AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

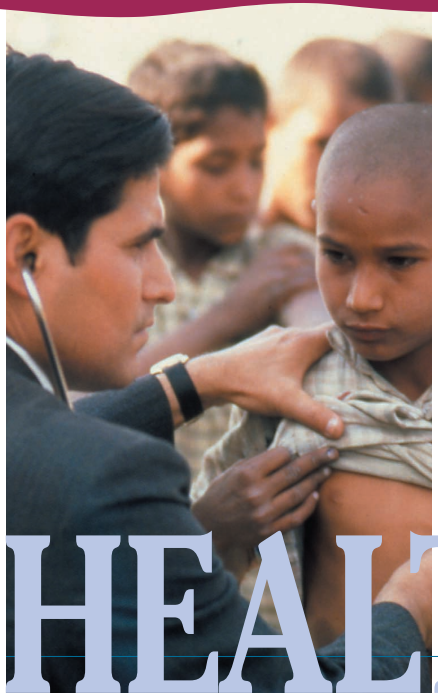
This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



Nutrition and Health

FRANCES DAVIDSON

HEALTH

Global health trends in the 1990s reflected many past successes and pointed to many future challenges. Nations experienced significant progress toward end-of-decade goals established at the 1990 World Summit for Children. Downward trends in mortality of infants and children under five from all causes were encouraging—the summit named a 33 percent rate reduction as its goal; a reduction of 14 percent was attained, resulting in 3 million fewer child deaths each year.

Other trends were less positive. For example, the 1990 summit specified a 50 percent reduction in the maternal mortality ratio by 2000. The ratio remained relatively static, however, at 400 maternal deaths per 100,000 live births. Increases in the percentage of the population with access to safe drinking water and sanitation were estimated at 3 and 5 percentage points, respectively— far short of targets—leaving 1.1 billion people without access to safe water and 2.4 billion without access to adequate sanitation.

Moreover, an estimated 40 million people were living with HIV/AIDS at the end of 2001. Five million of those were newly infected, a slight decline from the previous year. In some regions the majority of new infections were seen in young adults, especially young women.

The spread of tuberculosis (TB) and the HIV pandemic continued to fuel one another, and the growing threat of coinfection posed new risks for already vulnerable populations. By 1998, just six countries had reached the World Health Organization (WHO) goal of detecting 75 percent of new infectious TB cases and curing 85 percent of those detected. The adoption of DOTS (directly observed treatment short-course) therapy for TB holds enormous potential for stemming an epidemic that continues to kill 2 million people annually.

The general relationship between infection and undernutrition is well established. So what can improved nutrition status do to reinforce these positive trends in health and reverse the negative ones?

Nutrition as a Promoter of Good Health

Undernutrition affects both the body's immunological and nonimmunological defenses. As a result, it increases the incidence, severity, and duration of common childhood diseases, such as diarrhea, acute respiratory infections, and measles. Approximately 55 percent of under-five mortality in developing countries is associated with malnutrition, and a modest increase in breastfeeding rates alone has the potential to prevent

up to 10 percent of deaths among children under five.

Evidence is also mounting on the specific relationships between certain types of undernutrition and morbidity and mortality. Research has shown that improving the vitamin A status of vulnerable populations can reduce under-five mortality rates by at least 23 percent, preventing between 1.3 and 2.5 million deaths each year and saving hundreds of thousands of children from irreversible blindness. In addition, adequate vitamin A may also have a protective effect on mother-to-child transmission of HIV, and weekly supplements given to women of reproductive age have been shown to reduce maternal mortality by up to 44 percent. Recent research has also demonstrated that vitamin A supplementation can mitigate the adverse effects of HIV infection, malaria, and diarrhea on child growth.

Iron deficiency is also a serious cause of ill health. The WHO *Global Burden of Disease* report ranks iron deficiency anemia as second among leading causes of disability. Its effects, shouldered disproportionately by women and children, represent serious obstacles to the health and socioeconomic development of nations. The WHO upholds that improvements in the iron status of affected populations can increase levels of national productivity by 20 percent. Iron interventions can also be expected to reduce maternal mortality considerably, as anemia is a contributing factor in 20 percent of all maternal deaths.

