

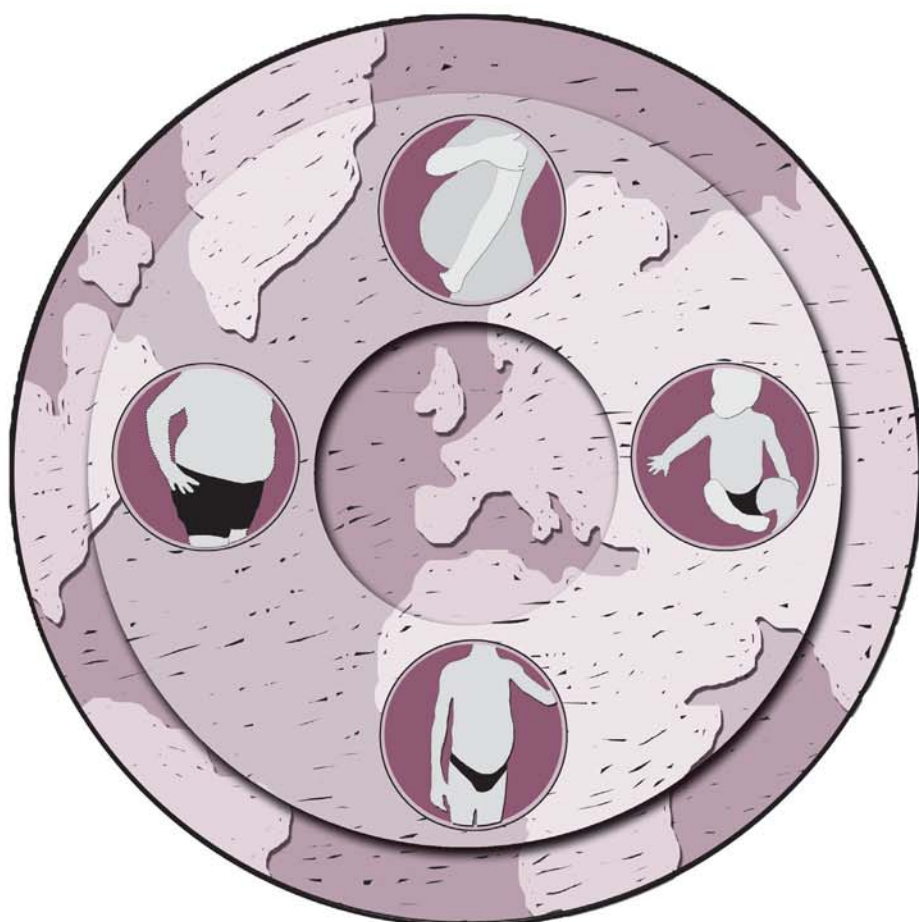


United Nations  
System

# Standing Committee on Nutrition

Number 32  
mid - 2006  
ISSN 1564 - 3743

## Tackling the Double Burden of Malnutrition



### A Global Agenda

# SCN NEWS

Developments in International Nutrition

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This issue of **SCN NEWS** was edited by Andrea D Moreira, MPS.

Cover illustration by Marc Standing.

**SCN NEWS**  
is printed by the  
**Lavenham Press**  
**United Kingdom**

**ISSN 1564-3743**



# INSIDE THIS ISSUE



CHAIR'S ROUND UP..... 1



TACKLING THE DOUBLE BURDEN OF MALNUTRITION: A GLOBAL AGENDA.....3

- LEE JONG-WOOK
- CATHERINE LE GALES-CAMUS
- JEAN-LOUIS SARBIB
- KUL GAUTAM
- KATHRYN G DEWEY
- YU XIAODONG
- RICARDO UAUY
- CAMILA CORVALÁN  
*10TH DR ABRAHAM HORWITZ LECTURER*



PROGRAMME NEWS.....47



SPEAKERS' CORNER.....51



PUBLICATIONS.....61



BULLETIN BOARD.....69

## SPECIALS

- OBITUARY: DR LEE JONG-WOOK.....46
- WHO GROWTH STANDARDS.....50
- THE LANCET SERIES ON MATERNAL AND CHILD UNDERNUTRITION.....67
- MICRONUTRIENT FORUM  
CALL FOR ABSTRACTS.....68
- 33RD ANNUAL SESSION  
PARTICIPANTS' STATEMENT.....72

**WE GRATEFULLY ACKNOWLEDGE FUNDING ASSISTANCE FROM  
THE GOVERNMENT OF THE NETHER LANDS**

# Chair's Round Up

Looking back at the last four years as Chair of the SCN, I am very proud of the work accomplished by the SCN family in moving nutrition to the top of the development agenda. When I took up my first term as Chair in August 2002, an important goal of mine was for the SCN to articulate the role of nutrition in the Millennium Development Goals (MDGs). I believe that the SCN has not only done this, but has raised nutrition to a status never previously achieved before. I would like to reflect on some of these memorable achievements.

Many UN agencies have made significant new commitments to nutrition. The World Bank has released a new report, *Repositioning Nutrition as Central to Development*, which focuses on the window of opportunity of early-life nutrition. They have also partnered with WFP and UNICEF in the Ending Child Hunger and Undernutrition Initiative. In April, WHO released the long awaited new growth standards (page 50). The growth standards provide an effective tool for detecting undernutrition, overweight and obesity in children in all countries of the world.

Our work is highlighted by the annual SCN sessions. During my first SCN Session in Chennai (30<sup>th</sup> Annual Session, March 2003), on *Mainstreaming Nutrition to Improve Development Goals*, the SCN began its discussions and debates on how to best promote nutrition's role in contributing to overall human development. During this session, the 7<sup>th</sup> Dr Abraham Horwitz lecturer, Dr Purnima Menon, provided an *avante garde* lecture on the how-to's of mainstreaming nutrition to reach policy-makers. She argued that in order to affect policy, nutrition professionals need effective communication strategies. Three years later, the SCN is developing a common inter-agency communications strategy to do just that. Also in Chennai, the SCN welcomed a new Distinguished Nutrition Advocate (DNA), Dom Mauro Morelli, from Brazil. Dom Mauro's courage and dedication to fighting hunger in Latin America and the right to adequate food encourages us to continue our work. Thank you to him and to Professor MS Swaminathan, former DNA and host of the 30<sup>th</sup> Annual Session, for all his work in promoting nutrition and giving us such a warm welcome in Chennai.

The 31<sup>st</sup> Annual Session (March 2004) held at the United Nations in New York, was another step forward in advancing nutrition's role in accelerating improvements in poverty reduction, sustainable development and health. The *Fifth Report on the World Nutrition Situation* was launched at this meeting and reinforced the week's deliberations by providing new evidence on the state of nutrition and its contribution to the MDGs. The Report has been used extensively throughout the world and was cited in press coverage of our meeting.

Along with promoting nutrition's role in improving human well-being comes the issue of the right to adequate food as a condition to eliminating hunger worldwide. The 32<sup>nd</sup> Annual Session in Brasilia, Brazil (March 2005) took on this discussion. The symposium featured four case studies from Brazil, Bolivia, Angola and Mozambique on integrating food and nutrition interventions into national development plans with a view to realizing the right to adequate food. By the end of the week, representatives of the case study countries signed a joint declaration requesting that the SCN and its member agencies provide support in strengthening nutrition components of national development plans. The SCN session built on the FAO Council approval of the Voluntary Guidelines on the Progressive Realization of the Right to Adequate Food in November 2004. A special issue of *SCN News* (#30) was dedicated to this important achievement.

The first ever joint ECOSOC/SCN session was held in New York in June 2005, on the *Critical Role of Nutrition for Reaching MDGs* ahead of the September 2005, Millennium +5 General Assembly. At this meeting, it was agreed that income poverty reduction and increased food production alone will not solve the nutrition problems of the poor in developing countries. Further, it was reaffirmed that achieving the MDGs means implementing rights, including the right to adequate food.

My last SCN Annual Session as Chair took place this past March (2006) in Geneva, Switzerland. We were honoured to have Dr Lee Jong-wook provide opening remarks and remind us how nutrition and health are interconnected. As you are all aware, Dr Lee passed away suddenly 22 May 2006. I had an opportunity to travel with him when we visited the Horn of Africa during my time at WFP. He was a great supporter of nutrition and the work of the SCN. I am sure you join me in sending our deepest and most sincere condolences to Dr Lee's family; he will be greatly missed. Dr Ian Darton-Hill provides a touching obituary to his friend JW on page 46. To continue the work begun by Dr Lee, the SCN welcomes Dr Anders Nordström, interim Director-General, and looks forward to our continued



## 2 Chair's Roundup

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collaboration with WHO.

This issue of **SCN News** provides the outcomes of the 33<sup>rd</sup> Annual Session focusing on *Tackling the Double Burden of Malnutrition: A Global Agenda*. This is the first time the SCN addresses malnutrition in all its forms affecting both the developing and industrialized worlds. The objective was to develop clear messages that nutrition practitioners could use to communicate the need for one agenda. In fact, press coverage of this event helped to redefine malnutrition as both under- and overnutrition. We also agreed on a new policy designed to include private sector representation at SCN meetings. The week ended with a participants' statement found on the inside back page of this issue. A warm thanks goes to WHO for hosting this event and to Assistant Director-General, Dr Catherine Le Galès-Camus, and Director of Nutrition for Health and Development, Dr Denise Coitinho, for their support.

Throughout the past four years, I have had the chance to meet and work with extraordinary people committed to the nutrition cause. I would like to thank the SCN Steering Committee for its tireless efforts in guiding the SCN in its mission and representing the interests of the three constituencies which make up the SCN's membership: UN agencies, bilateral partners and civil society/NGOs. Our monthly telephone meetings have been filled with lively debate and innovative thinking on how to promote nutrition throughout all constituencies.

I would also like to thank Dr Roger Shrimpton for his work as SCN Secretariat. Roger joined the SCN during a critical time for nutrition and has provided key leadership that will take the SCN forward. Thank you to the SCN Secretariat staff—Jane Hedley, Andrea Moreira (**SCN News** Editor) and Claudine Prudhon (**NICS** Editor)—for all their dedication and support.

During the last four years, the SCN has developed some innovative tools in providing nutrition information with the help of visionary individuals. Dr Michel Loots from the Human Info NGO created the *Food and Nutrition Library* CD-ROM, which now provides access to over 1000 full-text publications, making it an invaluable tool for nutrition practitioners. Dr Andrew Tomkins, Chair of the Working Group on Nutrition and HIV/AIDS, has headed-up the development of the SCN's webpage on Nutrition and HIV/AIDS. With the help of Jani Cheseaux, RD, this webpage has become a very useful resource for those interested in the interactions between nutrition and HIV/AIDS.

Thank you to Dr Reza Amani and Davoud Vahabzadeh for their translation of the SCN's nutrition briefs, *Nutrition: A Foundation for Development*, into Farsi. The briefs were originally translated into Spanish, but this is the first time an SCN publication has been translated into Persian language.

Lastly, I would like to welcome my friend, Ann M Veneman, Executive Director of UNICEF, as the new SCN Chair beginning August 1, 2006. Ann will be the ninth SCN Chair. In her acceptance speech read at the 33<sup>rd</sup> Annual Session by Kul Gautum (Deputy Executive Director, UNICEF), Ann reminded us that UNICEF was a founding member and an active supporter of the SCN from the beginning. Two past chairs, the late Dick Heyward and Sir Richard Jolly, were also Deputy Executive Directors of UNICEF. Ann fully shares the SCN's vision and is committed to moving the SCN's new Action Plan forward together with SCN members. I wish my friend much success.

My time as the SCN's Chair has been filled with new and exciting challenges and fond memories. I will continue my work in the area of food and nutrition through my professorship at the Maxwell School of Citizenship and Public Affairs at Syracuse University. I remain very active in promoting girls' education and women's literacy. Thank you for your support over the past four years and may our paths cross again.

*Catherine Bertini*

Chair SCN

# TACKLING THE DOUBLE BURDEN OF MALNUTRITION

## A GLOBAL AGENDA



Standing Committee on Nutrition 33<sup>rd</sup> Session

13-17 March 2006

Geneva, Switzerland

This year's SCN annual meeting was hosted by the World Health Organization at the Geneva International Conference Centre, Switzerland. Over 300 participants attended the annual session focusing on *Tackling the Double Burden of Malnutrition: A Global Agenda*. This issue of **SCN News** reports the proceedings of the one-day symposium dedicated to this burgeoning nutrition problem. A full session report can be downloaded from the SCN's website, [www.unsystem.org/scn/](http://www.unsystem.org/scn/)

Dr Lee Jong-wook, Director-General of WHO, opened the symposium. He reminded the audience that nutrition and health are synergistic and shared some of his experiences from a recent three-country visit to Africa. He also praised the collaborative effort undertaken by WHO, UNICEF, governments and other partners to develop the long-awaited growth reference standards. Dr Catherine Le Galés-Camus, Assistant Director-General for Noncommunicable Diseases and Mental Health, followed by outlining WHO's commitment to tackling the double burden of malnutrition with its Ten-Step Rapid Action Plan meant to address the entire continuum of nutrition problems. Dr Le Galés-Camus also congratulated the World Bank for its new nutrition report, *Repositioning Nutrition as Central to Development*, which places such importance on early-life nutrition.

Mr Jean-Louis Sarbib, Senior Vice-President of the World Bank, gave an energetic presentation which reaffirmed that nutrition interventions are cost-effective, 'good development practices'. With all that has been said about nutrition's importance in reaching the Millennium Development Goals (MDGs), nutrition has yet to be mainstreamed into development strategies. The new World Bank report shows that the non-income poverty reduction target (MDG 1, target 2) will not be reached by 2015 in a majority of developing countries. In order to reverse these trends, Mr Sarbib stressed that the nutrition community must reach consensus on key nutrition messages, including focusing on the window of opportunity of the first two years of life in preventing under- and overnutrition.

Mr Kul Gautum, Deputy Executive-Director of UNICEF, closed the morning session by stressing the need to put knowledge into action. He stated that UNICEF would continue to prioritize infant and young child undernutrition, but pledged UNICEF's support for a single strategy to help solve problems of under- and overnutrition.

The afternoon session was dedicated to the multi-level actions needed to tackle the double burden of malnutrition and prevent diet-related chronic diseases. Dr Kathryn Dewey, from the University of California at Davis, presented key actions at the individual and family level, which include prioritizing food and care for pregnant and lactating women and their infants; exclusive breastfeeding for six months; appropriate complementary feeding and care practices for infants and young children; and emphasizing food group diversity and adequate physical activity throughout the life cycle.

Professor Yu Xiaodong, Director-General of the Centre for Public Nutrition and Development in China, provided a national level perspective on the double burden. China's experience with rapid economic growth and the consequent rise in obesity levels and diet-related chronic diseases provides a prime example of the nutrition problems many countries are faced with today. Professor Yu appealed to the SCN for help in providing clear recommendations on how governments should address the double burden.

Professor Ricardo Uauy, President of the International Union of Nutrition Sciences, outlined a strategy the international community should adopt in order to develop a global agenda to fight malnutrition in all its forms. He urged developing common definitions of malnutrition, identifying standards for good quality diets, and promoting physical activity. He ended by reminding development organizations of their role in promoting capacity development in young professionals that will give them the skills to take on new nutrition challenges.

The symposium finished with the 10<sup>th</sup> Dr Abraham Horwitz lecture given by Dr Camila Corvalán from Chile. Her lecture presented her work in preventing obesity in preschool children and avoiding the nutrition 'trap' in Latin America. Dr Corvalán stressed making problems of obesity and diet-related chronic diseases a priority for Latin America and focusing on long-term health in the region.

The week-long session ended with a participants' statement on tackling the double burden of malnutrition with a global agenda, which can be found on the inside back page of this issue.



### OPENING STATEMENT THIRTY-THIRD SCN SESSION

LEE Jong-wook  
Director-General  
World Health Organization

Ladies and gentlemen.

Before starting, let me say what a pleasure it is to be under the gavel of Catherine Bertini. We travelled together on a mission to the Horn of Africa at the time of the previous drought, when she was head of the United Nations World Food Programme, and before taking up my current position. We are in complete agreement on the need for a close connection between nutrition and health.

Welcome to the 33<sup>rd</sup> Session of the Standing Committee on Nutrition at which WHO is delighted to be your host. The initiative for this session is a vital one: the desire to jointly discuss—and agree on—how to address the growing double burden of malnutrition.

Having just come back from a week-long visit to three countries in Africa, I want to share some of the direct, immediate realities of the field with you. It is sometimes difficult to retain a strong sense of reality when we are here, in comfortable Geneva, dealing with normative functions, policy harmonization and strategic frameworks.

In Madagascar, Mauritius and Kenya, the everyday presence of nutritional deficiencies and disorders is painfully obvious. It dominates people's lives and their deaths. Yet often people there do not see it that way. Their concerns are "my child is sick" not "my child hasn't eaten well enough to be able to fight this infection."

Malnutrition—specifically undernutrition—affects all of Madagascar, especially rural areas. Nearly half of all children below five years of age suffer from chronic malnutrition. They are not getting off to a good start. Eighteen percent of women of reproductive age are chronically malnourished. Birth spacing is a problem. Diet is a problem. Alternatives to rice are too expensive, despite the fertility of the island's soil. This is a classic multisectoral problem.

In Mauritius, chronic diseases account for more than 80% of all deaths. Chronic disease risk factors are rising in the country, and it is estimated that by 2015 more than half of all women and men will be overweight.

