

Child wasting and stunting: Time to overcome the separation

A Briefing Note for policy makers and programme implementers

June 2018

by the Wasting-Stunting Technical Interest Group (WaSt TIG)

The problem

In recent decades, the nutrition community has separated child wasting and stunting along the humanitarian/development divide. This has resulted in different policies, programmes, research and funding for these two manifestations of child undernutrition. For example, programmes for treating children who are wasted (thinner than they should be¹) are funded and managed separately from those focused on preventing children from becoming stunted (shorter than they should be²).

The ENN-coordinated Wasting-Stunting (WaSt) Technical Interest Group (TIG) has found compelling scientific grounds for concluding that the current separation is not justified and may even be detrimental (1). Greater programming efficiency and effectiveness can be realised if both forms of undernutrition are jointly tackled. This will require a radical change in how we view, finance and intervene to reduce child wasting and stunting (figure 1).

Wasting and stunting share common risk factors

A significant proportion (20-30%) of wasting and stunting originates in utero, which highlights the importance of maternal nutrition before and during pregnancy for the prevention of wasting and stunting³. This also highlights the importance of considering both forms of malnutrition and how to best address them right from birth.

It is also important to note, that the process underlying wasting and stunting involves multiple risk factors and interactions which can change over time for example, involving poor diet and feeding practices, as well as episodes of infectious disease and environmental contamination. Evidence indicates that most risk factors for a child becoming wasted or stunted during infancy and childhood, are the same (2), but they may vary in combination and magnitude, leading to diverging trends in different contexts. For example, in Nepal substantial reductions in levels of child stunting between 2001 and 2011 were not matched by reductions in wasting (3).

In general, therefore, there are both similar risk factors and similar windows of opportunity during the lifecycle, i.e. from preconception through early infancy and childhood, through which to intervene to reduce child wasting and stunting.

Wasting and stunting are both important in all contexts

Although the focus in humanitarian contexts is primarily on wasting, leaving stunting mainly in the domain of development actors, wasting and stunting are in fact usually present in both contexts (4, 5). It is well known that a large number of wasted children live in stable contexts and it is encouraging that policies and programmes for the treatment of wasting wherever it exists have received increased attention over the last ten years. However, in fragile and conflict-affected states, the focus continues to be mainly on wasting. This is concerning, given recent ENN estimates that roughly 45% of the global burden of stunted children live in these unstable contexts (6). There is therefore little justification for the humanitarian/development divide between wasting and stunting in policy and funding. Both need to be tackled where they exist, irrespective of context.

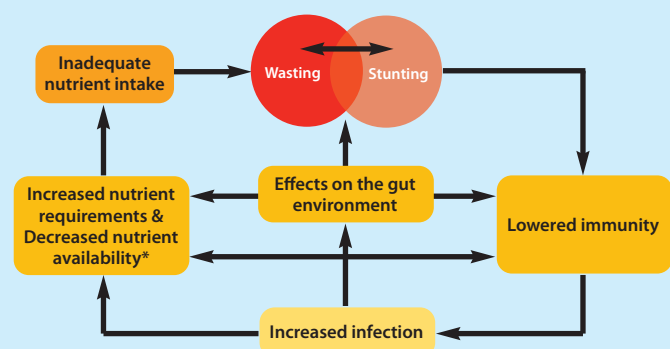
Wasting and stunting impact on each other

There is mounting evidence that a wasted child is more likely to become stunted and a stunted child is more likely to become wasted. We find that periods of being wasted, or having fluctuating weight, increase the risk of becoming stunted later (7, 8). Other research also indicates that during a period of being treated for severe wasting, a child's growth in height slows down until their weight has recovered (1). These findings strongly indicate that the body adjusts to inadequate weight gain by slowing height growth (9); this is important as it underlines the role that preventing and treating wasting may play in promoting height growth in children.

Wasting and stunting share common consequences

The risk of death increases as a child becomes more wasted and the same is true of stunting (albeit with a lower level of risk). Severe wasting is usually highlighted as carrying the highest risk of death (~12 times more likely to die than a non-wasted or stunted child). However, severe stunting also carries a high risk of death (five times more likely to die than a non-wasted or stunted child). That said, greater attention is given to the impact of stunting on brain development and economic losses in the stunting-prevention discourse. Less well known, and highlighted by our research, is the fact that children who are wasted and stunted at the same time (concurrently) have a multiplicative increased mortality risk (10, 11). Being concurrently wasted and stunted³ amplifies the risk of death to levels comparable to children with the most severe form of wasting who are routinely treated with therapeutic protocols. This finding highlights the limitations of traditional categories for the targeting of treatment based on the degree of wasting alone.

