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New & Noteworthy in Nutrition

Issue 41 September 30, 2003

New and noteworthy items on child survival, growth and development, HIV/AIDS, micronutrients, obesity, nutrition in crises and shocks, and nutrition policy are the main features of this issue of NNN.

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CHILD SURVIVAL, GROWTH, AND DEVELOPMENT

From mothers to daughters. Nutritional supplementation in childhood has positive effects on those supplemented as well as their future children, according to Aryeh Stein and coworkers from Emory University who estimated the intergenerational effect on offspring length of improved nutrition in the mother's childhood. They examined 263 children born in 1996–1999 to 231 women who had received nutritional supplementation - i.e., *atole* (high-protein, moderate-energy drink) or *fresco* (non-protein, low-energy drink) - prenatally and up to age 7 years as part of a community trial in Guatemala between 1969 and 1977. Children born to women who received the enhanced supplement were taller than were children whose mothers received the low-energy supplement – an increment that was independent of the children's birth weight or socioeconomic status but was substantially attenuated and no longer significant after adjustment for maternal height. The effect of maternal nutritional supplementation was more pronounced in boys than in girls and, interestingly, in children born to women who received supplements at ages 3–7 years than in children born to women who received supplements at ages 0-3 years. The latter finding was unexpected as most of the effect of supplementation on women's own growth was observed when the supplement was received prenatally or up to 3 years of age. It is possible, the authors suggest, that improved nutrition in *later* childhood has a significant potential to improve growth patterns of subsequent generations in chronically undernourished populations – a finding, if confirmed by other work, that would have major implications for school-based feeding programs. *(American Journal of Clinical Nutrition, Vol. 78, No. 1, 162-167, July 2003)*

Determining gender. In a recent study in a rural food-stressed community in southern Ethiopia, University College London anthropologists Ruth Mace and Mhairi Gibson found that malnourished mothers were more likely to give birth to girls. Mothers' bodies somehow manipulate the sex of their children to maximize the chance of successful reproduction, the researchers write in the Proceedings of the Royal Society of London. Women in the upper 25th percentile muscle mass (proxied by mid-upper arm circumference) were more than twice as likely to have had a recent male birth than those in the lowest 25th percentile. (*www.ucl.ac.uk/ceacb/news/News.html*)

The second revolution. In February 2003, researchers from several institutions met in Bellagio, Italy, to define what can be done to save the lives of approximately 6 million children who are dying annually from preventable causes. Five articles in the *Lancet* (June 12-July 26) suggest that poor leadership has allowed good child health initiatives to fall by the wayside as other priorities have emerged. The articles, written and researched by public health experts, call for renewed efforts to cut the death toll.

The first paper focuses on continuing high rates of child mortality from preventable causes: diarrhea, pneumonia, measles, malaria and HIV/AIDS, the underlying cause of undernutrition and a small group of causes leading to neonatal death. The second concludes that in the 42 countries with 90% of child deaths worldwide in 2000, 63% of these deaths could have been prevented through full implementation of a few known and effective interventions. Levels of coverage with these interventions are still unacceptably low in most low-income and middle-income countries. Worse still, coverage for some interventions, such as immunizations and attended delivery, are stagnant or even falling in several of the poorest countries. The third paper highlights the importance of separating biological or behavioral interventions from the delivery systems required

New and Noteworthy in Nutrition (NNN) aims to highlight new research, new programs, initiatives, and innovations, indeed anything that's new, noteworthy, and relevant to nutrition. This issue of NNN was written and edited by Stuart Gillespie (s.gillespie@ifpri.org) and Suneetha Kadiyala, and produced by Jay Willis of IFPRI. NNN is distributed three times per year (in January, May, and September) via print, email, and web-postings. We are very grateful to the United Nations Children's Fund, the Micronutrient Initiative, the World Food Programme, and the World Bank for providing funds to support NNN. We also thank individuals who have contributed news items. The material contained herein is the responsibility of the editor, and should not be attributed in any manner to any institution.

to put them in place, and the need to tailor delivery strategies to the stage of health-system development. The authors review recent initiatives in child health and discuss essential aspects of delivery systems, including need for data at the subnational level to support health planning; regular monitoring of provision and use of health services, and of intervention coverage; and the need to achieve high and equitable coverage with selected interventions. The fourth paper argues that equity must be a priority in the design of child survival interventions and delivery strategies, and mechanisms to ensure accountability at national and international levels must be developed. Finally, the fifth paper addresses what needs to be done to turn this situation around in terms of leadership, health systems, public awareness and resources (*www.thelancet.com*). For more information and tools on operationalizing the child survival interventions mentioned here, see also the technical area of the BASICS II website (*www.basics.org*).