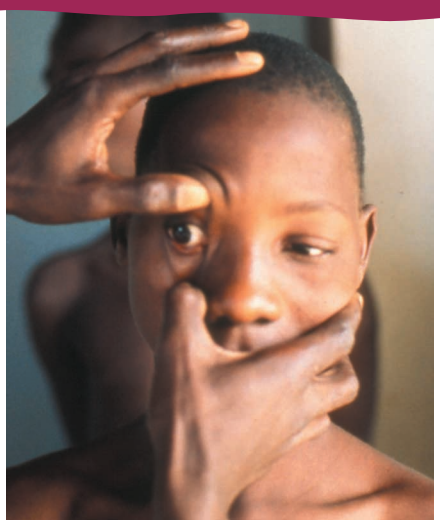
The most common cause of preventable mental retardation and brain damage, iodine deficiency takes a profound toll on health and productivity in affected countries. While substantial progress has been made toward universal salt iodization, it is clear that sustained effort will be required to curb a problem that still affects 50 million children. Investing in programs to address iodine deficiency and its disorders has the potential to protect the more than one and a half billion people still at risk of impaired development, physical deformities, and poor birth outcomes.

Interestingly, undernutrition may also play a role in increasing the virulence of infections, putting even well-nourished populations more at risk in the future. Researchers are reexamining the interactions of diet, agent, and host, with at least one group of investigators concluding that deficient levels of nutrients, such as selenium, may increase not only host susceptibility to infection, but also the virulence of the pathogen itself.

The role of obesity and poor diet quality in the development of chronic disease has long been recognized in the industrialized world. Evidence is emerging, however, that the linkages are equally strong in developing countries, with the added wrinkle that malnutrition suffered in the womb may lead to a predisposition to hypertension, coronary heart disease, and diabetes later in life. The double burden of early undernutrition and later overnutrition is especially evident in countries undergoing rapid economic development, where chronic disease rates are showing alarming increases. The WHO estimates that by 2025 the prevalence of noninsulin-dependent diabetes will have increased by 170 percent in developing countries.

Incorporating Nutrition Interventions into Health Sector Programs

Good nutrition is critical to preventing not only diseases of deprivation, but also chronic diseases that afflict affluent and nonaffluent populations alike. But are there opportunities for development practitioners in the health community to incorporate nutrition? Recent experience suggests that there are.



For example, the integration of high-dose vitamin A supplementation with National Immunization Days (NIDs) has facilitated impressive increases in coverage. In Sub-Saharan Africa, approximately 60 percent of children were estimated to have received at least one dose in the last six months of 1998, double the coverage from two years earlier. Progress in the elimination of polio, however, is leading to the outphasing of NIDs in many countries where vitamin A supplementation remains a priority, and program planners must devise new ways to establish and sustain high coverage among vulnerable populations.

Several countries have already included vitamin A campaigns in Child Health Weeks. Expanding the nutrition component of Child Health Weeks is also a promising possibility. In addition, the millions affected by HIV, TB, and other infections stand to benefit greatly from programs that consider their special nutritional needs and the ways in which optimal dietary practices can improve overall health. Global initiatives to combat the pandemics may provide a platform for expanded nutrition programs, particularly supplementation and counseling.

As the health community increasingly recognizes the value of adopting integrated tactics for high-priority programs, nutrition emerges as critical. Programs that address malnutrition offer not only direct benefits for the well-being of participants, but also benefits for future generations and remarkable synergies with other types of interventions. In the context of global health priorities, the potential of investments in nutrition is striking. It is the rare public health problem today that would not experience some mitigation through improvements in the nutritional status of the people it afflicts.

Suggested Reading

Barker, D. J. P. 1999. The fetal origins of coronary heart disease and stroke: Evolutionary implications. In *Evolution in health and disease*, ed. S. Stearns. New York: Oxford University Press.

