

NUTRITION

*Building a Healthy
Foundation for the Future*



The Lancet's Series on Maternal and Child Undernutrition

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www.GlobalNutritionSeries.org

About the Series

Paper 1: prevalence and short-term consequences (deaths and disease burden)

Paper 2: long-term educational and economic effects and associations with adult chronic diseases

Paper 3: evidence-based interventions to significantly reduce the effects of undernutrition

Papers 4 & 5: scaling up interventions through actions at national and global levels

Undernutrition Begins with the Mother



**Maternal undernutrition:
underweight for height (low body
mass index)**

**Less visible micronutrient
deficiencies**

**May lead to health problems for
the mother and intrauterine growth
restriction (IUGR)**

Stunting & Wasting Begin Early in Childhood

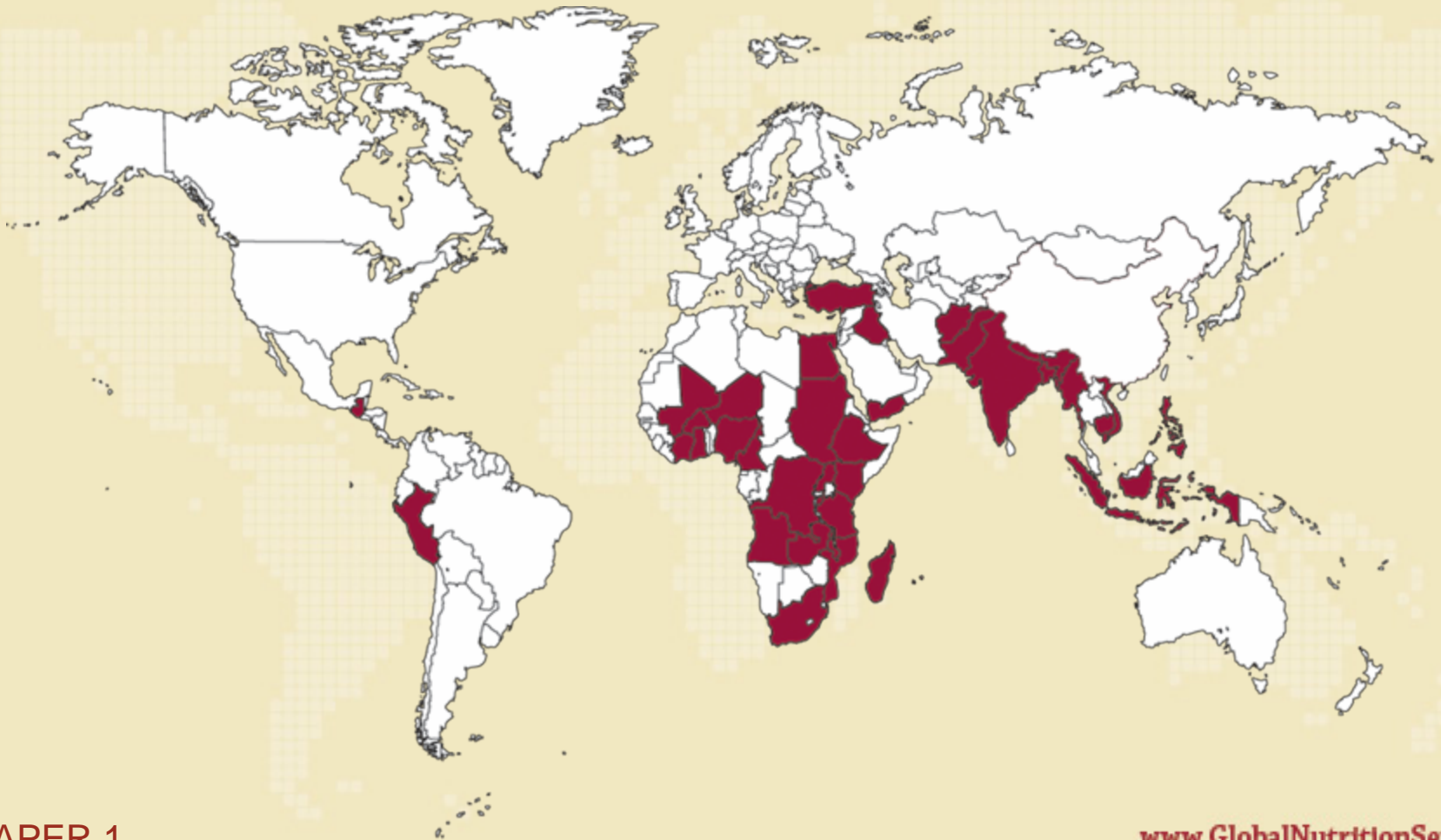


Stunting – a chronic restriction of vertical growth indicated by a low height for age

