

Helpdesk Report: Nutrition for under 2's

Date: 23 June 2010

Query: The top ten to twenty articles/pieces of evidence on:

- * Determinants of good caring practices for children under 2's to improve nutrition (increased weight or reduced stunting) (determinants to include maternal health, mental health, family dynamics, etc.)
- * Behaviour change and how to improve family infant and young child feeding (IYCF) practices for under 2's (early and exclusive breastfeeding, complimentary feeding, hygiene)

Enquirer: DFID India

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1. Overview

“Breastfeeding is today the single most effective preventive intervention for improving the survival and health of children”

WHO Secretariat, 2010

Promoting proper feeding for infants and young children

Malnutrition is responsible, directly or indirectly for about one third of deaths among children under five. Well above two thirds of these deaths, often associated with inappropriate feeding practices, occur during the first year of life.

Nutrition and nurturing during the first years of life are both crucial for life-long health and well-being. In infancy, no gift is more precious than breastfeeding; yet barely one in three infants is exclusively breastfed during the first six months of life.

The World Health Organization recommends that infants start breastfeeding within one hour of life, are exclusively breastfed for six months, with timely initiation of adequate, safe and properly fed complementary foods while continuing breastfeeding for up to two years of age or beyond.

Appropriate breastfeeding and complementary feeding are among the most effective interventions to promote child health, growth and development. In the past decades, the evidence for essential actions to promote exclusive breastfeeding has been strengthened considerably. More recently, progress has been made in defining standards for complementary feeding. However, the process of translating these standards into specific policies and programmatic actions is less well developed.

Global Strategy for Infant and Young Child Feeding

WHO, 2003

<http://whqlibdoc.who.int/publications/2003/9241562218.pdf>

The Global Strategy aims to revitalise efforts to promote, protect and support appropriate infant and young child feeding. It builds upon past initiatives and addresses the needs of all children including those living in difficult circumstances, such as infants of mothers living with HIV, low-birth-weight infants and infants in emergency situations. The strategy calls for action in five main areas, including the following: All governments should develop and implement a comprehensive policy on infant and young child feeding, in the context of national policies for nutrition, child and reproductive health, and poverty reduction.

Planning Guide for National Implementation of the Global Strategy for Infant and Young Child Feeding

WHO/UNICEF, 2007

http://whqlibdoc.who.int/publications/2007/9789241595193_eng.pdf

This document translates the aim, objectives and operational targets of the *Global Strategy for Infant and Young Child Feeding* into concrete, focused national strategy, policy and action plans. The guide proposes a step-wise process to develop a country-specific strategy, with plans to be implemented in support of appropriate infant and young child feeding, especially in the first two years of life.

The WHO Global Data Bank on Infant and Young Child Feeding

www.who.int/nutrition/databases/infantfeeding/en/index.html

The Data Bank is maintained and managed in keeping with internationally accepted definitions and indicators. It pools information mainly from national and regional surveys, and studies dealing specifically with the prevalence and duration of breastfeeding and complementary feeding. It is continually updated as new studies and surveys become available.

2. Determinants of Nutritional Status

Are Determinants of Rural and Urban Food Security and Nutritional Status Different? Some Insights from Mozambique

James L. Garrett and Marie T. Ruel, *World Development*, 27 (11): 1955-1975, November 1999

www.sciencedirect.com/science/journal/0305750X

Undernutrition of children 0-60 months old in Mozambique is much higher in rural than in urban areas. Food security is about the same, although substantial regional differences exist. Given these outcomes, this article hypothesizes that the determinants of food security and nutritional status in rural and urban areas of Mozambique would differ as well. Yet it finds that the determinants of food insecurity and malnutrition, and the magnitudes of their effects, are very nearly the same, although some differentiation in determinants of undernutrition does begin to appear among children 24–60 months old. The difference in observed outcomes appears primarily due to differences in the levels of critical determinants rather than in the nature of the determinants themselves.

Nutrition Status and its Determinants in Southern Sudan: A Summary of Available Data

Phillip Harvey and Beth Rogers-Witte, A2Z Project, AED, 2007

www.a2zproject.org/pdf/A2Z_SouthSudan_Doc_MEH_Edits_092308.pdf

The causes of the malnutrition are far broader than the availability of food. They vary widely by area, ethnic group, livelihood/ecological zone, but there is some notable uniformity. Identifying and understanding these causes is clearly important to developing policies and programmes to address them.

