

Supplementary file 1: Application of a theoretical framework: Behaviour Change Wheel

The “SWAP It Childcare” intervention content was developed using the Behaviour Change Wheel (BCW).¹ Based on a similar process described by behavioural researchers for designing an intervention to change diet behaviours using the BCW,² a three-step approach was used to apply the framework.

Step one included the identification of the target behaviour (ie to pack less discretionary foods in lunchboxes) and formative work to assess barriers and facilitators to packing healthy foods in children’s lunchboxes through literature reviews and semi-structured interviews with a convenience sample of parents (n= 28). A behavioural analysis, involving mapping of barriers to the COM B components of the BCW was undertaken with the purpose of ensuring the behavioural diagnosis was comprehensive.

Step two involved identifying intervention options using the BCW. The intervention functions (the means by which an intervention may change behaviour) of education, persuasion, and modelling were identified using the COM B/ intervention function matrix and the APEASE (Acceptability, Practicability, Effectiveness/ cost-effectiveness, Affordability, Safety/ side effects, Equity) criteria.² Policy categories were then considered to determine the delivery method of the intervention functions. The pre-determined mode of delivery (use of an app to deliver the intervention), fitted the category of “service provision” and was our only identified policy category.

Step three involved identifying the content and delivery options for the intervention. Behaviour change techniques most likely to bring about the desired change were mapped to the identified barriers (with reference to their COM B classifications) using the Behaviour Change Technique taxonomy.³ A summary of the identified barriers, their COM B classification and the selected behaviour change techniques can be found in table 1. The resulting intervention consists of three key components which address nine identified barriers incorporating eight behaviour change techniques (See table 1 in main text).

¹. Michie S, van Stralen MM, and West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci* 2011;6:42.

². Atkins L and Michie S. Conference on ‘Changing dietary behaviour: physiology through to practice’. Symposium 4: Changing diet and behaviour – putting theory into practice. *Proceedings of the Nutrition Society* 2015;74:164-170.

³. Michie S, Wood CE, Johnston M, et al. Behaviour change techniques: the development and evaluation of a taxonomic method for reporting and describing behaviour change interventions (a suite of five studies involving consensus methods, randomised controlled trials and analysis of qualitative data). *Health Technol Assess* 2015;19(99):1-188.