Wasting – acute weight loss indicated by a low weight for height

Usually caused by - diets that do not provide sufficient nutrients and by high rates of infectious diseases

90% of All Stunted Children Live in Just 36 Countries



High Prevalence of IUGR, Stunting and Severe Wasting in Children Under 5



13 million babies are born each year with intrauterine growth restriction

178 million children are stunted; 32% of all children

19 million children are severely wasted

Attributing Deaths and Disease Burden to Undernutrition and Suboptimal Breastfeeding

Health consequences measured in deaths, contribution to overall rates of disease, and number of life years diminished by disease or disability

Disability-adjusted life years (DALYs): burden of disease measures the gap between the current health of population and ideal situation (living into old age w/ full health)

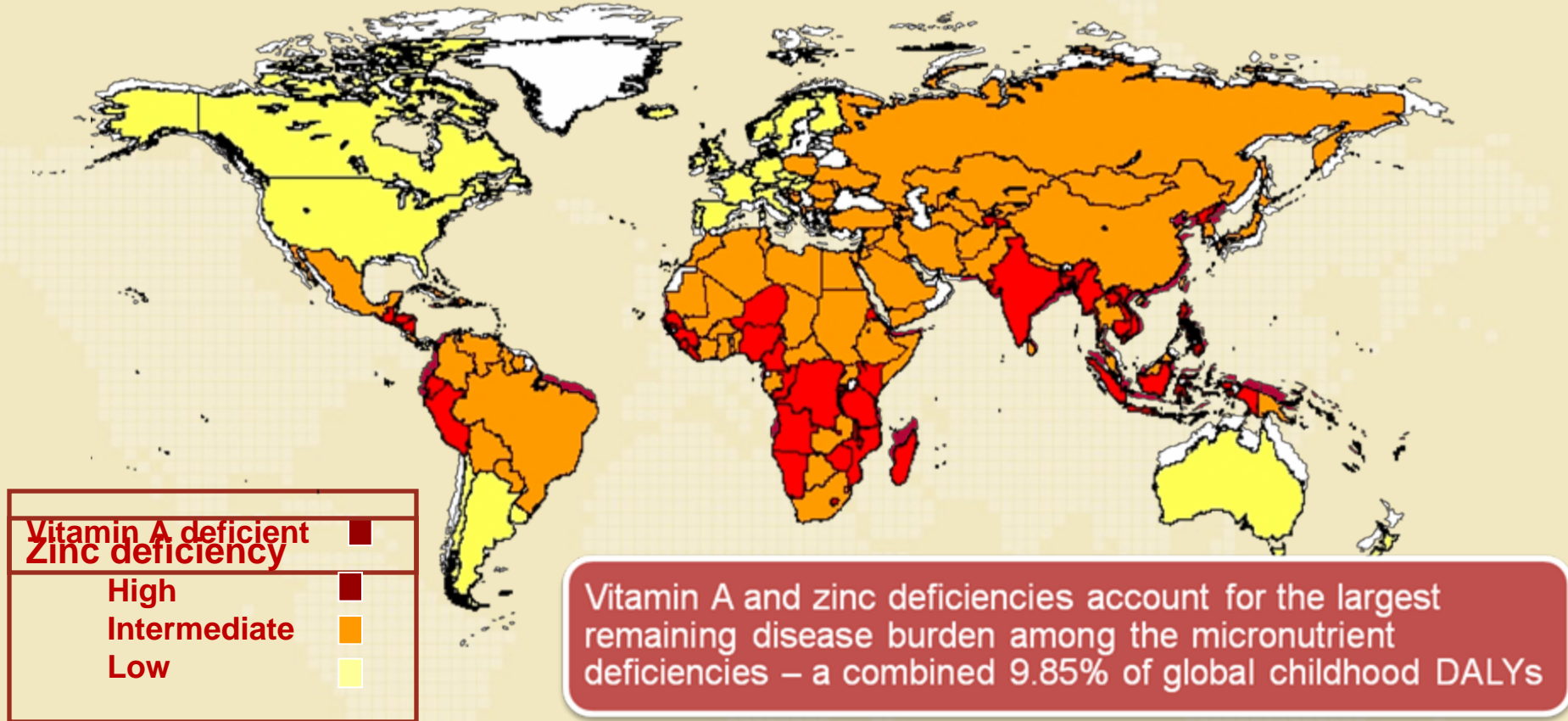
One DALY = one lost year of “healthy” life

