Stunting in children

Defining stunting
Stunting is a result of combination of factors which includes childhood malnutrition, chronic illnesses and infections and psychological deprivation. Stunting or being short for age is defined as a height that is more than two standard deviations below the World Health Organization (WHO) child growth standard median. As the definition itself indicates, stunting can be detected by the simple method of measuring height and plotting it in a standard growth chart. Height is recommended to be measured every six months in children below five years of age in routine child health clinics. This facilitates early detection and proper referral of stunted children, at a primary care level.

Burden
Even though the prevalence of stunting is decreased over the past two decades, it still affects a significant portion of children worldwide. Yet it goes undiagnosed most of the time. Globally, stunting affects 162 million children under five years and the cases are largely concentrated in South Asia and Sub Saharan Africa. Number of stunted children in India accounts for 33% of stunted children worldwide. It is estimated that, if the current trend continues, 127 million children will be stunted by year 2025. As for the outcome of stunting, it is responsible for nearly half of childhood deaths. Even if they survive, there can be at least 10% decrease in future outcome over the lifetime of a stunted individual.

Causes and risk factors
A variety of causes produce stunting. Mainly childhood malnutrition, chronic illnesses and infections and psychological deprivation contribute to this. Apart from this, children who are not malnourished or not affected by infections or not psychologically deprived can also appear short due to other causes. This include familial short stature, constitutional delay of growth and puberty, endocrine causes and chromosomal disorders.

Childhood malnutrition causes stunting as well as wasting. Childhood malnutrition can be traced back to maternal malnutrition. Poor diet of the mother, teenage pregnancies and poor spacing between pregnancies can lead to maternal under nutrition. During the intra uterine life, the foetus solely depends on the mother for nutrition. Therefore, maternal under nutrition can lead to Intra Uterine Growth Restriction (IUGR). In fact 20% of childhood stunting is due to IUGR produced by maternal undernutrition. A research done to find Factors associated with underweight and stunting among children in rural Terai of Eastern Nepal has demonstrated that low maternal BMI is a risk factor for stunting.

Not only nutrition during intrauterine life, but also inadequate childhood and young child feeding result in stunting. Inadequate breast feeding, non exclusive breast feeding, poor weaning and inadequate complimentary feeding which is limited in quality, quantity and variety contribute to this.
Infections is another leading cause for stunting as well as wasting. With increasing severity, increasing duration and increasing number of recurrences, the possibility of developing stunting is more. There is bidirectional association between infections and malnutrition. Infections as well as chronic illnesses increase Basal Metabolic Rate (BMR) and reduce energy available for growth. Due to infections there can be reduced food intake and reduced gut absorption of nutrients which lead to malnutrition. Malnutrition on the other hand reduces immunity and increases infections. Thus, this vicious cycle produces long term effects like stunting. Chronic illnesses such as chronic kidney disease, Coeliac disease, congenital heart disease, bronchiectasis, crohns disease etc can also lead to stunting.

Apart from this, good nurturing and stimulation are essential for adequate growth of a child. Therefore, psychological deprivation can produce stunting. A research done in Pakistan has demonstrated poor household income and overcrowded living conditions as risk factors for stunting.

Effects of stunting
Stunting has many adverse consequences to the affected children. Not only individually, it is also a constraint to economic development as a country. Effects of stunting can be both long term and short term.

Stunting affects health of the individual and increases both morbidity and mortality. Stunting also reduces cognitive, motor and language development of the affected children. Specially, stunting before 2 years is a well established risk factor for poor cognitive development. Increasing number of children with stunting also increases health sector expenditure on them as these children are more likely to get hospitalized than normal children. Stunted children may also require specialized treatments which are expensive. This in turn increases the burden on the economy of the country.