In Kenya, I spent some time in the Mbagathi District Hospital in Nairobi, which diagnoses and treats people with TB and HIV. One woman came in thinking she had pneumonia. When we met her she had already been in hospital for a month. She has tuberculosis and is HIV positive. In addition to the therapy she is now getting for both conditions, she desperately needs to regain weight. Nutrition has to be part of the essential package of care, treatment and support for people living with HIV/AIDS. The HIV epidemic is both driven by, and contributes to, the factors that also cause malnutrition: in particular, poverty, emergencies and inequalities. The droughts that have ravaged Niger, and are now affecting the Horn of Africa, are yet further setbacks to communities struggling for subsistence.

Without good nutrition, infants, children and adults alike are more vulnerable to disease and death. An HIV-positive child who is already undernourished needs more food than an infection-free child. The interactions of adequate nourishment and intake of drugs, of having enough food and being able to fight infection, are crucial to our understanding where our work must be directed. WHO is leading the initiative to address the linkages between HIV and nutrition.

Right now, avian influenza is sweeping through the world, wiping out entire poultry flocks within a day or so of its arrival. This brings an immediate threat to populations on the brink: a catastrophic loss of protein sources and livelihood as household flocks fall sick. The related threat, of human infection with the H5N1 virus and a change in that virus to trigger a human pandemic, is ever-present. But right now in Asia, Africa, India, and the Middle East, there is an agricultural disaster building, which will inevitably have its human consequences. You are invited today, in this session, to make this a part of your deliberations and planning for coordination.

Next month we will launch the long-awaited Growth Standards Charts. They reflect a significant change in approach: the identification of children at risk. This preventive approach, which addresses



risk factors, is at the heart of much of our work on the leading causes of death whether in the area of child survival—or in adults due to chronic diseases. It is based on the recognition that health conditions are the result of a complex interlocking set of environmental conditions and behavioural choices.

There is still a great deal to discover about the impact resulting from each of those choices and conditions as well as about what can be done to encourage and support more people to make the choices that lead to better health.

We have to work on commonly agreed directions and messages. The effort to get those agreements is a tiny fraction of the effort needed to undo the muddle caused by confused messages. Misunderstandings, such as those caused by reporting of the conclusions of the "women's health-initiative diet modification trial," can take years to clear up. In the meantime, momentum towards gathering a shared body of opinion, evidence and action is lost.

The evolution of the new growth standards is a fine example of collaboration and sharing of scientific information. This has been built up over the course of more than a decade between WHO, UNICEF, governments and many other partners. Similarly, this 33<sup>rd</sup> Session offers an important opportunity to rise above the boundaries that normally separate our work, and to look to the greater benefits of clear common interest.

Thank you.

*Editor's Note: Dr Lee delivered this speech the morning of 13 March 2006. The SCN is very grateful for Dr Lee's presence and support of its work. His contribution that morning set the stage for the week-long discussions and debates on the double burden of malnutrition. He challenged participants to be innovative and visionary in their work. The SCN sends its deepest condolences to the family of Dr Lee.*



### **NUTRITION:**

#### **AN INPUT AND FOUNDATION FOR HEALTH**

**Catherine Le Galès-Camus**

**Assistant Director-General, Noncommunicable Diseases and Mental Health**

**World Health Organization**

It is a great pleasure to address you today. WHO considers nutrition a core component of our work, and its importance is growing steadily on both our agenda and, increasingly, on the global humanitarian agenda. As Assistant Director-General overseeing both the areas of work in nutrition and the prevention of chronic diseases, my colleagues and I are on the front lines of the health impacts of the double burden of malnutrition.

Traditionally, and rightly so, the nutrition community has focused its attention on the health, development and socio-economic problems resulting from undernutrition. The WHO World Health Report 2002 indicated that undernutrition, together with micronutrient deficiencies, are the leading risk factors for disease and death. Together they account for over half the disease burden in low-income countries. The toll in lives and suffering has been enormous, and there is still a tremendous amount of work to be done on this front.

However, we are now facing an important second front: the growing threat of overnutrition and its health, development and socio-economic repercussions. The World Health Report 2002 also took note of the substantial disease burden attributable to risks related to overweight and the overconsumption of certain foods and food components. In fact, this was one of a number of early recognitions of the double burden of malnutrition. We had come to think of overweight and obesity as a problem unique to the developed world—we see it daily in headlines and on TV. But at WHO we are now seeing a different, perhaps less visible but very alarming, picture emerging.

With rapid globalization, these so-called 'western lifestyle' problems of overnutrition are emerging with tremendous speed in almost every corner of the world. Our biggest concern is that we are not reacting quickly enough now, so that emerging health problems can be prevented. Let us take a few moments to survey the landscape of the double burden. For many of you this will be familiar territory, but perhaps with a new perspective.

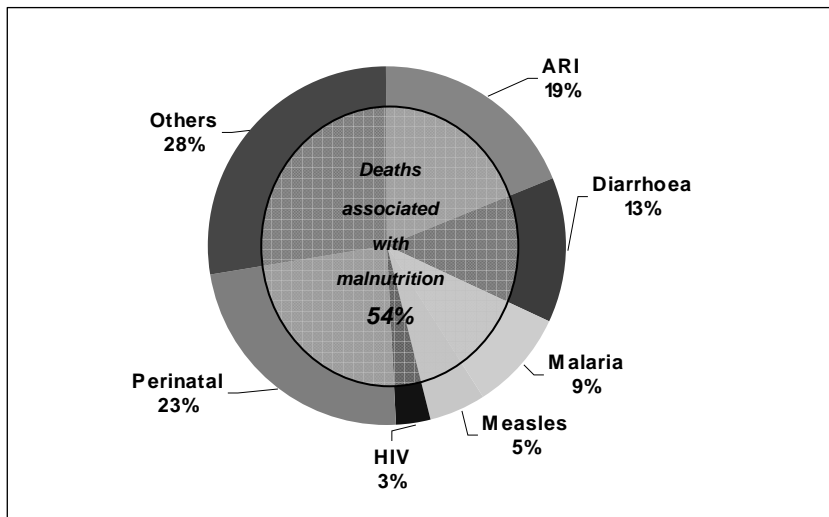
Evidence of the burden of undernutrition is clear to anyone in the humanitarian field. Severe malnutrition kills 10.8 million children under five worldwide each year (Figure 1). In emergencies, from food security to earthquakes, malnutrition is a leading cause of death and disease among all age groups. Thirty million low-birth-weight babies are born annually. The legions of undernourished children and the impact on growth and development due to a lack of micronutrients are further proof of the staggering impact of undernutrition.

Not so obvious, perhaps, is the less visible role nutrition plays in health and development. Recently I appeared before UNICEF's Executive Board, and explained that we concurred with their assessment that epidemiological evidence points to a small set of primary causes of child mortality—pneumonia, diarrhoea, low-birth-weight and others—as the main killers of children under five years. However, it was important to emphasize that undernutrition is the underlying cause of one out of two such deaths. I wish to thank the World Bank for its recent significant report on malnutrition, which has put early life nutrition on the agenda. We will hear from Jean-Louis Sarbib from the World Bank later on.

Clearly from this evidence, then, the Millennium Development Goals (MDGs) will never be met without significant acceleration in addressing undernutrition as one of the primary causes of newborn and child mortality. Furthermore, there are critical interconnections between child survival, undernutrition and most of the other MDGs. Those related to maternal health, education and gender equality have clear nutritional components at their very core.

The importance of nutrition in dealing with HIV/AIDS is now firmly acknowledged; in fact, recently we convened a meeting with African country representatives, a number of UN agencies and the Global Fund for HIV/AIDS, TB and Malaria to develop guidelines for the funding of programmes to ensure adequate nutrition for those with HIV/AIDS—an important contribution towards Goal 6 of the MDGs. But without our focused and collaborative effort in improving child health and in eliminating hunger and malnutrition, many of the MDGs will be very difficult to achieve.





**Figure 1 Burden of undernutrition-**  
Sources: for cause-specific mortality: EIP/  
WHO; for malnutrition: Pelletier DL, et al.  
*American Journal of Public Health, 1993;*  
83:1130-3.

As urgent and enormous as the challenge of undernutrition is, however, it's not the only challenge ahead. We must turn to address the other face of malnutrition which threatens millions of lives as well. The numbers are stark and compelling: of the 58 million deaths globally last year, 35 million people died of chronic diseases such as heart disease, stroke, cancer and diabetes (Figure 2, next page).

Our recently released report, *Preventing Chronic Diseases: a vital investment* acknowledged that the first battle to be won is to overcome the generally held preconceptions about these diseases: who gets them and where they strike. Contrary to popular perception, 80% of those deaths are in low- and middle-income countries. They strike all ages, and both genders. It is predicted that these numbers will keep rising: 388 million people are expected to die from chronic diseases from 2005 to 2015 if no action is taken to stem the tide. Just a 2% decrease annually, however, could bring that cumulative death toll down by 36 million.

There is no need to explain to this audience the connection that exists between overnutrition and many of these chronic diseases. However, please note that one billion people are now overweight globally, and this number is rising quickly and dramatically everywhere: India and China are of particular concern with their fast growing and quickly transforming economies and societies. In fact, obesity is now mainly a problem of the poor everywhere. Increasingly in more households, under- and overnutrition live side-by-side.

We are currently seeing many individuals, families and communities around the world making the rapid transition from undernutrition to poor nutrition: the changing nature of globalized food supply, easier access to processed foods high in fats and sugars, coupled with more sedentary lifestyles makes for a lethal mix which leads quickly to overnutrition.

In fact, Mallory (Picture 1, next page) is 5 years old and his story illustrates this point well. Mallory lives in Tanzania in a poor rural area. His mother, while a fruit and vegetable seller by day, is not able to afford them for her own son. Mallory's diet consists essentially of porridge and animal fat, and he has nowhere to play outdoors. Mallory has been diagnosed as obese by his local community health centre. So for Mallory and millions upon millions of others globally, their health will likely be determined by their nutritional status—the nutritional risk factors for chronic diseases are well known.

Less widely known is the theory which is growing in strength that there is a connection between maternal undernutrition in the foetal development stage and overweight problems in young children and the resultant increased risk of chronic diseases in adulthood. This is where the two components of malnutrition converge, becoming evident that they are connected: acting on undernutrition in the critical foetal period and early childhood years could prevent chronic diseases later in life.

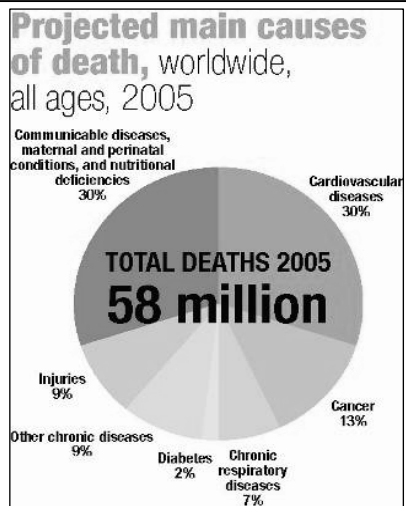
What is WHO's response to this double burden? We are, in fact, working across the entire continuum of nutrition problems simultaneously and synergistically—addressing malnutrition with a 10-Step Rapid Action Plan, with the Global Strategy on Infant and Young Child Feeding at the core, and with the Global Strategy on Diet, Physical Activity and Health focusing more specifically on the chronic disease threat (Box 1, page 9).

First to the 10-Step Rapid Action Plan: at WHO our primary function is to support our Member States with policy recommendations, guidelines, best evidence and best practices. This, then is the first component of the plan: to foster national nutrition policies and plans. In practical terms, for example, this

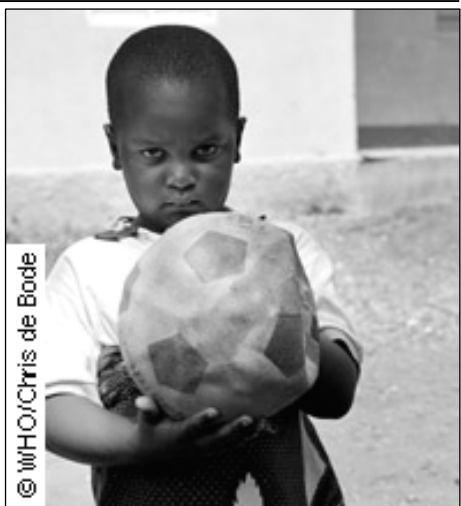


# 8 Features

Figure 2



Picture 1 Mallory



means WHO and its partner agencies have provided capacity-building support to 26 countries in Africa, South-East Asia and Western Pacific Regions, in addition to Nutrition Action Plans in 44 European countries.

Crucially important is the need to address the MDGs, in particular target 2, of halving the number of people suffering from hunger. WHO, working with other agencies and stakeholders, promotes the use of the Global Strategy on Infant and Young Child Feeding, as well as optimum foetal growth, the correct management of severe undernutrition—when preventive measures fail to have children grow properly—and micronutrient intake for young children and food fortification.

There has been progress. WHO has worked with its partners, notably UNICEF, to translate breastfeeding and complementary feeding guidelines into local action, notably in Africa. We are working to revitalize the popular Baby-Friendly Hospital Initiative, and we have an ongoing programme in 44 countries for training in the management of severe undernutrition.

But much more must be done by all partners to advance this agenda. To address overnutrition, we are working to gather the evidence base of just what works—particularly as it applies to childhood obesity.

What we saw with Mallory, and as seen everyday around us, childhood obesity is growing exponentially. We know there are more than 20 million children under five who are overweight. While we have tools to assess overweight and obesity in children, there is no global standard. We need standardized measurements, along the lines of the new Child Growth Standards that we will be releasing in April, that can be applied universally and used for assessment, evaluation and policy-making.

In the meantime, however, we cannot hold off taking action. One of the key environments and forums for addressing the problem of childhood obesity is obviously the school. I am pleased to learn that the major agencies are discussing with us a joint project that addresses both over- and undernutrition in the school setting. Our shared goal is to make schools more nutrition and physical activity-friendly and we look forward to this broader approach.

As mentioned earlier, we have been moving forward very quickly on the issue of nutrition and HIV/AIDS. Both the HIV/AIDS and nutrition communities are rapidly mobilizing to incorporate nutrition into treatment and care programmes at country level.

It is only less than a year ago that WHO convened an expert consultation on nutrition and HIV/AIDS in Durban, South Africa. That gathering of technical experts on HIV/AIDS and nutrition was broadened to include representatives of the most affected countries in Africa, along with implementing NGOs and other international organizations. This innovative approach bore fruitful results, as research and practical application met face to face to work out what is needed, what is possible, and what still needs to be developed on nutrition for people with HIV/AIDS.

In addition to the 10-Step Rapid Action Plan, we are also very active in implementing the Global Strategy on Diet, Physical Activity and Health. As can be seen, our guiding principles are guiding our action as well. We have developed the global Infobase to address the issue of the need for stronger evidence for policy. Additionally, our STEPS programme and the Global School Health Surveys actively collect risk factor data by country.

We have been actively working with Member States, many of whom have now developed or are developing their own diet and physical activity strategies based on our model. Spain, Belgium, Nepal and Poland are but a few examples.



### 10-Step Rapid Action Plan

1. Building national capacity to develop intersectoral food and nutrition policies
2. Providing diagnostic reviews and country nutrition profiles
3. Providing knowledge-based nutrition advisory services through practice communities
4. Promoting optimal foetal growth and development
5. Improving infant and young child feeding practices and care of severely malnourished children
6. Recommending vitamin and mineral requirements for children up to three years
7. Implementing guidelines on food fortification
8. Developing scientific evidence and assessment of obesity and nutrition in transition
9. Establishing nutrition friendly schools
10. Integrating nutrition into essential case, treatment and support package for people living with HIV/AIDS

Box 1

Additionally we are developing a set of tools to help member states with implementation. These include guidelines on physical activity for developing countries, best practice models for preventing and controlling chronic diseases, and a framework on fruits and vegetables—another example of a policy that addresses the whole spectrum of malnutrition.

One of the key principles of the Global Strategy is the need to involve a wide range of stakeholders, and there has been much productive action on that front. For example, recently we held the third in a series of meetings with the food, beverage and retail sector, which has focused particularly on the issue of childhood obesity. Similar consultative meetings have taken place with major non-governmental and civil society stakeholders as well. We have also convened a meeting to discuss the evidence and need for better guidance on the marketing of food and drink to children. Further, we have also developed guidelines for Member States on how to interact effectively with the private sector in order to achieve improved public health.

Going forward, WHO has some important initiatives and milestones coming up. We have already mentioned the Global Fund session on HIV/AIDS and nutrition, which will continue to move swiftly forward. We are preparing for the long anticipated release of the Child Growth Standards charts. April 27 will mark the end of nearly 15 years work by a dedicated team at WHO, working with other UN agencies such as the United Nations University. But that date will mark the very start of an important new phase in nutrition evidence-gathering and policy development. These standards will serve as a foundation from which to evaluate, assess effectiveness, and advocate for improved infant and young child feeding and care. In short, they will help us advocate for how children *should* grow. Also for what parents, communities and governments should do to ensure that children grow to their full potential, fulfilling their right to grow.

In May, the Global Strategy on Diet, Physical Activity and Health reports back to the World Health Assembly two years after its instigation, about its progress. We are pleased with what we have to report, but there remains much work ahead. I hope that you have been able to follow the common theme throughout my presentation: the need to work together if this double burden of malnutrition is to be stemmed and the tide turned.

WHO has its role to play in the process. But even in the examples mentioned above, such as the Global Fund and HIV/AIDS, the World Bank's important report advancing the global agenda and working with UNICEF on child mortality, it is evident that only by each of us playing our own role and at the same time working together will the needed critical mass be reached.

The global community is less interested in our individual agendas than it is by hearing what we, together, recommend to reach the MDGs and to halt the global epidemic of chronic diseases. Equally, as I have learned through our experiences with the Global Strategy on Diet, Physical Activity and Health, we will have to engage stakeholders outside the nutrition community and outside the intergovernmental community in order to advance this agenda.