The Burden of Maternal and Child Undernutrition

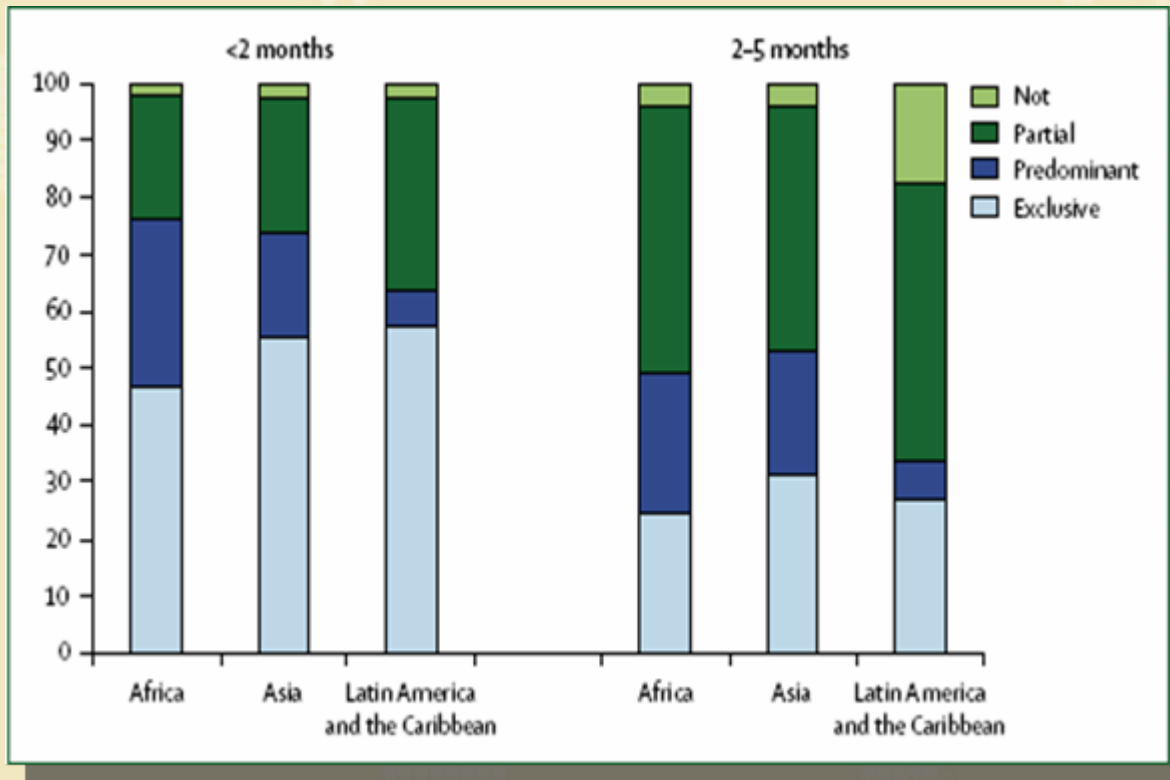
IUGR, stunting and severe wasting together are responsible for **2.2 million deaths and 91 million DALYS**, 21% of the total for children under 5

