POSHAN
Led by IFPRI
Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India
Abstract Digest
ISSUE 13 | FEBRUARY 2016

EDITOR'S NOTE

This issue of the Abstract Digest features the 2015 *Global Hunger Index* (GHI) report, the 2015 *Global Nutrition Report*, the *India Health Report*, two special supplements focused on child feeding, and several other interesting articles on nutrition and health. Here are some highlights:

- Calling for a strengthened focus on nutrition, with special attention to the first 1000 days, Branca et al. (2015) propose nutrition-related priority actions and Were et al. (2015) recommend investments in innovative approaches for delivery of child health services. Garza et al (2015) reflect on the tremendous opportunity presented by the two internal growth standards, the fetal growth and gestational age-specific and the WHO infant and young child growth standards, for comparisons of growth performance in early life (9 weeks' gestation to 5 years), and implications of improving the healthcare of children in the first 1000 days.
- Leroy et. al (2015) demonstrate that height-for-age differences (HAD) is a more appropriate measure to examine population-level catch-up growth compared to height-for-age z-scores (HAZ), while Onyango et. al (2015) propose a new approach to predicting long-term stunting.
- A community-based management of acute malnutrition (CMAM) program, in Bihar, achieved low mortality and high cure rates among non-defaulting children aged 6–59 months (Burza et. al, 2015), but in another interesting article, Burza et. al (2015) demonstrate that exposure to food insecurity periods could increase the relapse rates and non-recovery from Severe Acute Malnutrition after exiting from the program. An innovative community-based management program, found crèches and community mobilization to be central in improving child feeding and caring practices, and the delivery of public health and nutrition services in Odisha (Prasad et. al, 2015).
- Aguayo and colleagues (2015) reiterate the importance of including children from vulnerable populations in Vitamin A supplementation programs, and Plessow et. al (2015) emphasize the social cost of not investing in interventions to reduce iron-deficiency anemia in early childhood.
- Vellakkal et. al (2015) find food price spikes to be associated with increased malnutrition among children in Andhra Pradesh and Leroy et. al (2015) find that existing food security indicators only capture the quality and quantity of the food access, but not safety or cultural acceptability.
- In a qualitative study, Khanna et. al (2015), identify poverty, inadequate sanitation policy and its implementation, and gender-based power dynamics to be key factors affecting construction and utilization of toilet facilities.
- Singh and colleagues (2015) reviewed remuneration models in multiple countries, to understand their potential influence on community health workers' motivation.
- Gillespie et. al (2015) synthesize critical elements from large-scale nutrition programs with proven impact, into 9 action points that may help translate political commitment to large-scale impact on nutrition, and Menon and colleagues (2015) attempt to quantify financial investments needed for scaling up direct nutrition interventions in India.
- The *Lancet* series on breastfeeding examines the global trends and determinants of breastfeeding, reiterates the beneficial effects of exclusive breastfeeding, and recommends effective interventions. The special issue of *Maternal & Child Nutrition* brings together research from multiple countries on complementary feeding involving specific aspects of the composition, distribution and impact of special nutritious solutions to improve nutrient intake of young children.

Enjoy Reading!

Warm regards,
Dr. Rasmi Avula

PEER-REVIEWED STUDIES

Nutrition and Health in Women, Children, and Adolescent Girls

Branca, F., E. Piwoz, W. Schultink, and L.M. Sullivan. 2015. *BMJ* 351 (Supplement 1). doi: 10.1136/bmj.h4173.

http://www.bmj.com/content/351/bmj.h4173.full

Every year the lives of around 50 million children are put at risk because they are dangerously thin from acute undernutrition, while the long term health of more than 40 million children is threatened because they are overweight. Two billion people suffer from vitamin and mineral deficiencies, but overweight and obesity are key contributors to the non-communicable diseases that account for almost two thirds (63%) of adult deaths globally. These different forms of malnutrition—undernutrition, overweight and obesity, and micronutrient deficiencies—now affect people across the same communities and harm people of all ages. (Unless otherwise cited, the figures given are WHO estimates). Improving nutrition therefore presents a key opportunity to improve health. As the UN secretary general launches his second Global Strategy for Women's, Children's and Adolescents' Health in September 2015 a strengthened focus on nutrition is warranted, with special attention to the first 1000 days of life (from pregnancy to the child's second birthday), pregnant and lactating women, women of reproductive age, and adolescent girls.

Children's Health Priorities and Interventions

Were, W.M., B. Daelmans, Z. Bhutta, R. Harding, T. Duke, R. Bahl, C. Boschi-Pinto, M. Young, E. Starbuck, and M.K. Bhan. 2015. *BMJ* 351 (Supplement 1). doi: 10.1136/bmj.h4300.

http://www.bmj.com/content/351/bmj.h4300.full

The millennium development goals were instrumental in increasing investment and action for child survival, thus reducing under 5 mortality by approximately 50% over the past two decades. Despite the gains made, 17,000 children under 5 years of age still die every day, mostly in sub-Saharan Africa and southern Asia and in countries affected by conflict and natural disasters. The future demands attention not only to the unfinished child survival agenda but also to a more holistic global child health agenda recognising the emerging priorities. Strategic choices have to be made to move from "business as usual" to innovative, multiple, and tailored delivery approaches to increase access, coverage, and quality of child health services.

Fetal, Neonatal, Infant, and Child International Growth Standards: An Unprecedented Opportunity for an Integrated Approach to Assess Growth and Development

Garza, C. 2015. *Advances in Nutrition* 6: 383–390. doi: 10.3945/an.114.008128.

http://advances.nutrition.org/content/6/4/383.abstract

The recent publication of fetal growth and gestational age–specific growth standards by the International Fetal and Newborn Growth Consortium for the 21st Century Project and the previous publication by the WHO of infant and young child growth standards based on the WHO Multicentre Growth Reference Study enable evaluations of growth from ~9 wk gestation to 5 y. The most important features of these projects are the prescriptive approach used for subject selection and the rigorous testing of the assertion that growth is very

similar among geographically and ethnically diverse non-isolated populations when health, nutrition, and other care needs are met and the environment imposes minimal constraints on growth. Both studies documented that with adequate controls, the principal source of variability in growth during gestation and early childhood resides among individuals. Study sites contributed much less to observed variability. The agreement between anthropometric measurements common to both studies also is noteworthy. Jointly, these studies provide for the first time, to my knowledge, a conceptually consistent basis for worldwide and localized assessments and comparisons of growth performance in early life. This is an important contribution to improving the health care of children across key periods of growth and development, especially given the appropriate interest in pursuing "optimal" health in the "first 1000 d," i.e., the period covering fertilization/implantation, gestation, and postnatal life to 2 y of age.