The SCN is an important forum and vehicle for advancing the global agenda on malnutrition. The SCN's Strategic Framework and Action Plan you will consider this week is the foundation upon which to build. WHO is fully engaged on this issue and is prepared to work together in a coordinated fashion to advance this agenda, and to speak with one voice. I wish you well with your deliberations and exchanges this week—millions of lives depend on the outcome of your important work.

Thank you.



## NUTRITION:

### A RENEWED OPPORTUNITY IN DEVELOPMENT

Jean-Louis Sarbib

Senior Vice President, Human Development Network

World Bank

It is my pleasure to address you on what the World Bank sees as a renewed opportunity for nutrition in development. In 2005, we saw monumental development initiatives: the launching of the Report of the Commission on Africa (March 2005), the G8 Summit (July 2005) addressing issues such as debt-relief, the Millennium +5 Summit (September 2005) reaffirming the international community's commitment to the goals of poverty reduction, and progress made on agriculture liberalization at the Sixth WTO Ministerial Conference in Hong Kong. There have been lots of promises made, there is unprecedented potential, but there is also much cynicism due to past promises not kept.

Today, the issue of nutrition is being recognized as both a cause and a symptom of poverty. In fact, it is the non-income face of poverty. Although the poor tend to suffer more from malnutrition, even the better-off can have poor nutritional status. For example, among the richest 20% population in India, 64% of children are anemic, demonstrating that nutritional behaviour plays an important role in contributing to malnutrition. In addition, there are intra-household inequities, with gender discrimination exacerbating the inequalities in nutritional status.

With increased availability of resources, there is also a renewed focus on aid effectiveness and the need to deliver quick results on major global issues that affect the poor. Synergies exist among cross-sectoral activities and there need to be opportunities for scaling-up interventions so that impacts can be felt at national, regional and global levels. Moreover, funding needs to be sustainable and predictable. Good governance and transparency are essential to ensure that resources intended to improve the lives of the poor actually reach them. Nutrition has long been a pioneer component in aid effectiveness principles. Nutrition interventions tend to be: cost-effective; they are usually targeted at the poor; can be scaled-up relatively quickly; are community-based, specially focusing on women; multi-sectoral; and "politically correct". Thus, nutrition interventions represent "good development practices".

#### *Enormous challenge for MDG 1, target 2*

Nutrition's contribution to all the Millenium Development Goals (MDGs) has been documented time and again (Table 1). Malnutrition erodes human capital—it is estimated that malnutrition costs countries 2-3% of their GDP, which for Africa is equal annually to US\$8–12 billion. Yet, nutrition is still not central to development. It has been stated that the poverty target of MDG 1 will likely be met, but the non-income target (ie, hunger and malnutrition) is not on track. Nutrition has not yet been able to develop the kinds of alliances we see with other initiatives, such as with HIV/AIDS, malaria or vaccines. Although there is a good start—the Global Alliance for Improved Nutrition and the Micronutrient Initiative have moved nutrition forward—they have not yet reached wide visibility or large coverage.

Table 2 lists progress by country on non-income poverty reduction (underweight). It shows that there is much work ahead for many countries to reach the target. No country in South Asia is going to achieve this MDG, with the exception of perhaps Bangladesh. Moreover, even if India were to reduce

Table 1

Goal	Nutrition Effect
Goal 1: Eradicate poverty and hunger	Malnutrition erodes human capital; cost estimated at 2-3% of GDP, equalling USD 8-12 billion for Africa (2002 figures)
Goal 2: Achieve universal primary education	Malnutrition effects school enrolment, performance, and dropout rates
Goal 3: Promote gender equality	Addressing malnutrition empowers women more than men
Goal 4: Reduce child mortality	Malnutrition underlies more than half of all child deaths
Goal 5: Improve maternal health	Maternal health and mortality compromised by malnutrition
Goal 6: Combat HIV/AIDS, malaria and other diseases	Malnutrition may increase risk of HIV and hasten the onset of AIDS



Table 2 Progress on non-income poverty (nutrition MDG)

Source: World Bank (2006)

<b>On track (34/143=24%)</b>				<b>Some improvement, but not on track (26/143=18%)</b>			
<b>AFR (7)</b> Angola Benin Botswana Chad Gambia Mauritania Zimbabwe	<b>EAP (5)</b> China Indonesia Malaysia Thailand Vietnam	<b>LAC (10)</b> Bolivia Chile Colombia Dominican Rep Guyana Haiti Jamaica Mexico Peru Venezuela	<b>MNA (6)</b> Algeria Egypt Iran Jordan Syrian Arab Rep Tunisia	<b>AFR (14)</b> CAR Congo, DR Côte d'Ivoire Eritrea Gabon Ghana Kenya Madagascar Malawi Mozambique Nigeria Rwanda Sierra Leone Uganda	<b>EAP (3)</b> Cambodia Lao, PDR Philippines	<b>LAC (4)</b> El Salvador Guatemala Honduras Nicaragua	<b>MNA (1)</b> Morocco  <b>SAR (4)</b> Bangladesh* India Pakistan Sri Lanka
<b>Deteriorating status (26/143=18%)</b>				<b>No trend data available (57/143=40%)</b>			
<b>AFR (13)</b> Niger Burkina Faso Cameroon Comoros Ethiopia Guinea Lesotho Mali Senegal Sudan Tanzania* Togo Zambia	<b>EAP (2)</b> Mongolia Myanmar	<b>LAC (3)</b> Argentina Costa Rica Panama	<b>SAR (2)</b> Maldives Nepal	<b>AFR (13)</b> Burundi Cape Verde Congo, R Equatorial Guinea Guinea-Bissau Liberia Mauritius Namibia São Tomé & Príncipe Seychelles Somalia South Africa Swazil&	<b>EAP (11)</b> Fiji Kiribati Marshall Islands Micronesia, FS Palau Papua New Guinea Samoa Solomon Islands Timor-Leste Tonga Vanuatu	<b>ECA (17)</b> Belarus Bosnia-Herzegovina Bulgaria Czech Republic Estonia Georgia Hungary Latvia Lithuania Macedonia, FYR Moldova Poland Slovak Republic Tajikistan Turkmenistan Ukraine Uzbekistan	<b>LAC (12)</b> Belize Brazil Dominica Ecuador Grenada Paraguay St. Kitts & Nevis St. Lucia St. Vincent & the Grenadines Suriname Trinidad & Tobago Uruguay  <b>MNA (2)</b> Djibouti Lebanon  <b>SAR (2)</b>

hunger by half by 2015, it would nonetheless be where Africa is today.

**Why has nutrition not been mainstreamed?**

Too often there is a lack of consensus on how to best address malnutrition. Communications between nutrition experts and policy-makers are strained, contributing to the lack of nutrition inputs in development plans. A lack of potential commitment also arises due to institutional issues. At the national level there is usually no minister of nutrition, making it very difficult to build consensus amongst ministers of health, trade, agriculture and finance on the importance of nutrition. As a result, there are “a thousand flowers blooming” but a lack of adequate funding and support for scaling up effective nutrition programmes.

Thus, it is essential to bridge the gap between nutrition and development policy. A lack of consensus among nutrition experts often gives policy-makers the wrong impression about the importance of nutrition. A coherent, simple, agreed-upon policy message must be developed which prioritizes nutrition and mobilizes resources for scaling-up when feasible.

**The window of opportunity**

There is consensus on the need to focus on children 0-24 months of age. As Figure 1 (next page) shows, in Africa and Latin America most children are born well-nourished, but soon become malnourished within the first few months of life. The damage done during this early period is essentially irreversible. The new World Bank report, *Repositioning Nutrition as Central to Development*, advocates action just before pregnancy until the first two years of life. This is a simple message that policy-makers can base investments on because there is consensus throughout the nutrition community on the importance of maternal and young child nutrition as well as the vulnerability of this age group.

Today, the nutrition challenge is being compounded by an emerging obesity crisis. Undernourished individuals often co-exist with overweight individuals in the same country, and often even in the same households. Cultural beliefs compound the problem to a large extent. So more than ever, nutrition messages need to be coherent and promote a unified message that will address both ends of the spectrum of malnutrition on which policy-makers can act upon.

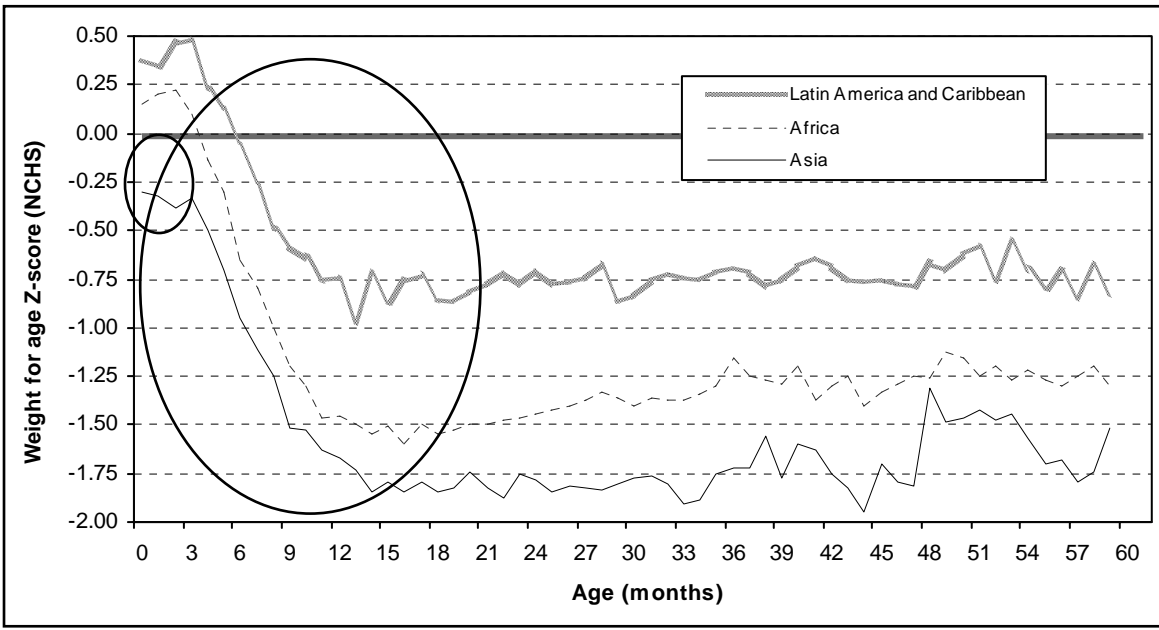
**Next steps**

The next step is to build a “policy bridge” that reaches policy-makers and the wider development community with a simple, cost-effective nutrition message based on technical consensus. It is important to



# 12 Features

Figure 1 Window of opportunity  
Source: Shrimpton et al. (2001)



invest in commitment-building at the highest levels and build the necessary skills-sets (technical, advocacy, policy) within countries and within development partners. Monitoring and evaluation are essential to document good results and track progress.

The SCN’s mandate and key activities chart a hopeful course. Advocacy and strategic communications will help in moving the agenda forward, monitoring and evaluation will track progress, integration of nutrition into country-led development strategies will give priority to nutrition, and identifying scientific and operational gaps will help build consensus amongst experts and practitioners.

Currently, the nutrition community does agree on a number of points. It agrees on the need to focus on the poor and address the non-income aspects of poverty. It agrees on focusing on investments during the “window of opportunity” (pre-pregnancy to 24 months of age). It agrees on investing in micro-nutrients where appropriate. And, what is needed now is an acceleration of results through specific, targeted interventions that are known to work. This will only be accomplished if there is investment in capacity-building and political commitment at all levels.

There has been some discussion about a “global fund” for nutrition—I do not believe that is the solution. What is really needed is a “development revolution” that is pragmatic, if not opportunistic. The nutrition community needs to build partnerships and focus on scaling-up what works. Technical and financial resources need to be mobilized by focusing on implementation and results within a few countries. Finally, we cannot forget to work closely with communities, research institutions and the private sector, and use innovative instruments to achieve results. Through these strategies, we can reposition nutrition as central to development.

### Reference

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## NUTRITION: A LIFE CYCLE APPROACH TO SUPPORT THE MILLENNIUM DEVELOPMENT GOALS

Kul C Gautam

Deputy Executive Director, UNICEF

Ann Veneman, the Executive Director of UNICEF, sends her greetings. The SCN was very much in her mind and that of many others at UNICEF last year as we mourned—and celebrated—the life of Dick Heyward. Dick Heyward was one of the founding fathers and a long-time leader of the SCN, which started originally as the United Nations' Protein Advisory Group, later to become the ACC/Sub-Committee on Nutrition, before being transformed into today's United Nations System Standing Committee on Nutrition.

Dick Heyward would have been so happy and proud to see the report by the World Bank, *Repositioning Nutrition as Central to Development*. That was his constant message to all of us. Unfortunately, not many listened. Now that we have such a compelling document backed up with evidence, and supported by the senior leadership of the World Bank, it is sincerely hoped that nutrition will indeed take centre-stage in development. Thank you to Jean-Louis Sarbib, Meera Shekar and others from the World Bank for coming out with this seminal study.

The World Health Organization's recent Strategy on Diet, Physical Activity and Health that highlights the double burden of malnutrition is another major contribution to the policy debate on nutrition. It is encouraging that the theme of this SCN gathering is on the issue of the double burden, but with a single strategy.

Let me also pay tribute to our Chair, Catherine Bertini. Under her leadership, with the able support of Roger Shrimpton, the SCN has risen to a new level of activism. I commend you for developing an excellent Action Plan and Strategic Framework which, like the World Bank report, seeks to present nutrition as central to achieving the Millennium Development Goals. UNICEF regards all these developments as good news worldwide for child survival and development.

We have all seen the pie-chart figure listing the major causes of the 10.5 million child deaths every year: diarrhea and pneumonia, malaria and vaccine-preventable diseases, HIV/AIDS and perinatal causes. Good progress is being made in tackling several of these causes of death. Though still inadequate, unprecedented funding is being earmarked for tackling some of these causes of mortality and morbidity through the Global Alliance for Vaccines and Immunization and the Global Fund to Fight AIDS, TB, and Malaria, the malaria initiatives, and innovative funding mechanisms such as IFF and a solidarity levy on airlines tickets. We celebrate these much needed supports for global health.

But the inner core of that pie-chart of mortality shows that the underlying cause responsible for over 50% of child deaths is malnutrition. Here we have failed miserably in mobilizing the world's attention, action and resources. Thus far, we have made half-hearted efforts and had limited success in tackling this inner core of the problem of malnutrition, mortality and morbidity. It is not that we do not know what works or that there is a shortage of cost-effective interventions.

Three years ago the landmark edition of *The Lancet* on child survival confirmed that the greatest number of child deaths could be prevented through the simplest act of initially exclusive and, later, prolonged breastfeeding. Two years ago, the Copenhagen Consensus ranked the provision of micronutrients as a top investment with among the highest rates of return of any development interventions.

Two and half decades ago when Jim Grant of UNICEF launched the child survival and development revolution, we championed GOBI-FFF, arguing that Growth Monitoring, Breastfeeding and ensuring adequate food were among the most cost-effective interventions. Yet these are precisely the areas in which progress has been lackluster.

It is very encouraging that in April WHO will launch a new and more accurate growth-monitoring standard for children, one moreover based on breastfed children. For over two decades we have known the value and the sensitivity of child growth as the best measure of child nutrition. Some have even argued that if child development is the foundation of human development, one of the most important indicators to measure it would be the growth monitoring of children under two. In light of the new guidance coming from WHO, can we now take up this issue to make child growth the *gold standard*



## 14 Features

for measuring human development—perhaps alongside GDP per capita and the Human Development Index? That would be a worthy challenge for SCN.

Sometimes, we tend to make malnutrition so complex and mysterious that we fail to tackle the readily preventable micronutrient deficiencies. Vitamin and mineral deficiency is the source of the most massive “hidden hunger” and malnutrition in the world today. It is a hunger that does not manifest itself in the form of a bloated belly or emaciated body. But it strikes at the core of people’s health and vitality. It seriously damages the human brain, learning ability, human health and productivity.

The work and contributions of the Micronutrient Initiative, the Global Alliance for Improved Nutrition, the Flour Fortification Initiative, the International Council for Control of Iodine Deficiency Disorder and others in tackling malnutrition is of tremendous importance. The Copenhagen Consensus and the World Bank report have confirmed that probably no other technology available today offers as large an opportunity to improve the lives and accelerate development, at such low cost, as tackling micronutrient malnutrition. Success in tackling this is not only vital for achieving Millennium Development Goal (MDG) 1 to reduce poverty and hunger, and MDG 4 to reduce child deaths, but for achieving all the other MDGs as well.

UNICEF considers the MDGs a God-sent and tailor-made agenda for children. No wonder; most of the MDGs and their targets and indicators were first articulated and adopted at the 1990 World Summit for Children. Children are not only part of the MDGs, they are at the heart of the MDGs, and the Millennium Declaration that speaks of human rights, humanitarian action, peace and security, international solidarity—are all essential to building a better world for children.

As UNICEF is preoccupied with undernutrition, and the target for MDG 1 is to reduce by half the percentage of children below 5 who are underweight, our first reaction to the issue of the double burden of malnutrition was one of skepticism. But we have been fascinated to observe that both undernutrition and obesity are a reflection of the life-cycle consequences of inadequate foetal and infant growth, and increasingly the life-style related consequences of urbanization where poorer people, including children, often eat cheap, high-energy processed foods. Some of the solutions to undernutrition and overnutrition might have elements in common. Optimum breastfeeding, for example, prevents both undernutrition as well as overnutrition and provides protection from some obesity-related diseases.