Promoting urban deviance. Since 2000, BASICS II has supported the Senegal Ministry of Health to operationalize the Positive Deviance (PD)/Hearth, also called the Nutrition Education and Rehabilitation Program (NERP). The PD/Hearth approach combines investigation and demonstration of healthy nutrition practices and behaviors, focusing on children under three years of age. Scaling-up is underway in one district where female community volunteers from one village have significantly reduced the rate of malnutrition from 33% (October 2001) to 17% (March 2003) using PD/Hearth. BASICS II is collaborating with UNICEF and the Centre des Resources pour l'Emergence Sociale Participative (CRESP), a Dakar-based NGO to test CRESP's model of urban adaptation of the PD/NERP. The intervention is aimed at reducing high rates of anemia and general malnutrition. Results combined with lessons learned from the rural model will be used to expand the PD/NERP model in other targeted districts. (*www.positivedeviance.org*)

Breastfeeding and infant growth. Exclusive breastfeeding for 6 months is associated with a lower risk of gastrointestinal infection and no demonstrable adverse health effects in the first year of life. In a joint Canadian-Belarussian study – an observational cohort study nested within a large randomized trial - Michael Kramer and others examined the effects on infant growth and health of 3 compared with 6 months of exclusive breastfeeding. They compared 2,862 infants exclusively breastfed for 3 months (with continued mixed breastfeeding through $\geq$ 6 months) with 621 infants who were exclusively breastfed for $\geq$ 6 months. From 3 to 6 months, weight and length gains were slightly greater in the 3-months group, but the 6-months group had a faster length gain from 9 to 12 months and a larger head circumference at 12 months. A significant reduction in the incidence density of gastrointestinal infection was observed during the period from 3 to 6 months in the 6-months group, but no significant differences in risk of respiratory infectious outcomes or atopic eczema were apparent. (*American Journal of Clinical Nutrition, Vol. 78, No. 2, 291-295, August 2003*)

Big head better. Why do older people with big heads fare better in later life than those with small ones? Hesitant to accept that most of the critical brain growth took place in utero, Christopher Martyn and colleagues at the Environmental Epidemiology Unit in Southampton decided to investigate by recruiting 215 male and female volunteers born between 1922 and 1930. Midwives' notes had recorded their head size at birth. They measured current head size and height, gave volunteers standard IQ and memory tests, and screened them for depression. Three-and-a-half years later these tests were repeated. They found that a large adult head size was beneficial in preventing cognitive decline, in particular memory. At the other end of the spectrum, though, the news was grim. Those with the smallest heads had up to a fivefold greater risk of cognitive decline over this time than those with the largest.

Analyses, however, showed that head size at birth was not in fact protective. Though the last third of pregnancy is one long growth spurt for the fetal brain, brain growth keeps up quite a pace after the child is born as well: in the first year alone, a baby's brain doubles in weight. Martyn's theory is that brain development during infancy and early childhood is more important than fetal growth in forestalling cognitive decline in later life. (*Brain, Vol. 126, No. 10, 2273-2278, October 2003*)

HIV/AIDS

AIDS, food crisis, and child malnutrition. When drought struck southern Africa in the 2002 cropping season, international agencies moved fast to provide food aid to the worst affected areas, which often overlapped with those reporting high percentages of people chronically sick with AIDS. A return of famine was feared, but first results showed that the anticipated increase in malnutrition (as wasting) in children was minor. A recent study analyzing current and earlier data has now shown that the 2002 drought in southern Africa interacted with HIV/AIDS in high prevalence areas to bring about a rapid deterioration in child nutrition, but mainly in areas previously with better child nutrition, so the effect is not so obvious when averages are viewed. Examining the situation (on behalf of UNICEF) in six countries – Lesotho, Malawi, Mozambique, Swaziland, Zambia, and Zimbabwe – John Mason and colleagues from Tulane University found that HIV (which is more prevalent

in urban areas) is leveling out the pre-existing urban-rural nutritional differentials. They found some very large increases in underweight: e.g., from 5% to 20% in Maputo (Mozambique, 1997 – 2002), 17% to 32% in Copperbelt (Zambia, 1999 – 2001/2), and 11% to 26% in Midlands Province (Zimbabwe, 1999 – 2002). Changes were much smaller during nondrought periods and in lower HIV areas.

