

## Invited Commentary

# Pragmatic implementation studies to improve nutrition practices and policies: childcare during the first 1000 days as a contributor to long-term health

The ‘first 1000 days’ (1000 d) refers to the period from conception to 2 years of age. Since the term was coined over 6 years ago, this movement has gained momentum resulting in organisations across the globe developing initiatives and driving a research agenda specific to this critical time period<sup>(1–3)</sup>. Increasing evidence suggests that the health status of children during the first 1000 d of life directly impacts the trajectory of children’s lives and influences long-term health outcomes, with nutrition playing a major role<sup>(4)</sup>. Optimal nutrition to support full growth potential and development during the first 1000 d has been linked not only to reduced risk of chronic diseases later in life, for example obesity, diabetes and heart disease<sup>(4–6)</sup>, but also to improved developmental outcomes regarding educational achievement, earning potential and human capital<sup>(7,8)</sup>. It is also well documented that both undernutrition and overweight/obesity are major health conditions worldwide<sup>(9,10)</sup>. Many developing countries are experiencing what the WHO describes as the ‘double burden’ of disease: ‘It is not uncommon to find under-nutrition and obesity co-existing within the same country, the same community and the same household<sup>(10)</sup>. The ability, therefore, of targeted nutrition strategies to positively influence and change not only individual-level, but also systems-level practices and policies in early childhood is significant.

Across the world, more time, effort and resources need to be invested into nutrition solutions targeting the first 1000 d, with emphasis on pragmatic implementation studies focused on how to best translate evidence-based research into changes in practice and policy. We need to improve our understanding of what works best for who, when and why; how this best works; and how to support both children and their families to improve their nutrition practices. When focusing specifically on childhood overweight and obesity as an example, there is clear evidence favouring lifestyle interventions and supportive environments from both a prevention and treatment perspective<sup>(11–13)</sup>. However, there is less understanding of what influences and contributes to successful implementation of programmes and initiatives, and how these change clinical practice and policy. These challenges are reflected in the 2016 WHO Report of the Commission on Ending Childhood Obesity, which acknowledged that

‘progress in tackling childhood obesity has been slow and inconsistent<sup>(14)</sup>. The report details a comprehensive approach to the prevention and management of childhood overweight and obesity, of which key elements include systematic changes in policy, communication and education, and capacity building. Given that childhood overweight and obesity is a complex problem that requires linked, scalable solutions at many different levels<sup>(15)</sup>, there should not be a not a ‘one size fits all’ approach and further evidence considering context-specific factors combined with an understanding of the variables most salient to implementation is required.

The paper by Hollar *et al.* published in this issue of *Public Health Nutrition* is an encouraging example of how a coordinated, well-planned pragmatic study can lead to positive outcomes from a policy and practice perspective in early childcare centres in Broward County, Florida, USA<sup>(16)</sup>. The authors implemented a multicomponent intervention and train-the-trainer programme to provide both training and technical assistance, and thereby to improve the nutrition context, policies and practices at the centres. They targeted vulnerable groups in society (children from low-income families who were ethnically diverse) and partnered directly with the staff within the centres, working together on a ‘bottom up’ approach. Focused training, practical resources and expert support all contributed to improved nutrition environments in the centres<sup>(16)</sup>. The initiative demonstrates significant capacity building by identifying enablers for change within the early childcare system and leveraging current resources.

Childcare settings are both opportunistic and ideal to drive the promotion of healthy behaviours, as they can contribute to both prevention of and early intervention on childhood overweight and obesity in the light of the importance of the first 1000 d<sup>(17,18)</sup>. In many countries globally, including Australia and the USA, national, evidence-based policies and standards guide practice within these settings in terms of the nutrition environment<sup>(19,20)</sup>. These standards vary in their mandatory compliance requirements by national accrediting bodies. Nevertheless, childcare centres provide the best opportunity to reach many children, regardless of ethnicity and socio-economic status or family skill, and thus these environments should be targeted for nutrition

interventions. This is particularly important to consider when focusing on emerging economies, where obesity prevention and management is generally not a high-priority health issue. In many countries in South Asia, Africa and the Middle East, rates of childhood malnutrition or undernutrition are still extremely high<sup>(21)</sup>. Poor nutrition in the first 1000 d can not only increase the risk of overweight and obesity, but can also lead to stunted growth in children<sup>(21)</sup>. For example, in West and Central Africa in 2016, 33.5% of children under 5 years of age were stunted<sup>(21)</sup>. Childcare settings in these countries are also an important avenue that provides an opportunity for education, behaviour change and nutrition interventions to promote optimal growth and development. One example of this is a study by Amugsi *et al.* who examined 1187 mother–young child dyads in urban and rural Ghana<sup>(22)</sup>. The authors showed that improved childcare practices (including the diversity of foods eaten and feeding practices such as the frequency of solids/semi-solids and breast-feeding status) had a positive impact on infants' and young children's growth in terms of height-for-age Z-score, independent of other maternal and household factors<sup>(22)</sup>.

Hollar *et al.* have shown the value of investing in early childcare nutrition education and engaging professionals within this context, as well as the opportunity these settings present in providing care to children within the first 1000 d, consequently supporting childhood overweight and obesity prevention and early intervention agendas<sup>(16)</sup>. In our recent experiences of overweight and obesity management for children of all ages, we identified that children are being referred to specialist services too late – they are already morbidly obese and experiencing detrimental impacts due to their size<sup>(23)</sup>. While changes can be made, early intervention is more clinically effective and considered more economically viable<sup>(24,25)</sup>. Improving the nutrition practices and policies of early childcare settings across the world (including enhanced coordination and mandating aspects of this agenda) could impact the lives of many children and families, initiating early influences in childhood undernutrition, overweight and obesity prevalence. This would be a substantial outcome, considering that while the burden of undernutrition is diminishing, no country has yet been successful in reducing its childhood overweight and obesity prevalence<sup>(13,14)</sup>. A change of focus and coordinated effort are required from the research community to advance the body of evidence regarding the successful implementation, dissemination, uptake and sustainability of linked, scalable strategies to enhance nutrition behaviours, practices, policies and contexts from a systems perspective. Nutrition researchers need to partner with end users, whether that be clinicians, educators or families, to co-design and develop these strategies, with the view of supporting the undeniable importance of the first 1000 d and ultimately influencing the prevalence of childhood undernutrition, overweight and obesity.

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