The most critical gaps to evidence-based policy and program development include: the prevalence of micronutrient deficiencies, customs and beliefs related to infant and young child feeding, identification of specific nutrient dense foods, and health seeking behaviours.

Determinants of the Nutritional Status of Mothers and Children in Ethiopia

Woldemariam Girma and Timotiows Genebo, MEASURE DHS+, 2002

www.measuredhs.com/pubs/pdf/FA39/02-nutrition.pdf

This study found evidence that socioeconomic and demographic variables have a significant influence on the odds of chronic energy deficiencies (CED) in women and malnutrition in children. Region of residence, household economic status, woman's employment status and decision-making power over her income, woman's age and marital status are important determinants of CED among reproductive age women (15-49 years). It was also found that household economic status, education of parents, number of prenatal care visits of the mother (as a proxy for access to health services), child's age, birth order and preceding birth interval are important determinants of child stunting.

Influence of Infant-Feeding Practices on Nutritional Status of Under-Five Children

Dinesh Kumar, N. K. Goel, Poonam C. Mittal and Purnima Misra, *Indian Journal of Pediatrics*, 73 (5), May 2006

www.springerlink.com/content/u2kw5744nj72ww62/

Delayed initiation of breastfeeding, deprivation from colostrum, and improper weaning are significant risk factors for undernutrition among under-fives. There is a need for the promotion and protection of optimal infant feeding practices for improving the nutritional status of children.

A Tale of Two Continents: a Multilevel Comparison of the Determinants of Child Nutritional Status from Selected African and Indian Regions

Paula Griffiths, Nyovani Madise, Alison Whitworth and Zoë Matthews, *Health & Place*, 10 (2): 183-199, 2004

www.sciencedirect.com/science/journal/13538292

This paper compares individual and household predictors of underweight among young children in sub-Saharan Africa and India, while also assessing the impact of clustering of weight for age z-scores at the household, community and regional levels.

The findings from this research demonstrate the importance of individual and household level predictors such as age, the size of child at birth, prolonged breastfeeding, recent diarrhoea episodes, and maternal education as predictors of low weight-for-age z-scores across regions.

Predictors of Poor Anthropometric Status Among Children Under 2 Years of Age in Rural Uganda

Henry Wamani et al. *Public Health Nutrition* 9:320-326 Cambridge University Press, 2006

<http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=585848>

In analyses guided by the hierarchical interrelationships of potential determinants of malnutrition, wasting and underweight turned out to be independently predicted by morbidity (proximal) factors. Stunting, however, was predicted by socio-economic (distal), environmental and health-care (intermediate) factors in addition to morbidity. Strategies aimed at improving the growth of infants and young children in rural communities should address morbidity due to common childhood illness coupled with environmental and socio-economically oriented measures.

3. The Role of Caring Practices

The Role of Care in Nutrition Programmes: Current Research and a Research Agenda

Patrice L. Engle, Margaret Bentley and Gretel Pelto, *Proceedings of the Nutrition Society*, 59: 25-35 Cambridge University Press, 2000

<http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=796124>

The importance of cultural and behavioural factors in children's nutrition, particularly with regard to feeding, has been recognised only recently. The combination of evidence regarding the importance of caregiving behaviour for good nutrition, and improved strategies for measuring behaviour have led to a renewed interest in care. The UNICEF conceptual framework suggests that care, in addition to food security and health care services, are critical for children's survival, growth and development.

This paper focuses on the care practice of complementary feeding, specifically behavioural factors such as parental interaction patterns, feeding style and adaptation of feeding to the child's motor abilities (self-feeding or feeding by others). Nutrition interventions that have been able to show significant effects on outcomes have usually incorporated behavioural components in their intervention. The paper concludes with a discussion of how nutrition programmes might change if care were incorporated.

The Role of Caring Practices and Resources for Care in Child Survival, Growth, and Development: South and Southeast Asia

Patrice Engle, *Asian Development Review*, 17 (1-2): 132-167, 1999

www.adb.org/Documents/Periodicals/ADR/pdf/ADR-Vol17-Engle.pdf

This paper evaluates the extent to which programmes for improving nutrition in seven Asian countries evaluate care practices and resources for care, and how this understanding is incorporated into their plans. Care practices and resources for care are defined according to the UNICEF framework, and the more unfamiliar care practices are described. The value of including care in nutrition programs is shown through several model programmes.