Using Height-for-Age Differences (HAD) Instead of Height-for-Age Z-Scores (HAZ) for the Meaningful Measurement of Population-Level Catch-Up in Linear Growth in Children less than 5 Years of Age

Leroy, J., M. Ruel, J. Habicht, and E.A. Frongillo. 2015. *BMC Pediatrics* 15 (145).

http://bmcpediatr.biomedcentral.com/articles/10.1186/s12887-015-0458-9

Background: Evidence from studies conducted in nutritionally deprived children in low- and middle-income countries (LIMC) in past decades showed little or no population-level catch-up in linear growth (mostly defined as reductions in the absolute height deficit) after 2 years of age. Recent studies, however, have reported population-level catch-up growth in children, defined as positive changes in mean height-for-age z-scores (HAZ). The aim of this paper was to assess whether population-level catch-up in linear growth is found when height-for-age difference (HAD: child's height compared to standard, expressed in centimeters) is used instead of HAZ. Our premise is that HAZ is inappropriate to measure changes in linear growth over time because they are constructed using standard deviations from cross-sectional data. **Methods:** We compare changes in growth in populations of children between 2 and 5 years using HAD vs. HAZ using cross-sectional data from 6 Demographic and Health Surveys (DHS) and longitudinal data from the Young Lives and the Consortium on Health-Orientated Research in Transitional Societies (COHORTS) studies. **Results:** Using HAD, we find not only an absence of population-level catch-up in linear growth, but a continued deterioration reflected in a decrease in mean HAD between 2 and 5 years; by contrast, HAZ shows either no change (DHS surveys) or an improvement in mean HAZ (some of the longitudinal data). Population-level growth velocity was also lower than expected (based on standards) in all four Young Lives data sets, confirming the absence of catch-up growth in height. **Discussion:** We show no evidence of population-level catch-up in linear growth in children between 2 to 5 years of age when using HAD (a measure more appropriate than HAZ to document changes as populations of children age), but a continued deterioration reflected in a decrease in mean HAD. **Conclusions:** The continued widening of the absolute height deficit after 2 years of age does not challenge the critical importance of investing in improving nutrition during the first 1000 days (i.e., from conception to 2 years of age), but raises a number of research questions including how to prevent continued deterioration and what is the potential of children to benefit from nutrition interventions after 2 years of age. Preventing, rather than reversing linear growth retardation remains the priority for reducing the global burden of malnutrition worldwide.

Successive 1-Month Weight Increments in Infancy Can Be Used to Screen for Faltering Linear Growth

Onyango A.W., E. Borghi, M. de Onis, E.A. Frongillo, C.G. Victora, K.G. Dewey, A. Lartey, N. Bhandari, A. Baerug A, and C. Garza. 2015. *The Journal of Nutrition* 145 (12): 2725–2731. doi: 10.3945/jn.115.211896.

http://jn.nutrition.org/content/145/12/2725.long

Background: Linear growth faltering in the first 2 y contributes importantly to the high stunting burden, and prevention is hampered by the limited capacity in primary health care for timely screening and intervention. **Objective:** This study aimed to determine an approach to predicting long-term stunting from consecutive 1-mo weight increments in the first year of life. **Methods:** By using the reference sample of the WHO velocity standards, the analysis explored patterns of consecutive monthly weight increments among healthy infants. Four candidate screening thresholds of successive increments that could predict stunting were considered, and one was selected for further testing. The selected threshold was applied in a cohort of Bangladeshi infants to assess its predictive value for stunting at ages 12 and 24 mo. **Results:** Between birth and age 12 mo, 72.6% of infants in the WHO sample tracked within 1 SD of their weight and length. The selected screening criterion ("event") was 2 consecutive monthly increments below the 15th percentile. Bangladeshi infants were born relatively small and, on average, tracked downward from approximately age 6 to <24 mo (51% stunted). The population-attributable risk of stunting associated with the event was 14% at 12 mo and 9% at 24 mo. Assuming the screening strategy is effective, the estimated preventable proportion in the group who experienced the event would be 34% at 12 mo and 24% at 24 mo. **Conclusions:** This analysis offers an approach for frontline workers to identify children at risk of stunting, allowing for timely initiation of preventive measures. It opens avenues for further investigation into evidence-informed application of the WHO growth velocity standards.

Community-Based Management of Severe Acute Malnutrition in India: New Evidence from Bihar

Burza, S., R. Mahajan, E. Marino, T. Sunyoto, C. Shandilya, M. Tabrez, K. Kumari, P. Mathew, A. Jha, N. Salse, and K.N. Mishra. *The American Journal of Clinical Nutrition* 101 (4): 847–859. doi: 10.3945/ajcn.114.093294.

http://www.ncbi.nlm.nih.gov/pubmed/25833981

Background: An estimated one-third of the world's children who are wasted live in India. In Bihar state, of children <5 y old, 27.1% are wasted and 8.3% have severe acute malnutrition (SAM). In 2009, Médecins Sans Frontières (MSF) initiated a community-based management of acute malnutrition (CMAM) program for children aged 6–59 mo with SAM. **Objective:** In this report, we describe the characteristics and outcomes of 8274 children treated between February 2009 and September 2011. **Design:** Between February 2009 and June 2010, the program admitted children with a weight-for-height z score (WHZ) <-3 SD and/or midupper arm circumference (MUAC) <110 mm and discharged those who reached a WHZ >-2 SDs and MUAC >110 mm. These variables changed in July 2010 to admission on the basis of an MUAC <115 mm and discharge at an MUAC ≥120 mm. Uncomplicated SAM cases were treated as outpatients in the community by using a WHO-standard, ready-to-use, therapeutic lipid-based paste produced in India; complicated cases were treated as inpatients by using F75/F100 WHO-standard milk until they could complete treatment in the community. **Results:** A total of 8274 children were admitted including 5149 girls (62.2%), 6613 children aged 6–23 mo (79.9%), and 87.3% children who belonged to Scheduled Caste, Scheduled Tribe, or Other Backward Caste

families or households. Of 3873 children admitted under the old criteria, 41 children (1.1%) died, 2069 children (53.4%) were discharged as cured, and 1485 children (38.3%) defaulted. Of 4401 children admitted under the new criteria, 36 children (0.8%) died, 2526 children (57.4%) were discharged as cured, and 1591 children (36.2%) defaulted. For children discharged as cured, the mean (±SD) weight gain and length of stay were 4.7 ± 3.1 and 5.1 ± 3.7 g · kg(-1) · d(-1) and 8.7 ± 6.1 and 7.3 ± 5.6 wk under the old and new criteria, respectively ($P < 0.01$). After adjustment, significant risk factors for default were as follows: no community referral for admission, more severe wasting on admission, younger age, and a long commute for treatment. **Conclusions:** To our knowledge, this is the first conventional CMAM program in India and has achieved low mortality and high cure rates in nondefaulting children. The new admission criteria lower the threshold for severity with the result that more children are included who are at lower risk of death and have a smaller WHZ deficit to correct than do children identified by the old criteria.