To the extent that a single strategy can help solve problems at both ends of malnutrition, we see no problem with such a strategy, although our priority will continue to be that of undernutrition. The World Bank report clearly argues that the best window of opportunity for improving nutrition lies in the period from just before pregnancy through the first two years of life. From a nutrition point of view, that period must be the highest priority.

Programmes like school feeding may be of much lower impact from a nutritional perspective. However, if our objective is also to increase school enrolment and attendance, especially of girls from poor families in support of MDGs 2 and 3, school feeding programmes, too, have another powerful justification. That is why the World Food Programme, UNICEF and other partners are collaborating in the End Child Hunger and Undernutrition Initiative.

As we know from the work of the International Food Policy Research Initiative and others, the mother’s educational level and women’s status in society are critical factors in determining a child’s nutritional status and well being.

Several years ago, UNICEF commissioned a study by three eminent nutritionists and public health experts to help resolve what we called *The Asian Enigma*—the puzzle of why rates of malnutrition were higher in South Asia than in sub-Saharan Africa. They ruled out all the obvious conjectures—such as poverty and food insecurity, the vegetarian diets of South Asians, etc. They concluded that the lower status of women in South Asia, as compared to Africa, was the major culprit.

Female literacy and education are the most powerful ways to raise the status of women in society. That is why UNICEF attaches a very high priority to girls’ education. An educated girl marries later. She is more likely to space her pregnancies and have smaller and healthier families. She is likely to better protect herself and her children from diseases and malnutrition. An infant born to an adequately nourished mother is less likely to be of low-birth weight. If then, the child is exclusively breastfed, with appropriate complementary feeding, the child has a much better chance of avoiding chronic diseases later in life.

Children of an educated mother are more likely to go to school and perform better in school. And as they become adults, they help break the intergenerational cycle of malnutrition, ill health, illiteracy and





poverty.

All of this is well known to you. In fact, it is said that nutrition, and malnutrition in particular, is a subject that has been overstudied and underacted upon. Noting the importance of implementing a life-cycle approach to improve nutrition encompassing adolescent girls, while recognizing that there is greatest impact when scaling up effective interventions in pregnant women and children below 3 years of age—are some of those well-known facts of development.

Putting this knowledge into action would be the best way for us to contribute to achieving the MDGs. It would also be the best way for us to fulfill the SCN vision of helping create a world where hunger and malnutrition are no longer impediments to human development.

Let us all work towards this noble goal. You have UNICEF's continued commitment to be a strong partner. Thank you.



# TACKLING THE DOUBLE BURDEN OF MALNUTRITION

## WHAT ACTIONS ARE NEEDED AT THE INDIVIDUAL AND FAMILY LEVEL?

Kathryn G Dewey

University of California, Davis

### *Introduction*

In the recent World Bank report (2006), the key window of opportunity for tackling both undernutrition and overweight is described as being from prepregnancy through the first two years of life. Prior to pregnancy, it is important that the woman's stores of several key nutrients, such as iron and vitamin A, be sufficient to allow for adequate maintenance of her nutritional status while providing optimal nutrient delivery to the foetus. Adequate folate status at this stage is essential to reduce the risk of neural-tube defects during early gestation, before the woman even knows that she is pregnant. In addition, the woman's body mass index (BMI) prior to conception should be within the normal range, ie, neither too low nor too high. It has long been known that, even with adequate weight gain during pregnancy, a woman with a low preconception weight has a higher risk of delivering a low birthweight infant (March of Dimes, 2002). At the other end of the BMI spectrum, recent research has revealed that maternal obesity is a major risk factor for pregnancy complications, including cesarean section delivery, gestational diabetes, maternal hypertension, birth defects and perinatal mortality (March of Dimes 2002). Because weight loss is not advised during pregnancy, women need to achieve a normal BMI prior to becoming pregnant if they wish to lower the risk of these adverse outcomes.

During pregnancy and lactation, adequate nutrient intake is essential for foetal growth and production of breastmilk sufficient in both quantity and quality. In particular, maternal undernutrition at this stage can lead to intrauterine growth retardation and low concentrations of certain nutrients in breastmilk (eg, vitamin A, riboflavin, vitamin B6, vitamin B12, and iodine). On the other hand, excess weight gain during pregnancy contributes to the risk of later obesity (Siega-Riz et al. 2004). Being overweight at the end of pregnancy has been linked to difficulties in initiating breastfeeding (Lovelady 2005).

During the first two years of life, malnutrition has a profound effect on child growth and development, and evidence is accumulating that the consequences are long-lasting. Growth faltering is most evident during this time period (Shrimpton 2001), particularly during the first phase of complementary feeding (6 to 12 months) when foods of low nutrient density begin to replace breastmilk and rates of diarrhoeal illness due to food contamination are at their highest. Micronutrient deficiencies are highly prevalent among infants and young children because of their high nutrient needs relative to energy intake and the effects of frequent infection (including subclinical infection) on appetite, nutrient absorption, and nutrient losses. Deficiencies of certain nutrients, such as iron, are not limited to disadvantaged populations but are evident across all income groups. Malnutrition during early life leads to permanent stunting in growth (Martorell 1995), and there may also be irreversible sequelae from micronutrient deficiencies that affect brain development and other functional outcomes. But while adequate growth is essential during this age interval, there is also increasing evidence that excess weight gain, particularly during early infancy, predisposes to later obesity (Dewey 2003). Thus the goal is to promote an optimal rate of growth, not to maximize it.

Although the key interval for effective intervention is from preconception through the first two years of life, it is also essential to promote optimal dietary practices and physical activity throughout childhood and adolescence. This is the age when lifelong food habits are established and opportunities to reinforce regular physical activity are greatest. Furthermore, adequate nutrient intake of girls during adolescence contributes to the likelihood that they will have sufficient nutrient stores when they first become pregnant.

Given these considerations regarding the timing of nutrition interventions, what are some of the key actions that can be taken at the individual and family levels? The following sections will describe four categories of essential actions (Box 1), as well as the barriers that limit the ability of individuals and families to carry them out.

### ***Prioritize food and care for pregnant and lactating women and their infants***

The additional food needed during pregnancy and lactation is critical to ensure adequate nutrition, but patterns of intra-household food distribution in favour of adult males can make it difficult for women



### Key actions at the individual and family level to reduce the double burden of malnutrition

Box 1

1. Prioritize food and care for pregnant and lactating women and their infants.
2. Breastfeed exclusively for six months and continue breastfeeding for two years or more.
3. Follow guidelines for complementary feeding and care practices for infants and young children.
4. Emphasize food group diversity, responsive feeding/eating, and adequate physical activity throughout the life cycle.

in impoverished communities to obtain an adequate quantity and quality of food. The extra energy needed during pregnancy and lactation represents a small percentage of total household food energy needs. For example, for a household with one adult male who requires ~ 2500 kcal/d, an adult female who requires ~2000 kcal/d (when not pregnant or lactating), and one child aged 5-7 years who requires ~1500 kcal/d, total household energy needs are ~6000 kcal/d. The additional energy required during pregnancy (300 kcal/d) and lactation (500 kcal/d) is only 5% and 8%, respectively, of total household energy needs. Similarly, the extra energy needed from complementary foods for an infant 6-12 months of age (200-300 kcal/d; Dewey and Brown 2003) is only 3-5% of total household energy needs. Thus, when food availability to the family as a whole is not severely limited, it should be feasible for families to adjust intra-household food availability to ensure that pregnant and lactating women and their infants take priority. However, when household food insecurity is persistent, even these small amounts of extra food may be unavailable. Other barriers to prioritizing food to these vulnerable individuals include gender bias, the high energy demands of labour-intensive activities for certain members of the household, and the practice of “eating down” during pregnancy to avoid complications during delivery associated with an infant who is large in proportion to the mother’s size. Therefore, to facilitate adequate provisioning of food during pregnancy, lactation and infancy, community-level and national-level action is needed to reduce the limitations imposed by such barriers.

The quality of food is just as important as the quantity during these vulnerable periods. Thus, priority should be given to ensuring that pregnant and lactating women and their infants receive a diverse diet that includes the most nutrient-rich foods (such as animal source foods, fruits and vegetables) as well as fortified products as needed (eg, for infants 6-12 months of age) (PAHO/WHO 2003). This means that when there is a family “pot” of food, these individuals should receive the choice bits of meat, fish, poultry, or egg, as well as sources rich in vitamin-A and other high-quality foods. Again, there are significant barriers to implementing this recommendation within households, including lack of availability of affordable nutrient-dense or fortified foods, and cultural beliefs regarding the types of foods that are appropriate during pregnancy, lactation or infancy. Community-level and national-level programmes to increase the availability and utilization of low-cost, nutritionally complete foods and/or fortified products for these target groups are therefore needed.

Also important is the prioritization of care, not just food, again to the most vulnerable individuals within the household. For example, it is the family’s responsibility to ensure that pregnant women go for prenatal care and take iron/folic acid supplements, and reduce their workload, when necessary, during pregnancy and lactation. Similarly, adequate care for infants can play a key role in ensuring adequate nutritional status. Barriers to complying with such guidelines may include lack of affordable prenatal care in the area, the cost of supplements and/or low tolerance to iron/folic acid tablets, and time constraints limiting the quality of care for infants. Ensuring access to prenatal care, including supplements, and implementing programmes such as community child-care facilities are actions that can be taken at the community and national level to facilitate prioritization of care at the household level.

#### ***Breastfeed exclusively for six months and continue breastfeeding for two years or more***

Breastfeeding is key to tackling the double burden of malnutrition. Among preventive interventions to reduce child mortality, it was ranked first in projected impact (Jones et al 2003), with the potential to prevent 13% of all child deaths. The primary goal is to increase the percentage of infants who are breastfed exclusively during the first six months. Recent data from Ghana suggest that 22% of all neonatal deaths could be prevented by ensuring that infants are breastfed within the first hour of birth (Edmond 2006), and the Ghana study and others in developing countries confirm the additional protective effect that exclusive or predominant breastfeeding has over partial breastfeeding (Bahl 2005). Breastfeeding reduces the risk of both undernutrition and overweight later in childhood. In disadvan-



## 18 Features

tagged populations, exclusive breastfeeding is associated with less growth faltering during early infancy (Villalpando 2000), and continued breastfeeding through the second year of life enhances linear growth (Onyango 1999). In industrialized countries such as the US, rates of both underweight and overweight are greatest in infants never breastfed (Grummer-Strawn 2004). Several meta-analyses have concluded that breastfeeding is protective against child obesity (Arenz 2004; Owen 2005), particularly when breastfeeding continues beyond 6 months (Harder 2005), although the mechanisms underlying this relationship are still unclear (Dewey 2003).

Breastfeeding can also help to prevent maternal obesity, by promoting weight loss postpartum among women who have gained excess weight during pregnancy. Evidence for this association comes from both randomized trials and from observational studies in industrialized countries in which maternal postpartum weight loss was measured directly and an adequate definition of breastfeeding was utilized (Dewey 2004).

Breastfeeding can be ensured at the individual level, as long as there is adequate support and guidance for initiating and maintaining lactation. Some believe that achieving change in breastfeeding rates is difficult because of entrenched infant-feeding behaviours in many populations, but evidence from numerous studies has now shown that substantial increases in the rates of exclusive breastfeeding can occur when appropriate support programmes are implemented (Bhandari et al 2003; Quinn et al 2005). Nonetheless, there are significant barriers to reaching breastfeeding goals, and actions are needed not only at the individual, but at all levels. Such actions should include the creation of healthcare systems that support exclusive breastfeeding, regulation of the marketing of breastmilk substitutes, support for maternity leave, and workplace policies and facilities that allow women employed outside the home to continue breastfeeding. In addition, the increasing prevalence worldwide of maternal obesity may impact breastfeeding rates, as there is growing evidence that maternal overweight is associated with greater difficulty in initiating lactation (Lovelady 2005). Thus, actions to prevent overweight are of importance for multiple reasons.

### ***Follow guidelines for complementary feeding and care practices for infants and young children***

Complementary feeding is an action that is largely under the control of the family, although support from health-care providers is essential. In 2003, guiding principles for complementary feeding were published by PAHO/WHO (2003). These include recommendations regarding age of introduction of complementary foods, responsive feeding practices, safe preparation of complementary foods, quantity and consistency of food, meal frequency, types of foods, use of fortified products, and feeding during and after illness. Effectiveness of interventions to improve complementary feeding practices has been shown in several studies (Dewey 2002; Bhandari et al 2004). Most recently, a randomized educational intervention delivered through the health services system in Trujillo, Peru was designed to emphasize three key messages: 1) give thick purees of complementary foods at each meal, 2) add chicken liver, egg or fish to the infant's serving, and 3) use responsive feeding practices (Penny et al 2005). The rate of stunting in the intervention group was only one-third of that in the control group (5% vs. 15%), thus illustrating that when adequately trained health personnel promote optimal complementary feeding, the impact on child growth can be substantial.

Recent work to develop an indicator of the nutritional adequacy of complementary foods has demonstrated that dietary diversity, particularly the inclusion of animal-source foods, is predictive of dietary quality (Dewey et al 2005). Thus, families should ensure that infants and young children have access to a variety of nutrient-dense foods. In most populations, however, local complementary foods will still be limited in iron and often zinc (WHO 1998). For this reason, use of fortified complementary foods or home fortification with nutrient supplements is a useful strategy. Processed fortified complementary foods are an attractive option for populations that can afford them and prefer the convenience of an easily prepared food. However, cost is a limiting factor in many populations. Home fortification is a less expensive option that requires little change in dietary practices. A randomized trial was recently conducted in Ghana (Adu-Afarwuah et al 2006) to compare three multiple, micronutrient products used for home fortification of complementary foods for infants between 6 and 12 months of age: a powder (eg, Sprinkles), a crushable tablet (eg, Foodlet), and a fat-based spread (called Nutributter). All three products were well accepted and significantly improved iron status, but the only one that improved growth was Nutributter. Motor development was significantly more advanced in all three supplementation groups: the percentage of children able to walk independently at 12 months was 49% in the Nutributter group, 39% in the Sprinkles group and 36% in the Foodlet group, compared to 25% in the Non-Intervention group. These results demonstrate that use of fortified products can benefit child nutrition and development.



Many barriers to optimal complementary feeding and care practices exist. These include: 1) limited availability and prohibitive cost of nutrient-dense foods and/or fortified products, 2) time constraints and use of alternate caregivers for the child (such as older siblings), which may limit the ability to practice responsive feeding practices and safe preparation of foods, 3) lack of safe water and sanitation for ensuring hygienic preparation and storage of complementary foods, 4) beliefs regarding appropriate foods and feeding styles, and preferences for larger (ie, fatter) infants, which may lead to overfeeding, and 5) maternal mental-health problems that can interfere with appropriate feeding and care practices. With regard to the last issue, there is growing evidence that maternal postpartum depression is common not only in industrialized countries but also in developing countries. Patel et al. (2004) recently summarized evidence from South Asia showing that the prevalence of postpartum depression was 20–28%, and maternal depression was strongly associated with low weight-for-age in the child (relative risk or odds ratios ranging from 2.3 to 7.4). Thus, it is not sufficient to simply educate families about optimal complementary feeding and care practices. Community and national-level action is needed to increase the availability and utilization of low-cost, nutritionally complete complementary foods and/or fortified products, as well as safe water, and to address the limitations imposed by household time constraints and maternal depression.

***Emphasize food-group diversity, responsive feeding/eating, and adequate physical activity throughout the life cycle***

After the first two years of life, child undernutrition and overweight can be prevented in families by continuing to emphasize food-group diversity (especially fruits, vegetables and animal-source foods). Foods that are high in micronutrients are needed throughout childhood and adolescence, particularly during the rapid growth spurt accompanying puberty. Consuming fruits and vegetables that are rich in fiber and low in energy density may help to prevent overweight. Promoting responsive eating practices, for example by encouraging the child to eat only when hungry and to stop when satisfied, can create life-long habits that may also prevent excess weight gain. Finally, creating opportunities for children, adolescents and adults to be physically active is essential for optimal weight and health.

Although the foregoing recommendations have been emphasized in dietary guidelines in many countries for years, there are numerous reasons why individuals and families do not or may not be able to adopt them. In disadvantaged populations in industrialized countries, household food insecurity has been linked to adult overweight (Adams and Grummer-Strawn 2003). There are several hypotheses for this seemingly paradoxical relationship, including economic factors (energy-dense but nutrient-poor foods are least expensive (Drewnowski and Darmon 2005)), psychological influences (uncertainty about whether food will be available later leads to overeating when it is available), lack of access to fruits and vegetables and opportunities for physical activity in lower-income areas, and lack of education or time to make healthy choices. In developing countries, household food insecurity and cost constraints are primary factors limiting dietary diversity, and the concept of being careful not to overeat and to avoid excess weight gain may run counter to generations of experience with food shortages. Throughout the world, the marketing of foods with low nutrient density and/or high energy density has a strong influence on dietary practices, and the vast increase in ownership of televisions, vehicles and labour-saving devices contributes to sedentary lifestyles. Moreover, the trend towards urbanization puts a growing number of people into environments that are not conducive to physical activity. Those who wish to engage in exercise in such environments may find it unsafe, and girls and women may face cultural barriers regarding exercising in public.

Overcoming these barriers is no easy task, but for all four categories of essential actions described above, it is essential that policies and programmes be put into place at every level to help individuals and families embrace healthy diets and patterns of physical activity, before the consequences of the double burden of undernutrition and overweight become overwhelming.