The most commonly mentioned care practice in the seven countries was breastfeeding, and the most widely recognized resource for care was maternal education. Care practices such as psychosocial care and care for women received less attention, as did the autonomy or decision-making power of the caregiver.

4. Feeding Practices and Behaviour Change

Indicators for Assessing Infant and Young Child Feeding Practices. Part I: Definitions

WHO, 2008

http://whqlibdoc.who.int/publications/2008/9789241596664_eng.pdf

This document presents 8 core and 7 optional indicators for assessing feeding practices in children 0-24 months of age, including new and updated indicators to assess infant and young child feeding practices at household level.

Feeding and Nutrition of Infants and Young Children. Guidelines for the WHO European Region, with Emphasis on the Former Soviet Countries

www.euro.who.int/data/assets/pdf_file/0004/98302/WS_115_2000FE.pdf

Good feeding practices will prevent malnutrition and early growth retardation, which is still common in some parts of the WHO European Region, especially countries of the former Soviet Union. Despite the importance of nutrition and feeding of infants and young children, limited attention has been paid to the need for guidelines based on scientific evidence. This publication contains the scientific rationale for the development of national nutrition and feeding recommendations from birth to the age of three years. It suggests that each country review, update, develop and implement national nutrition and feeding guidelines for infants and young children, based on the recommendations in this publication.

Infant Feeding Styles: Barriers and Opportunities for Good Nutrition in India

Patrice L. Engle, *Nutrition Reviews*, 60 (5), 2002

www3.interscience.wiley.com/cgi-bin/fulltext/121403341/PDFSTART

India has the lion's share of malnourished children in the world. Poverty and social exclusion contribute to this rate of malnutrition, but care practices also play a role. Breastfeeding is rarely exclusive, sanitation tends to be limited, complementary feeding often begins late, and the quantities are small. In the past, government programmes have focused on the supply of food rather than caring practices. A research agenda will include both operational research on the nutrition programmes, and formative and intervention research to improve caring practices, particularly those around infant and young child feeding.

Infant and Young Child Feeding – Tools and Materials

WHO, 2009

www.who.int/child_adolescent_health/documents/pdfs/IYCF_brochure.pdf

This brochure presents tools developed to facilitate the implementation of the *Global Strategy for Infant and Young Child Feeding* and increase coverage of effective interventions.

Strengthening Action to Improve Feeding of Infants and Young Children 6-23 Months of Age in Nutrition and Child Health Programmes

WHO, 2008

http://whqlibdoc.who.int/publications/2008/9789241597890_eng.pdf

This report summarises the proceedings of a WHO/UNICEF meeting and provides operational guidance for policy-makers and programme managers on how to improve complementary feeding, in the context of the implementation of the *Global Strategy for Infant and Young Child Feeding*.

Lessons Learned in Promoting Better Infant and Young Child Feeding: Experiences from Northern Ghana

LINKAGES, 2003

www.linkagesproject.org/publications/Ghana_Lessons_Learned_03.pdf

An important component of the LINKAGES program in Ghana has been constant sharing and discussion among partners on approaches and experiences to promote better infant feeding practices. Lessons learned including working with the radio, mother to mother support groups

Recommended Practices to Improve Infant Nutrition during the First Six Months- Facts for Feeding

www.linkagesproject.org/media/publications/facts%20for%20feeding//FactsForFeeding0-6months_eng.PDF

This report focuses on the infant's first six months of life. Policy-makers, health care providers, and communicators can use these guidelines for developing messages and activities appropriate to local conditions.

Engaging Men to Increase Support for Optimal Infant Feeding in Western Kenya

IYCN and AIDS, Population, and Health Integrated Assistance (APHIA) II Western Program, 2010

www.iycn.org/files/IYCN_Engaging_Men_Handout_lo-res_FINAL.pdf

This handout describes a pilot activity that aimed to integrate infant and young child nutrition into community-level male involvement activities.

Infant and Young Child Feeding: Model Chapter for Textbooks for Medical Students and Allied Health Professionals

Who, 2009

http://whqlibdoc.who.int/publications/2009/9789241597494_eng.pdf

This document brings together essential knowledge about infant and young child feeding that health professionals should acquire. It focuses on nutritional needs and feeding practices in

children less than two years of age.