Seasonal Effect and Long-Term Nutritional Status Following Exit from a Community-Based Management of Severe Acute Malnutrition Program in Bihar, India

Burza, S., R. Mahajan, E. Marino, R. Sunyoto, C. Shandilya, M. Tabrez, K. Kumar, A. Jha, P. Mathew, N. Salse, C. Casademont, and N.K. Mishra. 2015. *European Journal of Clinical Nutrition*. doi: 10.1038/ejcn.2015.140.

http://www.nature.com/ejcn/journal/vaop/ncurrent/full/ejcn2015140a.html

Background/Objectives: Children aged 6 months to 5 years completing treatment for severe acute malnutrition (SAM) in a Médecins Sans Frontières Community Management of Acute Malnutrition (CMAM) program in Bihar, India, showed high cure rates; however, the program suffered default rates of 38%. This report describes the nutritional status of 1956 children followed up between 3 and 18 months after exiting the program. **Subjects/Methods:** All children aged 6-59 months discharged as cured with mid-upper arm circumference (MUAC) ⩾120 mm or who defaulted from the program with MUAC <115 mm were traced at 3, 6, 9, 12 and 18 months (±10 days) before three exit reference dates: first at the end of the food insecure period, second after the 2-month food security and third after the 4-month food security. **Results:** Overall, 68.7% (n=692) of defaulters and 76.2% (n=1264) of children discharged as cured were traced. Combined rates of non-recovery in children who defaulted with MUAC <115 mm were 41%, 30.1%, 9.9%, 6.1% and 3.6% at 3, 6, 9, 12 and 18 months following exit, respectively. Combined rates of relapse among cured cases (MUAC ⩾120 mm) were 9.1%, 2.9%, 2.1%, 2.8% and 0% at 3, 6, 9, 12 and 18 months following discharge, respectively. Prevalence of undernutrition increased substantially for both groups traced during low food security periods. Odds of death were much higher for children defaulting with MUAC <110 mm when compared with children discharged as cured, who shared the same mortality risk as those defaulting with MUAC 110-<115 mm. **Conclusions:** Seasonal food security predicted short-term nutritional status after exit, with relapse rates and non-recovery from SAM much higher during food insecurity. Mortality outcomes suggest that a MUAC of 110 mm may be considered an appropriate admission point for SAM treatment programs in this context.

Vitamin A Supplementation Programmes Are Missing Children from Scheduled Castes and Scheduled Tribes. New Evidence from India

Aguayo, V.M., N. Badgaiyan, and J.H. Rah. 2015. *BMC Nutrition*: 1–15. doi: 10.1186/s40795-015-0010-1.

http://www.biomedcentral.com/2055-0928/1/15

Background: Surveys have indicated that 62 % of preschool-age Indian children suffer from sub-clinical vitamin A deficiency (VAD), with a threefold higher prevalence of severe forms of VAD among children from schedule castes (SC) or schedule tribes (ST). The objective of this analysis is to assess whether India's national vitamin A supplementation (VAS) programme is reaching the districts with higher concentration of SC/ST children in the seven states with the largest burden of under-five mortality (74 % of India's under-five deaths). **Methods:** Disaggregated analyses of trends in and outcome VAS coverage and full VAS coverage were conducted between 2006 and 2011 by state and SC/ST concentration quintile using three data sources—India's national VAS programme, Office of the Registrar General and Census Commissioner, and District-Level Household Survey—to compute exposure (SC and/or ST concentration) and outcome (VAS coverage and full VAS coverage) were conducted. **Results:** Between 2006 and 2011, all SC/ST concentration quintiles reported significant increases in full VAS coverage (two doses/child/year). The mean full VAS coverage over the 6-year period was positively correlated with the SC/ST concentration quintile: the district quintile with the highest concentration of SC/ST households reported the highest full VAS coverage (62.5 %), while the district quintile with the lowest concentration of SC/ST households reported the lowest coverage (47.9 %). The estimated number of children not fully covered by the VAS programme decreased by 39.0 % among children from SC/ST households and by 51.7 % among children from non-SC/ST households. The mean annual number of SC/ST children not fully covered was similar across SC/ST concentration quintiles (1.1 to 1.3 million). **Conclusions:** Indian states have achieved significant progress in expanding the coverage of the VAS programme. However, a large proportion of children are not benefitting from this child survival intervention, particularly among SC/ST children. These children are potentially among the most vulnerable to VAD and its consequences. India's national VAS programme needs to be strengthened in sub-district-level units (i.e. blocks and villages) with higher concentrations of SC/ST children, with particular emphasis on SC children.

Potentials, Experiences and Outcomes of a Comprehensive Community Based Programme to Address Malnutrition in Tribal India

Prasad, V., and D. Sinha. 2015. *International Journal of Child Health and Nutrition* 4: 161–182.

http://www.lifescienceglobal.com/pms/index.php/ijchn/article/view/3244

This paper demonstrates the effect of an innovative community-based management programme on acute malnutrition among children under three years of age, through an observational longitudinal cohort study in tribal blocks in central-eastern India. The key components of the programme include child care through crèches, community mobilisation and systems strengthening to ensure better child feeding and caring practices and delivery of public health and nutrition services. For a cohort of 587 children, the increase in children in the non-wasting category is from 72% to 80% ($p<0.001$) and the reduction in Severe Acute Malnutrition (SAM) from 8% to 4% ($p<0.005$), a reduction of 46.6%. Normalcy is fairly well maintained at 89%. Among the severely wasted, 16% show no improvement, 49% moved into a moderate wasting category and 36% to normalcy over 4-6 months. Among the moderately wasted, 26% showed no improvement and 7% declined to a severely wasted category, and 67% moved to normalcy. The average Weight for Height Z-score (WHZ) for the cohort improved from -1.41 in the initial period to -1.13 in November ($p<0.0001$). This study suggests that this medium term strategy using a rights-based participatory approach for community based management of malnutrition may be comparatively effective by current WHO guidelines and other known community based interventions in terms of mortality, cost, degree and pace of improvements.

Social Costs of Iron Deficiency Anemia in 6–59 Month Old Children in India

Plessow R., N.K. Arora, B. Brunner, C. Tzogiou, K. Eichler, U. Brügger, and S. Wieser. 2015. *PLoS ONE* 10 (8): e0136581. doi: 10.1371/journal.pone.0136581.

http://www.ncbi.nlm.nih.gov/pubmed/26313356

Introduction: Inadequate nutrition has a severe impact on health in India. According to the WHO, iron deficiency is the single most important nutritional risk factor in India, accounting for more than 3% of all disability-adjusted life years (DALYs) lost. We estimate the social costs of iron deficiency anemia (IDA) in 6-59-month-old children in India in terms of intangible costs and production losses. **Materials and methods:** We build a health economic model estimating the life-time costs of a birth cohort suffering from IDA between the ages of 6 and 59 months. The model is stratified by 2 age groups (6-23 and 24-59-months), 2 geographical areas (urban and rural), 10 socio-economic strata and 3 degrees of severity of IDA (mild, moderate and severe). Prevalence of anemia is calculated with the last available National Family Health Survey. Information on the health consequences of IDA is extracted from the literature. **Results:** IDA prevalence is 49.5% in 6-23-month-old and 39.9% in 24-58-month-old children. Children living in poor households in rural areas are particularly affected but prevalence is high even in wealthy urban households. The estimated yearly costs of IDA in 6-59-month-old children amount to intangible costs of 8.3 m DALYs and production losses of 24,001 m USD, equal to 1.3% of gross domestic product. Previous calculations have considerably underestimated the intangible costs of IDA as the improved WHO methodology leads to a threefold increase of DALYs due to IDA. **Conclusion:** Despite years of iron supplementation programs and substantial economic growth, IDA remains a crucial public health issue in India and an obstacle to the economic advancement of the poor. Young children are especially vulnerable due to the irreversible effects of IDA on cognitive development. Our research may contribute to the design of new effective interventions aiming to reduce IDA in early childhood.