Represents **7% of the total global disease burden for any age group**, the highest for any risk factor for disease burden

Micronutrient Deficiencies



Suboptimal Breastfeeding



Increases the risk of poor nutrient intake and illness

Estimated to be responsible for 1.4 million child deaths and 44 million global childhood DALYs (10% of all childhood DALYs)

Paper 1 Key Messages

Together these risk factors were **responsible for more than one-third—about 35%—of child deaths** and 11% of the global total disease burden

More than 3.6 million mothers and children die each year as a result of undernutrition

The very high mortality and disease burden resulting from these nutrition-related factors make a **compelling case for the urgent implementation of proven interventions**

Long-Term Effects on Development and Health

New analyses of relationships between indices of maternal and child undernutrition (maternal height, birthweight, IUGR, and weight, height, and body-mass index at 2 years) and adult outcomes (height, schooling, income, offspring bodyweight, body-mass index, glucose concentrations, blood pressure)

Systematic review of studies from low-and middle-income countries for these relationships and for those related to blood lipids, cardiovascular disease, lung and immune function, cancers, osteoporosis and mental illness

Damage Suffered in Early Life Leads to Permanent Impairment



Undernourished children are more likely to become short adults and to give birth to smaller babies

Evidence links stunting to cognitive development, school performance and educational achievement

Poor fetal growth or stunting in the first 2 years of life leads to reduced economic productivity in adulthood

Child's height for age is best predictor of human capital

Rapid Weight Gain After Being Undernourished Increases Chronic Disease Risk as Adults



Children whose early growth is restricted and gain weight rapidly later are more likely to have high blood pressure, diabetes and both cardiovascular and metabolic disease

No evidence that rapid weight or length gain in first 2 years increases risk of chronic disease

By supporting early nutrition and growth, incidence of chronic disease could be reduced

Paper 2 Key Messages

Stunting in the first 2 years leads to irreversible damage into adult life

Young children who are undernourished and gain weight rapidly later are at high risk of nutrition-related chronic diseases

No evidence that rapid weight or length gain in first 2 years of life increases the risk of chronic disease

The prevention of maternal and child undernutrition is a long-term investment that will benefit the current generation and their children

Evidence-Based Interventions

Systematic review
of efficacy or
effectiveness of 45
possible
interventions that
affect maternal and
child undernutrition
and nutrition-
related outcomes,
including:

- Breastfeeding promotion
- Complementary feeding promotion strategies with or without provision of food supplements
- Micronutrient interventions (fortification & supplementation)
- General supportive strategies for improving family and community nutrition and disease burden reduction
- Interventions for the treatment of severe acute malnutrition

Interventions with Sufficient Evidence to Implement in All Countries

Maternal and Birth Outcomes

- Iron folate supplementation
- Maternal supplements of multiple micronutrients
- Maternal iodine through iodization of salt
- Maternal calcium supplementation
- Interventions to reduce tobacco consumption or indoor air pollution

Newborn Babies

- Promotion of breastfeeding (individual and group counseling)

Infants and Children

- Promotion of breastfeeding (individual and group counseling)
- Behavior change communication for improved complementary feeding
- Zinc supplementation
- Zinc in management of diarrhea
- Vitamin A fortification or supplementation
- Universal salt iodization
- Handwashing or hygiene interventions
- Treatment of SAM

Interventions with Sufficient Evidence to Implement in Specific Situational Contexts

Maternal and Birth Outcomes

- Maternal supplements of balanced energy and protein
- Maternal iodine supplements
- Maternal deworming in pregnancy
- Intermittent preventative treatment for malaria
- Insecticide-treated bednets

Newborn Babies

- Neonatal vitamin A supplementation
- Delayed cord clamping

Infants and Children

- Conditional cash transfer programs (with nutritional education)
- Deworming
- Iron fortification and supplementation programs
- Insecticide-treated bednets

