

ENN/MQSUN+ Wasting/acute malnutrition Prevention CHNRI list of Research questions: FINAL. 40 Questions

Research Instrument	Research Avenue	Research option/area	Research question/paper titles
Description: research to assess the burden of the problem (wasting/acute malnutrition) and its determinants	Measuring the burden	Estimating burden of wasting/acute malnutrition in infants and children	What measures (anthropometric or non-anthropometric), or combinations of measures, best identify individual infants and children (0-59 months) by age/sex at most risk of wasting/acute malnutrition?
			What measures (anthropometric or non-anthropometric) or combinations of measures best identify individual infants and children (0-59 months) by age/sex at most risk of death and other adverse outcomes associated with wasting/acute malnutrition?
			What measures (anthropometric or non-anthropometric), or combinations of measures, best identify the earliest point at which a child has started a downwards trajectory towards becoming wasted/acute malnourished?
			What measurements and thresholds can best estimate population prevalence and incidence of wasting/acute malnutrition in children from birth to 5 years, by age and sex (e.g. WAZ, WHZ, MUAC, concurrence of wasting and stunting (WaSt) in their severe and moderate forms) in a given context?
			How is it best to estimate annual incidence and year-on-year trends in wasting/acute malnutrition in a given context (e.g. stable populations, acute shocks) by sex/age group including accounting for spatial and temporal patterns, and population growth?
			What proportion of untreated moderately wasted/acute malnourished children deteriorate further to severe wasting/acute malnutrition or spontaneously recover, by sex/age?
		Impacts of wasting/acute malnutrition and	What are the impacts of wasting/acute malnutrition with/without stunting on mortality by sex/age group?

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		concurrent wasting /acute malnutrition and stunting	
		Estimating Disability- Adjusted Life-Years (DALYs) attributable to wasting/acute malnutrition globally?	What are the longer-term impacts of wasting/acute malnutrition on disability (according to WHO definition https://www.who.int/topics/disabilities/en/) by sex/age group?
	Understanding risk factors and relative importance	Causal pathways	<p>What methodologies can best identify determinants of and pathways to wasting/acute malnutrition in a given context (including seasonal patterns) in order to understand their inter-relationships and identify priority risk factors or combinations of risk factors?</p> <p>What combinations/interactions of risk factors (and their prevalence), by age/sex, lead to wasting/acute malnutrition in a given context?</p> <p>Where do the determinants of stunting and wasting/acute malnutrition overlap?</p> <p>What is the contribution of episodes of wasting/acute malnutrition to stunting (in a given context), and vice versa?</p> <p>How does being born prematurely and/or with foetal growth restriction impact on wasting/acute malnutrition at birth and throughout the first 5 years of life, by sex?</p> <p>What is the impact of growth failure during the first 6 months of life on experience of wasting/acute malnutrition after 6 months of age?</p>
		Maternal risk factors	What is the role of pre-pregnancy maternal factors (age, health status, nutritional deficits, psychological factors etc.) in determining risk of being born with a low birth weight, low weight for length, low MUAC,

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Delivery: research to assist in optimising of the nutrition status of the population using the means that are already available. (Delivery models)		Synergies	premature or small for gestational age?
			Is breastmilk quality/quantity a risk factor for wasting/acute malnutrition by child sex/age?
	Policy & Governance Analysis	Synergies	What is the impact of MAMI (management of at-risk mothers & infants <6m) interventions in preventing wasting/acute malnutrition in the >6m old?
			What impact can effective wasting/acute malnutrition prevention interventions/approaches have on levels of stunting (and concurrent wasting and stunting) and vice versa?
			How do current policies and governance/coordination systems promote an enabling environment for multi-sectoral approaches (and nutrition sensitive programming) to prevent wasting/acute malnutrition, and can they be improved?
	Health systems analysis		How can policies which better support optimal infant and young child feeding have an effect on prevention of wasting/acute malnutrition?
			What are effective and cost-effective approaches to integrating wasting/acute malnutrition prevention efforts into health systems (i.e. human resource capacity, financing, supplies and supply chain, etc)?
	Operations research (on delivery models)		What are the effective approaches/methods (e.g. addition of indicators into national information systems) to coordinate and standardise the collection of routine monitoring data and its use for planning and evaluating wasting/acute malnutrition prevention interventions?
			What should an intervention package be composed of and what coverage should it achieve in order to reduce prevalence/incidence of child <5yrs wasting/acute malnutrition in a given context?
			What approaches/operational models of community engagement are effective in preventing wasting/acute malnutrition in a given context?