Measuring the Food Access Dimension of Food Security: A Critical Review and Mapping of Indicators

Leroy, J.L., M. Ruel, E.A. Frongillo, J. Harris, T.J. Ballard. 2015. *Food and Nutrition Bulletin* 36 (2): 167–195. doi: 10.1177/0379572115587274.

http://www.ncbi.nlm.nih.gov/pubmed/26121701

Background: With food security now a top priority for many governments and for the global development community, there is heightened awareness of the need to improve our understanding and measurement of food security. **Objective:** To bring clarity in the assessment of the food access dimension of food security at the household and individual level. **Methods:** For the most commonly used indicators, we reviewed their original purpose and construction, at what levels (household or individual) they were designed to be used, what components (quality, quantity, safety, and cultural acceptability) they were intended to reflect, and whether or not they have been tested for validity and comparability across contexts. **Results:** We identified nine indicators and grouped them in three broad categories: experience-based, coping strategies, and dietary diversity. The indicators only capture the quantity and quality components of food access; none of the indicators capture information on safety or cultural acceptability of food access. Household Dietary Diversity (HDDS) and Food Consumption Score (FCS) are often considered indicators of both quantity and quality, but they have not been

validated for the latter. **Conclusions:** We recommend the use of experience-based indicators, HDDS, or FCS to assess household access to energy; experience-based indicators to assess household access to diet quality (defined qualitatively as not having to adopt practices that favor acquiring cheaper, less appealing, and less micronutrient-dense foods); and individual dietary diversity scores for women or children to assess individual access to diet quality, defined as micronutrient adequacy.

Food Price Spikes Are Associated with Increased Malnutrition among Children in Andhra Pradesh, India

Vellakkal, S., J. Fledderjohann, S. Basu, S. Agrawal, S. Ebrahim, O. Campbell, P. Doyle, and D. Stuckler. 2015. *The Journal of Nutrition* 145 (8). doi: 10.3945/jn.115.211250.

https://www.researchgate.net/publication/279729234_Food_Price_Spikes_Are_Associated_with_Increased_Malnutrition_among_Children_in_Andhra_Pradesh_India

Background: Global food prices have risen sharply since 2007. The impact of food price spikes on the risk of malnutrition in children is not well understood. **Objective:** We investigated the associations between food price spikes and childhood malnutrition in Andhra Pradesh, one of India's largest states, with >85 million people. Because wasting (thinness) indicates in most cases a recent and severe process of weight loss that is often associated with acute food shortage, we tested the hypothesis that the escalating prices of rice, legumes, eggs, and other staples of Indian diets significantly increased the risk of wasting (weight-for-height z scores) in children. **Methods:** We studied periods before (2006) and directly after (2009) India's food price spikes with the use of the Young Lives longitudinal cohort of 1918 children in Andhra Pradesh linked to food price data from the National Sample Survey Office. Two-stage least squares instrumental variable models assessed the relation of food price changes to food consumption and wasting prevalence (weight-for-height *z* scores). **Results:** Before the 2007 food price spike, wasting prevalence fell from 19.4% in 2002 to 18.8% in 2006. Coinciding with India's escalating food prices, wasting increased significantly to 28.0% in 2009. These increases were concentrated among low- ($\chi 2$: 21.6, $P < 0.001$) and middle- ($\chi 2$: 25.9, $P < 0.001$) income groups, but not among high-income groups ($\chi 2$: 3.08, $P = 0.079$). Each 10.0 rupee ($0.170) increase in the price of rice/kg was associated with a drop in child-level rice consumption of 73.0 g/d (β: –7.30; 95% CI: –10.5, –3.90). Correspondingly, lower rice consumption was significantly associated with lower weight-for-height-z scores (i.e., wasting) by 0.005 (95% CI: 0.001, 0.008), as seen with most other food categories. Conclusion: Rising food prices were associated with an increased risk of malnutrition among children in India. Policies to help ensure the affordability of food in the context of economic growth are likely critical for promoting children's nutrition.

Why Gender Matters in the Solution towards Safe Sanitation? Reflections from Rural India

Khanna T., and M. Das. 2015. *Global Public Health*. doi: 10.1080/17441692.2015.1062905.

http://www.tandfonline.com/doi/abs/10.1080/17441692.2015.1062905#.VgpkC_mqqko

While the topic of women and water, sanitation and hygiene is a widely accepted concern among academics and activists, it continues to be an issue in developing countries with serious consequences. Based on a qualitative research conducted in rural Uttar Pradesh, India, the paper affirms that sanitation issues for women and girls are compounded by inequitable gender norms that put them at greater risk of experiencing violence and multiple health vulnerabilities. Women, despite having a high demand for safe toilet facilities, continue to practise unsafe sanitation. The findings highlight the role of three structural constraints as the key factors influencing toilet

construction and use: poverty, inadequate sanitation policy and its implementation and gender-based power dynamics at the household level. The paper concludes by emphasising the relevance of engendering sanitation programmes and policies by involving women and girls in the planning process to ensure that dignified and gender-sensitive sanitation solutions are developed. The paper also stresses the need to have measures for strengthening and effectively implementing a sanitation policy for the poor and for programmes to work with both men and women to address gender power relations which influence toilet adoption and use.

The Effect of Payment and Incentives on Motivation and Focus of Community Health Workers: Five Case Studies from Low- and Middle-Income Countries

Singh D., J. Negin, M. Otim, C.G. Orach and R. Cumming. 2015. *Human Resources for Health* 13 (58). doi:10.1186/s12960-015-0051-1.

http://www.human-resources-health.com/content/13/1/58

Introduction: Community health workers (CHWs) have been proposed as a means for bridging gaps in health-care delivery in rural communities. Recent CHW programmes have been shown to improve child and neonatal health outcomes, and it is increasingly being suggested that paid CHWs become an integral part of health systems. Remuneration of CHWs can potentially effect their motivation and focus. Broadly, programmes follow a social, monetary or mixed market approach to remuneration. Conscious understanding of the differences, and of what each has to offer, is important in selecting the most appropriate approach according to the context. **Case descriptions:** The objective of this review is to identify and examine different remuneration models of CHWs that have been utilized in large-scale sustained programmes to gain insight into the effect that remuneration has on the motivation and focus of CHWs. A MEDLINE search using Ovid SP was undertaken and data collected from secondary sources about CHW programmes in Iran, Ethiopia, India, Bangladesh and Nepal. Five main approaches were identified: part-time volunteer CHWs without regular financial incentives, volunteers that sell health-related merchandise, volunteers with financial incentives, paid full-time CHWs and a mixed model of paid and volunteer CHWs. **Discussion and evaluation:** Both volunteer and remunerated CHWs are potentially effective and can bring something to the health arena that the other may not. For example, well-trained, supervised volunteers and full-time CHWs who receive regular payment, or a combination of both, are more likely to engage the community in grass-roots health-related empowerment. Programmes that utilize minimal economic incentives to part-time CHWs tend to limit their focus, with financially incentivized activities becoming central. They can, however, improve outcomes in well-circumscribed areas. In order to maintain benefits from different approaches, there is a need to distinguish between CHWs that are trained and remunerated to be a part of an existing health system and those who, with little training, take on roles and are motivated by a range of contextual factors. Governments and planners can benefit from understanding the programme that can best be supported in their communities, thereby maximizing motivation and effectiveness.