Appropriate Infant Feeding Practices Result in Better Growth of Infants and Young Children in Rural Bangladesh

Kuntal K Saha, et al., *American Journal of Clinical Nutrition* 87 (6): 1852-9, 2008

www.ajcn.org/cgi/content/abstract/87/6/1852

Findings from this study provide strong evidence to support the current infant feeding recommendations for better growth during infancy and early childhood.

Evaluation of the Impact of Weaning Food Messages on Infant Feeding Practices and Child Growth in Rural Bangladesh

Laurine V Brown et al. *American Journal of Clinical Nutrition* 56: 994-1003, 1992

www.ajcn.org/cgi/content/abstract/56/6/994

In rural Bangladesh, a community-based weaning intervention used volunteers to teach complementary feeding to families of 62 breast-fed infants aged 6-12 months. The findings of the study suggest that educational interventions teaching families to feed hygienic, simple, cheap, energy-enriched complementary foods to breast-fed infants after 5-6 months can improve child growth, even under impoverished conditions.

Current and Potential Role of Specially Formulated Foods and Food Supplements for Preventing Malnutrition Among 6-23 Months Old and Treating Moderate Malnutrition Among 6-59 Months Old Children

Saskia de Pee and Martin Bloem, WHO, 2008

www.who.int/nutrition/publications/moderate_malnutrition/MM_Background_paper4.pdf

In this paper, the focus is on possible options for providing a nutritious diet, realising the constraints faced by many people whose children are at risk of developing or suffering from moderate malnutrition (stunting as well as wasting), such as poverty and food insecurity.

Reducing child malnutrition requires nutritious food, breastfeeding, improved hygiene, health services, and (prenatal) care. Poverty and food insecurity seriously constrain accessibility of nutritious diets, including high protein quality, adequate micronutrient content and bioavailability, macro-minerals and essential fatty acids, low anti-nutrient content, and high nutrient density.

Largely plant-source-based diets with few animal source and fortified foods do not meet these requirements and need to be improved by processing (dehulling, germinating, fermenting), fortification, and adding animal source foods, e.g. milk, or other specific nutrients. Options include using specially formulated foods: fortified blended foods (FBFs), commercial infant cereals, ready-to-use foods i.e. pastes/compressed bars/biscuits, or complementary food supplements (CFS): micronutrient powders (MNP); powdered CFS containing (micro)nutrients, protein, amino acids and/or enzymes; or lipid-based nutrient supplements (LNS), 120-500 kcal/d, typically containing milk powder, high-quality vegetable oil, peanut-paste, sugar, (micro)nutrients. Most supplementary feeding programmes for moderately malnourished children supply FBFs, such as corn soy blend, with oil and sugar, which has shortcomings: too many anti-nutrients, no milk (important for growth), suboptimal micronutrient content, high bulk and viscosity.

Thus, for feeding young or malnourished children, FBFs need to be improved or replaced. Based on success with ready-to-use therapeutic foods (RUTF) for treating severe acute malnutrition, modifying that recipe is also considered. Commodities for reducing child malnutrition should be chosen based on nutritional needs, program circumstances, availability of commodities, and likelihood of impact.

5. Complementary Feeding

Systematic Review of the Efficacy and Effectiveness of Complementary Feeding Interventions in Developing Countries

Kathryn G. Dewey and Seth Adu-Afarwuah, *Maternal and Child Nutrition* 4: 24-85, 2008

www3.interscience.wiley.com/journal/119424906/abstract

Complementary feeding interventions are usually targeted at the age range of 6-24 months, which is the time of peak incidence of growth faltering, micronutrient deficiencies and infectious illnesses in developing countries. After 2 years of age, it is much more difficult to reverse the effects of malnutrition on stunting, and some of the functional deficits may be permanent.

Therefore, interventions that are effective at reducing malnutrition during this vulnerable period should be a high priority. Although several types of interventions can be targeted to this age range (such as micronutrient supplementation), a food-based, comprehensive approach may be more effective and sustainable than programmes targeting individual nutrient deficiencies. For this review, a broad definition of 'complementary feeding interventions' is used so as to capture the full range of strategies that can be used.

