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ORIGINAL ARTICLE

# School-based obesity prevention interventions: Practicalities and considerations



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Received 13 November 2012; received in revised form 27 September 2013; accepted 12 October 2013

## KEYWORDS

School-based;  
Obesity;  
Overweight;  
Prevention;  
Interventions

**Summary** Pediatric obesity continues to be a major public health concern. Once established it is difficult to treat, therefore well-designed and evaluated prevention interventions are vitally important. Schools have an important role in the prevention of childhood obesity, however, their involvement can be limited by a number of constraints and barriers, which need to be considered when designing interventions. Members of the Prevention Stream of the Australasian Child and Adolescent Obesity Research Network have extensive experience in implementing and evaluating school-based obesity prevention initiatives. Based on their collective experience and evidence from implementation research, the aim of this paper was to highlight six areas to consider when designing, implementing and evaluating obesity prevention initiatives in schools. Further, this paper aimed to provide guidance

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for overcoming some of the challenges and barriers faced in school-based obesity prevention research. The six key areas discussed include: design and analysis; school–community engagement; planning and recruitment; evaluation; implementation; and feedback and sustainability.

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## Introduction

Childhood obesity prevention is a global public health priority. An extensive body of evidence highlights the deleterious effects of obesity on both short- and long-term physiological and psychological well-being [1]. Internationally, child obesity rates have been increasing over the last 20–30 years, although recent evidence suggests rates are plateauing in some countries [2] whilst continuing to rise in others. As obesity is difficult to reverse [3] and has been shown to track throughout life [4] early intervention is warranted. A recent systematic review of 55 interventions for preventing obesity in children and adolescents found some beneficial effects on body mass index, with an effect size that provides confidence of the effectiveness of prevention strategies and the possibility of making a long term impact on weight status [5]. Within the review the strongest and largest body of evidence comes from research targeting children aged 6–12 years (39 of the 55 studies) with 32 of those, i.e. the majority of successful studies, conducted in education settings [5].

Education settings (i.e. preschools, primary and secondary schools; referred to as schools from here on in) represent a popular setting for interventions as most children attend them and many (but not all) have the existing infrastructure to support the implementation of interventions. Furthermore, schools generally have the necessary personnel, curriculum and facilities to promote physical activity and healthy eating [6] and teachers are generally supportive of approaches to improve the health behaviours of children [7]. Recent reviews analyzing school-based interventions [8–11] have reported the effectiveness of interventions conducted in this setting. As most of the studies are short-term, the recommendations are inevitably for short-term effectiveness. However, many challenges of school-based study designs have been identified, including issues associated with study design (e.g. cluster randomization; statistical power), evaluation (short-term follow-up; lack of process, economic or equity measures), and intervention implementation (failure to consider sustainability and generalizability) [9,11]. Therefore, the aim of this paper was twofold: (i) to make

recommendations regarding the design, implementation and evaluation of school-based interventions; and (ii) to provide insights to researchers for overcoming some of the key practical challenges faced when undertaking these activities.

## Recent Australian school-based trials to prevent obesity

The Prevention Stream of the Australasian Child and Adolescent Obesity Research Network (ACAORN) has collectively implemented and evaluated more than 30 school-based obesity prevention interventions across Australia. These studies have been diverse in design, sample size, theoretical framework, intervention components, implementation strategies, duration, system level interactions, and outcome measures. To highlight some of the key recommendations and practical challenges associated with school-based obesity prevention interventions, examples from six trials from ACAORN researchers are discussed. These trials include: (1) *fun 'n healthy in Moreland!* [12]; (2) *Stephanie Alexander Kitchen Garden Program* [13]; (3) *Good for Kids, Good for Life* [14]; (4) *Nutrition and Enjoyable Activity for Teen Girls (NEAT Girls)* [15]; (5) *Physical Activity in Linguistically and Diverse Communities (PALDC)* [16]; and (6) *Physical Activity in Early Childhood* [17]. Table 1 details the aims, outcomes, intervention components and results of these studies. These six studies were intentionally chosen to highlight a number of key practicalities and considerations for school-based interventions: they were not necessarily chosen based on their effectiveness.

## Six areas of consideration when designing, implementing and evaluating obesity prevention initiatives in schools

### Design and analysis

The overall design, including randomisation (if implementing a group randomised controlled trial), selection of outcome measures and theoretical

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