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## ACTIONS NEEDED AT THE NATIONAL LEVEL

### THE CHINESE EXPERIENCE

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#### *Introduction*

Although the nutrition situation in the Peoples Republic of China (PRC) has greatly improved over the past 50 years, largely due to economic development, many challenges still remain. Gross domestic product (GDP) per capita has climbed from 379 Yuan in 1978 to 10,533 Yuan in 2004, crossing the threshold of US\$1,000 equivalent by 2003 and transforming the PRC into the world's seventh largest economy. This remarkable economic progress has broadly advanced the well being of the world's largest population, including expansion of access to basic education, increases in life expectancy (now nearing 75 years in some urban areas) and reduction of absolute poverty from 250 million people in 1978 to 26 million in 2004. Increasingly, however overnutrition is becoming a serious problem, especially in large cities where diet-related chronic diseases are on the rise and affecting more and more young people. There is a growing body of evidence to suggest that public nutrition improvement must be placed high on the PRC's development agenda. Namely, there is an urgent need to address three inter-linked types of malnutrition, which cut across all segments of PRC society, and the challenges they present for continued socioeconomic development. The purpose of this article is to review what actions the government has taken to date to tackle the malnutrition problems, to indicate some of the areas of concern and to highlight some of the challenges that need to be tackled in the future.

#### *The nutrition problems*

Three inter-linked types of malnutrition affect the PRC, namely: undernutrition, overnutrition and micronutrient deficiencies. Undernutrition is characterized by inadequate intake of macro-nutrients (namely calories and protein). Despite the PRC's dramatic achievements in reducing absolute poverty, undernutrition still remains a considerable burden, particularly in less-developed rural areas. The 2002 National Nutrition and Health Status Survey found that while nationally 14.3% of pre-school children have stunted growth, and 7.8% are underweight, the rates are twice as high in poor rural areas, concentrated in the PRC's Western Region. In addition to the 26.1 million population living below the official rural poverty line, undernutrition poses at least a moderate burden and a threat to a roughly twofold larger "low-income" rural population living on the brink of poverty, the urban-registered poor (estimated to number roughly 14.7 million in 2002), and at least sizeable segments of the PRC's very roughly 100 million "floating population."

At the same time, particularly in urban areas, overnutrition is a rapidly escalating public nutrition problem, principally reflecting shifts in dietary patterns and more sedentary lifestyles. The urgency of this problem is reflected in alarming increases in prevalence of overweight and obesity. In 2002, fully 200 million PRC adults were considered overweight (using national standards), and another 60 million were obese (more than doubling 1992 levels). In turn, despite an expected time lag, this has already manifested itself in spiralling rises in diet-related chronic diseases such as type II diabetes, hypertension, cardiovascular disease, and several diet-related cancers. The costs of these chronic diseases have become massive in terms of human suffering, social distress, loss of productivity, and economic burden to the health and health insurance systems. Moreover, skyrocketing rates of overweight and obesity among younger populations with 8.1% of youth in the PRC's large cities obese, and estimates twice as high in Beijing, suggest that the future toll may be much higher.

Thirdly, in both urban and rural areas, among the rich and the poor, micronutrient deficiencies (inadequate intake of key vitamins and minerals) pose a "hidden hunger" threatening all of PRC society. Its effects are particularly devastating in pregnant women and infants, where the lack of vitamins and minerals results in irreversible impairment to child physical and mental development. Internationally, even moderate iodine deficiency during foetal development and infancy has been shown to depress intelligence quotient levels by 10-15 points. Folic acid deficiency is linked to serious birth defects. Inadequate iron affects children's growth and learning ability, and reduces their ability to concentrate, fully participate in school and socially interact and develop; it also contributes to maternal mortality



and lowered workforce productivity. In the PRC, iron and iodine deficiencies alone are estimated to cause direct economic losses of roughly 0.7% of GDP, with lower productivity upon entering the adult workforce costing an additional 3.8% of GDP. Meanwhile, just as overnutrition affects chronic diseases, inadequate intake of vitamin A and zinc weakens immunity, undercutting the PRC's ongoing battle against communicable diseases. The 2000 national survey found that 5% of children 3 years of age suffered from Vitamin A deficiency in large and midsize cities, and between 10-25% in rural areas.

Each one of these problems—undernutrition, overnutrition, and micronutrient deficiencies—presents complex challenges. Furthermore, there is growing evidence that they are inextricably linked. For example, inappropriate infant feeding practices (ie, introduction of low-quality complementary food for infants, replacing exclusive breastfeeding during the first 6 months and continued breastfeeding for the first two years), create risks of under- and over-nutrition for different population groups. In fact, there is reason to believe undernutrition, overnutrition, and micronutrient deficiencies are most tightly interlinked in societies undergoing very rapid development and transition, as in the PRC. The PRC is thus at a critical juncture: the combination of deep poverty in the past and rapid socioeconomic transitions together pose a “time bomb” that threatens the benefits of continued socioeconomic development.

### ***Government action prior to 2000***

The Chinese Government's response to malnutrition has been very limited over the past 20 years. From the 1950s through the mid-1970s, entry of nutrition in PRC policy dialogue was typically confined to issues of food security and availability, such as inadequate agricultural output and poor distribution of food stores. Production levels were compared with food intakes considered to be ideal based on dietary guidelines. By the 1980s, as agricultural productivity increased, food distribution expanded rapidly and domestic economic indicators began to rise—largely reflecting the PRC's adoption of “open door” policies, market principles and various agriculture and land use reforms— and adequacy of food became less pressing in policy discussions. By the early 1990s, the PRC had virtually eliminated the spectre of famine and the most obvious forms of nutritional deficit. Nutrition improvements during this time were mainly credited to the average 8% yearly increase in GDP. Before 2000, problems that impeded the development of a national nutrition plan included: a lack of a strategy for nutrition interventions; lack of funding allocated for nutrition activities; lack of an institution to coordinate and manage nutrition interventions; and lack of government participation in nutrition interventions, which were typically conducted by research institutes.

During this period, government actions to combat malnutrition were largely limited to the provision of dairy milk and soy milk through school meal programmes, although the coverage for these programmes remained relatively low. The only truly successful government intervention was the salt iodization programme. From 1995 to 2000, the rate of salt iodization increased from 39% to 91%, mainly due to government intervention (Zhao, van der Haar 2004). Specifically, the Ministry of Health, with support from international organizations including UNICEF and UNDP, lobbied the State Council advocating salt iodization. The State Council, in turn, created the laws and regulations needed, and instructed the industry and regulations departments, to carry out the programme. With support from the World Bank the salt industry was able to carry out the necessary reforms. Finally, the Departments of Health, Industry, and Commerce Management increased their monitoring of the market place. Hence, the salt iodization programme represented a model of government leadership and multi-sector, multi-faceted cooperation for nutrition improvement.

### ***Nutrition improvement since 2000 and expectations for the future***

The National Development and Reform Commission of China (NDRC) has played an important role in raising the profile of nutrition programmes in China since 2000. NDRC is responsible for all resources needed for social and economic development, including personnel and funding. The Center for Public Nutrition and Development (PNDC) is an institution affiliated with the NDRC, which acts as the secretariat for nutrition, and has the authority to coordinate its work. With the support of ADB and UNICEF, PNDC has helped develop proposals for including nutrition in the next five year plan for social and economic development. These proposals are complementary to those already being directed at the control of chronic diseases and cancer by the Ministry of Health, which include the control of smoking and the promotion of healthy diets and physical activity (Wang et al 2005).

On 5 March 2006, the State Council formally announced the “11<sup>th</sup> National Five Year Plan for Social and Economic Development.” Promoting improved nutrition was included in the government's objectives for the next five years. It indicated that the national government should make nutrition improvement a priority. This objective serves as the foundation for coordinating more detailed nutrition plans and policies, and as the basis upon which to approve laws and regulations, and ensure funding for nutrition activities.





The 11<sup>th</sup> National Five Year Plan proposes three main areas of action for improving nutrition. The national government will provide financial support for food fortification, nutrition education for the promotion of nutritious foods and nutrition improvement programmes in impoverished areas through poverty alleviation policies. An important goal of the 11<sup>th</sup> National Five Year Plan is to develop nutrition and food safety policies to regulate the food industry, including issuing policies to regulate flour fortification. The Plan also designates a specialized institution as responsible for nutrition improvement, and defines associated departments' responsibilities and funding. With the support of ADB and UNICEF, a coordinating body will be created at national level as part of the National Nutrition Improvement and Food Fortification Programme. A feasible national nutrition improvement plan will also be formulated. The goal of this plan is to shape the nutrition improvement programme, to designate an institution as responsible for nutrition, and to guarantee funding.

Challenges do exist in implementing the nutrition improvement programme. First, coordination among several departments still remains difficult. Translating research results into national policy is also not easy. Moreover, the nutrition programme's current management capability is insufficient. Effective government interventions against malnutrition and diet-related chronic diseases need to be significantly increased.

Improving nutrition is an issue for international organizations and experts, as well as for national governments. The problem is that there is no one-stop-shop or source of information with overall guidance on how to tackle both under- and overnutrition in the context of promoting rapid socio-economic development. Individual agencies promote their own piece, but there is no agency promoting the overall agenda of actions needed. Therefore, the SCN should promote a global nutrition agenda, which would increase nutrition's visibility at national levels. Advocacy tools, such as comprehensive statistics and charts, should be disseminated to governments, which provide useful information on nutrition. Information that could be included: average government investment in nutrition *per capita*, current status of nutrition deficiencies, and information on nutrition initiatives, as well as national policy frameworks and interagency coordination mechanisms.

In order to reach policy-makers, SCN should produce and promote global reports on nutrition on a yearly basis. Further, the 1992 International Conference on Nutrition Strategy needs to be revised and new goals set. Lastly, an open letter designed to serve as an impetus for government action should be sent on behalf of the United Nations and its agencies to all governments.

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# THE ROLE OF THE INTERNATIONAL COMMUNITY: FORGING A COMMON AGENDA IN TACKLING THE DOUBLE BURDEN OF MALNUTRITION

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### *The emerging duality of the burden of malnutrition*

Issues related to low-income societies are too often painted with the broad brush of generalities and stereotypes, viewed as monolithic situations with uniform disadvantages. On the policy side, this evokes calls for universal, one-size-fits-all approaches. The realities on the ground (and on the grounds) are usually much more complex than the overly simplistic “news magazine covers”. In fact, the real situation is filled with paradoxes, contradictions and nuances. Given the imperative for streamlining solutions, we tend to gloss over the contradictions—often at our own peril—until it becomes clear that an accepted paradigm has developed elements of a paradox. Such is the situation with the evolution of non-communicable chronic diseases within the portrait of a developing country’s health setting, and energy consumption excesses leading to obesity and diabetes as emerging endemic conditions in low-income urban societies.

If one reviews the tables of contents of feature articles in *SCN News* back to its inception in 1988, one can assess the general state of balance between themes of under- versus overnutrition. In fact, in *SCN News* No. 1 (March 1988), entitled *Vitamin A Deficiency, Urbanization*, the section on urbanization did highlight numerous issues on overnutrition. In issue No. 16 (July 1998), entitled *Nutrition of the School-aged Child*, a feature article on ready-to-eat cereal consumption in urban India identifies its potential as an obesogenic risk factor. In 1998, at its 25<sup>th</sup> Annual Session in Oslo and in 1999 at its 26<sup>th</sup> Annual Session in Geneva, the SCN discussed the *Report of the Commission on the Nutrition Challenges of the Twenty-First Century: What Role for the United Nations?*, which challenged the UN system to acknowledge the existence of the double burden on malnutrition within a life course perspective. Two of the eight main challenges addressed the dual nature of global nutrition problems (James et al. 2000):

- Challenge number 6: Evidence from both developing and industrialized countries suggests a fundamental link between maternal and early childhood undernutrition and an increased susceptibility in adult life to non-communicable diseases (NCDs) such as diabetes, heart disease and hypertension. These diet-related diseases—including cancers—are already major public health challenges for developing countries. Overweight and obesity are rapidly growing in all regions, affecting children and adults alike.
- Challenge number 7: There are about 250 million obese adults already and these problems are now so common in developing countries that they are dominating more traditional public health concerns such as undernutrition and infectious disease. Obesity, especially abdominal obesity promoted by early foetal and childhood undernutrition, is a major risk factor for a number of NCDs, adult-onset diabetes in particular.

Some of the SCN members, at the time, had difficulty dealing with the concept of a double burden of malnutrition; several agencies chose to disassociate themselves from the main conclusions and recommendations of this report. Despite the initial difficulties, once the duality concept was placed on the agenda, it never left. The fiery discussion that took place in Geneva 1999 was followed by the adoption of “*Nutrition throughout the Life cycle*” as the theme for the 4<sup>th</sup> *World Nutrition Situation Report*. This report’s executive summary highlighted the emergence of the double burden, stating that:

*Among adults, both under- and overnutrition are present in many countries in the developing world. While underweight is especially common among women in South Central Asia, both underweight and overweight*



*are seen in African women. In the Caribbean and Latin America, overweight affects up to one in four women in all countries surveyed, except for Haiti.*

SCN News No. 21 (December 2000) on *Nutrition and the Environment*, featured a memorable cover drawing of a person sucking an ice cream frappe through a straw. In that issue, note was taken that the physical environment increasingly constrains physical activity, imposing a sedentary lifestyle on populations. Further to this, SCN News No. 29 on *Overweight and Obesity* examined the current epidemic with a view from developing and transitional countries looking at both causes and consequences. Finally, we come to the most recent issue of SCN News No. 31, on *Adolescence: A Pivotal Stage in the Life Cycle*. The most minimal allusion to overnutrition is made. Cordeiro et al. (2005), in a footnote to one of their illustrations, made reference to the then five-year-old review by Schneider (2000) in the following terms: "*Adolescent obesity, however, is on the increase in developing countries as well. In a review of research on adolescent nutrition, Schneider (2000) documents these increases reporting evidence of obesity even among lowest income groups and in nutrition-deficient regions.*" This 33<sup>rd</sup> Annual Session symposium (March 2006), was a landmark in the trajectory of SCN annual sessions with its call for, "*Tackling the Double Burden of Malnutrition: a Common Agenda*," challenging its membership to examine what needs to be done and what can be done at national, regional and international levels.

### ***Why we must face the challenge of the double burden with a common agenda***

The simplistic image of the nature of disease and death in developing countries remains one of endemic and epidemic infectious diseases, combined with trauma, accidents and violence. The well-known synergy between undernutrition and infectious diseases is generally accepted (Scrimshaw et al. 1968). The inflammatory disruption of metabolism, loss of appetite, and food taboos combine as risk factors for poorer nutrition. Pre-existing undernutrition aggravates the severity and duration of many infections, and can increase the likelihood of falling ill. About 60% of deaths of under-five year old children in developing countries are associated, in part, with children having low weight-for-age (Pelletier & Frongillo 2003). On the other hand, conditions such as diabetes, heart disease and cancer had not been taken into consideration by many observers and commentators. This is true despite the emerging recognition of the phenomena of the *demographic* transition (Manton 1991), in which the median age of a population moves higher due to a combination of falling birth rates and increased longevity of individuals. The fact that populations get older is *prima facie* evidence of reduced vulnerability to infectious childhood diseases, thus moving individuals into age ranges of risk of degenerative diseases. So, it was recognized that an *epidemiological* transition goes hand-in-hand with demographic transition (Manton 1988). This transition involves infectious diseases and injuries being superseded by chronic disease as the predominant cause of morbidity and mortality.

It was only in 1997 that the World Health Organization had its first joint meeting between its Nutrition and Chronic Diseases departments to address the theme of obesity as a global epidemic. A report, published in 2000, set the stage for what was to come. That same year, Gro Harlem Brundtland became the Director-General and propelled nutrition-related chronic diseases to the top of the agenda, because of its contribution to the challenges of the global burden of death and disability. According to Yach et al. (2004), noncommunicable diseases are the greatest cause of global mortality with 29 million deaths annually due to cardiovascular disease, cancer, chronic respiratory disease and diabetes. Noting that the public-health response by professionals, governments and even the UN system remains inadequate, these authors pondered the causes, and related them to a set of entrenched beliefs and attitudes that do not assimilate and heed these epidemiological realities. Yach and associates (2004) comment:

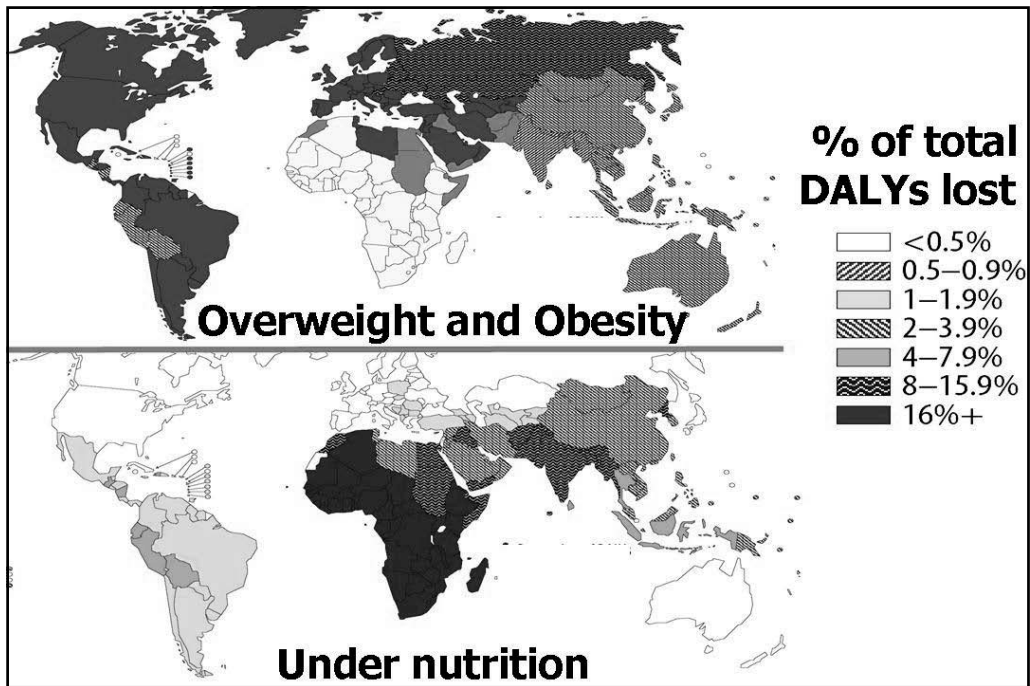
*Reasons for this include that up-to-date evidence related to the nature of the burden of chronic diseases is not in the hands of decision makers and strong beliefs persist that chronic diseases afflict only the affluent and the elderly, that they arise solely from freely acquired risks, and that their control is ineffective and too expensive and should wait until infectious diseases are addressed.*

Murray et al. (2004), who were singularly involved in pointing out the rise in the burden of chronic diseases, have now produced evidence that the information on morbidity and mortality is woefully antiquated, inefficient and inaccurate. They allege that the vital statistical figures circulating are likely distorted and erroneous regarding the true incidence, prevalence and mortality impact of degenerative diseases.