Part of the trends may be due to direct effects of pediatric AIDS (a shift to younger ages in growth failure was seen), but the larger effect is probably indirect, as drought and HIV hasten destitution in affected families. Traditionally worse-off areas appeared protected; while this may in part be due to food assistance, this impact remains to be determined. The study points to a nontraditional vulnerable group emerging in the better-off areas, to which resources need to be directed -- the causes may include poorer childcare as well as food insecurity (for orphans and others) though this needs to be determined. The report also recommends heightened surveillance and preparation for intervention in case of returning drought, and to know if the deterioration continues, as well as identifying new means for supporting the child population, most of whom are affected at least indirectly.

Development in reverse. South Africa is slipping down the human development rankings, largely due to HIV/AIDS, according to UNDP's *Human Development Report 2003*. The report, which uses indicators such as life expectancy, educational attainment and income, shows South Africa falling to 111th place out of 175 countries ranked worldwide, from 107th the previous year and 83rd in 1990, the UN said, "primarily because more people were dying younger from AIDS-related illnesses." This was also reflected in statements made at South Africa's first national AIDS Conference held recently. As mortality rates outstrip new infections, South Africa is entering the "death" phase of its AIDS epidemic, a part of the cycle that threatens both the health care system and the economy. In the country with the world's highest caseload, HIV prevalence is starting to plateau at around 33 percent, while sickness and death rates are rising.

India is rapidly catching up with South Africa in terms of numbers. More than 4.5 million Indians were infected by the end of 2002, according to India's National Aids Control Organization (NACO) - up by over half a million from 2001. As HIV prevalence rises, so, too, does the number of states with generalized epidemics. These figures were released in Delhi, on the eve of a two-day National Convention of Parliamentary Forum on HIV/AIDS held on 26-27 July 2003. More than a thousand political leaders from across India, including the prime minister, senior federal and state officials, legislators, mayors and local leaders, attended.

New inequalities One trigger of a possible future wave of HIV-driven social and political instability may be access to life-prolonging drugs, according to Alex de Waal. In many countries the elites, and armies, have access to anti-HIV drugs, while the populace at large does not. "Rationing is already occurring," de Waal says, and "the potential for strife is obvious." De Waal foresees the emergence of AIDS-related national crises. "Just as HIV infection kills through other infections, so will pandemic-induced crises manifest themselves in a range of social, economic and political pathologies, with potentially severe implications for food security, he states, calling for a new model of governance (*IDS Bulletin Vol. 33 No. 4 www.ids.ac.uk*).

HIV/AIDS and infant feeding. Squarely confronting the critical dilemma - to breastfeed or not to breastfeed - Anna Coutsoudis and Nigel Rollins present an up-to-date review of the literature. They conclude that although breastfeeding carries greater risk of mother-to-child-transmission of HIV than does replacement feeding, this risk is influenced by many factors, including those discussed in the rest of this section. Replacement feeding in developing countries, however, carries an increased risk for infant mortality, and modeling exercises suggest that 6 months of exclusive breastfeeding may be less risky than replacement feeding for many HIV-infected women. While calling for a balanced view of the risks and full support to enable mothers to make an informed choice, they point out the stark reality, which is this: without free infant formula, most HIV-infected women will choose breastfeeding because of socioeconomic and cultural reasons. The onus therefore is on health workers and policy makers to make breastfeeding or replacement feeding safer. (*Journal of Pediatrics Gastroenterology and Nutrition, 36: 434-442*)

Determinants of breast milk viral load. In an observational longitudinal study, Juana Willumsen and colleagues from the Institute of Child Health in London and University of Natal in South Africa investigated the determinants of breast milk RNA viral load among HIV-infected South African women, with particular attention to infant feeding mode and subclinical mastitis. Information on current infant feeding practice and a spot milk sample from each breast were obtained from 145 HIV-infected lactating women at 1, 6 and 14 weeks postpartum. No consistent associations were found between infant feeding mode and RNA viral load in milk. Breast milk HIV RNA viral load in the first 14 weeks of life varied, with high levels being associated with subclinical mastitis and severe maternal immunosuppression. Multivariate models had limited predictive value for milk RNA viral load, illustrating the multiple contributors. (*AIDS. 2003 Feb 14; 17(3): 407-414*)