Guiding Principles for Complementary Feeding of the Breastfed Child

Kathryn Dewey, PAHO/WHO, 2003

<http://whqlibdoc.who.int/paho/2003/a85622.pdf>

These guidelines can be used as the basis for developing recommendations on complementary feeding for breastfed children 6-23 months of age. The guiding principles not only set standards for practical dietary guidelines, they also discuss when, where and how young children should be fed.

Guiding Principles for Feeding Non-Breastfed Children 6–24 Months of Age

Kathryn Dewey, WHO, 2005

<http://whqlibdoc.who.int/publications/2005/9241593431.pdf>

This publication lists the nine guiding principles, with the scientific rationale for each, and gives examples of diets from different parts of the world that can meet energy and nutrient needs of infants and young children after six months of age who are not breastfed. Annexes include information on developing locally appropriate feeding recommendations based on the principles, and on key issues around early breastfeeding cessation for infants and young children of HIV-positive mothers.

6. Exclusive Breastfeeding

Learning from Large-Scale Community-Based Programmes to Improve Breastfeeding Practices

WHO, 2008

http://whqlibdoc.who.int/publications/2008/9789241597371_eng.pdf

An estimated 1.30–1.45 million child deaths could be prevented each year with improved breastfeeding practices. Community-based breastfeeding promotion and support is one of the key components of a comprehensive programme to improve breastfeeding practices. This report shares the experiences and lessons from community-based approaches so that others can use the information to strengthen existing programmes and design new ones.

Early Initiation of Breastfeeding: the Key to Survival and Beyond

PAHO, 2010

http://new.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=6432&Itemid=

Early initiation of breastfeeding has benefits for survival and beyond. Breastfeeding promotes child survival, health, brain and motor development. While breastfeeding has lifelong benefits for both the mother and child, the risks of not breastfeeding are particularly pronounced early

in life. Early initiation of breastfeeding and exclusive breastfeeding for the first six months of life prevent neonatal and infant deaths largely by reducing the risk of infectious diseases.

Nutrient Adequacy of Exclusive Breastfeeding for the Term Infant During the First Six Months of Life

WHO, 2002

<http://whqlibdoc.who.int/publications/9241562110.pdf>

This review evaluates the nutrient adequacy of exclusive breastfeeding for term infants during the first 6 months of life. Nutrient intakes provided by human milk are compared with infant nutrient requirements.

7. Infant Feeding and HIV

HIV and Infant Feeding: Guidelines for Decision-Makers

WHO, 2003

<http://whqlibdoc.who.int/hq/2003/9241591226.pdf>

This publication provides information on issues that need to be considered in relation to infant and young child feeding in the context of HIV, and highlights areas of special concern on which policy decisions need to be made. The guidelines contain an overview of international policy, goals and guidelines; background on HIV and infant feeding; current recommendations for HIV-positive women and considerations relating to different feeding options; an overview of the process of developing or revising a national policy on infant and young child feeding incorporating HIV concerns; considerations for countries considering the provision of free or low-cost infant formula; suggestions for protecting, promoting and supporting appropriate infant feeding in the general population; key issues in supporting HIV-positive women in their infant feeding decisions; and considerations on monitoring and evaluation.

HIV and Infant Feeding: A Chronology of Research and Policy Advances and their Implications for Programs

Ellen Piwoz and Elizabeth Preble, SARA Project, 1998

www.linkagesproject.org/media/publications/Technical%20Reports/HIVIF.pdf

Informs programme managers and others about major advances in the study of HIV and infant feeding and the policy responses to these findings.

Infant Feeding Options in the Context of HIV

LINKAGES, 2005

This document identifies the specific behaviours required of a mother or caregiver to act upon the infant feeding recommendations and informed choice policy of WHO, UNICEF, UNAIDS, and UNFPA.

www.linkagesproject.org/media/publications/Technical%20Reports/Infant_Feeding_Options.pdf

Behaviour Change Communication, LINKAGES, Zambia

www.iycn.org/resources-behavior-change.php

These Behaviour Change Communication brochures, created as part of the LINKAGES 'Act Now' Campaign in Zambia, offer messages on infant feeding and HIV for a variety of audiences, including mothers, youth and health workers. Topics include prevention of mother-to-child transmission of HIV, HIV testing and counselling, and optimal infant and young child feeding behaviours. One example booklet is the following:

