Policy context

High rates of obesity and related chronic conditions are reported in Australia and globally, especially in children. A large part of this is due to poor nutrition including excess high calorie and processed food which is poor in micronutrients. Poor families, especially in rural and remote areas, have reduced access to affordable high quality food. Family- and school-based interventions to improve nutrition habits of children, and therefore help prevent obesity and chronic disease, should be based on evidence for effectiveness in both the short term and long term.

Despite increased interest in food and cooking, high levels of sub-optimal dietary behaviour have been documented in many countries. Nutrition surveys report low levels of fruit and vegetable (F&V) intake, inadequate intake of important nutrients and high intake of energy-dense nutrient poor (EDNP) foods in all age-groups. Less healthy dietary behaviour is an important factor underlying the high prevalence of chronic non-communicable diseases, including cardiovascular disease and diabetes mellitus, and increasing obesity rates. The early signs of these chronic diseases and risk factors are increasingly being documented in health literature relating to children and adolescents. These emphasise the importance of promoting and supporting the development of healthy eating habits from an early age.

In this context, a key challenge is how to support and engage families to make sustainable changes to healthier eating, despite the challenges posed within contemporary society. Preschool and childcare are increasingly central in family life, in addition to the importance of schools. Given the ready access to children, these settings have been widely used in programs which aim to improve the dietary intake of young children. These nutrition programs have included the reintroduction and expansion of school meal programs, healthy lifestyle promotion programs, economic incentives, enhancement of school canteens and restrictions on the availability of less healthy foods within schools. Recent reviews have found that school-based nutrition programs are moderately effective at improving diet quality, reducing adiposity and improving fruit intake in the short-term.

Policy options examined in this review

We undertook a systematic review of the literature looking at institutional and family-based nutrition programs aimed at children up to 12 years old, published from 1980 to 2016. Only randomised trials were included. The primary outcomes were dietary intake and health status. Results were presented in a narrative synthesis due to the heterogeneity of the interventions and outcomes.

School-based programs were the most reported in this review. 82% of these studies were set in school/preschools. Only one school study assessed the impact of involving parents systematically. The family-based programs which provided simple positive dietary advice to parents and regular
follow-up reduced fat intake significantly. School and family-based studies, if designed and implemented well, increased fruit and vegetable intake, particularly fruit. Effective school-based programs have incorporated role-models including peers, teachers and heroic figures, rewards and increased access to healthy foods. School nutrition programs in disadvantaged communities were as effective as programs in other communities. The programs did not directly measure intake of sugars.

The majority of the 39 trials included in this review were in schools or preschools with only eight undertaken in family settings. There were substantial (and statistically significant) improvements in dietary intake in 31% of outcomes assessed. The positive impacts were found in increased F&V intake and reduced fat intake. Although there were effective family-based and institutional nutrition programs, there is insufficient evidence to determine the impact of involving parents in preschool/school nutrition programs. The findings do strongly support the importance of social context to healthy eating. The two studies (both directed at parents) which reported a large decrease in fat intake indicate that the promotion of simple dietary information which is well understood and engages parents is effective and enables them to have a major impact on their children’s dietary intake. Similarly, school nutrition programs can improve the intake of healthy foods, particularly fruit.

Based on successful outcomes observed in this review, the most effective programmes included the use of innovative strategies to engage and motivate the children including rewards, cartoon characters promoting healthy foods, modelling by teachers and the use of older peer educators. A theoretical framework, particularly the use of social cognitive theory or social learning theory, also appeared to support positive impacts of these programs. None of these features alone were sufficient to achieve positive outcomes; rather, the evidence from this review supports that the effective implementation of an innovative and well-designed intervention is more likely to improve dietary intake.

Other policy options include

Cross-subsidy for healthy foods has been proposed. Optimisation modelling in remote Aboriginal communities based on consumer purchasing behavior and income ceilings suggests that national healthy nutrition targets are not achievable at less than current food expenditure. That is, improved healthy food intake in these communities would require either higher incomes or much-reduced prices for healthy food.

Regulation of marketing of junk food to children has been modelled elsewhere; however, it has not been systematically taken up by Governments so has not been evaluated.

Taxes on junk food, sugar tax have been adopted in some countries. A 10% soda tax has been in place in Mexico since 2014, resulting in reduced sales of sugar-sweetened drinks and increased sales of bottled water. Other smaller jurisdictions in the USA have implemented these taxes. Modelling suggests that obesity levels generally would decrease in line with reduced consumption of these drinks.

Key findings

> Family and school nutrition programs can improve dietary intake in the short term; however, evidence of the long-term sustainability of these impacts is limited.

> From a population perspective, the sustainability of nutrition programs must also be weighed against the opportunity cost implicit in funding such an ongoing program. Overall, these programs have only a modest impact on dietary intake, and alone are unlikely to mitigate the
many changes within contemporary society which have undermined healthy dietary intake and lifestyles. Other strategies which help to create an environment which supports people’s health and nutrition, including restricting junk food advertising or enhancing the availability of healthier food choices, need to be compared with the impact of both school and family nutrition programs. Considered assessment of these strategies, including economic analysis, will help to develop a range of effective programs that together can support healthy eating in the population.

> The potential to improve dietary intake is relevant to most of the population. This review found that school and community nutrition programs undertaken in disadvantaged communities were as effective as interventions in other settings and thus should impact dietary intake sufficiently to improve health outcomes in these populations. However, there was limited reporting of results by socio-economic status (SES) in the larger school studies, unless it was relevant to the rationale for the intervention, such as school meal programs. It was also observed that family-based programs recruited predominantly families with above average SES, unless undertaken explicitly targeting a disadvantaged community. Thus, the evidence suggests that child nutrition programs are beneficial in all children irrespective of SES, although it is important to consider strategies to maximise disadvantaged families’ participation in effective family-based nutrition programs.

> The modest overall impact of even these successful programs suggest complementary nutrition interventions are needed to build a supportive environment for healthy eating generally. These might include improving the supply, affordability and marketing of healthy foods.