Breast milk viral load, infant infection and maternal disease. Defining both fluctuation in breast-milk virus level over time and how breast-milk virus correlates with mother-to-child transmission is important for establishing effective interventions. Christine Rousseau and her US and Kenyan colleagues found HIV transmission via breastfeeding occurring throughout lactation. Quantifying breast-milk HIV-1 RNA levels in serial samples collected from 275 women for up to two years after delivery, they found higher maternal plasma virus load, lower maternal CD4 T cell count, and detection of HIV-1 DNA in maternal genital secretions to be significantly associated with elevated breast-milk HIV-1 RNA. Within women who breastfed, median virus load in colostrum/early milk was significantly higher than that in mature breast milk collected 14 days after delivery. Breastfeeding mothers who transmitted HIV-1 to their infants had both significantly higher breast-milk viral RNA throughout lactation and more-consistent viral shedding, compared with mothers who did not transmit HIV-1. In breastfeeding women, a twofold-increased risk of transmission was associated with every tenfold increase in breast-milk virus load. (*Journal of Infectious Diseases. 187(5): 741-747, 2003 Mar 1*)

Breast-milk infectivity in HIV-infected mothers. In another US-Kenya collaboration, Barbra Richardson and co-researchers evaluated the probability of breast-milk transmission of HIV-1 per liter of breast milk ingested and per day of breastfeeding in a study of children born to HIV-1-infected mothers. The probability of breast-milk transmission of HIV-1 was 0.00064 per liter ingested (or about 1 infection per 1,500 liters of breast milk ingested) and 0.00028 per day of breastfeeding (about 1 infection per 10 child years of breastfeeding). Breast-milk infectivity was significantly higher for mothers with more-advanced disease, as measured by prenatal HIV-1 RNA plasma levels and CD4 cell counts. The probability of HIV-1 infection per liter of breast milk ingested by an infant is similar in magnitude to the probability of heterosexual transmission of HIV-1 per unprotected sex act with an HIV-infected adult. (*Journal of Infectious Diseases 187(5): 736-740, 2003 Mar 1*)

Maternal multimicronutrients, HIV and infant health. A large African study - the first of its kind - has shown that multivitamin supplements given to lactating mothers with HIV infection can improve their children's health. In the May 12th issue of *Clinical Infectious Diseases*, Wafaie Fawzi and colleagues from Harvard and Muhimbili University College of Health Sciences in Dar es Salaam report the findings of a randomized trial of 1078 HIV-infected women in Tanzania who were given either vitamin A with beta-carotene, a multivitamin containing vitamins B, C, and E, or both supplements during pregnancy and lactation.

Children of mothers who took multivitamins had a significantly lower risk of diarrhea during the first two years of life, and significantly higher mean CD4+ cell counts than children of mothers who did not receive multivitamins. The beneficial effects of the multivitamins appeared to be similar in children with or without HIV infection. Children of women who received vitamin A had a reduced risk of cough with a rapid respiratory rate (a pneumonia proxy), but no reduction in their risk for diarrhea and no increase in CD4+ cell counts. Provision of multivitamin supplements (including those with vitamins B, C, and E) to HIV-infected, lactating women may be a low-cost intervention to improve their children's health, the investigators conclude. (*Clin Infect Dis 2003;36: 1053-1062*)

Antiretrovirals and nutrition. The May 2002 issue of NNN bemoaned the lack of questions (never mind answers) on the issue of ARVs and nutrition. The US Academy for Educational Development's Food and Nutrition Technical Assistance (FANTA) Project has now stepped into the void to shine some much needed light. Their current Technical Note examines the relationship between nutrition and ARV efficacy, especially in regions with high incidence of food insecurity. The study, supported by USAID's regional office in Eastern and Southern Africa, describes the effects of specific food-drug combinations in HIV and AIDS treatment and presents a guide for ARV program design and management.

New studies find that diet can significantly influence the efficacy of antiretroviral therapy in the treatment of HIV/AIDS. The report, "*Food and Nutrition Implications of Antiretroviral Therapy in Resource Limited Settings*," affirms that certain combinations of food and medicine may inhibit ARV therapy effectiveness, encumber nutrient delivery, or cause dangerous side effects. Certain foods affect ARV absorption, metabolism, distribution, or excretion. Similarly, certain antiretrovirals impede food absorption, metabolism, nutrient distribution, and excretion. Drug side-effects such as nausea, taste changes, and loss of appetite, may reduce food consumption, while diarrhea and vomiting may increase nutrient losses. People living with HIV/AIDS in resource-limited settings may be unable to follow optimal food and nutrition recommendations for ARV therapy due to lack of access to required foods. These factors also contribute to drug regimen non-adherence, a major problem in all ARV programs that leads to substantial decline in health, increased frequency of opportunistic diseases, and faster progression of HIV/AIDS. (*www.fantaproject.org/focus/hiv_aids.shtml*)

