



Emergency Nutrition Network

Technical review:

The Relationship between Wasting and
Stunting, Policy, Programming and
Research implications

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Why the review?

STUNTING



WASTING



*“The fragmentation of interests and perspectives on childhood undernutrition has negative consequences for advocacy efforts that aim to bring **attention** and **resources** to child nutrition across the globe. It also has serious implications for how children worldwide receive nutrition interventions and services.”*

(Menon & Stoltzfus Adv. Nutr. 2012)

Definitions

Wasting – (Acute Malnutrition)*

- Thinness, ponderal growth retardation
- Wasted = Low weight-for-height

Stunting – (Chronic Malnutrition)

- Shortness, linear growth retardation
- Stunted = Low height-for-age

Low MUAC – a thin (or small?) arm - high mortality

* 'acute malnutrition' also includes nutritional oedema

Process

- Technical Interest Group
- Literature review
- Presentations, discussions
- Additional analysis
- Review
- Research prioritisation
- Publication



Technical Interest Group

Abigail Perry (DFID), **André Briend** (University of Copenhagen, Denmark & University of Tampere, Finland), **Andrew Hall** (Save the Children UK), **Andrew Prendergast** (Centre for Paediatrics, Queen Mary, University of London & Zvitambo Institute for Maternal Child Health Research, Zimbabwe), **Andrew Seal** (IGH, UCL*), **Carlos Grijalva-Eternod** (IGH, UCL*), **Dolores Rio** (UNICEF), **Dominique Roberfroid** (Institute of Tropical Medicine, Antwerp), **Diane Holland** (UNICEF), **Erin Boyd** (USAID/OFDA), **Jay Berkley** (KEMRI/Wellcome Trust Research Programme, Kilifi, Kenya), **Jonathan Wells** (MRC Childhood Nutrition Research Centre, UCL), **Kay Dewey** (University of California, Davis), **Leisel Talley** (CDC, Atlanta), **Marie McGrath** (ENN), **Mark Manary** (Washington University), **Mark Myatt** (Brixton Health), **Marko Kerac** (LCDIDC, UCL**), **Martha Mwangome** (KEMRI/Wellcome Trust Research Programme, Kilifi, Kenya), **Mike Golden** (Independent), **Natasha Lelijveld** (IGH, UCL), **Paluku Bahwere** (Valid International), **Sonia Walia** (USAID/OFDA), **Sophie Moore** (MRC Human Nutrition Research, Cambridge), **Zita Weise Prinzo** (WHO)

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Limitations

- Limitations of the data
 - Cross sectional
 - Classification v. process
- Gaps particularly on body composition
- Little longitudinal data to see how wasting and stunting develop in individuals over time



Normal



Wasted



Stunted



Wasted and stunted

Mortality

severe wasting x11.6 more likely to die (9.8-13.8)*

moderate wasting x3.4 more likely to die (2.9-4.0)

severe stunting x5.5 more likely to die (4.6-6.5)

moderate stunting x2.3 more likely to die (1.9-2.7)

wasted & stunted x12.3 more likely to die (7.7-19.6)

Source: (Olofin, McDonald et al. 2013)(McDonald, Olofin et al. 2013)

Findings (1)

- Both occur in many contexts and often coexist in same child
- Common risk factors (ex. Zinc & EE)
- Stunting and wasting may have origins in foetal growth (& maternal nutrition)
- Weight & height gain/loss have seasonal patterns which seem to be related
- Physiologically muscle and perhaps fat mass may play a role in mortality risk