Prevention of Mother-to-child transmission (PMTCT) of HIV

A Behaviour Change Communication Guide for Health Workers, LINKAGES PMTCT, Zambia, 2005

www.iycn.org/files/BCC_Guide_for_Health_Workers.pdf

Prevention of Mother-to-Child Transmission of HIV in Asia

Elizabeth Preble and Ellen Piwoz, LINKAGES, 2002

This report with as many pages of annexes and references

This report can be used as a technical resource, a programmatic guide, and a basis for policy dialogue and coordination. The report focuses on the five most affected countries in the region – Cambodia, China, India, Myanmar and Thailand – but presents technical background and lessons learned that are relevant for the rest of the region.

www.linkagesproject.org/media/publications/Technical%20Reports/AsiaPMTCT.PDF

8. Infant Feeding in Emergency Situations

Guiding Principles for Feeding Infants and Young Children During Emergencies

WHO, 2004

<http://whqlibdoc.who.int/hq/2004/9241546069.pdf>

Meeting the specific nutritional requirements of infants and young children, including promoting and supporting optimal feeding practices, should be a routine part of any emergency relief response. Indeed, it should be at the centre of efforts to protect the right of affected children to food, life and a productive future. Fortunately, much of the disability and death typical among this age group in such circumstances can be averted - provided proper feeding and care can be ensured.

Complimentary Feeding of Infants and Young Children in Emergencies

IFE Core Group, Inter-Agency Standing Committee, 2009

www.enonline.net/pool/files/ife/cfe-review-enn-&-ife-core-group-oct-2009.pdf

The nutritional principles governing infant and young child feeding are the same in an emergency as for any other situation. However, the complexities of complementary feeding combined with the unpredictability and intricacies of emergencies, results in additional challenges in resources and capacity.

9. Child Survival

Family and Community Practices that Promote Child Survival, Growth and Development: A Review of the Evidence

WHO, 2004

<http://whqlibdoc.who.int/publications/2004/9241591501.pdf>

This paper addresses improvements in family and community practices. More specifically, it presents the evidence for twelve key practices, identified by UNICEF and WHO to be of key importance in providing good home-care for the child concerning the prevention or treatment of the Integrated Management of Childhood Illness conditions, in order to ensure survival, reduce morbidity, and promote healthy growth and development.

The Unfinished Child Survival Revolution: the Role of Nutrition

Lars Ake Persson, *Scandinavian Journal of Nutrition* 49 (4): 146-150, 2005

www.foodandnutritionresearch.net/index.php/fnr/article/viewFile/1541/1409

This study assessed what proportion of global under-five deaths could be prevented by available and efficacious nutrition interventions, through a review of recent papers of child survival and the role of nutrition in the prevention under-five deaths in a global perspective.

The most important nutrition-related interventions are exclusive breast-feeding, zinc supplements for treatment and prevention, complementary feeding, vitamin A supplementation and oral rehydration therapy. The coverage of many of these efficacious interventions is usually low. The potential role of nutrition interventions to promote global child survival is great.

Infant and Young Child Undernutrition: Where Lie the Solutions?

Arun Gupta and Jon E. Rohde, *Economic and Political Weekly* 39 (49): 5213-5216, 2004
www.jstor.org/stable/4415863

Malnutrition among children occurs almost entirely during the first two years of life and is virtually irreversible after that. Food interventions at schools are unlikely to address infant feeding and young child malnutrition as they cater to older children, who in fact suffer from malnutrition since they are young. The solutions to the problem emerge from a clearer distinction between hunger and malnutrition and the knowledge that child malnutrition is directly associated with inappropriate feeding practices. This requires a shift in thinking, from food-based approaches towards feeding behaviour change.

10. Additional information

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Websites visited

The American Journal of Clinical Nutrition www.ajcn.org

Emergency Nutrition Network www.enonline.net

Infant and Young Child Nutrition Project www.iycn.org/

Journal of Nutrition <http://jn.nutrition.org/>

The Manoff Group www.manoffgroup.com/prog_nutrition.html

Maternal and Child Health Training

http://nutrition.mchtraining.net/resources_obesity_prevention.php

Pan American Health Organization <http://new.paho.org/>

Population Reference Bureau www.prb.org/

ProNUTRITION <http://www.pronutrition.org/documents.php>

World Food Programme www.foodandnutritionresearch.net/index.php/fnr

World Health Organization www.who.int/en/

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