Those of us involved with the SCN are motivated to be advocates and agents in the relief of the suffering related to poverty. It might provoke a certain denial—if not revulsion—among some to see our mission distorted in the direction of conditions afflicting the affluent, who have abundant resources and are fully empowered. However, one need only reflect on the findings of Monteiro et al. (2000) in Brazil and Uauy et al. (2001) in Chile to understand with greater clarity how such perceptions are no longer tenable. The various linkages in poverty/low-income and body-composition are well-illustrated by the analysis of the Latin American situation conducted by Peña et al. (2000) and the serial national nutrition surveys con-



Figure 1



ducted in Brazil over decades. Initially the poor had normal or low body weights and the middle-class had the greater prevalence of overweight. Over time, however, the situation reversed; by the late 1990s, the Brazilian elite had recovered normal body composition, while the poor were manifesting overweight and obesity. It seems that the affluent, through education and health-seeking motivation, were able to adopt a higher quality diet and more active lifestyle while the urban poor are now constrained by low-quality food and newly acquired sedentary lifestyle.

In Chile, the nutrition intervention programmes destined for the undernourished failed to recognize that most underweight children were also stunted, with normal weight-for-height or even overweight. Providing excess energy to promote weight gain was clearly not the answer. There is a need to consider obesity prevention when feeding stunted populations (Uauy et al. 2002). The compendium of chapters collected and edited by Caballero and Popkin in 2002, *Nutrition Transition: Diet and Disease in Developing Countries*, adds layer upon layer of additional evidence on the associations, at times causal, between lower social power and fewer economic resources and the risks of overweight, obesity and chronic diseases.

### THE BURDEN OF UNDERNUTRITION

It is estimated that around 800 million adults, and close to 150 million children under five years, are currently underweight worldwide, whereas 180 million children are stunted. The worldwide distribution of stunting has been mapped. Its prevalence is particularly high on a regional basis in Central America, high-altitude areas of the Andean region of South America, across central Africa, and throughout South and Southeast Asia. In these zones, stunting rates among children exceed 40%. Guatemala is an illustrative nation. In parts of its western highland region, greater than 60% of preschool children surveyed have been found to have heights below 2 standard deviations of the international reference standards for stature. Those who are stunted at three years of age remain stunted despite multiple efforts at improving nutrition later in life. This serves to underline the importance of this critical window of opportunity in the first two years of life, in order to impact long-term health and nutrition. We have known about endemic undernutrition since the end of World War II and how to measure and interpret its indicators. Although it has shown a diminishing trend in many transitional nations, it has not gone away as a malnutrition problem in the low-income regions of the world. The troublesome feature, as this analysis wishes to point out, is that it has been joined by its sinister companion from the other pole of the malnutrition spectrum.

### THE DOUBLE BURDEN OF MALNUTRITION

Undernutrition is no longer the dominant form of human malnutrition in the population. Co-existence of the dual expressions of under- and overnutrition can be exemplified at all levels. In 2001, the estimated number of people worldwide suffering from overweight [with a body mass index (BMI) >25 kg/m<sup>2</sup>] equaled those with underweight (less than 2 standard deviations below the WHO reference median). It was estimated there were close to a billion overweight or obese individuals, and a corresponding number who were underweight. Of course the demographic distribution is selective, with more of the former among adults in developed countries and more of the latter in children in developing countries. However,

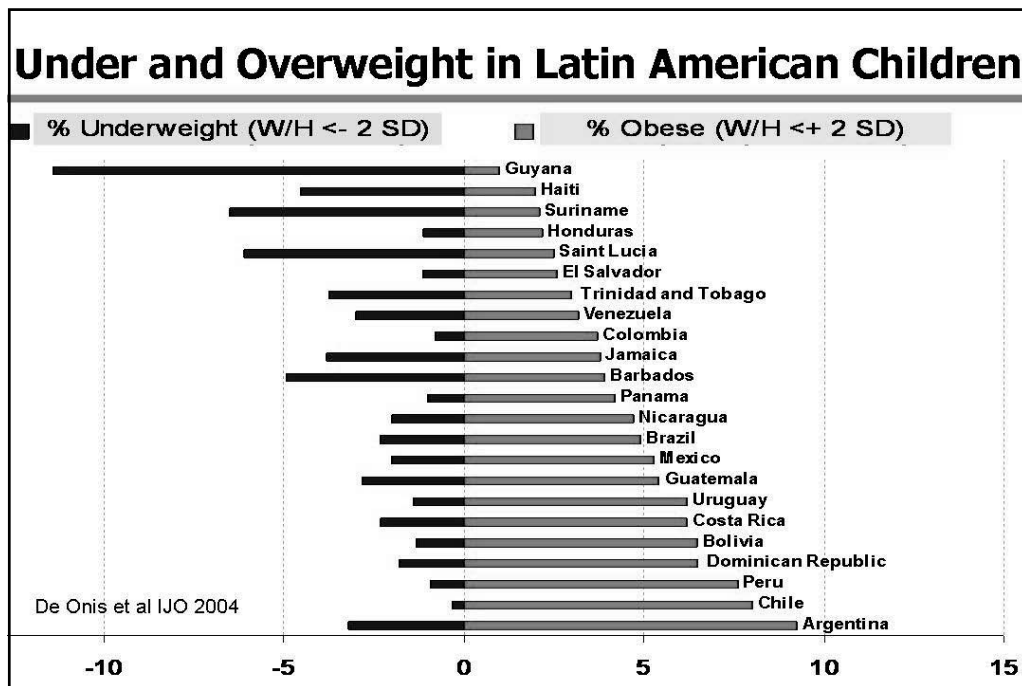


Figure 2

further disaggregation reveals just how closely the two conditions co-exist.

Figure 1 superimposes the global map of rates of Disability-Adjusted Life Years (DALYs) lost from conditions of excess nutrition in the upper panel and from those of undernutrition in the lower panel. A common agenda for the double burden is particularly important in those nations and regions in which one sees appreciable loss of DALYs from both conditions, such as Egypt, Libya and Sudan on the African Continent and most of South, Southeast and East Asia.

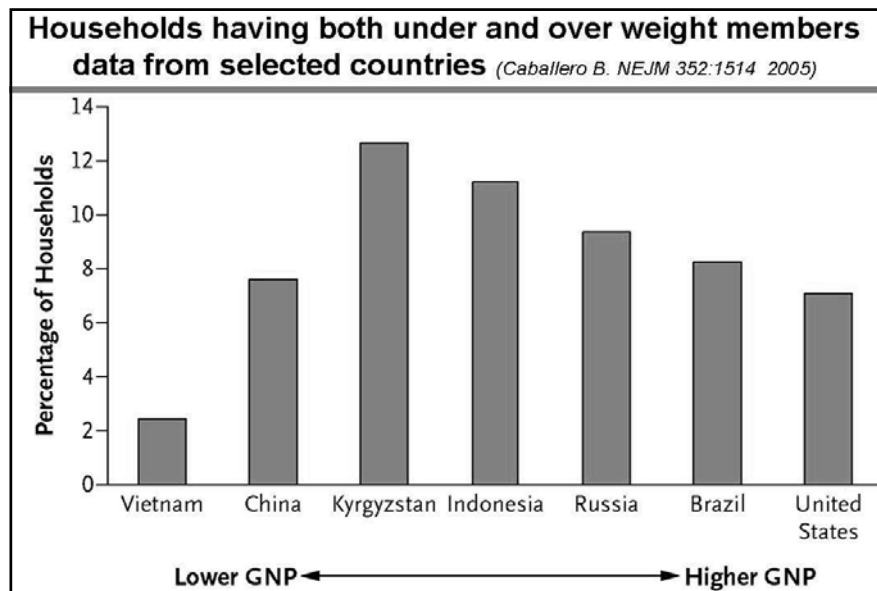
The double burden existing within the same nation is the next level of aggregation in a descending hierarchy. De Onis (2000, 2004) has provided a perspective on how under- and overnutrition operate within the same countries, specifically with reference to children. Figure 2 illustrates the percentage of children in different Latin American nations with weight-for-height Z-scores either below (underweight) or above (overweight) 2 standard deviations of the international reference median. However, there are deceptive elements in this graphic representation when noting the cutoff standards used. At each end of a Gaussian distribution, 2.5% of any reference population would, itself, have values beyond 2 standard deviations. In this respect, the burden is only dual on a population basis where the prevalence in both directions exceeds >2.5% on the horizontal axis. Guyana and Haiti are the countries with a monoburden of undernutrition. For many of the nations illustrated, the corresponding excess weight monoburden applies; indicating that overweight has emerged as the dominant malnutrition problem for this age group. De Onis and Blossner (2000) conclude that, "attention should be paid to monitoring levels and trends of overweight in children. This, however, should not be done at the expense of decreasing international commitments to alleviating undernutrition."

Within the same community or even within a given household, the presence of both over- and undernutrition takes on some interesting dimensions. Caballero (2005) has intensively scrutinized the phenomenon of persons with high- and low-body weights living in the same household; the findings are summarized in Figure 3 (next page). On a continuum of gross national product, only the poorest countries have a low rate of the intra-household dual burdens. This is in part explained by low prevalence of one or the other condition limiting the opportunity for association. However, as incomes rise one can observe the curious occurrence of a mixture of the extremes of body composition status existing within the same family unit.

Finally, within a given individual, namely a malnourished young child, there can be a quick transition, over a matter of weeks or a few months, from being wasted (underweight-for-height) to being overweight or even obese (excess weight-for-height); moreover, in many cases these children remain stunted (low height-for-age), making them more vulnerable in an urban setting to obesity and diabetes, both of which linked to excess body fat resulting from sedentary lifestyles and consumption of high-energy density diets. In fact, the model of the malnourished child during recovery serves to illustrate many of the features of the nutrition transition; it is in fact the rapid shift in diet from low- to high-energy density food, as well as a progressively sedentary life style, that moves stunted populations from underweight to overweight and obesity (Uauy and Alvear 1992). Rapid shifts in weight (catch-up) without concurrent gains in height are now recognized as particularly increasing the risk of later diabetes, central obesity and cardiovascular diseases.



Figure 3



Even in considering the HIV epidemic, with its present rampant progression in Sub-Saharan Africa and southern Asia, we need to acknowledge classical elements of the dual burden in a single disease entity. In the fully expressed immunodeficiency state, the wasting processes of the infecting retrovirus itself and the assault of opportunistic infections on the host produce the classical picture that first led to the syndrome's being termed 'slim disease' with its emergence in Central Africa. The devastating effects on nutritional status in the direction of deficiency and poor growth have been widely documented and commented upon, including in *SCN News*, No. 17 (December 1998) entitled *Nutrition and HIV/AIDS*, and in a recent commentary by Stuart Gillespie in *SCN News* No. 31 (late 2005-early 2006). However, the chronic disorder dimensions of this disease accompanied with dyslipidemia (elevated cholesterol levels), insulin resistance (early form of diabetes) and lipodystrophy (hump back as part of the visceral obesity syndrome) is not generally focused on. Highly active anti-retroviral therapy, the combination of protease and reverse-transcriptase inhibitors, prolongs the survival of HIV infection, transforming the acute form of AIDS into a chronic disease with a variable prevalence of metabolic disruption (Mooser and Carr 2001).

This has led Mooser (2003) to suggest that the HIV-era in the presence of effective antiretroviral therapy will lead to an epidemic of cardiovascular disease. The increase in life expectancy and alteration of lipid metabolism related to the interaction of the disease and the antiretroviral therapy are expected to result in an increased prevalence of diabetes and hypertension and, thus, to secondary renal damage (Roling et al. 2006). HIV/AIDS clearly represents a double burden of nutritional disease wrapped into a single entity.

### THE SEQUENTIAL DUALITIES IN THE DEVELOPMENTAL ORIGINS OF HEALTH

A complex and intriguing—yet compelling and relevant—relationship has been revealed between the processes of undernutrition and poor growth in foetal life or early infancy and metabolic and malignant disease consequences in adult life (McMillen & Robinson 2005; Uauy & Solomons 2005). Professor David Barker of Southampton is the unquestionable pioneer in the area of epidemiology of early origins of adult disease [Barker, 1998]; he is also the author who created the term, “early life programming” based on a persistence of a nutrient-conserving metabolic pattern throughout the lifespan. Gluckman et al. (2005) have given a less pathocentric, and more adaptive, connotation to the relationship of early low-growth, metabolic imprinting, and vulnerability to chronic disease. They see the metabolic patterning in its relationship to afferent signals to the foetus from the maternal environment. If a hostile and nutrient-scarce environment is perceived, nutrient-conserving mechanisms are stamped into place; if nutrient abundance is sensed, normal nutrient disposal is programmed. Concordance between the intrauterine choice and the external reality in later life represents an adaptive match. Discordance, however, leads to a dysadaptive outcome and increased risk of either undernutrition or non-communicable illnesses, depending on the direction of the mismatch.

Multiple studies have addressed the association of low birthweight and later central obesity. The latter in turn may increase the risk for diabetes, coronary heart disease, hypertension and stroke during adult life. Classically, in populations where there is a high prevalence of maternal undernutrition, babies are thin at birth, yet they exhibit accelerated weight gain (catch-up growth) during childhood. Some develop obesity in childhood or adolescence and become more susceptible to nutrition-related chronic disease in later life. Two follow-up studies of the Dutch famine of 1944-45 by Ravelli et al. (1976, 1999) found convincing associations between intrauterine malnutrition and later obesity.



Foetal undernutrition probably contributes significantly to the epidemic of type 2 diabetes and cardiovascular disease observed in South Asia and other developing countries mediated by a relatively increased percentage of body fat (Yajnik et al. 2003, Yajnik 2004). Remaining lean and physically active throughout life affords protection, but with sedentarism and rapid growth, the early relative adiposity makes them vulnerable to the range of insulin resistance consequences later in life. Data from the Cebu Longitudinal Health and Nutrition Survey (Adair 2003), which included over 2000 Filipino adolescents, showed that boys who were thin at birth and had accelerated growth during childhood were more likely to be obese and have higher blood pressure at ages 14-16. In Brazil, a study including 1076 adolescents aged 14-16 showed that birth size, attained BMI in childhood, and particularly rapid growth in early life, were associated with increased prevalence of obesity in these adolescents (Monteiro et al. 2003). Rapid growth is emerging as a risk factor, with the timing of accelerated growth and imbalance between ponderal and linear growth, influencing susceptibility to adult obesity and non-communicable diseases (Monteiro et al. 2003; Barker et al. 2005).

Bhargava et al. (2004), in a prospective population-based study that followed from birth 1492 Indian men and women, aged 26 to 32 years, demonstrated that individuals with impaired glucose tolerance or diabetes were more likely to have had a low BMI up to two years of age, followed by an accelerated BMI increase during childhood and adolescence. Young adults who were thin as infants and became overweight in early childhood had a three-and-a-half times greater risk of showing biochemical signs of early diabetes. These findings suggest the need to define cut-offs for overweight and obesity at different stages of development, based on the biological consequences of adiposity at early and later stages of the life course and not only on statistical normality of population distributions. Monteiro and Victora (2005) found that 13 of 16 articles reported a significant association between rapid growth and later obesity. The definition of rapid growth used for this analysis was a change in Z-score greater than 0.67 in weight/age between two ages during childhood. The age at which weight/adiposity was assessed ranged from 3 to 70 years. Monteiro and Victora point out the need to standardize the definition of rapid growth, as well as that of overweight/obesity in children and adolescents. There is still some controversy about the age at which accelerated growth rates pose a risk for later chronic disease. The degree to which rapid infant growth represents risk may depend on whether it occurs in the context of recovery from foetal growth restriction and results in normalization of body weight, or whether excess growth leads to infant obesity.

The other maladaptive nutritional situation of foetal life with an adverse prognosis for long-term health is macrosomia (large baby, with a birthweight of  $\geq 4000$  g). This excessive intrauterine growth is due to excess fuel availability leading to higher insulin levels, generally as the result of gestational hyperglycemia in the mothers (Leguizamon & von Stecher 2003). Cohort studies of macrosomic infants have shown that high birthweight and overweight in infancy is also a risk factor for diabetes in later life (Das & Sysyn 2004). Whether or not the sequence is underweight-to-overweight (in the case of the growth restricted infant) or overweight-to-overweight (in the case of the macrosomic infant), the consequence during adolescence and adulthood of a form of malnourishment in foetal life is an increased risk of the burden of chronic disease. This creates a complementary second burden in any society disposed to high rates of poor foetal growth.

