

Childhood stunting: the countdown to 2025

Prof Rachel Musoke highlights the global nutrition targets in relation to childhood stunting

We have less than four years to the year 2025 when the global nutrition targets adopted by the World Health Assembly in 2012 are to be achieved.¹ These include:

1. 40% reduction in the number of children under five who are stunted
2. 50% reduction of anaemia in women of reproductive age
3. 30% reduction in low birth weight
4. No increase in childhood overweight in children under 5
5. Increase the rate of exclusive breastfeeding in the first six months up to at least 50%
6. Reduce childhood wasting to less than 5%.

Targets 2, 3, 5, and 6 are closely related to target 1, which is the subject of the present review. These were ambitious targets which meant a yearly reduction of stunting of 3.9%. These are now embedded into the 2030 Sustainable Development Goals.²

A child is stunted if they are too short for their age. More precisely, this is a child whose length/height for age is more than two standard deviations below the World Health Organization (WHO) Child Growth Standards median, i.e. Z-score is below minus 2.³

This is not to be confused with linear growth retardation, which is defined as a failure to reach linear growth potential but not necessarily stunted.⁴ It is also important to remember that there is a fraction of children who are genetically short but not stunted. There are also children who have linear growth retardation or stunted but are above the cut off Z-score of minus 2.

When does stunting occur?

Children across all geographical regions have similar growth from conception to age of 5 years provided their mothers are healthy, and the environment is secure.^{5,6} This has made it easy to make comparisons as well plan for programmes that affect this group.

It's important to remember that stunting is a chronic problem. The period from conception to 24 months is the most crucial. This is referred to as the 1,000 days and is seen as the window of opportunity largely because if recognised in this period it can be preventable. The new Lancet series on the subject give a worrying picture that stunting is highest during the first six months, including about 10% who are stunted at birth.⁷ This could be related to inadequate feeding as exclusive breastfeeding is low.

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Why the concern?

In a nutshell, stunting affects a large number of children and has short and long-term effects, but it is also reversible. In the short-term, children who are stunted have increased morbidity and mortality most likely due to impaired immunity leading to recurrent infections. Most brain growth occurs in the period from conception to age of 24 months. By this time a child has about 80% of his/her adult brain size. If there is growth restriction during this period, there is also impaired brain development which subsequently affects cognitive function, school performance and later earning capacity. There can be a 16% risk of repeating a grade in school for stunted children.⁸ An Ethiopian longitudinal study by Woldehanna et al also reported a 16% less score in the Peabody Picture Vocabulary test among stunted children.⁹

McGovern et al report an increase of 4-6% in earning for each increase of 1cm of height in men and women.¹⁰ According to Bloem, adults who were stunted in childhood earn 20% less than those who were not stunted.¹¹

There is also evidence that these children will have a higher risk suffering from non-communicable metabolic diseases (NCDs) as adults. This is often referred to as metabolic programming or developmental origin of adult disease initially put forward by Barker and colleagues.¹² Rapid weight gain after the two-year period of stunting is also linked to NCD.¹³ Changes occur in gene expression, organs such kidneys and pancreas are affected.

Women who were stunted as children will also have reproductive problems. They are more likely to have low birth weight babies and/or difficult deliveries due to obstructed labour. Stunting can be intergenerational if no preventive actions are taken.

Contributing or determinant factors

There are challenges in interpretation as many of these factors are interrelated. It should be seen at the outset that stunting is not solely a nutrition problem.^{14,15,16}

A conceptual framework was proposed by the World Health Organization (WHO) giving several contributing factors.¹⁷ On a national level, several government sections are involved. These include political will, availability of resources, food, education, health care, and environment (water and sanitation). Then there are social, cultural and family factors which include parental size, care practices, household income.¹⁸ Environmental enteropathy, a chronic gut inflammation that leads to



stunting is one entity that is difficult to study but may be a significant factor in childhood stunting.^{19,20}

Where are we?