MICRONUTRIENTS

Iron and tiredness: Two recent studies show that iron supplementation helps reduce tiredness in non-anemic iron-depleted women. In a randomized, double blind, placebo-controlled trial, F. Verdon and colleagues from the University of Lausanne, Switzerland found that non-anemic women with unexplained fatigue may benefit from iron supplementation, but that the benefits may be restricted to women with low or borderline serum ferritin concentrations (*BMJ 2003; 326:1124-7*). And in another randomized clinical trial, Tom Brutsaert and US and Mexican colleagues found that iron supplementation of non-anemic iron-depleted women (serum ferritin < 20 μ/L) was associated with a decrease in muscle fatigability of 27% - an improvement that was not related to changes in iron status. This study reinforces the possibility that iron deficiency affects people through its role in enzyme systems (relating to muscle function and neurochemistry), rather than its role in hemoglobin and oxygen carrying capacity. (*Am J Clin Nutr 2003 Feb;77(2): 441-448*)

Iron and child growth. Iron supplementation of iron-deficient 6-24 month olds produced a significant improvement in their mean monthly weight gain and linear growth according to a prospective, double blind, placebo-controlled trial in India by I. Majumdar and colleagues. A striking finding with implications for targeting, however, was that, among iron-replete children, iron supplementation decreased the weight gain and linear growth. (*J Trop Pediatr. 2003 Apr;49(2): 84-88*)

Mass A. Does mass vitamin A supplementation make a difference? Using a pre-post design, Schémann et al. investigated the change in prevalence of vitamin A deficiency in preschool children in Mali. They compared the vitamin A status of children aged 12 to 66 months targeted by the mass distribution of vitamin A in 1999 with the status of children in the same age group in 1997. Infectious events of the previous two weeks were concurrently recorded. Within the 1999 sample, the status of recipient and nonrecipient children was also compared. In 1997, the prevalence of xerophthalmia was 6.9% and the modified retinol dose response test proved abnormal in 77.8% of the children. In 1999 this picture had improved significantly, both for xerophthalmia prevalence, 3.3%, and abnormal MRDR test response, 63.1%. The infectious morbidity rates between 1997 and 1999 tended to decrease. No significant improvement was found among children older than those targeted by mass supplementation. The clinical and biological vitamin A status of preschool children improved between 1997 and 1999. Mass distribution of vitamin A appears to reduce the occurrence of xerophthalmia and would seem to be associated with a decrease in other related illnesses. (*Pub hlth nutr vol 6 (3): 233-244*)

Turbo salt. In a series of studies in northern Morocco, Michael Zimmermann and colleagues developed and tested a dual-fortified salt (DFS) containing iodine and microencapsulated iron. After storage and acceptability trials, they compared the efficacy of the DFS to that of iodized salt in a 9-month, randomized, double-blind trial in 377 iodine-deficient, 6–15-year-old children. (Mean salt intake in the children was 7–12 g/d, and estimated iron bioavailability from the local diet was 0.4–4.3%). After storage for 20 weeks, the DFS and iodized salt were not significantly different in iodine content, and color stability was acceptable when the compounds were added to local meals. During the efficacy trial, urinary iodine concentrations and thyroid volumes improved significantly from baseline in both groups. At 40 weeks, mean hemoglobin concentrations and other iron parameters were significantly higher in the DFS group than in the iodized salt group. The decrease in prevalence of iron deficiency anemia in the DFS group (from 35% at baseline to 8% at 40 weeks) was highly significant. (*Am J Clin Nutr 2003;77: 425–432*)

Zinc and neurological development. Zinc supplementation in the latter half of pregnancy has no effect on the neurological development scores of children at age 5 years. This was the main finding of a study led by Tsunenobu Tamura from the University of Alabama at Birmingham. In the original trial, African American women of low socioeconomic status and low plasma zinc concentrations had participated in a double-blind trial of zinc supplementation that resulted in increased head circumference and birth weight of infants born to women with a body mass index (in kg/m^2) < 26.0. (*American Journal of Clinical Nutrition, Vol. 77, No. 6, 1512-1516, June 2003*)

Postnatal outcomes of prenatal supplements. Evidence on the role of micronutrients – particularly zinc and vitamin A -- in enhancing reproductive health of women living in the developing world has recently been reviewed by Parul Christian of Johns Hopkins University. Numerous animal experiments and observational studies suggest the potential role of zinc deficiency in labor and delivery-related complications (such as premature rupture of membrane, placental abruption, preterm labor and inefficient uterine contraction), yet these associations have not been confirmed in supplementation studies. Zinc does not appear to be a limiting factor in intrauterine growth in the developing world, contrary to some evidence of its suggested benefit among women residing in industrialized countries. One study in Nepal has found that maternal vitamin A or β-carotene supplementation reduces pregnancy-related mortality but not

infant mortality – a finding corroborated by observations of the significantly higher risk of mortality among night-blind women compared to non-night-blind women long after the termination of pregnancy and the resolution of night blindness.

