

## Exploring updates to the Lives Saved Tool for maternal and child nutrition outcomes

This is a summary of the following paper: Tong H, Piwoz E, Ruel M et al (2022) *Maternal and child nutrition in the Lives Saved Tool: Results of a recent update*. *Journal of Global Health*, 12. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9801341/>

The Lives Saved Tool (LiST) is a mathematical modelling tool that calculates changes in cause-specific mortality based on intervention coverage change, intervention effectiveness for that cause, and the percentage of cause-specific mortality sensitive to that intervention. LiST assumes that changes in coverage for health and nutrition interventions drive health outcomes. The model relies on determining base year coverage levels of an evidenced nutrition and health intervention, along with risk factors, health status and other pertinent factors for women and children in low- and middle-income countries. The countries are defined by the World Bank and data are compiled from a comprehensive list of high-quality data sources, with most evidence taken from systematic reviews.

LiST is useful as intervention effectiveness estimates focus on low-income countries, so findings are not extrapolated from high-income settings to those with more complex development profiles – a common issue in global health. The model is also reproducible and transparent, as inputs are collaboratively reviewed and modified as needed. LiST can also be applied across a broad array of settings, as activities and many inputs are user-defined.

The approach is limited in humanitarian settings, where data collection and routine monitoring, which LiST relies upon, are often limited. Protracted crises are also difficult to model, as such stable crises may not align with LiST assumptions. It is important to update the model by adding novel interventions when new evidence emerges on efficacy, as well as updating existing estimates for proven interventions. For nutrition modelling, the ‘affected fraction’ – the population benefiting from an intervention (defined as those with a nutrient deficiency or, as a proxy indicator, those residing in an area known to have poor dietary diversity or food insecurity)<sup>1</sup> – also requires regular attention to ensure model accuracy.

This study reviewed evidence from systematic reviews on 53 nutrition-related intervention-outcome (I-O) pairs for women and children under the age of five. An example of an intervention-outcome pairing is zinc supplementation in children under the age of five, which is paired with the outcomes of stunting, diarrhoea and pneumonia incidence. An external advisory group decided whether there was sufficient evidence of benefit for particular I-O pairs and how these could best be incorporated into LiST. Of the 53 pairs, 34 were incorporated into the updated model (an increase from 25 prior to review) and included 14 interventions (six for women of reproductive age and pregnant women, and eight for infants and children) and 16 nutrition, disease incidence and cause-specific mortality outcomes. The new set includes nine new I-O pairs, 13 existing links with updated efficacy and/or affected fractions, and 12 existing links with no changes to efficacy or affected fractions. The authors reaffirm the need for continuous updates to LiST in order for it to remain a useful tool for global health application.

<sup>1</sup> As many nutrition intervention trials do not screen for deficiency, it is assumed that most of the population (‘affected fraction’) will benefit from a given nutrition-sensitive intervention in areas with high poverty, poor dietary diversity or food insecurity. These socioeconomic measures are therefore often used in place of biomarkers, as they are more practical.

## Small-Quantity Lipid-Based Nutrient Supplements for severe malnutrition

This is a summary of the following programming guidance: UNICEF (2023) *Small Supplements for the Prevention of Malnutrition in Early Childhood: Brief Guidance Note*.

<https://www.unicef.org/documents/nutrition/SQLNS-Guidance>

Recently, there has been a renewed focus on the use of Small-Quantity Lipid-Based Nutrient Supplements (SQ-LNS) (Box 1), due to the increasing body of evidence regarding their effectiveness and the inclusion of SQ-LNS in the Lancet 2021 series on Maternal and Child Undernutrition updated list of recommended interventions. In response, UNICEF have produced programming guidance to support the appropriate use of the intervention.

Evidence shows SQ-LNS can reduce the prevalence of stunting by 12% to 14%, severe stunting by 17% and the prevalence of severe wasting by around one-third in children aged 6–24 months, with greater effects observed in areas with greater burdens of wasting or stunting, or with poorer water quality or sanitation (Dewey et al, 2022). SQ-LNS can also lower the prevalence of micronutrient deficiencies (Wessells

et al, 2021) and may support child development equivalent to one to five IQ points (Prado et al, 2021). Initial evidence supports the cost effectiveness of SQ-LNS (Adams et al, 2022).

UNICEF’s guidance document highlights that SQ-LNS should be used as part of an integrated approach targeting younger child in contexts that are food-insecure and with high burdens of undernutrition (wasting, stunting and micronutrient deficiencies). The provision of SQ-LNS should be part of a larger effort to promote growth and improve the diets of infants and young children. A table of criteria and justifications is provided to guide decision-making around the use of SQ-LNS in any given context, and considerations for their integration within existing preventive interventions are outlined.

<sup>1</sup> <https://www.thelancet.com/series/maternal-child-undernutrition-progress>

### Box 1 What are SQ-LNS?

Yet another acronym in the humanitarian lexicon, SQ-LNS are nutrition supplements incorporated into a small amount of food paste (around 20 g per sachet). SQ-LNS provide 24 micronutrients and macronutrients and are designed to be used as a form of home fortification, comparable in scope to multiple micronutrient powders. They can be mixed with complementary foods or eaten as they are straight from the sachet, as they do not need mixing with water. SQ-LNS have been shown to be highly acceptable to children and their caregivers, and high compliance rates have been observed. They are designed to be part of a toolkit to prevent undernutrition and micronutrient deficiencies in early childhood in contexts of significant nutrient gaps and where micronutrient deficiencies are common.

### References

- Dewey K, Arnold C, Wessells K et al (2022) Preventive small-quantity lipid-based nutrient supplements reduce severe wasting and severe stunting among young children: an individual participant data meta-analysis of randomized controlled trials. *American Journal of Clinical Nutrition*, 116, 5. <https://pubmed.ncbi.nlm.nih.gov/36045000/>
- Wessells K, Arnold C, Stewart C et al (2021) Characteristics that modify the effect of small quantity lipid based nutrient supplementation on child anaemia and micronutrient status: An individual participant data meta analysis of randomized controlled trials. *American Journal of Clinical Nutrition*, 114, 685–945.
- Prado E, Arnold C, Wessells, K et al (2021) Small quantity lipid based nutrient supplements for children age 6–24 months: A systematic review and individual participant data meta analysis of effects on developmental outcomes and effect modifiers. *American Journal of Clinical Nutrition*, 114, 435–675.
- Adams KP, Vosti SA, Arnold C et al (2022) The cost effectiveness of small quantity lipid based nutrient supplements for prevention of child death and malnutrition and promotion of healthy development: Modeling results for Uganda. *MedRxiv*. <https://www.medrxiv.org/content/10.1101/2022.05.27.22275713v1>