Evidence-Based Interventions

Effective interventions are available to reduce stunting, micronutrient deficiencies and child deaths and nutrition-related disability

Interventions showing the most promise for reducing child deaths and future disease burden include:

- Breastfeeding promotion
- Appropriate complementary feeding
- Supplementation with vitamin A and zinc
- Appropriate management of severe acute malnutrition

Paper 3 Key Messages

We have evidence-based interventions that work

If implemented at scale, these interventions would:

- Reduce all child deaths by one-quarter in the short term
- Reduce prevalence of stunting at 36 months by one-third, averting 60 million DALYs

Conception through 24 months is the critical window of opportunity to prevent and intervene to reduce stunting

National Efforts

Most countries with high levels of undernutrition are failing to reach undernourished mothers and children with effective interventions

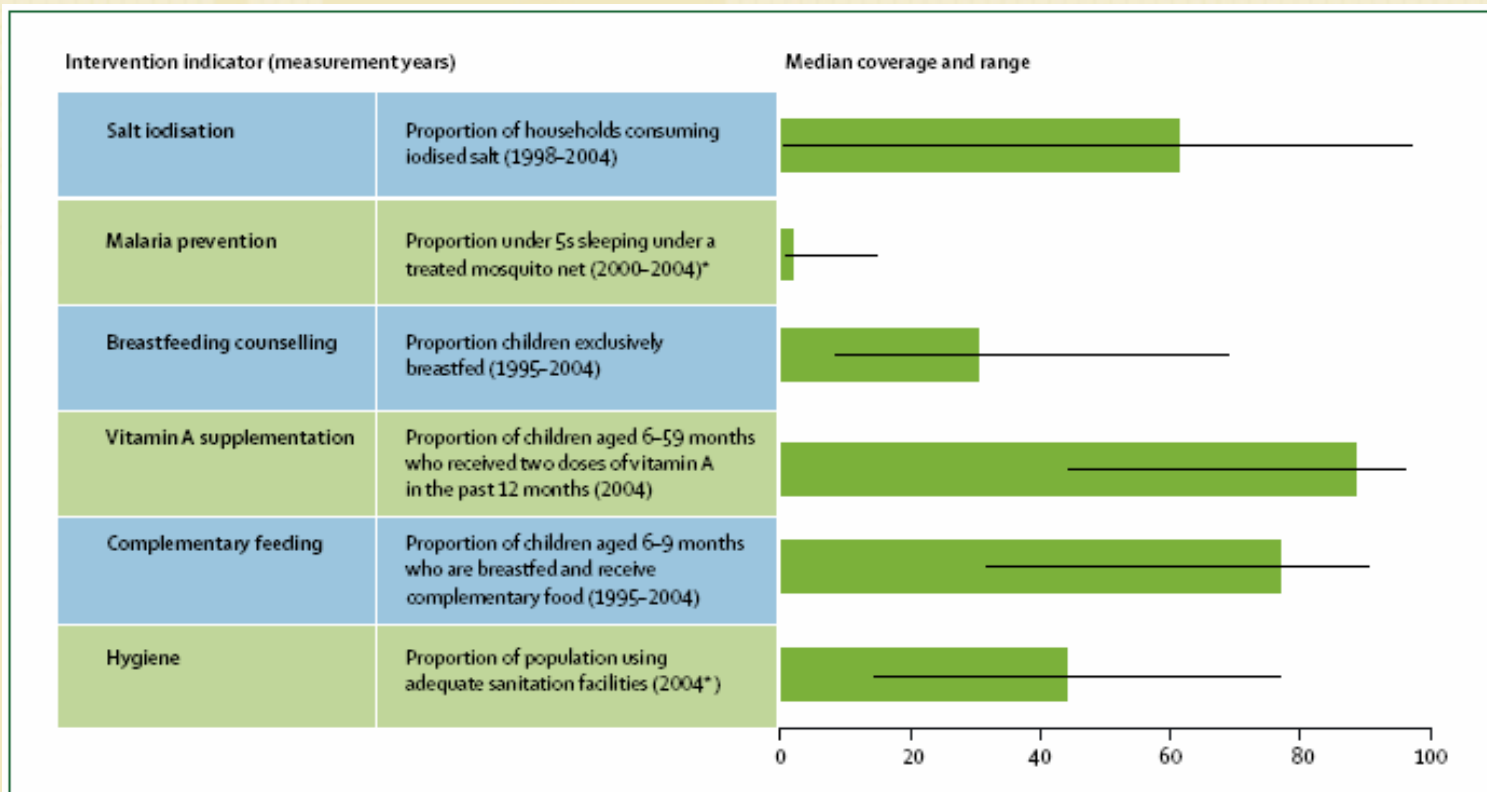


Figure 2: Best available estimates of coverage with effective interventions in the 20 countries with the highest burden of undernutrition

Key Challenges at National Level

1 *Getting Nutrition on the National Agenda*

- Most high-burden countries have a nutrition policy or plan
- Need to build stable nutrition agenda that can survive political and administrative changes
- Build recognition that nutrition determines human, social and economic development

2 *Doing the Right Things*

- Few countries with high levels of undernutrition are implementing the high-impact interventions and strategies at high coverage
- Nutrition should also be incorporated into economic and social policies addressing poverty, trade and agriculture

Key Challenges at National Level

3 *Not Doing the Wrong Things*