Maternal multiple micronutrient supplementation needs more careful evaluation before its use in large-scale programs, Christian states. Two recent trials indicated that a prenatal multiple micronutrient supplement provides no added advantage over iron and folate in reducing outcomes such as low birth weight and probably no survival benefit. Data also suggest that adding zinc may negate the beneficial effect of iron and folic acid on birth weight. More research on nutrient–nutrient interactions is needed. (*Journal of Nutrition, 2003, vol 133(6) Supplement*)

OBESITY

Scouting for SCOWT. Using data from 36 Demographic and Health Surveys (23 in Africa, 8 in Latin America, and 5 in Asia), James Garrett and Marie Ruel of IFPRI have explored the global prevalence of the coexistence of a stunted child and an overweight mother in the same household (which they term 'SCOWT'). They find the prevalence of SCOWT to generally be lower than 10 percent, more prevalent in Latin America than in Africa, and below 5 percent in all five Asian countries. Surprisingly, SCOWT is not necessarily more prevalent in urban than rural areas - in fact, when economic development is controlled for, SCOWT is associated with urbanization only in Latin America. These findings warrant caution in assuming intrahousehold homogeneity in the design of nutrition-relevant policies. (*IFPRI FCN Discussion Paper 148*. Available at *www.ifpri.org/divs/fcnd/dp.htm*)

Learning to overeat. Does restrictive feeding of children promote overeating? In a longitudinal study, Leann Birch and colleagues from Penn State University and USDA Children's Nutrition Research Center determine whether restrictive feeding practices foster girls' eating in the absence of hunger (EAH) and whether girls' weight status moderates the effects of restrictive feeding practices. EAH, maternal restriction of feeding at age 5, and the girls' weights were measured at 5, 7, and 9 years of age. Mean EAH increased significantly from 5 to 9 years of age, regardless of maternal restriction levels. Higher levels of restriction at 5 years of age predicted higher EAH at 7 years of age and at 9 years of age. Girls who were already overweight at 5 years of age and who received higher levels of restriction had the highest EAH scores at 9 years of age and the greatest increases in EAH from 5 to 9 years of age. These longitudinal data provide evidence that maternal restriction can promote overeating. Girls who are already overweight at 5 years of age may be genetically predisposed to be especially responsive to environmental cues. (*Am Jour of Clin Nut, 2003,vol (2): 215-220*)

Food stamps and obesity. Diane Gibson of the City University of New York recently examined the relationship between Food Stamp Program (FSP) participation and the obesity of low-income individuals, using panel data from the 1979 US National Longitudinal Survey of Youth. Using an individual fixed-effects model, the study shows that current and long-term FSP participation were significantly related to the obesity of low-income women, but not of low-income men. For low-income women, current participation in the FSP was associated with a 9% increase in the predicted probability of current obesity. Participation in the FSP in each of the previous five years compared to no participation over that time period was associated with approximately a 20% increase in the predicted probability of current obesity. Gibson cautions that the models did not control for food insecurity, potentially complicating the interpretation of the FSP participation variables. One obvious explanation for the association observed between FSP participation and obesity is that both are caused in part by food insecurity (*J. Nutr. 2003 133: 2225-2231*).

In the same issue, Ed Frongillo of Cornell University questions the use of Gibson's framework on the grounds that it assumes FSP participation is a personal characteristic that differs over time, and causal flow is from FSP participation to food insecurity and health behaviors to obesity. "An alternate view is that FSP participation is a behavior that responds to personal circumstances, including food insecurity. These are two fundamentally different perspectives." (*J. Nutr. 2003 133: 2117-2118*)