The global target talks of reduction of the number of stunted children rather than prevalence of stunting. In many countries the prevalence has reduced but due to population increases the numbers have not. In 2010, the starting point for the global targets, about 165 million children below 5 years of age were stunted. A systematic review by Vaivada et al report a decline of stunting to a figure of 144 million in 2019 despite the complexity of programmes to reduce stunting. Progress was uneven and, in some countries, there were increases.²¹ In the same year, WHO/UNICEF/World Bank give a figure of 149 million with an increase in Africa region.²² There is concern that the COVID-19 pandemic has made matters worse as many of the child health programmes were interrupted throughout 2020.⁷

Programmes and actions

As can be seen in the causes/contributing or determinant factors, tackling the problem of stunting has to be multi-sectoral. Regional bodies like the Africa Regional Nutrition Strategy 2015-2025 includes the African Region Initiative for Stunting Elimination (ARISE).²³ United Nations bodies (WHO, UNICEF, FAO) and World Bank are active supporters for these activities. Scaling up nutrition (SUN) movement through connecting governments with private sector and civil societies seeks to accelerate country-led efforts to combat malnutrition. A SUN strategy for 2021-2025 is already out.²⁴ However, each member state has to own these strategies. There has to be a well national coordinated programme

that helps the varied sectors to implement the actions outlined.

Since we have a multi-causal problem, programmes to reduce stunting require a multi-sectoral response. They require a build-up of political momentum to galvanise change, and action in many different sectors:

- food systems
- health systems
- water and sanitation
- infrastructure
- social protection and the overall status of women in society
- maternity protection and labour laws
- protect families from poverty.

Implementers

This section is mainly addressing the health system.

1. Fill the health worker gap!

Health workers are vital in delivering the direct interventions effective. The numbers of health workers per population served is crucial. Basic training of most health workers does not equip them to manage these varied issues so capacity building needs to be addressed.

2. Maternal health and nutrition

- Policy to make maternal health and nutrition visible through regular monitoring and evaluation
- When do we see mothers at health facilities?
- Antenatal contacts (Besides iron & folate supplements address other health/nutrition issues that lead to intrauterine growth restriction and low birth weight)

- Child immunisation and growth monitoring
- Family planning clinics

The last two points of contact are useful to address pre-pregnancy nutrition and any other condition that may affect future pregnancies.

3. Opportunities to address child stunting

Stunting is invisible until the child's length/height is taken.

- It should be a practice for all health facilities.
- Availability of stadiometers at health facility as well as training on how to measure children is important.
- Measure, plot on the growth curve and interpret.
- Take appropriate action.
- Monitoring and evaluation:
- Is this a requirement of returns to the central body, e.g. district/county?
- If so, how often and are there mechanisms to act?
- At national level we should not wait for DHS which are usually too far apart

Stunting may be an underlying cause of death, but it does not appear on death certificates!

4. Working with communities to reduce stunting

We may not achieve much if we do not work with communities. The final implementers are the parents of the children we see at health facilities. We need to understand the communities where the children are reared. Feeding, care and stimulation, and home environment all depend on parents' culture and beliefs and practices.

Many countries have community strategies and working with community health workers/volunteers. It is possible that this group of workers are as overwhelmed as the workers at health facilities.

Each government needs to address these questions

1. How much community education and support are we offering?
2. Do we have a robust system of supportive supervision programme?
3. If not paid for this work, how do volunteers make a living for themselves as well as looking after their own families?
4. How much time do we expect them to spend on the affairs of the community?
5. Many of the success programmes in maternal and child nutrition have depended on supplements. On a national scale it may not be possible to do this. Is there a way to improve family diets without supplements?

Conclusion

Keats and colleagues report that "no country is ready to meet the 2025 nutrition targets" and offer a revised framework for nutrition actions.²⁵ All countries especially low- and middle-income ones need to urgently relook at what they can do. If not able to meet the 2025 targets, will we be able to meet the 2030 goal 2.2 of the Sustainable Development Goals?

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