### ***How can the international community address the double burden with a common agenda?***

In this paper, we acknowledge the challenge posed by the organizers of the 33<sup>rd</sup> Annual Session, addressing the double burden of malnutrition with a common integrated agenda. We suggest that a common agreement on the understanding of this duality will lead to better ways of prevention, remediation and dealing with its consequences. The applied and policy-related aspect of this presentation relates not just to reviewing the science and the findings, but also to defining the elements that allow us to address the combined challenges of undernutrition and nutrition-related chronic disease with a common agenda.

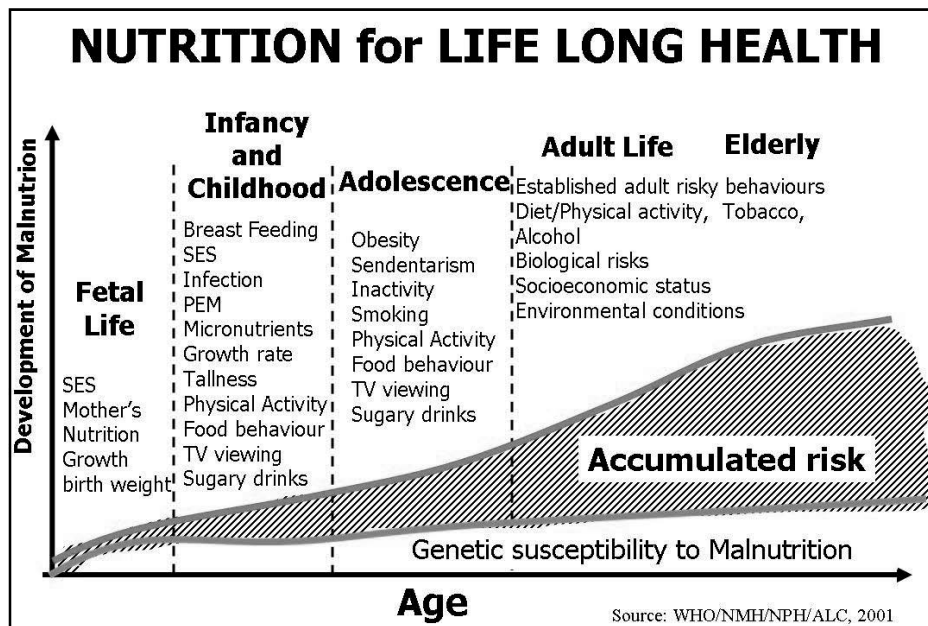
### **THE LIFE-COURSE APPROACH TO NUTRITION**

The excessive segmentation and specialization of both human nutrition into energy, macronutrients and micronutrients (known vitamins, essential minerals, and other substances such as phytochemicals) of clinical sciences into neonatology, pediatrics, adolescent health, adult health and geriatrics has been a barrier to connecting the dots for progress in human health. The common agenda begins with an integral view for understanding the vulnerabilities of the human condition. The common denominator for that view is a synthetic and systematic "life-course" approach. This is illustrated in Figure 4 (next page).

The life-course approach provides us with goals and informs us of linkages. The goal is what Fries (2003) has termed the "compression of morbidity," meaning that we ideally should live lives free of the disabilities of acute and chronic illnesses and impaired function and extend our longevity towards the upper limits of the human lifespan. The so-called nutrition-infection complex determines, in large part, how children grow and develop mentally. In later life, the so-called diet-physical activity interactions greatly affect what



Figure 4



diseases we will most likely suffer during our lifespan and, finally, how we will age and die.

As discussed above, the preconceptional maternal nutritional status influences the conceptus, with dominant maternal determination of foetal and infant nutrition and growth. As seen in Figure 4, we portray five, somewhat arbitrary, divisions or stages of the life span: foetal life; infancy and childhood; adolescence; adult life; and old age. Of particular reference in this illustration are factors that operate within each particular stage to influence the nutritional status of the individual as he/she transits that phase of life. More so than the vertical relationships within columns, the horizontal associations to the right should concern us most. This association demonstrates that the exposure to conditioning factors is not only relevant to the nutritional experience in that phase of life, but also cumulatively affects later phases. The factors in any stage and their consequences for nutrition will have effects on both nutritional status and health in the remaining stages of the lifespan, all modified within the context of interactions with genetic constitution and remedial compensations adopted later. The practical message, however, is that with appropriate definitions of “malnutrition” and carefully designed research, this life-course approach can serve as a template for uncovering the most productive measures in individual and public health, and for reducing morbidity and health care costs in coming decades.

This life-course approach is obviously the central focus of the SCN Working Group on Nutrition throughout the Life-Cycle, and it is central to the process and philosophy of the International Union of Nutritional Sciences (IUNS) Task-Force on Diet, Nutrition and Long-Term Health. It should be adopted as part of a common agenda for addressing the double burden. Given the segmented nature of training and specialization, this will demand extensive multidisciplinary collaboration to deal with the complexities of the full human lifespan.

**NEED FOR A COMMON OPERATIONAL DEFINITION OF MALNUTRITION**

In order to tackle malnutrition in all its forms with a common agenda, we must reach agreement on how to define malnutrition. It should be in clear terms, understood not only by experts but by key stakeholders, policy-makers, politicians and the public at large. Without a commonly accepted definition, it will be difficult to tackle malnutrition in all its forms with a unified approach. A first step in this process is to accept that, indeed, this is a great challenge to hammer out an integrated common agenda for action at all stages of the life course. It is not an option to say, “let us concentrate on undernutrition first,” since preventing death in young children should obviously take precedence over avoiding premature death of adults from nutrition-related chronic disease. This argument undoubtedly responds to the moral/ethical imperative of prioritizing saving children from avoidable death, but providing for good nutrition early in life is an important first step in preventing adult nutrition-related chronic disease. The issue is not in choosing between dealing with undernutrition in the poor versus overnutrition in the affluent. We should recognize that the interventions required to address stunting are different from those needed to reduce underweight and wasting.

We must also realize that in most developing regions there is simultaneous underweight and stunting in young children, as well as, overweight and obesity in older children, adolescents and the adult population. In transitional countries, those living in poverty are at increased risk of early stunting and later-life overweight and obesity. If we continue to assess nutrition based on weight-for-age alone, and not on the combination of weight-for-height and height-for-age indices, we will be unable to recognize stunting, which is the



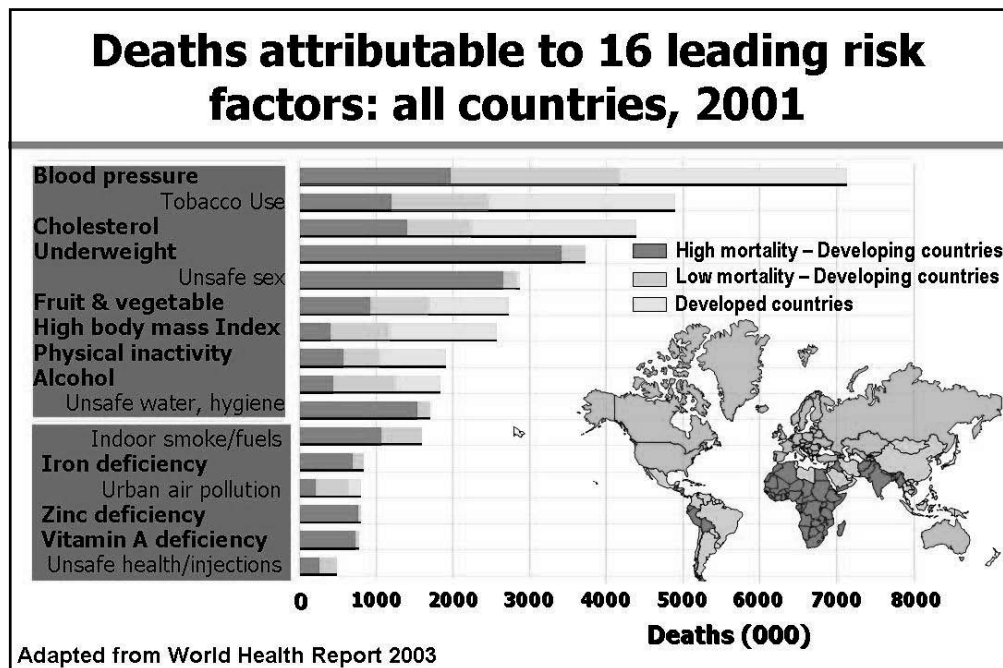


Figure 5

most frequent alteration of growth. It will thus fail to adequately prevent overweight and obesity.

A proposal presented at the SCN's 33<sup>rd</sup> Annual Session considered the following terms: Malnutrition in all its forms, underweight, wasting, stunting and overweight, as well as micronutrient deficiencies and nutrition-related chronic diseases.

- **Underweight** is defined by a low weight-for-age; a child may be underweight because she or he is wasted (low weight-for-height) or is stunted (low height-for-age), or both. Wasting and stunting should be considered separately since they require different approaches in their treatment and control. Low birthweight is defined by being underweight at the time of birth (below 2500 g), whereas the growth-restricted newborn is one that has low birthweight for the corresponding gestational age (based on an accepted standard).
- **Acute wasting** is an important form of malnutrition, especially within the context of emergencies and child survival since it has a direct impact on resistance to infection. To attain the respective MDGs on child hunger and mortality necessitates effective treatment and control of acute wasting.
- **Stunting** refers to low height-for-age, independent of weight-for-age; in fact, some stunted children may have normal or even excess weight-for-height.
- **Overweight** refers to excess weight for one's length or stature, measured as weight-for-height or BMI centile for age (BMI is kg/m<sup>2</sup>), depending on cut-offs for overweight or obesity categories.

[NB: The use of the four above terms requires information on the age, weight and height/length of children in order to categorize nutritional status.]

- **Micronutrient deficiencies** are due to poor quality of diets and nutrient wasting caused by inflammation and infection; deficiencies can be for just one or multiple micronutrients. Deficiencies should be categorized according to the respective micronutrient involved.
- **Nutrition-related chronic diseases** are chronic diseases common in adults, related to diet and physical activity (eg, cardiovascular diseases, obesity/diabetes, some forms of cancer and osteoporosis). These are commonly life-long processes, with overt manifestations occurring mainly in the adult years. Prevention for these conditions starts with achieving optimal foetal and infant growth and continues throughout the life course with the promotion of healthy diets and active living at each stage.

Adopting this consensus would represent a major advance in terminology and would encourage common usage in writing and discussion. However, the exercise of definition is still not without significant caveats due to the issues surrounding the selection of standards of reference used in classification and comparison. Existing national and international standards have defined normal growth based on the weight and length gain observed in apparently "healthy" children. That is, current growth charts have been planned to describe normative population growth, rather than recommended growth based on health outcomes throughout the life-course. This has led in practice to support the notion that "bigger is better." WHO/UNU adopted an approach (Garza and de Onis 2004) for the development of these



references, based on representative sampling of healthy mothers from multiple sites around the globe. The new Multicentre Growth Reference Study (MGRS) growth standards were based on the growth of infants predominantly breastfed for four to six months and fed appropriate complementary foods after weaning (de Onis et al. 2004). In fact, infants fed according to current WHO recommendations and living in conditions that favor the achievement of genetic growth potential, grow less rapidly than the present WHO/NCHS reference, particularly after six months. Present distributions of normal weight-for-age and weight-for-length are skewed towards higher values, relative to those observed in predominantly breastfed infants; this in fact may be a contributory factor to the increase in childhood obesity.

The redefinition of normal growth for children aged 0 to 5 years by WHO/UNU is a step in the right direction given that the new WHO/UNU 2006 growth standards are based on longitudinal data from infants predominantly breastfed for the first six months of life. However, the long-term effect of this dietary prescription remains to be determined (Uauy 2005). The prevention of obesity will indeed be supported by a standard that is based on breastfeeding, which is suggested to decrease the risk of childhood obesity. This standard adds a new dimension to this policy, since the prescription for energy intake of normal children has been redefined. Another objective is to support the concept, based on actual evidence, that human growth during the first years of life is very similar across groups of children of different ethnic backgrounds. Thus, existing differences are predominantly environmentally derived and can be improved. Prevalence estimates of undernutrition and obesity in children will clearly be affected to the extent that the new reference differs from the current WHO norms presently being used.

Yet another problem is the lack of consistency in the use of the terms “overweight” and “obesity” in children. The WHO Expert Committee on physical anthropometry in 1995 provided a definition for overweight and recommended that the term obesity should not be used for children (WHO 1995). The US National Center for Health Statistics recommends classifying children in the upper end of the reference distribution as either, “at risk of overweight” or “overweight,” again avoiding the use of the term “obesity” (Must et al. 1991). However, in 1999, the International Obesity Task Force (IOTF) Expert Committee used the terms “overweight” and “obesity” to provide their recommendations for assessment in a way to be consistent with adult definitions (Cole et al. 1999). All recommendations take into account the two levels of excess weight but use different definitions; this may lead to confusion in interpreting research results, monitoring trends or comparing prevalence within and across countries. This is further complicated by the need to define the appropriate anthropometric indices and cut-off points. Common among each of these approaches is the substitution of BMI centiles for weight-for-height Z-scores as the standard in defining appropriate body composition. Comparative assignment of CDC and IOTF to population data-sets reveals systematic differences that are yet to be resolved. At an individual level, the use of different criteria impacts the assessment of the nutritional status. For the sake of harmonization in the context of the double burden of malnutrition, we consider that optimal nutrition should be defined based on growth in weight and length associated with the lowest risk of early undernutrition, but should also consider the risk of obesity and the related burden of disease in later life.

### **NEED FOR A COMMON APPRAISAL OF WHAT REPRESENTS A GOOD QUALITY DIET**

The appropriate selection of dietary practices is essential to individual and population health, well-being and longevity. As shown in Figure 5, ten of the 16 leading attributable risk factors for mortality worldwide, across economic strata, are directly or indirectly related to diet, foods, eating and energy balance. These nutrition-related factors include (in descending order): blood pressure, cholesterol, underweight, fruit and vegetables consumption, high body mass index, physical inactivity, alcohol, and iron, zinc and vitamin A deficiencies.

Members of the SCN community maintain an ongoing dialogue on the right to adequate food (Kent 2005). Although this phrase often takes on an ideological interpretation, an operational definition of “diet quality” has as yet been devised and subjected to consensus. The IUNS will strengthen its role as a forum for discussion during the 2006-2010 quadrennium, with its ability to convene the multidisciplinary academic community. IUNS Task-Forces and affiliates will contribute expertise and perspectives to the process. However, the discussion among nutrition and food science experts will enlarge as the dialogue begins to resonate from academic institutions around the world. Moreover, it is clear that WHO and FAO, with their respective health- and food-related mandates, require a seat in the diet-quality formulation discussion, as do the agricultural and food research centers and the industrial food-processing industries. From a schematic perspective, the concept of “dietary quality” has at least five basic elements:



- safety from microbiological pathogens and their toxic by-products
- adequate (avoiding both deficit and excess) density in micronutrients and health-promoting bioactive compounds
- freedom from nutrient excess or substances that are noxious to health and activity
- cultural acceptability and harmony with the local culinary traditions of a population, and
- existing basis within local cultivation and husbandry practices that are environmentally safe and sustainable.

We should not ignore the nuanced nature of diet quality. The first two principles are almost universal across all geographic regions and common to all of humanity. Variations among people, however, come into play when issues of tolerance of excess exposure emerge. Genetic and ethnic factors, for instance, influence tolerance to sodium. Likewise, in any given locality the iron status of neighbors, or even family members, can range from depleted to overloaded. The most contextual of all the diet quality elements, however, relates to the food pathways that have evolved over millennia, varying with the opportunities of different ecological niches (Kuhnlein et al. 2003). Here we are challenged to maintain sustainable food production without damaging the physical environment (Gross 2002).

For the present discussion, we would argue two premises. First, the double burden paradigm must be borne in mind in the analysis and synthesis of diet-quality deliberations. Second, a large measure of any integral solution to the double burden of malnutrition must come from successfully improving dietary quality worldwide. We can no longer continue to define adequacy of the food supply in terms of energy alone. Moreover, the dissemination of energy-dense (high sugar, high fat), micronutrient-poor diets around the world unfortunately offers the best guarantee for promoting obesity and limiting linear growth. The high prevalence of stunted children growing up as short, obese adult men and women can be explained, at least in part, by their consuming such a dietary pattern. It is time that we take into consideration long-term health when defining food quality. It is time that we monitored overall dietary quality including fiber, quality of fats (trans and saturated fats), quality of carbohydrates (sugars versus complex carbohydrates), acceptable amounts of sodium, fat and sugar, and macro- and micronutrient sufficiency (specifically with regard to vitamins A, I, Fe, Zn, folate and B<sub>12</sub>). Only then can we move beyond the idea that more cereals will prevent hunger in human populations. This fallacy is further distorted when we learn that 40% of the world's grains are being used to feed cattle destined for human consumption. We are producing sufficient energy but still have inadequate nutrients in our food supply. Stunted, obese populations across the world are living proof of where we have gone wrong.

Quality of diet begins in infancy, when breastmilk is the exclusive food source for infants. Energy recommendations for infant and child age groups recently published by FAO/WHO/UNU (FAO 2004) are based on actual measurements and estimates of total daily energy expenditure, plus the energy needs for tissue deposition related to growth. The new recommendations for infants are based on the breastfed infant, mean values are 5-10% lower than existing figures for the first year of life. For infants, the standard will strongly support exclusive breastfeeding, since lower energy needs will prolong the adequacy of energy supplied from breastmilk. It will also stress the need to enhance nutrient density of complementary foods, rather than just consider the energy intake derived from these foods. The present recommendations based on expenditure are also substantially lower for children up to age ten in comparison with those derived from observed food intake, as used in 1985 by FAO/WHO/UNU (1985).