CRISES AND SHOCKS

Economic crisis and nutrient intake. In a cross sectional study by researchers from Gadjah Mada and Uppsala universities in Indonesia and Sweden, respectively, the adequacy of nutrient intake among pregnant Indonesian women was compared to the Indonesian Estimated Average Requirement (EARs) in an attempt to explain the short-term effect of economic crisis on nutrient intake and iron status. During the period from 1996 to 1998, up to six 24-hour recalls were performed during the second trimester of pregnancy among 450 women. Forty percent of the pregnant women were at risk of inadequate intake of energy and protein, and 70% were at risk of inadequate intake of vitamin A, calcium, and iron, even before the crisis. The economic crisis that started in August 1997 did indeed affect nutrition. When the crisis emerged, the urban poor experienced a

decrease in intake of most nutrients. Negative changes in fat density and significant increases in carbohydrate densities during the crisis were experienced by the rich and the rural, poor, and 'access to rice field' subgroups. The urban poor experienced decreased serum ferritin concentration, whereas rich women experienced a significant increase. Urban poor and rural poor landless women were most directly affected by the economic crisis. (*European Journal of Clinical Nutrition (2003) 57, 654 – 666*)

"Hidden famine." The current crisis in Ethiopia, which came closely on the heels of the 1999/2000 crisis, has been characterized as one of the most widespread and severe emergencies ever to strike Ethiopia. A report, by a multidisciplinary team from Tufts University's Feinstein International Famine Center and the Harvard School of Public Health, describes the findings of a USAID-funded study that examined early detection systems, the nature of humanitarian responses, and the outlook for the coming year. Although usually described as a food crisis, the team concludes that the current emergency is best characterized as a livelihoods crisis, given the multifaceted nature of vulnerability (climatic, economic, political) in Ethiopia today.

Relatively early indications of emergency levels of malnutrition and mortality were detected by a range of Early Warning Systems in Ethiopia, especially by mid-2002, prompting a sharp increase in emergency food aid interventions, which prevented widespread distress migration (nonfood assistance, however, lagged considerably behind the food aid response). As a result, instead of the clustering of vulnerable populations into the famine camps that so infamously characterized Ethiopia in 1984/85, suffering was more widely dispersed throughout the country, presenting a major challenge to relief responders and existing government-run public welfare and health services. Today, there are indications of a "hidden famine" (characterized by crisis-related malnutrition, destitution, and morbidity) where the edges of the capacities of government and humanitarian agencies dissolve into the periphery of marginalized populations. (*"Risk and Vulnerability in Ethiopia: Learning from the Past, Responding to the Present and Preparing for the Future."* For further information, please email *Sue.Lautze@Tufts.edu* or visit *www.famine.tufts.edu*.)

Long-term consequences of early childhood malnutrition. In another study exploring the nutritional effects of shocks, Harold Alderman and colleagues explore the long-term consequences of shocks on children's health and education using longitudinal data from rural Zimbabwe. They link exposure to the war preceding Zimbabwe's independence and the 1982-84 drought to the height-for-age of children in the sample in 1983, 1984, and 1987 and to their health and educational attainments as adolescents measured in 2000. A statistically significant relationship was found between under-five height-for-age and height attained as a young adult, the number of grades of schooling completed and the age at which the child starts school. Exposure to the 1982-84 drought resulted in a loss of stature of 2.3 centimeters, 0.4 grades of schooling, and a delay in starting school of 3.7 months. Had the median preschool child in this sample had the stature of a median child in a developed country, by adolescence, she would be 4.6 centimeters taller, have completed an additional 0.7 grades of schooling, and would have started school seven months earlier. The authors conservatively estimate this loss of stature, schooling, and potential work experience results in a loss of lifetime earnings of 7 – 12 percent. (*http://idpm.man.ac.uk/cprc/Conference/conferencepapers.htm*)

POLICY

"Your decisions can make the difference between poverty and prosperity, and even between life and death, for millions upon millions of people,"

-- UN Secretary-General Kofi Annan in an impassioned pre-Cancun WTO summit plea to the world's richest countries to allow the world's poorest to benefit from globalization instead of being its victims, granting them access to cheap generic drugs, ending subsidies undermining their agriculture and opening up markets to their textiles. The talks collapsed.

GM extremes. The often vitriolic 'debate' over genetically modified foods heats up more with a flurry of papers and reports that, taken together, further emphasize the existing polarization. One, prepared by Gabrielle Persley of The Doyle Foundation for the International Council for Science (ICSU), provides a valuable overview of what is accepted by the scientific community, what remains in dispute, and where gaps in knowledge continue to exist. In a rational world, she says, this should be sufficient to decide what practices should and should not be allowed, and under what regulatory conditions *(www.icsu.org).* Another, still in draft, by The Nuffield Council on Bioethics, Britain's equivalent to a national ethics committee, essentially revisits and confirms the conclusion of its 1999 report that there is a "moral imperative" for making GM crops readily available to those in developing countries who want them. (*www.nuffieldbioethics.org/publications*)