- Nutrition leaders at should examine “nutrition” actions and the extent to which they are likely to improve nutritional status among mothers and children under 24 months of age
- 10 of 20 countries implementing feeding programs for preschool children >24 months old and all 20 implementing school feeding programs
- These programs will not prevent or reverse undernutrition and should be refocused to children <24 months old

Key Challenges at National Level

4 *Acting at Scale*

- Integrate nutrition into the global scale-up to achieve the health MDGs
- Country-specific approaches that simultaneously scale-up delivery and strengthen health systems
- Think in new ways about the private sector

5 *Reaching Those in Need*

- Programs must be targeted to those most in need: women, young children (especially those under two) and the poor

Key Challenges at National Level

6 *Using Data for Nutrition Decision Making*

- Monitoring and assessment of both process and results
- Public accountability, including tracking of financial flows

7 *Building Strategic and Operational Capacity*

- Self-assessments reveal inadequate capacity at country level for leadership and strategic management of the national nutrition agenda
- Capacity building must be regional- and country-specific
- Training is not enough! Must build institutions

Paper 4 Key Messages

National nutrition programs should effectively monitor and evaluate target populations that benefit most from interventions—pregnant women and children under 2

Countries should focus resources on interventions with proven effectiveness and implement them at scale as quickly as possible

Economic and social policies addressing poverty, trade and agriculture associated with rapid improvements in nutritional status should also be implemented

Governments should look to incorporate nutrition goals into programs that may not directly address health, but that could benefit from improved national nutrition