Scaling Up Impact on Nutrition: What Will It Take?

Gillespie, S., P. Menon, and A.L. Kennedy. 2015. *Advances in Nutrition* 6: 440–51. doi: 10.3945/an.115.008276.

http://advances.nutrition.org/content/6/4/440.abstract

Despite consensus on actions to improve nutrition globally, less is known about how to operationalize the right mix of actions—nutrition-specific and nutrition-sensitive—equitably, at scale, in different contexts. This

review draws on a large scaling-up literature search and 4 case studies of large-scale nutrition programs with proven impact to synthesize critical elements for impact at scale. Nine elements emerged as central: 1) having a clear vision or goal for impact; 2) intervention characteristics; 3) an enabling organizational context for scaling up; 4) establishing drivers such as catalysts, champions, systemwide ownership, and incentives; 5) choosing contextually relevant strategies and pathways for scaling up, 6) building operational and strategic capacities; 7) ensuring adequacy, stability, and flexibility of financing; 8) ensuring adequate governance structures and systems; and 9) embedding mechanisms for monitoring, learning, and accountability. Translating current political commitment to large-scale impact on nutrition will require robust attention to these elements.

SPECIAL ISSUES—

The Lancet Series on Breastfeeding

http://www.thelancet.com/series/breastfeeding

Executive Summary

With a substantial development of research and findings for breastfeeding over the past three decades, we are now able to expand on the health benefits for both women and children across the globe. The two papers in this Series will describe past and current global trends of breastfeeding, its short and long-term health consequences for the mother and child, the impact of investment in breastfeeding, and the determinants of breastfeeding and the effectiveness of promotion interventions.

Editorial

Breastfeeding: Achieving the New Normal

http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(16)00210-5.pdf

Comments

Spotlight on Infant Formula: Coordinated Global Action Needed

McFadden, A., F. Mason, J. Baker, F. Begin, F. Dykes, L. Grummer-Strawn, N. Kenney-Muir, H. Whitford, E. Zehner, and M.J. Renfrew. 2016. *The Lancet* 387 (10017): 413–415. doi: 10.1016/S0140-6736(16)00103-3.

http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(16)00103-3.pdf

Breastfeeding has often been described as cost free. It is not free. Breastfeeding requires investment to overcome the sociopolitical barriers that exist in many countries through the effective approaches and practices described in the second paper of the Lancet Breastfeeding Series. As shown in the first Series paper, infants, children, and mothers who do not breastfeed experience an increased risk of mortality and morbidity. Breastfeeding is nutritionally, immunologically, neurologically, endocrinologically, economically and ecologically superior to breastmilk substitutes (BMS), and does not require quality control of manufacture, transport, storage, and feeding mechanisms.

Breastfeeding: A Smart Investment in People and in Economies

Hansen, K. 2016. *The Lancet* 387 (10017): 416. doi: 10.1016/S0140-6736(16)00012-X.
http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(16)00012-X.pdf

If breastfeeding did not already exist, someone who invented it today would deserve a dual Nobel Prize in medicine and economics. For while "breast is best" for lifelong health, it is also excellent economics. Breastfeeding is a child's first inoculation against death, disease, and poverty, but also their most enduring investment in physical, cognitive, and social capacity.

Series Papers

Breastfeeding in the 21st Century: Epidemiology, Mechanisms, and Lifelong Effect

Victoria, C.G., R. Bahl, A.J.D. Barros, G.V.A. Franca, S. Horton, J. Krasevec, S. Murch, M.J. Sankar, N. Walker, N.C. Rollins. 2016. *The Lancet* 387 (10017): 475–490. doi: 10.1016/S0140-6736(15)01024.
http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01024-7.pdf

The importance of breastfeeding in low-income and middle-income countries is well recognised, but less consensus exists about its importance in high-income countries. In low-income and middle-income countries, only 37% of children younger than 6 months of age are exclusively breastfed. With few exceptions, breastfeeding duration is shorter in high-income countries than in those that are resource-poor. Our meta-analyses indicate protection against child infections and malocclusion, increases in intelligence, and probable reductions in overweight and diabetes. We did not find associations with allergic disorders such as asthma or with blood pressure or cholesterol, and we noted an increase in tooth decay with longer periods of breastfeeding. For nursing women, breastfeeding gave protection against breast cancer and it improved birth spacing, and it might also protect against ovarian cancer and type 2 diabetes. The scaling up of breastfeeding to a near universal level could prevent 823 000 annual deaths in children younger than 5 years and 20 000 annual deaths from breast cancer. Recent epidemiological and biological findings from during the past decade expand on the known benefits of breastfeeding for women and children, whether they are rich or poor.

Why Invest, and What It Will Take to Improve Breastfeeding Practices?

Rollins, N.C., N. Bhandari, N. Hajeebhoy, S. Horton, C.K. Lutter, J.C. Martines, E.G. Piwoz, L.M. Richter and C.G. Victora. 2016. *The Lancet* 387 (10017): 491–504. doi: 10.1016/S0140-6736(15)01044-2.
http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01044-2.pdf

Despite its established benefits, breastfeeding is no longer a norm in many communities. Multifactorial determinants of breastfeeding need supportive measures at many levels, from legal and policy directives to social attitudes and values, women's work and employment conditions, and health-care services to enable women to breastfeed. When relevant interventions are delivered adequately, breastfeeding practices are responsive and can improve rapidly. The best outcomes are achieved when interventions are implemented concurrently through several channels. The marketing of breastmilk substitutes negatively affects breastfeeding: global sales in 2014 of US$44.8 billion show the industry's large, competitive claim on infant feeding. Not breastfeeding is associated with lower intelligence and economic losses of about $302 billion annually or 0.49% of world gross national income. Breastfeeding provides short-term and long-term health and economic and environmental advantages to children, women, and society. To realise these gains, political support and financial investment are needed to protect, promote, and support breastfeeding.