FIGURE 1 Wasting, stunting and the cycle of infection



*Due to malabsorption, altered metabolism, anorexia, nutrient losses and requirements to fight infection

Adapted from: Watson, JL & Berkley, JA. The impact of malnutrition on childhood infections. Current Opinion in Infectious Diseases: June 2018 - Volume 31 - Issue 3 - p 231-236

¹ A child with wasting is defined as one whose weight for their height is <-2 standard deviations below international growth standards. Severe wasting is below <-3 standard deviations.

² A child with stunting is defined as one whose height for their age is <-2 standard deviations below international growth standards. Severe stunting is below <-3 standard deviations.

³ Weight-for-height <-2 standard deviations AND height-for age <-2 standard deviations below international growth standards.

Large numbers of children are concurrently wasted and stunted

Our analysis shows that a significant proportion of children under five years of age are concurrently wasted and stunted; up to 8% at country level, with far higher proportions (up to 12%) recorded sub-nationally. An estimate of the burden in 84 countries is that six million children aged 6-59 months are concurrently wasted and stunted, but no global estimate has yet been calculated (12).

Given the high mortality risk associated with concurrent wasting and stunting, it is imperative that we find ways to reach and support these children within our current modes of intervention; however little is known about the extent to which they are already being reached. The WaSt TIG has found that two commonly used anthropometric measures at health facility and community level – weight-for age and mid-upper arm circumference – can identify most of these high-risk children (10), but urgent work is needed to define the type of support needed to bring them out of the high-risk category.

Boys are more vulnerable to both wasting and stunting

Boys – particularly younger boys – are consistently more vulnerable to both wasting and stunting and to concurrent wasting and stunting than girls. This was a surprising finding of the WaSt TIG research, but one which subsequently has been highlighted elsewhere (13). There is very little technical understanding of this disparity and further analytical work is needed.

There are seasonal patterns in wasting and stunting which are related

It is well known that there are periods of the agricultural year in many low-income countries when food is scarcer and the disease burden is higher (often referred to as the 'wet' or 'lean' season) and that child undernutrition increases during these times. Our analysis (from Gambia data) clearly shows that levels of wasting peak first, followed two to three months later by a peak in stunting. This mirrors our other individual-level findings that stunting may be a deleterious adaptation to prior episodes of wasting (8).

We have also found that infants who were wasted in the first wet season of their life had a 3.2 times higher risk of being wasted in their second wet season, even if they had recovered during the intervening dry season (ibid). This is also important because it tells us that a wasted child is more vulnerable to repeated bouts of wasting, though we do not yet fully understand the reasons.

Finally, from the same analysis, we found that infants born at the start of the wet season did not catch up in weight during the first three months of life to the same extent as their peers born in other months. These infants

experience more wasting during childhood and an increased risk of becoming stunted by two years of age. The factors behind this are not yet known, but may include seasonal effects on maternal nutritional status and on infant feeding practices.

Implications

1. We need to accelerate efforts to reduce wasting and stunting in all contexts where they are prevalent. This requires overcoming barriers which limit the focus in humanitarian response to the treatment of wasting and the prevention of stunting as the main focus of development efforts.
2. Because wasting and stunting share many of the same risk factors, we need greater integration of preventative activities and need to monitor and evaluate programme impacts on both manifestations of undernutrition and their crossover (concurrence).
3. The current low level of global coverage for the treatment of wasting is likely to be limiting the height growth of millions of infants and children by prolonging the period over which their growth slows down or halts completely; therefore scale-up of efficacious treatment should be a priority – not just for mortality reduction but for stunting reduction as well.
4. Traditional categories for targeting therapeutic and supplementary programmes need to be challenged, based on a better understanding of mortality risk. Infants and children who are at most risk (including the concurrently wasted and stunted) should be prioritised for intervention. These children can be identified with existing methods; however more work is needed on the optimal ways to detect and treat them and on the resource and programme implications.
5. In view of the influence of season on wasting and stunting, timely interventions to prevent peaks are needed. Linking up services, whether social protection, health, nutrition or WASH, will better enable the multiple risk factors driving seasonal peaks in child undernutrition to be addressed simultaneously.
6. Given that maternal health and nutrition influence both weight and length at birth and subsequent child growth, we need to expand support to women not only for improved infant and child nutrition, but also to confer health and nutrition benefits directly on mothers.
7. In most contexts, boys are more wasted and stunted than girls. The reasons for this are unknown, but at a policy level this widespread finding indicates that common narratives around gender and heightened vulnerability of girls to malnutrition need to be revised.

