The global crisis of Moderate Acute Malnutrition

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WHO
Moderate malnutrition is defined as a weight-for-age between -3 and -2 z-scores below the median of the WHO child growth standards. It can be due to a low weight-for-height (wasting) or a low height-for-age (stunting) or to a combination of both.

<table>
<thead>
<tr>
<th>Table 3. Classification of malnutrition³</th>
</tr>
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<tbody>
<tr>
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<tr>
<td>Classification</td>
</tr>
<tr>
<td>Moderate malnutrition</td>
</tr>
<tr>
<td>Severe malnutrition (type)³</td>
</tr>
<tr>
<td>Symmetrical oedema</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>–3 ≤ SD-score ≤ –2³</td>
</tr>
<tr>
<td>(70–79%)³</td>
</tr>
<tr>
<td>Weight-for-height</td>
</tr>
<tr>
<td>–3 ≤ SD-score ≤ –2</td>
</tr>
<tr>
<td>(85–89%)</td>
</tr>
<tr>
<td>Height-for-age</td>
</tr>
<tr>
<td>Yes (oedematous malnutrition)³</td>
</tr>
<tr>
<td>SD-score ≤ –3 (≤70%)</td>
</tr>
<tr>
<td>(severe wasting)³</td>
</tr>
<tr>
<td>SD-score ≤ –3 (≤85%)</td>
</tr>
<tr>
<td>(severe stunting)³</td>
</tr>
</tbody>
</table>
Stunting in children <5 (2012)
Wasting and severe wasting in children < 5 (2012)
Regional Prevalence and Burden Estimates for Wasting and Severe Wasting (2012)

Step 1: Select an Agency Classification
- UN Regions

Step 2: Select a Measure
- Burden (millions)

Step 3: Select an Indicator
- Wasting

Legend:
- Blue: Prevalence or Burden Estimate
- Gray: 95% Confidence Limits

Regions:
- LATIN AMERICA & CARIBBEAN (Caribbean)
- OCEANIA
- LATIN AMERICA & CARIBBEAN (Central America)
- ASIA (Central)
- AFRICA (Southern)
- LATIN AMERICA & CARIBBEAN (South America)
- LATIN AMERICA & CARIBBEAN
- DEVELOPED COUNTRIES
- ASIA (Western)
- AFRICA (Middle)
- ASIA (Eastern)
- AFRICA (Northern)
- AFRICA (Eastern)
- ASIA (South-Eastern)
- AFRICA (Western)
- AFRICA
- ASIA (South-Central)
- ASIA (Southern)
- ASIA
- ALL DEVELOPING COUNTRIES
- GLOBAL

X-axis: 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 45.0 50.0 55.0 60.0

Share

World Health Organization
Distribution of wasting prevalence

- Bangladesh
- Chad
- Djibouti
- India
- Niger
- Papua New Guinea
- South Sudan
- Sudan
- Timor Leste

Baseline: 7.8%
3rd quartile: 15.7%
Target: 5.0%

55%
## Socio economic differences in moderate stunting

<table>
<thead>
<tr>
<th>World region</th>
<th>Low/high ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe, Central Asia</td>
<td>2.007</td>
</tr>
<tr>
<td>Latin America, Caribbean</td>
<td>5.368</td>
</tr>
<tr>
<td>Middle East, North Africa</td>
<td>1.708</td>
</tr>
<tr>
<td>South Asia</td>
<td>1.444</td>
</tr>
<tr>
<td>Sub-saharan Africa</td>
<td>1.530</td>
</tr>
<tr>
<td>All countries</td>
<td>1.798</td>
</tr>
</tbody>
</table>

Gwatkin et al., World Bank 2007
Seasonal crises

• Rates of wasting tend to ‘surge’ seasonally during the year, in hungry or lean seasons
• Some highly populated countries regularly have endemic rates of wasting of more than 10% throughout the year, such as Nigeria (10%), Pakistan (15%) and India (20%), with these levels likely to rise during the hungry seasons
Wasting and stunting

- Wasting adversely affects linear growth, and wasting recovery benefits linear growth
- During wasting there is a point at which linear growth slows and potentially stops.
- Evidence indicates that episodes of wasting in the previous 3 months (approximately) have an impact on attained length-for-age
- Both wasting and stunting often coexist in the same child.

Micronutrient deficiencies

- Wasted children are often deficient in vitamin A, folic acid, riboflavin, vitamin C, thiamine, D, E and K
- Wasting < 5: 875,000 attributable deaths (12.6% of total deaths of children under 5 years)

- Severe wasting < 5: 516,000 attributable deaths (7.4%)
Leading risk factors for global burden of disease in 1990 and 2010

Top five causes of global DALYs

1. Lower respiratory infections
2. Diarrhoea
3. Preterm birth complications
4. Ischaemic heart disease
5. Stroke

Leading five risk factors for poor health

1. Childhood underweight
2. Household air pollution from solid fuels
3. Tobacco smoking, excluding second-hand smoke
4. High blood pressure
5. Suboptimal breastfeeding

World Health Organization

Goal 1
Eradicate extreme poverty and hunger

TARGET
Halve, between 1990 and 2015, the proportion of people who suffer from hunger.
Burden of disease attributable to 20 leading risk factors in 2010, as a % of global DALYs

- Tobacco smoking, including second-hand smoke
- Alcohol use
- Household air pollution from solid fuels
- Diet low in fruits
- High body-mass index
- High fasting plasma glucose
- Childhood underweight
- Ambient particulate matter pollution
- Physical inactivity and low physical activity
- Diet high in sodium
- Diet low in nuts and seeds
- Iron deficiency
- Suboptimal breastfeeding
- High total cholesterol
- Diet low in whole grains
- Diet low in vegetables
- Diet low in seafood omega-3 fatty acids
- Drug use
- Occupational risk factors for injuries

High BMI accounted for 3.4 M deaths and 3.8% of global DALYs in 2010.
Poor diet and physical inactivity 10% of global DALYs.
Maternal and child undernutrition accounted for 1,400,000 deaths or 6.7% of the global burden of disease in 2010.

- **childhood underweight**: 860,000 deaths, 3.1% DALYs
- **iron deficiency anaemia**: 120,000 deaths, 1.9% DALYs
- **sub-optimal breastfeeding**: 544,000 deaths, 1.9% DALYs
- **Vitamin A**: 120,000 deaths, < 0.8% DALYs
- **zinc deficiency**: 97,000 deaths, < 0.8% DALYs
Central sub-saharan Africa, DALY 2010
<table>
<thead>
<tr>
<th>TARGET</th>
<th>BASELINE 2012</th>
<th>TARGET FOR 2025</th>
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<tbody>
<tr>
<td>40% reduction in the number of children under 5 who are stunted</td>
<td>162 million</td>
<td>≈100 million</td>
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<tr>
<td>30% reduction of anaemia in women of reproductive age</td>
<td>29%</td>
<td>15%</td>
</tr>
<tr>
<td>30% reduction in low birth weight</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>No increase in childhood overweight</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%</td>
<td>38%</td>
<td>50%</td>
</tr>
<tr>
<td>Reduce and maintain childhood wasting to less than 5%</td>
<td>8%</td>
<td>&lt;5%</td>
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Posterior probability of meeting the MDG 1 target

Stevens et al. Lancet 2012
http://www.who.int/nutrition/en/index.html