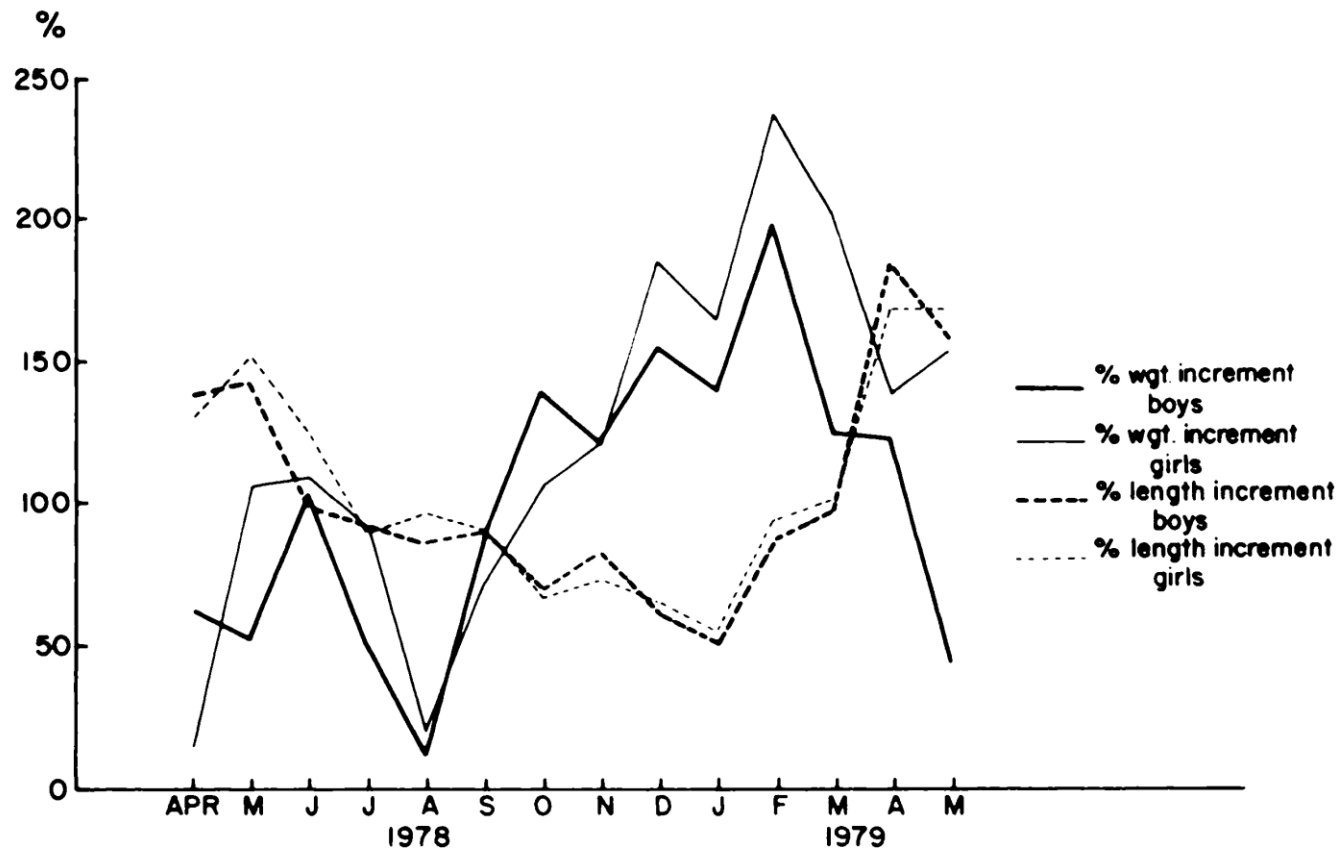


FIG. 7. Mean percentage of expected monthly increments of weight and length for age by month of year.

(Brown et al 1982)

Findings (2)

- Wasting adversely affects linear growth
- Evidence for improved linear growth after wasting treatment is mixed.
- Some evidence of seasonal food-based prevention improving both wasting and stunting (to small extent) – though mixed
- Some indication that low MUAC may reflect both wasting and stunting

Implications (1)

- Common risk factors, and contexts therefore common prevention approach required – common framework
- Measurement of impacts
- Maternal health and nutrition interventions = important wasting & stunting prevention

Implications (2)

- Wasting treatment may be an important component of stunting prevention
- Early action – population or individual level
- Recognition and mapping of the burden of children concurrently wasted and stunted could perhaps catalyse abolishment of the silos?

Priority research gaps

- Can interventions outside the 1000 days lead to height catch-up?
- What timely interventions work to mitigate seasonal peaks in wasting and stunting?
(answerable)
- What is the optimal RUTF formulation to promote optimal weight gain & support linear growth during & after SAM recovery?
(usefulness)

Questions

- Severe stunting, are we reaching them?
what should we be doing?
- Could wasting treatment have a role to play in linear growth catch-up?
- How could interventions capitalise on the overlap of wasting and stunting?
- How can we use more of our existing data to fill the gaps?

Meta-analysis of 19 birth cohort studies, different low & middle income country populations:

- Odds ratio of childhood stunting associated with SGA - 2.4
- '20% of stunting and 30% of wasting has its origins in the foetal period'

(Christian, Lee et al. Int. J Epidemiol 2013)

