

Childhood obesity: why early and sustained prevention matters



Key points

- Understanding and quantifying the short- and long-term benefits of early childhood obesity interventions can help design strategies to prevent childhood obesity.
- Our project examined the dynamics of childhood obesity and how changes in a child's weight affect their quality of life.
- We found that children who are a healthy weight in early childhood are very likely to maintain a healthy weight into adolescence.
- Children aged under seven with overweight are more likely to return to a healthy weight than older children.
- We developed a model to predict body mass index (BMI) trajectories, quality of life and healthcare cost savings of early childhood obesity interventions. The model is able to accurately predict changing BMI distribution from age 4 to 15 years.
- We found that socioeconomic inequalities in BMI trajectories become apparent in middle childhood (6 to 11 years).
- Early childhood is a key time for investment in primary and secondary prevention to achieve healthy weight, prevent socioeconomic inequalities in obesity, and maximise quality of life.
- Sustained prevention beyond early childhood is needed to reduce overweight at the transition to adulthood.

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Prepared by: Alison Hayes, Anagha Killedar, Vicki Brown and Marj Moodie

Project co-leads: Alison Hayes and Marj Moodie

Why is the issue important?

In Australia, almost one in four children has overweight or obesity by the time they start school. Children with overweight or obesity in early life are more likely to have overweight or obesity in middle childhood and adulthood, increasing their risk of associated health problems such as type 2 diabetes and cardiovascular disease.¹

This means that early childhood obesity prevention has the potential to achieve both short- and long-term health and economic benefits, yet few interventions in early childhood have been subjected to economic evaluation.

A challenge in evaluating obesity prevention interventions in early childhood is to capture the costs and outcomes beyond the life of an intervention. This is difficult because most of the benefits of early obesity prevention will not be realised for some years.

Understanding and quantifying the short- and long-term benefits of early prevention can help design strategies to prevent childhood obesity.

What did we do?

Our project initially focused on learning more about the dynamics of childhood obesity and how changes in a child's weight affect quality of life. Using data from the Longitudinal Study of Australian Children (LSAC),² we examined:

- How demographic characteristics affect the likelihood of boys and girls moving between healthy weight and unhealthy weight during childhood
- The age at which socioeconomic inequalities in weight gain begin
- The relationship between quality of life and child weight status (using individual-level data from the LSAC and through a systematic review).

Using evidence collected in this work, we developed a model (the EPOCH model) to predict BMI trajectories and quality of life, as well as healthcare cost savings, of childhood obesity interventions from early childhood through to adolescence.

We used the EPOCH model to predict the impact of multiple interventions at different ages on rates of overweight and obesity in Australia. We found the model was able to accurately predict changing BMI distribution from age 4 to 15 years. To the best of our knowledge, the EPOCH model is the first model to predict BMI and obesity trajectories over childhood and adolescence. We also developed a version of the EPOCH model that could predict BMI trajectories by socioeconomic position.

What did we find?

Our work to understand the dynamics of childhood obesity in Australia found that:

- Children who are a healthy weight in early childhood are very likely to remain a healthy weight in later childhood and adolescence.
- Children aged under seven with overweight are more likely to return to a healthy weight than older children.
- Even small reductions in BMI in early childhood can result in notable impacts on the prevalence of overweight and obesity by late adolescence.
- Ongoing interventions through early childhood, middle childhood (6 to 11 years) and adolescence have the potential to more than halve the rate of overweight and obesity in late adolescence (from 34% to 15.5%).
- Children and adolescents with overweight or obesity have lower quality of life than children who have a healthy weight.
- The association between overweight and obesity and lower quality of life increases with age, is strongest in adolescence, and the effect is stronger in girls than in boys.
- Children from socioeconomically disadvantaged backgrounds and children from culturally and linguistically diverse backgrounds have a higher risk of becoming overweight and a lower likelihood of resolving their overweight after early childhood.
- Socioeconomic inequalities – faster weight gain in socioeconomically disadvantaged groups – become apparent in middle childhood.

What does it mean for policy and practice?

Early childhood obesity

Early childhood is a key time for investment in primary and secondary prevention to achieve healthy weight, prevent socioeconomic inequalities in obesity and maximise quality of life.

- Early childhood is a key period to ensure that children start school at a healthy weight.
- Interventions to reduce socioeconomic inequalities in obesity are best targeted early in life before inequalities in weight gain start to develop.
- Early intervention has the potential to improve health-related quality of life later in childhood and adolescence.
- A suite of prevention interventions is needed from early childhood to adolescence to reduce overweight and obesity substantially.

The EPOCH model

The EPOCH model (and its socioeconomic version) fills a gap in the literature on the cost-effectiveness of obesity intervention by including costs and benefits specific to the childhood and adolescent years. The model will assist policy makers to identify:

- Future impacts during childhood and adolescence of interventions targeted in early childhood
- The most cost-effective approaches for intervening in this age group
- Which population groups will benefit most from interventions.

What did we produce?

- We developed the EPOCH health economic model, which can be used to conduct cost-effectiveness analyses of obesity prevention interventions.
- We developed an adaptation of the EPOCH model, which can be used to consider the impact of interventions on socioeconomic inequalities.
- 12 peer-reviewed papers, two in submission and 24 conference presentations (international/national).

What are the next steps?

The team has used the EPOCH model to evaluate the cost-effectiveness of two early childhood obesity prevention initiatives and plans to evaluate more in the future. Future research will be able to evaluate the cost-effectiveness of obesity prevention among socioeconomically disadvantaged populations.

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² Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC). growingupinaustralia.gov.au/about-study

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Prevention Research Collaboration
School of Public Health
Level 6, Charles Perkins Centre
University of Sydney, Camperdown NSW 2006