age to intervention v. control;
 - Individualized dietary and lifestyle counseling at clinic visits every 1-3 months until 2 years, 2 times per year until 7 years, then yearly until 10 years;
 - Family diet and physical activity;
 - Among girls at age 10, 10.2% of intervention and 18.8% of control group were overweight;
 - No difference for boys in overweight.

What Doesn't Work?

1. Protein-enriched formula ***increased*** risk of childhood obesity;
2. None of the interventions focusing only on the pregnancy period resulted in improved childhood obesity outcomes.

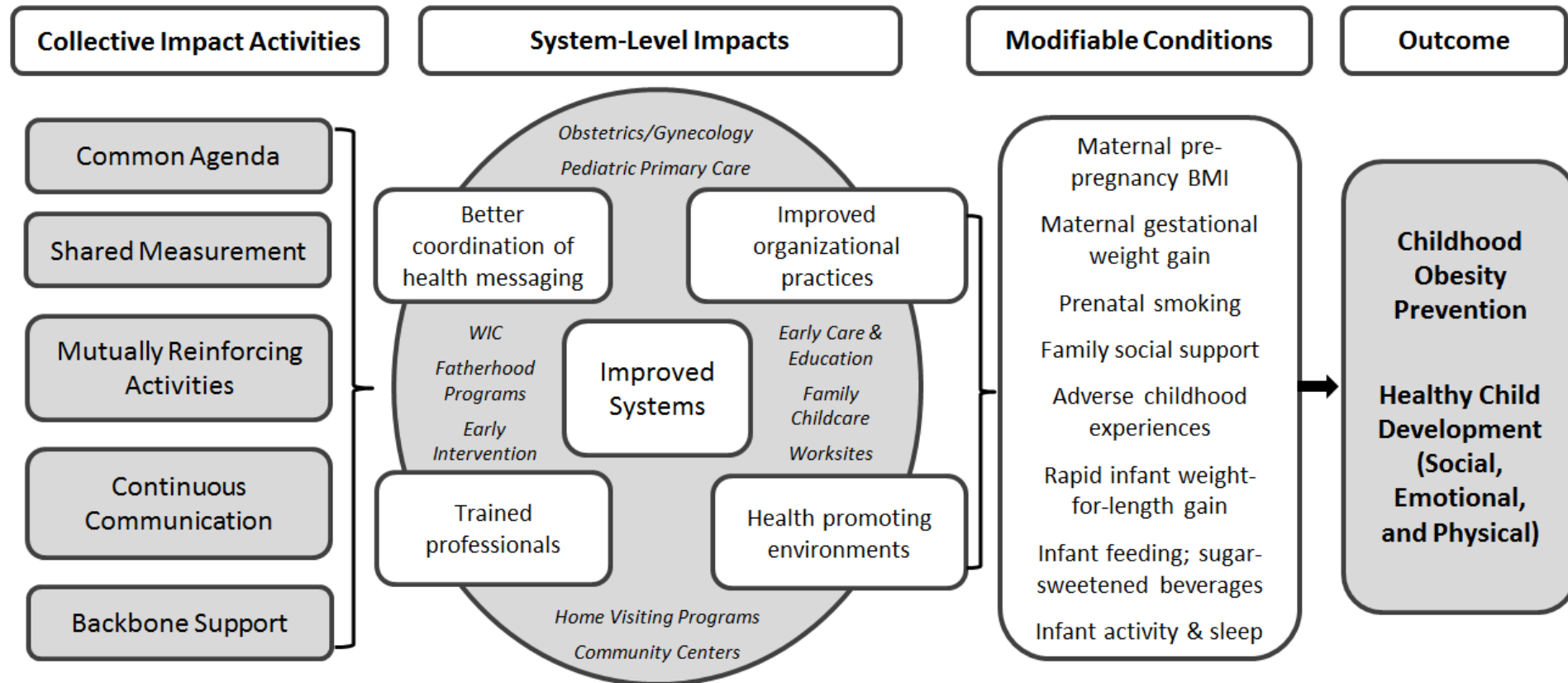
Lessons Learned

1. Obesity prevention programs need to be continued or maintained during the early childhood years and beyond.
 - Highlights the importance of a lifecourse approach – risk-reducing interventions conducted over time, e.g. STRIP.
2. Importance of eco (environmental)-social (family) context.

What's Missing?

1. None of the studies intervened on maternal pre-pregnancy BMI or prenatal tobacco exposure;
2. Many infant feeding interventions focus solely on breastfeeding; few interventions assist women who are formula feeding; no interventions focused on infant SSBs;
3. Systems-level interventions and those utilizing community-based settings are under-represented;
4. Few interventions are trying to impact the social context or upstream influences on obesity, such as government policies (e.g. food subsidies) and private sector practices (e.g. fast food marketing);
5. Most interventions are of sub-optimal quality.

Systems-Level Approach to Early Life Obesity Prevention



- Collective impact approach to engage multiple stakeholders invested in early life/early childhood;
- Alignment of obesity prevention with promotion of healthy child development.

Summary

- Childhood obesity interventions may produce the largest magnitude of effect if they are begun in the earliest stages of life.
- Few effective interventions during the pregnancy to age 2 period have been conducted and many of the existing interventions do not have sustained effects in long-term follow up studies.
- Novel interventions that operate at systems-levels hold promise for improving early life obesity prevention efforts.



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