Maternal and Child Nutrition Special Supplement: Policy, Program and Innovation in Complementary Feeding

Editorial

Special Nutritious Solutions to Enhance Complementary Feeding
Saskia de Pee

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12265/abstract

Review Article

The Role of Folate in Malaria – Implications for Home Fortification Programmes among Children Aged 6–59 Months
Kupka, R. 2015. *Maternal and Child Nutrition* 11:1-15. doi: 10.1111/mcn.12102.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12102/epdf

Original Articles

Willingness to Pay for Lipid-Based Nutrient Supplements for Young Children in Four Urban Sites of Ethiopia
Segrè, J., K. Winnard, T.H. Abrha, Y. Abebe, D. Shilane, and K. Lapping. 2015. *Maternal and Child Nutrition* 11: 16–30. doi: 10.1111/mcn.12022.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12022/epdf

Considerations in Developing Lipid-Based Nutrient Supplements for Prevention of Undernutrition: Experience from the International Lipid-Based Nutrient Supplements (iLiNS) Project
Arimond, M., M. Zeilani, S. Jungjohann, K.H. Brown, P. Ashorn, L.H. Allen, and K.G. Dewey. 2015. *Maternal and Child Nutrition* 11: 31–61. doi: 10.1111/mcn.12049.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12049/epdf

Preventative Lipid-Based Nutrient Supplements (LNS) and Young Child Feeding Practices: Findings from Qualitative Research in Haiti
Lesorogol, C., S. Jean-Louis, J. Green, and L. Iannotti. 2015. *Maternal and Child Nutrition* 11: 62–76. doi: 10.1111/mcn.12122.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12122/epdf

Predictors of Micronutrient Powder Sachet Coverage in Nepal
Jefferds, M.E.D., K.R. Mirkovic, G.R. Subedi, S. Mehbrahtu, P. Dahal, and C.G. Perrine. 2015. *Maternal and Child Nutrition* 11 (Supplement 4): 77–89. doi: 10.1111/mcn.12214.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12214/abstract

Comparison of Methods to Assess Adherence to Small-Quantity Lipid-Based Nutrient Supplements (SQ-LNS) and Dispersible Tablets among Young Burkinabe' Children Participating in a Community-Based Intervention Trial
Abbeddou, S., S.Y. Hess, E.Y Jimenez, J.W. Somé, S.A. Vosti, R.M. Guissou, J.B. Ouédraogo, and K.H. Brown. 2015. *Maternal and Child Nutrition* 11: 90–104. doi: 10.1111/mcn.12162.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12162/epdf

Comparison of the Effectiveness of a Milk-Free Soy-Maize-Sorghum-Based Ready-to-Use Therapeutic Food to Standard Ready-to-Use Therapeutic Food with 25% Milk in Nutrition Management of Severely Acutely Malnourished Zambian Children: An Equivalence Non-Blinded Cluster Randomised Controlled Trial

Irena, A.H., P. Bahwere, V.O. Owino, E.I. Diop, M.O. Bachmann, C. Mbwili-Muleya, R. Dibari, K. Sadler, and Steve Collins. 2015. *Maternal and Child Nutrition* 11: 105–119. doi: 10.1111/mcn.12054.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12054/epdf

Double-Blind Cluster Randomised Controlled Trial of Wheat Flour Chapatti Fortified with Micronutrients on the Status of Vitamin A and Iron in School-Aged Children in Rural Bangladesh

Rahman, A.S., T. Ahmed, F. Ahmed, M.S. Alam, M.A. Wahed, and D.A. Sack. 2015. *Maternal and Child Nutrition* 11: 120–131. doi: 10.1111/mcn.12065.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12065/epdf

Effect of Complementary Feeding with Lipid-Based Nutrient Supplements and Corn–Soy Blend On the Incidence of Stunting and Linear Growth Among 6- To 18-Month-Old Infants and Children in Rural Malawi

Mangani, C., K. Maleta, J. Phuka, Y.B. Cheung, C. Thakwalakwa, K. Dewey, M. Manary, T. Puumalainen, and P. Ashorn. 2015. *Maternal and Child Nutrition* 11: 132–143. doi:1111/mcn.12068.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12068/abstract

Impact of Lipid-Based Nutrient Supplements and Corn–Soy Blend On Energy and Nutrient Intake Among Moderately Underweight 8–18-Month-Old Children Participating in A Clinical Trial

Thakwalakwa, C.M., P. Ashorn, J.C. Phuka, Y.B.Cheung, A. Briend, and K.M. Maleta. 2015. *Maternal and Child Nutrition* 11: 144–150. doi: 10.1111/mcn.12105.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12105/abstract

In-Home Fortification with 2.5 Mg Iron as NaFeEDTA Does Not Reduce Anaemia but Increases Weight Gain: A Randomised Controlled Trial in Kenyan Infants

Barth-Jaeggi, T., D. Moretti, J. Kvalsvig, P.A. Holding, J. Njenga, A. Mwangi, M.K. Chhagan, C. Lacroix, and M.B. Zimmermann. 2015. *Maternal and Child Nutrition* 11: 151–162. doi: 10.1111/mcn.12163.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12163/abstract

Impact of Lipid-Based Nutrient Supplementation (LNS) On Children's Diet Adequacy in Western Uganda

Ickes, S.B., L.S. Adair, C.A. Brahe, H. Thirumurthy, B. Charles, J.A. Myhre, M.E. Bentley, and A.S. Ammerman. 2015. *Maternal and Child Nutrition* 11: 163–178. doi: 10.1111/mcn.12164.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12164/abstract

Iron Bioavailability in 8–24-Month-Old Thai Children from A Micronutrient-Fortified Quick-Cooking Rice Containing Ferric Ammonium Citrate or A Mixture of Ferrous Sulphate and Ferric Sodium Ethylenediaminetetraacetic Acid

Chavasit, V., S. Porasuphatana, U. Suthutvoravut, C. Zeder, and R. Hurrell. 2015. *Maternal and Child Nutrition* 11: 179–187. doi: 10.1111/mcn.12167.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12167/abstract

Adding Multiple Micronutrient Powders to A Homestead Food Production Programme Yields Marginally Significant Benefit On Anaemia Reduction Among Young Children in Nepal

Osei, A.K., P. Pandey, D. Spiro, D. Adhikari, N. Haselow, C. De Morais, and D. Davis. 2015. *Maternal and Child Nutrition* 11: 188–202. doi: 10.1111/mcn.12173.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12173/abstract

Provision of Lipid-Based Nutrient Supplements to Honduran Children Increases Their Dietary Macro- and Micronutrient Intake Without Displacing Other Foods

Flax, V.L., A.M. Siega-Riz, G.A. Reinhart, and M.E. Bentley. 2015. *Maternal and Child Nutrition* 11: 203–213. doi: 10.1111/mcn.12182.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12182/abstract

Caterpillar Cereal as A Potential Complementary Feeding Product for Infants and Young Children: Nutritional Content and Acceptability

Bauserman, M., A. Lokangaka, K.K. Kodondi, J. Gado, A.J. Viera, M.E. Bentley, C. Engmann, A. Tshefu, and C. Bose. 2015. *Maternal and Child Nutrition* 11: 214–220. doi: 10.1111/mcn.12037.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12037/abstract

Differential Ferritin Interpretation Methods That Adjust for Inflammation Yield Discrepant Iron Deficiency Prevalence

Nel, E., H.S. Kruger, J. Baumgartner, M. Faber, and C.M. Smuts. 2015. *Maternal and Child Nutrition* 11: 221–228. doi: 10.1111/mcn.12175.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12175/abstract

Adding Multiple Micronutrient Powders to A Homestead Food Production Programme Yields Marginally Significant Benefit On Anaemia Reduction Among Young Children in Nepal

Osei, A.K., P. Pandey, D. Spiro, D. Adhikari, N. Haselow, C. De Morais, and D. Davis. 2015. *Maternal and Child Nutrition* 11 (Supplement 4): 188–202. doi: 10.1111/mcn.12173.