Beaton, G. H., R. Martorell, K. J. Aronson, B. Edmonston, G. McCabe, A. C. Ross, and B. Harvey. 1993. *Effectiveness of vitamin A supplementation in the control of young child morbidity and mortality in developing countries*. Nutrition Policy Discussion Papers Number 13. Geneva: United Nations Administrative Committee on Coordination/Sub-Committee on Nutrition (ACC/SCN).

International Council for the Control of Iodine Deficiency Disorders. <http://www.people.virginia.edu/%7Ejtd/iccidd/aboutidd.htm>.

Levander, O. A., and M. A. Beck. 1999. Selenium and viral virulence. *British Medical Bulletin* 55 (3): 528–533.

Murray, C. J. L., and A. Lopez, eds. 1996. *The global burden of disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020*. Cambridge: Harvard University Press.

Pelletier, D. L., E. A. Frongillo, Jr., D. G. Schroeder, and J.-P. Habicht. 1995. The effects of malnutrition on child mortality

in developing countries. *Bulletin of the World Health Organization* 73 (4): 443–448.

Scrimshaw, N. S., and J. P. SanGiovanni. 1997. Synergism of nutrition, infection, and immunity: An overview. *American Journal of Clinical Nutrition* 66 (supplement): 464S–477S.

Semba, R. D., P. G. Miotti, J. D. Chiphangwi, A. J. Saah, J. K. Canner, G. A. Dallabetta, and D. R. Hoover. 1994. Maternal vitamin A deficiency and mother-to-child transmission of HIV-1. *Lancet* 343 (June): 1593–1597.

Stop TB Partnership. 2001. *Stop TB Newsletter*, June. <http://www.stoptb.org/Working_Groups/TBHIV/tb_hiv.pdf>.

UNAIDS (Joint United Nations Programme on HIV/AIDS). 2001. *AIDS epidemic update—December 2001*. <http://www.unaids.org/epidemic_update/report_dec01/index.html>.

UNICEF (United Nations Children's Fund). 2002. *The state of the world's children 2002*. <http://www.unicef.org/media/sowc02presskit/fullreport.htm>.

———. 1998. *The state of the world's children 1998*. <http://www.unicef.org/sowc98/science2.htm>.

UNICEF Vitamin A Global Initiative. 2000. National Immunization Days (NIDS) dramatically improve vitamin A coverage. <http://www.unicef.org/vitamina/progress_programme.html>.

Villamor, E., R. Mbise, D. Spiegelman, E. Hertzmark, M. Fataki, K. E. Peterson, G. Ndosi, and W. W. Fawzi. 2001. Vitamin A supplements ameliorate the adverse effect of HIV-1, malaria, and diarrheal infections on child growth. *Pediatrics* 109 (1): e6.

WHO (World Health Organization). 2001. *Battling iron deficiency anaemia*. <http://www.who.int/nut/ida.htm>.

———. 2000. *Tuberculosis*. Fact Sheet Number 104. Revised April. <http://www.who.int/inf-fs/en/fact104.html>.

———. 1998. *Reducing mortality from major killers of children*. Fact Sheet Number 178. Revised September. <http://www.who.int/inf-fs/en/fact178.html>.

———. 1997. *World health report 1997 executive summary: Conquering suffering, enriching humanity*. <http://www.who.int/whr/1997/exsum97e.htm>.

Frances Davidson is senior nutrition advisor, Office of Health and Nutrition, U.S. Agency for International Development. For further information please contact the author at fdavidson@usaid.gov.

To order additional copies contact UN ACC/SCN. To download: http://acc.unsystem.org/scn/ or www.ifpri.org

Suggested citation: Frances Davidson, "Nutrition and Health." In *Nutrition: A Foundation for Development*, Geneva: ACC/SCN, 2002.

Copyright © January 2002 UN ACC/SCN. This document may be reproduced without prior permission, but with attribution to author(s) and UN ACC/SCN.

Photo credits: Page 1, © World Bank/Harmit Singh; Page 3, © World Bank/Ray Witlin.