Stunting poses long term adverse consequences as well. At individual level, stunted children who gain weight rapidly after 2 years of age are at increased risk of being obese and overweight in later adult life. Risk of developing coronary heart disease, stroke, type 2 diabetes mellitus and hypertension are also high in these children. Reproductive health can also be affected in stunted children. As stunting affects cognitive and intellectual development, school performances of stunted children can be sub optimal, thus preventing them from achieving their true potential. This negative impact on individual learning capacity and health ultimately leads to reduction of work capacity and productivity. This in turn affects the economic progress of the country. Research evidence suggest that stunting can reduce gross domestic productivity of a country by up to 3%. According to the World Bank estimates, a 1% loss in adult height due to childhood stunting is associated with a 1.4% loss in economic productivity. It is also estimated that stunted children earn 20% less as adults than non stunted individuals.

Reducing stunting
Stunting is multifactorial. Therefore, it is important to carry out efforts to reduce stunting through different approaches.

The critical 1000-day window period from a woman’s pregnancy to her child’s second birth day is considered as the most important time period for optimal growth of the child. Maternal nutrition during this period plays a major role. In fact, interventions should be carried out from the adolescent age onwards to achieve a satisfactory level of maternal nutrition. Regular micronutrient supplementation including iron and folate and prevention and treatment of infections during pregnancy is of critical importance.

Ensuring exclusive breast feeding by increasing awareness, assessing breast feeding technique and provision with support are needed to maintain adequate nutrition in early childhood. However, changing from breast milk to complimentary feeding after 6 months should also be encouraged. It is important to make sure that complimentary feeding is comprised of high quality, nutrient rich foods. Food fortification and supplementation are important to improve micronutrient intake.

Strengthening community based interventions to improve water, sanitation, hygiene and food safety are important to prevent infections.

Sources


UNICEF official web site


Compiled by Dr. S.A.I.K. Sudasinghe of the Epidemiology Unit
Table 1: Selected notifiable diseases reported by Medical Officers of Health
23rd - 29th July 2016 (31st Week)

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<tr>
<th>Disease</th>
<th>27th June</th>
<th>28th June</th>
<th>29th June</th>
<th>1st July</th>
<th>2nd July</th>
<th>3rd July</th>
<th>4th July</th>
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### Table 2: Vaccine-Preventable Diseases & AFP

**23rd – 29th July 2016 (31st Week)**

<table>
<thead>
<tr>
<th>Disease</th>
<th>No. of Cases by Province</th>
<th>Number of cases during current week in 2016</th>
<th>Number of cases during same week in 2015</th>
<th>Total number of cases to date in 2016</th>
<th>Total number of cases to date in 2015</th>
<th>Difference between the number of cases to date in 2016 &amp; 2015</th>
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<tr>
<td>AFP*</td>
<td>00 00 02 00 00 00 00 00</td>
<td>02</td>
<td>00</td>
<td>42</td>
<td>45</td>
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<td>Mumps</td>
<td>00 01 01 01 00 01 02 00</td>
<td>06</td>
<td>01</td>
<td>247</td>
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<td>Measles</td>
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<td>71</td>
<td>304</td>
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<td>06</td>
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<td>CRS**</td>
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<td>Neonatal Tetanus</td>
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<td>00</td>
<td>00</td>
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<tr>
<td>Japanese Encephalitis</td>
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<td>12</td>
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<td>02</td>
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<td>21</td>
<td>197</td>
<td>212</td>
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</table>

**Key to Table 1 & 2**

Provinces:  

RDHS Divisions:  

Data Sources:  
- Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps, Rubella, CRS.
- Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis
- CRS** = Congenital Rubella Syndrome

**AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH.**

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**Dengue Prevention and Control Health Messages**

Look for plants such as bamboo, bohemia, rampe and banana in your surroundings and maintain them.

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk. Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication.

**On State Service**

Dr. P. PALIHAWADANA  
CHIEF EPIDEMIOLOGIST  
EPIDEMIOLOGY UNIT  
231, DE SARAM PLACE  
COLOMBO 10