http://onlinelibrary.wiley.com/doi/10.1111/mcn.12173/abstract

Non-Peer Reviewed

Estimating the Cost of Delivering Direct Nutrition Interventions at Scale: National- and Subnational-Level Insights from India

Menon, P., C. M. McDonald, and S. Chakrabarti. 2015. *Estimating the Cost of Delivering Direct Nutrition Interventions at Scale: National and Subnational-Level Insights from India.* POSHAN Report No 9. International Food Policy Research Institute, New Delhi.

http://ebrary.ifpri.org/cdm/singleitem/collection/p15738coll2/id/130079

More than a third of all children under-five in India are still stunted (RSOC 2014), and other forms of under-nutrition also remain a challenge. Our previous analyses indicate that two national programs— the Integrated Child Development Services (ICDS) and the National Rural Health Mission (NRHM)— are designed specifically to cover a set of nutrition-specific interventions; both these programs also extended their coverage in the past decade. However, in a country as diverse and populous as India, universalization of these programs remains a distant dream, with coverage limited by challenges such as financing, implementation capacity, limited demand for nutrition interventions and more. In order to examine the role of financing as a limiting factor related to program coverage, POSHAN sought to estimate the cost of scaling up two packages of nutrition-specific interventions to fully cover target populations in the 35 states and union territories of India. The *SUN* package (Horton et al. 2010), covers several globally recommended interventions while the India Plus package is a set of 14 interventions that are currently encompassed in India's policy framework (Avula et al., 2013). The authors used recent demographic data to estimate target population sizes and to provide state-specific costs of delivering both sets of interventions. The authors then attempted to make comparisons of 'at scale' cost estimates with current expenditures for the food supplementation sub-set of the interventions. This expenditure analysis was conducted by using government-reported expenditure estimates. Authors anticipate that at 2014 target population levels, it could cost about US$ 4.2 billion per year for the *SUN* interventions and US$ 5.9 billion per year for the India Plus interventions, to be delivered at scale across all states in India. They also state that costs are not spread equally across India; some states require significantly more resources than other states, depending both on base target populations and the burden of severe acute malnutrition. When assessing expenditures against estimated costs for food supplementation, the authors find that current coverage levels are lower than would be needed to assure full universalization. This is one of the few studies that attempt to quantify the financial investments needed and that provides state-level cost estimates, which can be considered in decision-making processes at the national and state-level.

Cash Transfers and Child Nutrition: What We Know and What We Need to Know

De Groot, R., T. Palermo, S. Handa, L.P. Ragno, and A. Peterman. 2015. *Cash Transfers and Child Nutrition: What We Know and What We Need to Know.* Innocenti Working Papers 2015-07. UNICEF, Florence.

http://www.unicef-irc.org/publications/782

Childhood malnutrition remains a significant global problem with an estimated 162 million children under 5 suffering from stunted growth. Social protection interventions, in particular cash transfer programmes, have

the potential to contribute to the improvement of child nutrition. This paper aims to provide a comprehensive overview of the impacts of cash transfer programmes on the immediate and underlying determinants of child nutrition, including the most recent evidence from impact evaluations across sub-Saharan Africa. It adopts the UNICEF extended model of care conceptual framework of child nutrition and highlights evidence on the main elements of the framework – food security, care and health care. The paper concludes that, while an increasing number of studies have stressed the positive role of cash transfer programmes in increasing resources for food, health and care, the evidence to date on the immediate determinants of child nutrition is mixed with respect to whether cash transfers can positively impact growth-related outcomes among children, particularly in sub-Saharan Africa. Key gaps that should be addressed in future research include cash transfer impacts on more proximate nutrition-related outcomes such as children's dietary diversity, as well as caregiver behaviours, intra-household violence, and stress, all of which have implications for child health and well-being.

Little Women: Essays on Maternal Nutrition, Social Hierarchy, and Health in India

Coffey, D. 2015. *Little Women: Essays on Maternal Nutrition, Social Hierarchy, and Health in India.* Princeton University, New Jersey.

http://search.proquest.com/docview/1707658073

This thesis is a collection of four papers on maternal health in India, its causes, its implications for population health, and the inadequacy of government response. The first chapter introduces the dissertation and its themes. The second chapter defines the scope of maternal malnutrition in India: it provides, to my knowledge, the first estimates of pre-pregnancy underweight and weight gain during pregnancy. By applying reweighting techniques, it finds that 42.2% of pre-pregnant women are underweight, and that they gain only about 7 kilograms during pregnancy. This paper further documents the surprising fact that maternal nutrition is better in sub-Saharan Africa than it is in India. The third chapter is co-authored with Reetika Khera and Dean Spears, and examines an important cause of poor maternal nutrition in India: low intrahousehold status of young women. It documents how differences in social status between women in joint rural households lead to differences in nutrition during pregnancy. These differences in maternal nutrition are in part responsible for differences in the heights of their children: the children of lower-ranking mothers in joint rural households are about a quarter of a standard deviation shorter than their cousins born to higher-ranking mothers. The fourth chapter suggests population level health consequences of poor maternal nutrition in India. It documents a correlation between cohort height, a measure of health and human capital, and neonatal mortality in the cohort's year of birth, a measure of maternal health. These findings contribute what are, to my knowledge, the first evidence from within a developing country of associations between neonatal mortality and height. The final chapter is a qualitative study of India's Janani Suraksha Yojana (JSY), a conditional cash transfer for women who give birth in health facilities, rather than at home. This qualitative study from a rural district in Uttar Pradesh sheds light on why the program has not improved health outcomes, including neonatal mortality. The program is narrowly focused on delivery, rather than on promoting health in pregnancy. Health service providers are focused on capturing economic rents associated with the program, rather than on providing maternity care.

2015 Global Hunger Index: Armed Conflict and the Challenge of Hunger

Von-Grebmer, K., J. Bernstein, A. De-Waal, N. Prasai, S. Yin, and Y. Yohannes. 2015. *2015 Global Hunger Index: Armed Conflict and the Challenge of Hunger.* International Food Policy Research Institute, Washington.

http://www.ifpri.org/publication/2015-global-hunger-index-armed-conflict-and-challenge-hunger

The level of hunger in developing countries as a group has fallen by 27 percent since 2000. While the world has made progress in reducing hunger in recent decades, the state of hunger is still serious or alarming in 52 countries. These findings come from the 2015 Global Hunger Index (GHI) report, the tenth in an annual series that tracks the state of hunger worldwide, regionally, and by country, turning a spotlight on those regions and countries where action is needed most to address hunger. This report's GHI scores are based on a new, improved formula that reflects the multidimensional nature of hunger by combining four indicators related to undernourishment, wasting, stunting, and child mortality. The report features an essay, "Armed Conflict and the Challenge of Hunger: Is an End in Sight?" In it, Alex de Waal, executive director of the World Peace Foundation, shares a scoop about a historic achievement. Calamitous famines—those that cause more than 1 million deaths each—seem to have disappeared. He analyzes the reasons behind the famines as well as what needs to be done to prevent them from coming back. Although hunger and armed conflict have often travelled hand in hand, history has shown that hunger can be averted. If humanitarian responses in the modern world are effective, conflict need not necessarily lead to the extreme hunger that is famine.