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			What are effective and cost-effective approaches to target the highest risk infants and children 0-59 months (e.g. children with concurrent wasting/acute malnutrition and stunting, children <24 months, etc) for interventions (food or non-food) to prevent wasting/acute malnutrition?
Development: research to improve interventions that already exist, but could be improved	Improving affordability, deliverability, sustainability, acceptability etc.		<p>What are the essential nutrition specific and nutrition sensitive interventions, linkages and timings required within a package for it to be effective and cost-effective in preventing a decline in nutritional status (including wasting/acute malnutrition) in a given population or context (such as populations with high persistent wasting/acute malnutrition, environmental variability, fragile and conflict affected states)?</p> <p>What are the relative benefits, risks and cost effectiveness of food-based, product-based, or combined food and product-based approaches in wasting/acute malnutrition prevention?</p> <p>What is the additional benefit (effectiveness, cost-effectiveness) of nutrition-sensitive interventions (e.g. WASH) over nutrition-specific interventions alone and vice-versa in wasting/acute malnutrition prevention?</p> <p>How can existing interventions (e.g. growth monitoring, IMCI) better detect and support children (0-59 months) who are failing to thrive/faltering (i.e. those at-risk, not just those already below a z-score threshold)?</p>
Discovery: research that leads to innovation i.e. entirely new health interventions	Basic clinical and public health research to advance existing knowledge to develop new capacities or explore entirely novel ideas to develop new capacities	Basic research	<p>What is the effect of the microbiome and environmental enteric dysfunction on energy and nutrient absorption from food (including supplementary food) and what are the implications for defining nutrient requirements to prevent wasting/acute malnutrition?</p> <p>What are the longer-term impacts of wasting/acute malnutrition on immune function, gut health (including microbiome), body composition and risk of obesity/NCDs by sex/age group?</p>

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			<p>What is the effect of probiotics and prebiotics on the microbiome (in particular through breastfeeding) and the potential role in preventing wasting/acute malnutrition?</p> <p>What is the impact of body shape and body composition on weight-for-height as a measure of nutritional status in infants and children (by sex and age)?</p> <p>To what extent can epigenetic mechanisms explain the association between maternal environmental factors in the first 1000 days (nutrition, stress, pollutant exposure etc.) and later risk of adverse growth outcomes in childhood (wasting / acute malnutrition and stunting)?</p> <p>What are the mechanisms that explain the different risk of wasting/acute malnutrition in girls and boys?</p> <p>Which physiological factors explain the multiplicative effect of wasting/acute malnutrition and stunting on mortality?</p>
		Clinical research	Can foods containing probiotics and prebiotics be effectively used in the prevention and treatment wasting/acute malnutrition and/or stunting?
		Public health research	<p>What programmatic or project-based innovations (across all sectors / multi-sectoral) have led to prevention of wasting/acute malnutrition in a given context?</p> <p>How do the multiple uses and management of water resources at regional, community and household levels impact wasting/acute malnutrition?</p> <p>What policy processes or changes (e.g. in health system) can be linked to promoting an enabling environment for nutrition-sensitive/nutrition-specific approaches that have led to prevention of wasting/ acute malnutrition?</p>

Sources:

- ENN/MQSUN+ 2018. The Current State of Evidence and Thinking on Wasting Prevention (permission to share requested from MQSUN+)
- ENN/MQSUN+ 2018. The Aetiology of wasting: Brief. https://www.ennonline.net/attachments/2844/Aetiology-of-wasting_ENN_MAY18.pdf
- Angood et al 2015. Research Priorities to Improve the Management of Acute Malnutrition in Infants Aged Less Than Six Months (MAMI). <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001812> (relevant questions from top ten)
- Angood et al 2016. Research Priorities on the Relationship between Wasting and Stunting. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0153221> (relevant questions from top ten)
- No-Wasted Lives research prioritisation. https://static1.squarespace.com/static/58da81cdd1758e39ca705526/t/5a5cbfcdf9619a9a191c6f34/1516027854696/NoWastedLives_Research_Agenda_2018.pdf (relevant questions from top ten priority research questions).
- Evidence Aid collection – prevention and treatment of acute malnutrition in emergencies and humanitarian crises. <http://www.evidenceaid.org/prevention-and-treatment-of-acute-malnutrition-in-emergencies-and-humanitarian-crises/>
- Alvarez et al 2016. Putting Child Kwashiorkor on the map. CMAM Forum Technical brief. <https://www.ennonline.net/attachments/2485/Putting-Kwashiorkor-on-the-Map.pdf>
- Young & Marshak 2018. Persistent Global Acute Malnutrition. Boston: Feinstein International Center, Tufts University. http://fic.tufts.edu/assets/FIC-Publication-Persistent-Global-Acute-Malnutrition_web_2.26s.pdf