That's one side of the coin. On the other, there are the perceptions revealed in a massive UK exercise in stakeholder opinion polling. Titled "GM Nation," the findings from 675 public meetings of 20,000 people, and over 36,000 written

responses during a six-week period this summer point to extreme hostility among the British public toward GM technology: 84-93% believed profit, not public interest, was the main driver, that GM crops would benefit producers rather than ordinary people, and that they would cause "unacceptable interference" with nature. While this exercise was targeted at UK consumers, another report by Actionaid (*GM Crops – Going Against the Grain)* concludes that such crops "are at best irrelevant to poor farmers," and that "rather than alleviating world hunger, the new technology is likely to exacerbate food insecurity, leading to more hungry people, not less." Against this backdrop, a UK government report of a four-year series of on-farm evaluations is due out 16 October.

Cultivating Nutrition. Over the past decade, donor funding priorities have shifted away from agriculture-based strategies toward nutrient supplementation and food fortification programs. A recent paper by Carol Levin of PATH and colleagues from UCLA, IFPRI and ICRW explore the views of a range of stakeholders from both developed and developing countries on the values and constraints related to gender-sensitive, nutrition-oriented agricultural projects. The three distinct viewpoints that emerged all support the use of such strategies to improve nutrition, but differ with regard to the relative importance of nutrition education, the strategic use of nutrient supplementation and food fortification, and the degree to which agriculture-based approaches have an impact on nutrition. The common ground can serve, the authors suggest, as a foundation for forging an effective integrative strategy to improve nutrition that includes gender-sensitive agricultural approaches. (*FCN discussion paper 154, IFPRI*)

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On safari. The 18th International Congress of Nutrition of the IUNS (the "Nutrition Safari for Innovative Solutions") will take place at the International Convention Centre in Durban, South Africa, from 19 -23 September 2005. In addition to creating a platform for dialogue on the newest developments in nutrition science – research, policy, practice – the congress will focus on innovative solutions for global nutrition problems and aims to build capacity among young nutritionists. A call for abstracts and registration will be sent out early in 2004. *(www.puk.ac.za/iuns)*

Micronutrients and facts. A set of 14 fact sheets explaining the evidence base for dietary advice related to micronutrient intake, and aimed at program managers who are developing nutrient education and communication activities, has been compiled by Penny Nestel and Ritu Nalobula for the USAID Micronutrient Global Leadership project. The fact sheets are loosely grouped into three categories: food fortification, vitamin A, and iron (*www.ilsi.org/file/microfacts.pdf*)

Salt and flour fortification in central Asia. The Kazakhstan Academy of Nutrition (KAN) in Almaty plays a regional support role for a six-country project to increase the production and use of fortified salt and to introduce fortified wheat flour in Central Asia. Supported by the ADB and working in collaboration with UNICEF, the project is described in a newly launched website. (*www.cark-nutrition.kz*)

Anemia control. Just released by the International Nutritional Anemia Consultative Group (INACG) is a framework for planning and implementing a strategic communication plan for use by program managers and planners of anemia control programs. Prepared by James Hyde, Rosanna Agble, and Penelope Nestel, it can be downloaded from *http://inacg.ilso.org*.

C-SAFE. Comprising three international NGOs - CRS, CARE, and World Vision – the Consortium for the Southern Africa Food Security and Emergency or C-SAFE was set up to help mitigate the combined effect of drought and HIV/AIDS on food security of poor households in the high HIV prevalence countries of Malawi, Zambia, and Zimbabwe. With USAID funding, the NGOs work with various partners, including national and local NGOs to target food insecure beneficiaries, including those that are HIV/AIDS-affected. The program collaborates with and complements WFP's efforts in addressing the emergency. C-SAFE has just published the first edition of its *HIV/AIDS and Nutrition Newsletter*, to be produced every two months. To subscribe, email *kate_greenaway@c-safe.org*.

Millennium update. The Background Paper of the Millennium Project Task Force on Hunger is available from *www.unmillenniumproject.org/documents/tf02apr18.pdf*.

Anthropometry. The FANTA Project, funded by USAID, has just released a revised edition of the Anthropometric Indicators Measurement Guide, which provides detailed information on anthropometric impact indicators and annual monitoring indicators to assess the nutritional status of infants and children under five years of age. The revised edition includes an updated chapter on weighing and measuring equipment and a discussion of the ethical handling of anthropometric data in surveys. Download from *www.fantaproject.org* or request a hardcopy from *fanta@aed.org*.