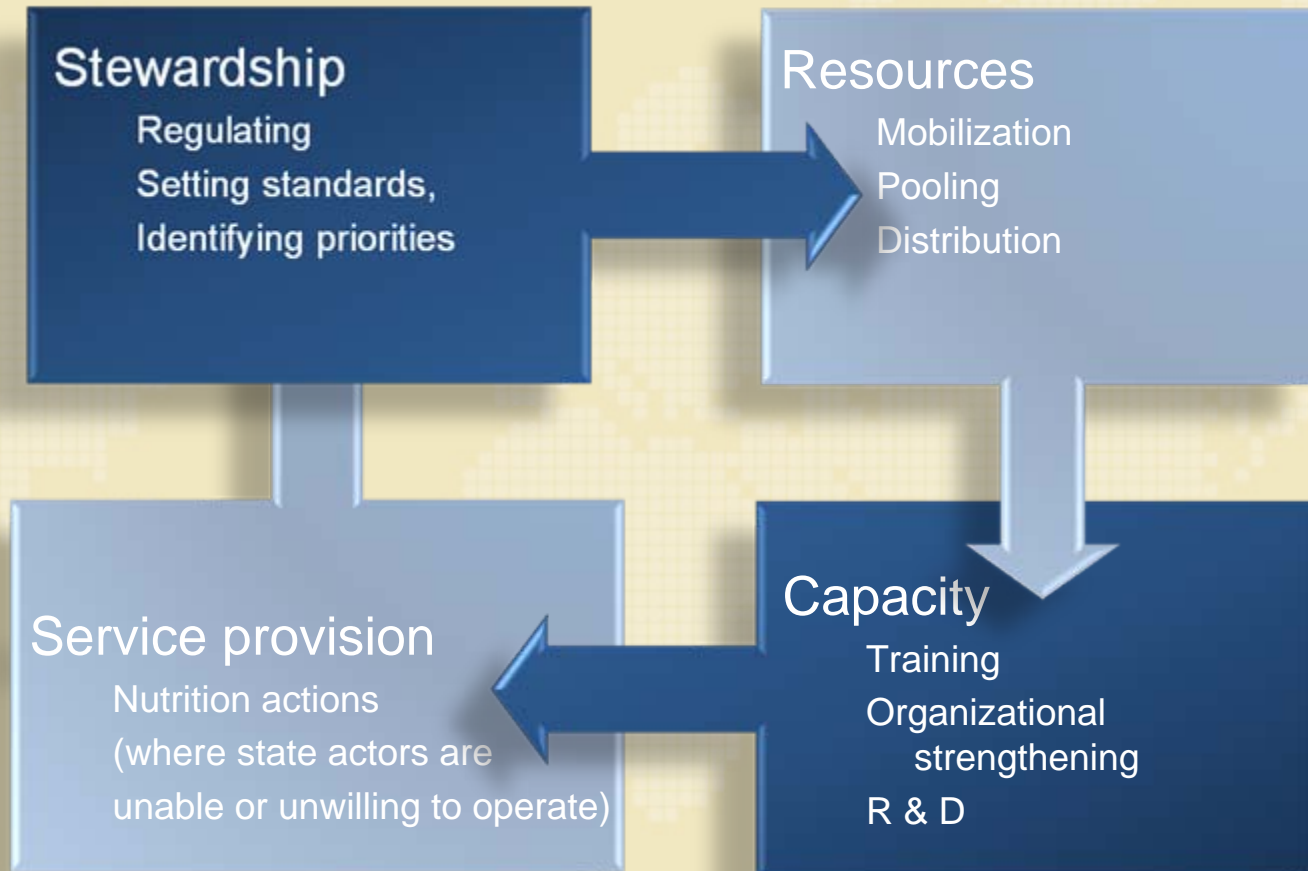
International Efforts to Improve Undernutrition

Fifth and final paper looks specifically at the
“international nutrition system”

Asks:

- What are the components?
- What would we reasonably expect them to be achieving?
- How does actual performance meet expectations?
- What are the root problems behind any shortcomings?

Four Functions of a Nutrition System



Current International “System”

Numerous international agencies, development banks, regional organizations, bilateral donors, NGOs, foundations, etc. involved

Current processes fail to produce normative guidance that is prioritized and evidence-based

Program evaluation is weak; insufficient analysis of global challenges; too little investment in human and institutional capacity

Funding grossly insufficient, poorly targeted and too dominated by food aid and technical assistance

How Can International Aid Organizations Better Support National Nutrition Efforts?



Paper 5 Key Messages

The international nutrition system is fragmented and dysfunctional; reform is needed to be effective

Problems are long-standing and deeply embedded in organizational structures and norms. A new global governance structure is needed to provide greater accountability

Funding provided by international donors to combat undernutrition is grossly insufficient and poorly targeted

Progress is Possible, If Nutrition Becomes a Priority

Nutrition is a central component for human, social and economic development

Intensified nutrition action in high-burdened countries can lead to the achievement of the Millennium Development Goal of halving hunger by 2015 (MDG 1) and greatly increase the chances of achieving goals for child and maternal mortality (MDGs 4 & 5)

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