For more information on the work of the WaSt TIG please contact Tanya Khara (tanya@ennonline.net) or Carmel Dolan (carmel@ennonline.net)

References

1. Khara T, Dolan C. The relationship between wasting and stunting, policy, programming and research implications. Technical Briefing paper. Oxford, UK: Emergency Nutrition Network, 2014.
2. Martorell R, Young MF. Patterns of stunting and wasting: potential explanatory factors. *Adv Nutr.* 2012;3(2):227-33. doi: 10.3945/an.111.001107. PubMed PMID: 22516733; PubMed Central PMCID: PMC3648726.
3. Cunningham K, Headey D, Singh A, Karmacharya C, Pandey Rana P. Maternal and child nutrition in Nepal: examining drivers of progress from the mid-1990s to 2010s. *Global Food Security.* 2017;(Epublication ahead of print version).
4. Osgood-Zimmerman A, Millear AI, Stubbs RW, Shields C, Pickering BV, Earl L, et al. Mapping child growth failure in Africa between 2000 and 2015. *Nature.* 2018;555(7694):41-7. doi: 10.1038/nature25760. PubMed PMID: 29493591.
5. Victora CG. The association between wasting and stunting: an international perspective. *J Nutr.* 1992;122(5):1105-10. PubMed PMID: 1564562.
6. ENN. Stunting in protracted emergency contexts. What are the implications for humanitarian programming of responding to stunting in protracted emergency contexts, and what should we be doing about it? Oxford, UK: ENN, 2015.
7. Richard SA, Black RE, Gilman RH, Guerrant RL, Kang G, Lanata CF, et al. Wasting is associated with stunting in early childhood. *J Nutr.* 2012;142(7):1291-6. doi: 10.3945/jn.111.154922. PubMed PMID: 22623393; PubMed Central PMCID: PMC3374667.
8. Schoenbuchner S, Dolan C, Mwangome M, Hall A, Richard S, Wells J, et al. The relationship between wasting and stunting: A retrospective cohort analysis of longitudinal data in Gambian children from 1976-2016. Under submission. 2018.
9. Briend A, Khara T, Dolan C. Wasting and stunting—similarities and differences: policy and programmatic implications. *Food Nutr Bull.* 2015;36(1 Suppl):S15-23. PubMed PMID: 25902610.
10. Myatt M, Khara T, Schoenbuchner S, Pietzsch S, Dolan C, Lelijveld N, et al. Children who are both wasted and stunted (WaSt) are also underweight and have a high risk of death. *Action Against Hunger Research for Nutrition; Paris* 2017.
11. McDonald CM, Olofin I, Flaxman S, Fawzi WW, Spiegelman D, Caulfield LE, et al. The effect of multiple anthropometric deficits on child mortality: meta-analysis of individual data in 10 prospective studies from developing countries. *Am J Clin Nutr.* 2013;97(4):896-901. doi: 10.3945/ajcn.112.047639. PubMed PMID: 23426036.
12. Khara T, Mwangome M, Ngari M, Dolan C. Children concurrently wasted and stunted: A meta-analysis of prevalence data of children 6-59 months from 84 countries. *Matern Child Nutr.* 2017. Epub 2017/09/25. doi: 10.1111/mcn.12516. PubMed PMID: 28944990.
13. Harding K, Aguayo V, Webb P. Factors associated with wasting among children under five years old in South Asia: Implications for action. *PlosONE* In Press.

Acknowledgements

This policy brief represents the collective work of the ENN-coordinated Wasting-Stunting Technical Interest Group (WaSt TIG). The development of the brief was made possible by the generous support of the American people through the United States Agency for International Development (USAID) and through the support of Irish Aid, in grants to ENN. The ideas, opinions and comments therein are entirely the responsibility of its author(s) and do not necessarily represent or reflect the view of USAID or the United States Government or Irish Aid policy.