Global Nutrition Report 2015

International Food Policy Research Institute. 2015. *Global Nutrition Report 2015: Actions and Accountability to Advance Nutrition and Sustainable Development.* Washington, DC.

http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/129443/filename/129654.pdf

Children whose growth is stunted, people who don't get enough vitamins and minerals for a healthy life, adults who are overweight and obese—malnutrition takes many forms and affects every country on earth. A problem of staggering size, malnutrition is widespread enough to threaten the world's sustainable development ambitions. The Global Nutrition Report 2015 is a report card on the world's nutrition—globally, regionally, and country by country—and on efforts to improve it. It assesses countries' progress in meeting global nutrition targets established by the World Health Assembly. It documents how well countries, aid donors, NGOs, businesses, and others are meeting the commitments they made at the major Nutrition for Growth summit in 2013. And it spells out the actions that proven effective in combating malnutrition in all its forms. The 2015 report makes it clear that global progress to reduce malnutrition has been slow and uneven. Nearly half of all countries face multiple serious burdens of malnutrition such as poor child growth, micronutrient deficiency, and adult overweight and obesity. No country is on track to achieve the global nutrition targets established by the World Health Assembly. Some countries, however, have made notable progress and the Report seeks to understand the factors that contributed to improvements. The second in an annual series, the Global Nutrition Report 2015 also highlights the critical relationship between climate change and nutrition, as well as the pivotal role business can play in advancing nutrition. It considers how countries can build food systems that are more nutrition friendly and sustainable. With a wealth of data and analysis, the report aims to improve accountability among the governments, institutions, businesses, and others whose actions affect people's nutrition. It is accompanied by extensive supplementary online data, including nutritional profiles for 193 countries, 6 regions, and 22 subregions.

India Health Report: Nutrition 2015

Raykar, N., M. Majumder, R. Laxminarayan, and P. Menon. 2015. *India Health Report: Nutrition 2015.* Public Health Foundation of India, New Delhi.

http://www.transformnutrition.org/wp-content/uploads/sites/3/2015/12/INDIA-HEALTH-REPORT-NUTRITION_2015_for-Web.pdf

The India Health Report on Nutrition 2015 surveys the trends in maternal and child undernutrition in India across geographical regions, socio-economic classes, and demographic groups. The report's ultimate goal is to deepen and focus the policy dialogue in India, raise awareness about the multisectoral nature of undernutrition and highlight areas for action, especially at the state-level. This will help lead to actions that can accelerate improvement in the nutritional status and development of India's children.

Giving Children the Best Start in Life: Integrating Nutrition and Early Childhood Development Programming within the First 1,000 Days

Maalouf-Manasseh, Z., L. Oot, and K. Sethuraman. 2015. G*iving Children the Best Start in Life: Integrating Nutrition and Early Childhood Development within the First 1,000 Days.* Washington, DC

http://www.fantaproject.org/sites/default/files/resources/Nutrition-Early-Childhood-Development-Technical-Brief-Jan2016.pdf

Providing every child with the best start in life is not only essential for the child's individual wellbeing but is a necessary investment to protect human capital and achieve national development objectives. Chronic malnutrition (or stunting, low height-for-age) affects an estimated 165 million children worldwide, a majority of whom live in developing countries.1 Most of these children are also not achieving their development potential due in large part to chronic malnutrition. In fact, it is estimated that more than 200 million children under 5 years of age in developing countries are not achieving their development potential due to both chronic malnutrition and poverty.2 Adequate nutrition is critical for brain development and plays an important role in a child's physical, social, emotional, and cognitive development—the four domains of early childhood development (ECD) in which children need to develop to reach their potential. Aside from adequate nutrition, children also need a stimulating environment and social interaction with attentive caregivers to develop sufficiently in all four domains.

Upcoming Events

Transforming Nutrition: Ideas, Policies and Outcomes 2016

Where: Institute of Development Studies, Brighton, United Kingdom

When: 11-15 July, 2016

Application deadline: 10 March, 2016

For more information: http://www.ids.ac.uk/events/transforming-nutrition-ideas-policies-and-outcomes-2016

This 5 day course Transforming Nutrition; Ideas, Policies and Outcomes 2016 is designed for both policy makers and practitioners. The course will lead participants through new ways of thinking about undernutrition and what to do about it and provide a base from which they can develop their own future leadership for transformational change.

4th Annual Agriculture to Nutrition Scientific Symposium

Where: Yak and Yeti Hotel, Kathmandu, Nepal

When: July 18-20, 2016

Submission deadline: April 15, 2016

For more information: http://www.nutritioninnovationlab.org/symposium/

The 4th Annual Agriculture to Nutrition Scientific Symposium will be co-hosted by JHU, IOM, NARC & TUFTS. The aim of the symposium is to share, understand and assimilate country level evidence on the factors that contribute towards the understanding of the pathways of agriculture and nutrition.

Led by IFPRI

Partnership members:

Institute of Development Studies (IDS)

Public Health Foundation of India (PHFI)

One World South Asia

Vikas Samvad

Coalition for Sustainable Nutrition Security in India

Save the Children, India

Public Health Resource Network (PHRN)

Vatsalya

Centre for Equity Studies

ABOUT POSHAN

Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India (POSHAN) is a 4-year initiative that aims to build evidence on effective actions for nutrition and support the use of evidence in decisionmaking. It is supported by the Bill & Melinda Gates Foundation and led by IFPRI in India.

ABOUT ABSTRACT DIGEST

In each issue, the POSHAN Abstract Digest brings you some of the new and noteworthy studies on maternal and child nutrition. It focuses on India-specific studies and also brings to you other relevant global or regional literature with broader implications for maternal and child nutrition. The Abstract Digest is based on literature searches to identify selected studies that we think are most relevant to nutrition issues in India and to Indian programs and policies. We share with you a collection of abstracts from articles published in peer-reviewed journals, as well as selected non peer-reviewed articles by researchers in reputed academic and/or research institutions and which demonstrated rigor in their research objectives, methodology, and analysis. The abstracts in this document are reproduced in their original form from their source, and without editorial commentary about specific articles.

CONTACT US

Email us at IFPRI-POSHAN@cgiar.org

IFPRI-NEW DELHI

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

NASC Complex, CG Block,
Dev Prakash Shastri Road,
Pusa, New Delhi 110012, India
T+91.11.2584.6565 to 6567
F+91.11.2584.8008

IFPRI-HEADQUARTERS

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

2033 K Street, NW,
Washington, DC 20006-1002 USA
T. +1.202.862.5600
F. +1.202.467.4439
Skype: IFPRIhomeoffice
ifpri@cgiar.org
www.ifpri.org

This publication has been prepared by POSHAN with research assistance from Abhilasha Vaid, Research Communications Specialist, and has not been peer reviewed. Any opinions stated herein are those of the author(s) and do not necessarily reflect the policies of the International Food Policy Research Institute. Please contact Dr. Rasmi Avula at IFPRI with any questions: r.avula@cgiar.org.

Copyright © 2016 International Food Policy Research Institute. All rights reserved. For permission to republish, contact ifpri-copyright@cgiar.org.