Obesity and the first 2000 days

Louise A Baur

Discipline of Child & Adolescent Health, University of Sydney
The Children’s Hospital at Westmead
NHMRC Centre of Research Excellence in the Early Prevention of Obesity in Childhood

Email: louise.baur@health.nsw.gov.au
The first 2000 days?

From conception to age 5 years

Conception
Birth
Why is this period important?
Life course perspective

• “Pathway dependency”: Health risk at one time-point is influenced by current health issues and previous health pathway for that individual

• Interventions earlier in life likely to be more effective than those starting in adulthood

Hanson M. WHO 2013
While obesity interventions are needed across the life-course...the first 2000 days are especially important.
The *antenatal period* and later obesity?

- Over one-half of Australian women enter pregnancy with overweight or obesity

- Maternal *pre-pregnancy obesity and excessive gestational weight gain*:
  - associated with increased risk of obesity (and other health risks) in the offspring in childhood, adolescence and young adulthood

- Maternal *gestational diabetes*:
  - associated with child and adolescent obesity

Early childhood and later obesity?

- Australia: 1:5 children *already* affected by overweight & obesity at school-entry

- Infant feeding practices, early dietary patterns and early sedentary/ screen behaviours → influence obesity onset

- Excess weight and fast weight gain in early childhood → related to later weight status and health outcomes

- Most excess weight gained *before puberty* is gained *by 5 years* (i.e. *prior to school entry*)

Prevalence of overweight & obesity by age, Australia 2011-12

Source: Australian National Health Survey 2011-12
Prevalence of overweight & obesity by age, Australia 2011-12

The biggest rises in prevalence: First 3 years, and later adolescence/young adulthood

Source: Australian National Health Survey 2011-12
WHO Ending Childhood Obesity Commission
WHO ECHO Commission: Leadership for comprehensive, integrated, multisectoral action to end childhood obesity

• “No single intervention can halt the advance of the epidemic of obesity

• To challenge obesity successfully requires countering the obesogenic environment and addressing vital elements in the life course through coordinated, multisectoral action that is held to account

• Interventions to tackle obesity can be integrated into and build upon existing national plans, policies and programs”
We have an opportunity today to provide some of this leadership

- “No single intervention can halt the advance of the epidemic of obesity
- To challenge obesity successfully requires countering the obesogenic environment and addressing vital elements in the life course through coordinated, multisectoral action that is held to account
- Interventions to tackle obesity can be integrated into and build upon existing national plans, policies and programs”
WHO ECHO Commission: Six key areas of action

WHO 2017. ECHO Commission Implementation Plan
WHO ECHO Commission: Six key areas of action

WHO 2017. ECHO Commission Implementation Plan
The preconception and antenatal period
Preconception and antenatal care

• Preconception
  o Aim to prevent maternal obesity prior to being pregnant and also in the inter-pregnancy period → evidence base for interventions still largely in development

• Antenatal period
  o Targeted care of high risk women:
    o pre-pregnancy obesity
    o excessive gestational weight gain
    o gestational diabetes

• Cultural adaptation and co-production
  o Culturally relevant, and co-produced

Hanson M et al. Lancet Diabetes Endocrinol 2017; Harrison VL et al, Midwifery 2017
0-2 year age range
Early childhood

- Encouraging evidence from 4 Australasian trials that started antenatally or in early infancy and targeted healthy infant feeding and lifestyle behaviours.

- Different types of intervention – nurse home visiting, group programs.

- What can we learn from combining individual participant data from these trials at age 18-24 months?

- Total n=2000

Results to date from combining the data

- Interventions starting in the first few months can lead to:
  - Some reduction in BMI at 18-24 months
  - Longer duration breast feeding
  - Reduction in TV viewing time
  - Reduction in some undesirable feeding practices

Askie L et al. Manuscript submitted. Data presented at Eur Congress Obesity and at ANZ Obesity Society
My recommendations for obesity prevention in the 0-2y age range

• A range of strategies to promote breastfeeding, appropriate introduction of solids, and transition to healthy child & family lifestyle

• High risk mothers & children:
  o sustained home visiting

• Most mothers & families:
  o strengthen existing early childhood nurse support
  o mothers’ groups
  o phone coaching/ other e-health support

• Cultural adaptation and co-production
  o Culturally relevant, and co-produced
The preschool age period
The preschool age period

• Early care and education settings
  - Are avenues for general obesity prevention
  - Moderate evidence for interventions to improve obesity-conducive behaviours
  - Comprehensive, multi-component, multi-level interventions, with parental engagement are most effective

• Cultural adaptation and co-production
  - Culturally relevant, and co-produced

Ward DS et al. Prev Med 2017
But let’s think about the world in which young children live
Sectors of influence for childhood obesity prevention

- Parents’ weight status
- Family food preferences and availability of food in the home
- Family preferences for and modelling of active recreation
- Family rules and preferences for screen-based entertainment
- Knowledge, education, skills
- Activity patterns
- Socio-economic factors

- Demographic factors (e.g., gender, ethnicity)
- Gene–environment interactions
- Psycho-social factors

- Government policies
- Industry and retail sector
- Transport
- Agriculture
- Media
- Health care/public health
- Social norms and values

- Schools and education
- Child care
- Parks and green space
- Playgrounds and ovals
- Cycle lanes
- Walking paths
- Local public transport

Mihrshahi, Gow & Baur. MJA 2018.
Most of these sectors of influence lie beyond the capacity of the family or health sector to control.
The world in which young children live

How do we tackle these influences?
Obesity prevention in the first 2000 days

- Specific interventions should be rolled out in:
  - antenatal period
  - 0-2 year period
  - preschool age group

- Must have cultural adaptation

- Must have co-production

- How do we tackle the upstream drivers (outer sectors of influence) that are also at play?
  - Regulation of food marketing
  - Strategies to decrease sugar sweetened beverage consumption
  - Other influences....
Acknowledgements

• The Children’s Hospital at Westmead: Weight Management Services, Instit. of Endocrinology, Obesity Research Group

• Shirley Alexander, Adrian Bauman, Karen Campbell, Ian Caterson, Chris Cowell, Michelle Cretikos, Sarah Garnett, Tim Gill, Seema Mihrshahi, Chris Rissel, Kate Steinbeck, Len Storlien, Melissa Wake, Li Ming Wen, …

• University of Sydney: Prevention Research Collaboration, Boden Institute, Charles Perkins Centre

• NHMRC EPOCH CRE members

• WHO ECHO Commission Working Gp

• World Obesity Federation staff

• NSW Ministry of Health staff

• Funders: NHMRC, ARC, Heart Foundation of Australia, Diabetes Australia Research Trust, Rotary Foundation, SU Medical Foundation, Financial Markets Foundation for Children, NSW Health …

Thank you!

www.earlychildhoodobesity.com