

Building the economic case for preventing obesity in early childhood



Key points

- Early childhood obesity prevention can achieve health and economic benefits, yet few interventions in early childhood have undergone economic evaluation.
- There is a lack of evidence about the cost-effectiveness of obesity interventions over a short 5–10 year timeframe.
- Our research identified the costs and benefits of early childhood obesity prevention and used health economic modelling to provide much-needed cost-effectiveness evidence for policy makers. We found that the immediate health and economic burden of obesity in early childhood is often overlooked.
- The direct healthcare costs of children with obesity aged 2 to 4 years were 60% higher than those of children with a healthy weight.
- We estimated that two early childhood obesity prevention interventions are cost-effective when counting costs and benefits through childhood and adolescence.
- We found that early childhood obesity prevention could deliver substantial and immediate healthcare expenditure savings to the Australian health system.
- The lifetime cost savings and health benefits of early childhood obesity prevention intervention could be substantial if the intervention effect is sustained.
- Our research highlights the need for more investment in obesity prevention interventions in early childhood that are rigorously evaluated to assess both effectiveness and cost-effectiveness.

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Why is the issue important?

In Australia, almost one in four children is affected by overweight or obesity by the time they start school.¹ Children with overweight or obesity early in life are more likely to be affected by obesity as adults, increasing their risk of health problems such as type 2 diabetes and cardiovascular disease,² and resulting in a huge economic burden.

Early childhood obesity prevention can achieve both long- and short-term savings in healthcare expenditure and other economic benefits, yet few interventions in early childhood have undergone economic evaluation.

There is also a lack of evidence about the cost-effectiveness of obesity interventions in the short to medium term (during later childhood and adolescence).

What did we do?

Our research program addressed the need for more evidence about the outcomes and cost-effectiveness of early childhood obesity prevention in five key ways. Our program:

1. Analysed the direct healthcare costs associated with early childhood obesity
2. Developed a method to standardise and retrospectively cost early childhood obesity interventions. We applied that method to five Australasian obesity interventions in children aged 0 to 2 years. The interventions were: Healthy Beginnings; Communicating Healthy Beginnings Advice by Telephone (CHAT); the Infant Feeding Activity and Nutrition Trial (INFANT); NOURISH and the Prevention of Overweight in Infancy (POI) trial. In a separate study, we also analysed the costs of the Romp & Chomp intervention in childcare settings
3. Used the EPOCH health economic model to assess the health benefits and healthcare cost savings of early childhood obesity prevention interventions over the childhood to late adolescence timeframe
4. Assessed the value for money (cost-effectiveness) of two early childhood obesity prevention interventions
5. Estimated the health benefits and healthcare cost savings of early childhood obesity prevention over the lifetime.

What did we find?

Direct healthcare costs of early childhood obesity

We found the direct healthcare costs of children with obesity aged 2 to 4 years were 60% higher than those of children with a healthy weight.

Evaluation of early childhood obesity preventions

Of the early childhood obesity interventions evaluated, we found that:

- The mode of intervention delivery and the setting are likely to play a key role in determining total intervention cost, with the time costs of content delivery being a significant driver.
- Telephone-delivered interventions reduce the costs of travel but may have unexpected time costs to deliver the intervention (i.e. making repeat telephone calls to reach participants).

Modelling health benefits and healthcare cost savings of early childhood obesity interventions

- Health benefits and healthcare cost savings that accrue within the child to adolescent timeframe may be relatively modest at the individual child level, but over a population may be significant.
- In the absence of cost-effectiveness data, we found the likely cost of an intervention may be a useful metric for decision-makers to consider when allocating society's scarce resources.

Assessing the cost-effectiveness of interventions

Our evaluation of the cost-effectiveness of two early childhood obesity prevention interventions found that:

- A sleep intervention conducted within the POI trial was a low cost and cost-effective approach to reducing childhood obesity. The intervention cost \$184 per child and had a high probability of being cost-effective.
- Romp & Chomp, a successful intervention in childcare settings, was cost-effective in reducing overweight and obesity prevalence in children aged under 5 years.

The evaluation of these two interventions does not provide enough information to inform a comprehensive strategy for resource allocation to early childhood obesity prevention.

Before this research program, we knew that few interventions in early childhood had been economically evaluated. On further investigation, we found few trials that showed a statistically significant effect on body mass index in this age group. Of the trials that did, hardly any also collected and reported intervention resource use, despite recommendations that this information should be routinely reported.

Costs and benefits of early childhood obesity preventions

The lifetime cost savings and health benefits of early childhood obesity prevention intervention could be substantial if the intervention effect is sustained. This demonstrates the need for a life-course approach to obesity prevention intervention, starting very early in life.

What does it mean for policy and practice?

Our research program has implications for funding, evaluating and planning cost-effective early childhood obesity prevention interventions.

Besides the long-term health impacts, we found that the immediate health and economic burden of obesity in early childhood is often overlooked. Early prevention of childhood obesity offers the potential to deliver significant and immediate healthcare expenditure savings to the Australian health system.

Our research highlights the need for more investment in obesity prevention interventions in early childhood that are rigorously evaluated to assess both effectiveness and cost-effectiveness.

Our assessment of early childhood interventions has implications for policy makers and health promotion researchers, including:

- Costs should be considered when the intervention is being designed.
- The incorporation of a sleep modification component should be considered in future early childhood obesity prevention interventions.
- Romp & Chomp should be integrated as part of healthy eating and physical activity policies in childcare settings.

What did we produce?

- 12 peer-reviewed papers, two in submission and 24 conference presentations (international/national).

What are the next steps?

Our research program has highlighted the need for:

- Interventions that are funded for evaluation across extended timeframes
- More exploration of the value of other outcomes of early childhood obesity prevention interventions, such as changes in physical activity and diet
- More exploration of the cost-effectiveness of early childhood obesity prevention interventions in vulnerable populations
- Encouragement of researchers and stakeholders to include economic evaluation in studies, or at least to estimate the cost of delivery of their interventions.

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² Singh AS, Mulder C, Twisk JW, et al. Tracking of childhood overweight into adulthood: a systematic review of the literature. *Obesity Reviews*. 2008;9(5):474-88. PMID: 18331423

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