#### **COMMON STRATEGY TO PROMOTE HEALTHFUL AND DIGNIFIED PHYSICAL ACTIVITY**

The quantity of even the best fare that one can healthfully consume is limited by the dietary energy required to make metabolic room for it. A feature of daily life throughout human evolution—associated with low historical occurrences of chronic disease—has been vigorous physical activity (Milton 2000). This naturally occurred throughout the eons of hunter-gatherer existence, during which time nomadic migration, hunting and scavenging demanded prodigious and incessant physical effort from all clan members. As part of daily activity, they had to walk, run, swim, climb, scale, excavate, haul, even skirmish and wrestle with their prey—and with other clans.

The advent of traditional agriculture produced greater stability in food acquisition and restricted life to settled geographical terrain. The amount of physical exertion needed to cultivate crops without animals or mechanization, however, was equally impressive. Manual labour in the fields, with sowing, weeding, irrigating, and harvesting, maintained the fitness of males. Carrying water, gathering firewood, washing



clothes by hand and milling grains had a similarly beneficial and protective effect on women's health.

Undoubtedly, these inherent aspects of antiquity favoured appropriate energy balance, muscular and physical conditioning and cardiovascular fitness. In the context of our contemporary life, however, the aforementioned hunting-gathering and primitive farming activities can be summed up under one umbrella term: drudgery. Mechanization of agriculture and reduced efforts of housework with labour-saving devices have largely "liberated" humankind from this drudgery. The panorama of urban life pursuits is one of low-energy activities. Humans have become a sedentary lot, far removed from the energy-expending routines of our ancestors.

The theory that *Homo sapiens* have evolved with a physical activity requirement to maintain health was finally recognized by the authors of the WHO consultancy *Diet, nutrition and the prevention of chronic diseases* (2002), and quantitatively outlined by an expert panel of the Institute of Medicine in elaborating the Dietary Reference Intakes (in this case, outputs) of the US and Canada (IoM 2002). Given these considerations of intricate and inextricable linkage between food consumption and energy expenditure, we can no longer accept the excuse that physical activity is outside of the "nutritional mission" (Solomons 2005). We must either forge collaboration with experts in exercise physiology and kinesiology or develop the expertise within our own disciplines.

### **NEED TO DEVELOP AND STRENGTHEN CAPACITY OF HUMAN RESOURCES TO INTRODUCE CHANGE**

In August 1996, an International Workshop on Institution Building for Research and Advanced Training in Food and Nutrition in Developing Countries was convened in Manila, the Philippines. The proceedings were published in *Food and Nutrition Bulletin* in June 1997. Among the eight precepts enunciated in the Executive Summary, four are particularly relevant to the double burden debates of today:

- changes in the nature of the nutrition problems faced by diverse regions of the world
- rapidly changing global socio-economic conditions
- new challenges facing the food system due to the increasingly global nature of national economies, and
- demographic transitions throughout the world.

Featured in the Manila discussions was the experience, in the mid-1990s, of Professor Joseph Hautvast, the then serving Secretary-General of IUNS. He and colleagues in academia and industry founded the European Nutrition Leadership Program (ENLP). It was accepted as a model seeking to advance the goals of capacity building on a global scale. Following the ENLP, a Latin American leadership workshop tradition began in 1997 in Antigua, Guatemala, in conjunction with the 11<sup>th</sup> Latin American Congress on Nutrition in that country. Since then, their meetings have been repeated on a triennial basis and have created a constituency of veterans. The nutrition leadership programme (NLP) movement has, from that time, been spreading in Africa, Asia and North America. Each is in some way related to the clarion call of the Manila meeting and each is dedicated to identifying and developing leadership potential among young professionals in our communities.

We have argued imperatively that international bodies concerned with human nutrition and health focus on an agenda both integrative and innovative in defining malnutrition and developing solutions to address it. A deeper understanding of and creative solutions for the double burden of malnutrition will surely issue forth from the best and brightest minds. We seek ways to direct this creative energy to developing solutions to current issues: 1) how to integrate related themes into academic curricula and research programmes within institutional capacity-building initiatives, and 2) to provide opportunities for delving into the double burden theme within community-based capacity-strengthening efforts. If we are serious in achieving these goals, we must allocate the needed financial resources. The SCN has discussed this topic repeatedly, but has not as of yet taken meaningful action. The simple proposal of placing 1-2% of all nutrition development funds into a capacity-strengthening fund administered by the international agencies themselves—proposed at the 2002 SCN Annual Session in Berlin by the bilateral agencies—was accepted by all with great interest but has not yet been implemented.

There is a need for the UN system, bilateral agencies and other organizations to contribute towards the costs of replacing highly skilled professionals being drawn away from national institutions to serve in positions with international organizations. Such resources could serve to ensure the training of young professionals within the developing regions. This proposal in no way implies limiting individual freedom or restricting career opportunities for professionals in developing countries; but it does require that funds be allocated to train those who, hopefully, will replenish the qualified pool of professionals who were serving at national levels. Currently, the UN system and international and bilateral agencies are perceived to be



depleting the pools of talented young professionals from national service, drawing them away from where they are badly needed. Sooner or later we may be held accountable not only for what we did to promote a brain-drain, but also for what we neglected to do (ie, not investing in replenishing the local capacity to ensure its continued effectiveness).

IUNS has recognized that the sustained development of a global community concerned with the basic and applied sciences related to nutrition and food, ultimately rests with the next generation of professionals. We are reaching out to young people from this community in the various regions, through the NLP apparatus, to ensure future leadership for IUNS through capacity and leadership development. In setting a coordinated agenda to deal with the two horns of the dual burden of malnutrition, we need to engage the next generation of students and young professionals.

### Conclusions

In conclusion, we wish to emphasize that in order to meet the challenge of the double burden of malnutrition with a single agenda, it is essential to:

- forge common strategies of prevention of infant, child and adult undernutrition, as well as nutrition-related chronic disease at all stages of the life course
- use the term “malnutrition in all its forms” when providing policy-makers and the public with a short description that encompasses the full spectrum of nutritional disorders
- call for greater effort by the UN agencies, development partners and other organizations to strengthen/develop local, regional and international leadership capacity to support the much needed change in our policy and programme activities focusing on malnutrition in all its forms with a unified agenda
- reconsider the concept of dietary quality and optimal growth beyond immediate survival, particularly with regard to life-long health. There is a critical need to define what is meant by ‘adequate food’ in practice, considering not only quantity of energy but overall diet quality, and
- carefully craft a communications strategy, directed at the nutrition community, as well as other stakeholders, to promote and strengthen integrated actions to address the entire malnutrition burden.

There is an urgent need to strengthen the SCN mandate and sharpen its focus to integrate the work of UN, bilateral and multilateral agencies, NGOs and civil society. Harmonized approaches within and among agencies are essential if we are to promote, respect and secure the right to adequate food and good nutrition for all people, especially the most vulnerable.

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## LATIN AMERICA:

### AVOIDING THE NUTRITION TRANSITION “TRAP”

#### 10<sup>TH</sup> DR ABRAHAM HORWITZ LECTURE

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Emory University

University of Chile

#### *Introduction*

Chile, my country of birth, is a developing nation where obesity and nutrition-related chronic diseases are the most significant public-health problems, while undernutrition is considered a problem of the past. Guatemala, whose rural population I studied while pursuing my doctorate, is also a developing country. However, its indicators reflect that stunting, low birthweight and micronutrient deficiencies are still major problems for most of the population, yet, obesity and diabetes are increasingly a public health concern among the adult population. I spent the summer of 2003 working in México's “*Oportunidades*” (Opportunities) programme; this country experiences a nutritional situation between that of Chile and Guatemala. México has moved rapidly to an advanced stage of nutrition transition, yet there are remaining regions in which nutritional deficiencies are prevalent. Latin America is my region; a region of cultural diversity and social disparities. It is a region where the nutrition transition evolves at different rates and which faces the challenge of the double burden of diseases. Its two agendas appear to be in contradiction with each other: a traditional agenda associated with nutritional deficiencies, and a new one, associated with obesity and nutrition-related chronic diseases. Is it possible for the region to decrease malnutrition due to deficit without increasing malnutrition due to excess? Is it possible to adapt nutritional policies and programmes to prevent chronic diseases? Is a common agenda achievable? Is it too late to avoid the nutrition transition “trap” in Latin America?

The following are what I consider to be some answers to these questions, from the perspective of someone involved in programme evaluation and applied research in nutrition in order to inform public health policy-makers. Let us begin by reviewing the conceptual framework necessary to assess the nutrition transition in developing countries using, as an example, the data provided by a supplementation trial in rural Guatemala between 1969 and 1977. The nutritional situation in Latin America will be discussed and approaches developed there to respond to nutritional deficiencies and nutrition-related chronic diseases. Specifically, data from a Chilean national programme providing childcare and supplementary food to low-income children (< 6 y) will be used to illustrate the changing role of nutrition-assistance programmes in developing countries. We will conclude with general recommendations on how to tackle malnutrition in all its forms with a unified agenda from the perspective of Latin America.

#### *Nutrition transition in developing countries*

“Nutrition transition” refers to changes in body composition patterns, diet and physical activity brought on by complex interactions among economic, demographic and environmental factors (Popkin 1994). In the case of developing countries, nutrition transition is primarily identifiable by a shift from a situation in which energy-poor plant food based diets, intense physical activity and undernutrition are prevalent, to one in which high consumption of energy-dense processed foods and animal products, sedentarism and high rates of obesity and nutrition-related chronic diseases are the norm (Figure 1). The driving forces of these changes are multiple and include urbanization, economic development, educational and healthcare improvements, market globalization and technological advancements, among others.

There are three main features of nutrition transition in developing countries. The first is that these changes are taking place at an unusually rapid speed (Popkin 2002). The second is that health problems associated with undernutrition (ie, infectious diseases, micronutrient deficiencies) and overweight (ie, cardiovascular diseases, cancers) coexist within the same population. This has been denominated the “double burden of disease” (WHO 2003). The extent to which undernutrition is being replaced by, or compounded with, overnutrition depends, in most cases, on a country's level of economic development. In several developing countries, stunting and overweight have been reported to coexist not only at community level but also within the same household, adding an extra layer of complexity to the nutritional situation of these countries (Doak et al. 2005). The third main characteristic is that it



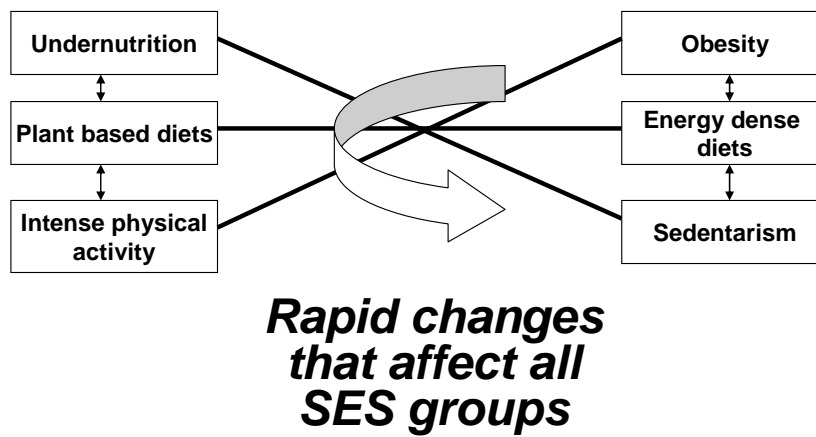


Figure 1 Main characteristics of the nutrition transition in developing countries

affects people from all socio-economic groups. The nutrition transition is characterized by initially affecting mainly the higher socio-economic (SES) groups, but as the nutrition transition progresses, there is a shift to the lower SES groups which constitute the vast majority of the population (Monteiro et al. 2004). In fact, the nutrition transition becomes an important risk factor for increasing the inequalities in health already observed in developing countries. Low-income people are more vulnerable to infections and undernutrition during childhood; as they grow older, however, they are now exposed to the obesogenic environment linked to poverty (ie, high cost of fruits and vegetables, lack of access to recreational facilities, etc.). Even more, it has been suggested that foetal and infant malnutrition could magnify the detrimental consequences of the nutrition transition as manifested by high relative risk of diabetes and central obesity in the adult population. This theory has been denominated the developmental origins hypothesis.

The developmental origins of adult-health hypothesis states that exposure to undernutrition during critical periods of early life predisposes individuals to chronic diseases in later life (ie, diabetes and cardiovascular disease) by increasing their susceptibility to chronic disease risk factors (Barker 1998). This hypothesis is particularly relevant for low SES people in developing countries because the speed of the nutrition transition increases the likelihood of a mismatch between early nutritional deprivation and later nutritional affluences. Although evidence to support this theory in developing countries remains scarce and not fully consistent, it is now well accepted that nutritional experiences during critical periods of life can have permanent effects on one's later responses to the environment. This highlights the need for a life-course approach to health, especially in developing countries experiencing rapid nutritional changes.

#### ***Early stages of the nutrition transition in Latin America: the Institute of Central America and Panama (INCAP) supplementation trial example.***

The supplementation trial conducted by INCAP in collaboration with US universities, has provided valuable information on the dynamics of the nutrition transition in Latin America, and the possible impact of early undernutrition on the later development of chronic diseases. As part of that trial, women and men born between 1962 -1977 in four villages in rural Guatemala were studied, and have been followed to the present, including a recent follow-up in 2002-2004 (Martorell et al. 2005).

The pattern of growth of this cohort exemplifies the changes associated with early stages of the nutrition transition. At birth, the subjects studied were lighter, shorter, and thinner than the corresponding US population, and during childhood, the prevalence of stunting was high (63.2% at year 3) while overweight was almost nonexistent. As these children reached adulthood, overweight became more common with increasing age, acquiring levels close to those seen in developed countries (Corvalán, Stein et al. 2005). Obesity rates disaggregated by sex, showed that the prevalence was more than twice as high in women as in men, suggesting that women have a higher susceptibility to the changes associated with the nutrition transition. Analysis stratifying obesity prevalence by years of schooling, showed that prevalence of overweight was close to 50% without differences by schooling, providing evidence to support the idea that, as the nutrition transition moves into further stages, all social classes are affected (Ramírez-Zea, Gregory et al. 2005). Finally, the unusual rapidity of these changes was illustrated by the prevalence of overweight more than doubling in both sexes in only 5 years (1997-8 and 2002-04) (Ramírez-Zea, Stein et al. 2005).

The design of the INCAP supplementation trial also allowed for the assessment of the impact of early



life factors on the later development of chronic diseases. Fatness and particularly abdominal fatness have been associated with higher risk of nutrition-related chronic diseases, therefore it was studied how increasing body mass index ( $BMI = \text{weight (kg)} / \text{height}^2 \text{ (m)}$ ) during early life can impact adult body fat distribution. It was found that gaining BMI during the first three years of life had a minor impact in the development of central obesity in adulthood whereas gaining BMI between 3-7 years had a major impact (Corvalán, Gregory et al. 2005). It has been proposed that the first two years of life would be critical for preventing undernutrition and therefore, represent a “window of opportunity” (World Bank 2006). Our results suggest that nutrition-assistance programmes implemented in these age groups appear not to present considerable increase in the risk of nutrition-related chronic diseases. On the other hand, it is known that programmes targeted to pre- and school-age children are less effective in the prevention of undernutrition and stunting. Our results indicate that gaining BMI during this period would be also critical for the later development of central obesity.

### ***How is Latin America responding to the nutrition transition?***

A similar situation to that described in the cohort of the INCAP supplementation trial can be seen in much of the rest of Latin America. Over the past 20 years, the prevalence of underweight and stunting has declined in this region; low birthweight (<2500g) and underweight (weight-for-age <-2SD) are below 10% in almost all countries of the region and at present, stunting (height-for-age <-2SD) corresponds to the most important pending issue in terms of nutritional deficiencies (<http://latinut.net>).

Nutritional assistance programmes have played an important role in achieving these rates. A good example of the positive results obtained from well-targeted and well-designed nutrition programmes is provided by Mexican’s “*Oportunidades*”. This is an incentive-based development programme with a nutritional intervention. Evaluations have shown that the intervention has been associated with improved linear growth among low-income infants, among other benefits (Rivera 2004). Mandatory micronutrient fortification is the most common intervention for preventing micronutrient deficiencies in Latin America. At present, all countries have national programmes for ensuring universal salt fortification with iodine and universal wheat flour fortification (and maize flour in Guatemala, México, and Venezuela) with iron, folic acid and other B-vitamins depending on the country. All countries in Latin America have at least one program oriented toward vulnerable age and sex groups: young children, pregnant and lactating women. Most of these activities correspond to food distribution programmes and a few of them also consider cash transfers. Almost all these programmes are targeted based on socio-economic criteria and thus, nutrition-assistance programmes in Latin America are seen as significant components of the social welfare system (<http://latinut.net>).

At the same time, the prevalence of obesity has risen steadily in the region. In most of the countries, overweight exceeds wasting among preschool children, indicating that stunted children, rather than being under or normal weight, are overweight (de Onis, et al.2000). Nutrition-related chronic diseases have increased in their relative importance as causes of morbidity. In particular, diabetes will become a major problem for Latin America. It is estimated that between 1995 and 2025, the number of diabetes cases in the region will have increased from 15 million to 39 million; also in 2025, Mexico and Brazil will be among the ten countries with the highest prevalence of diabetes (King et al.1998). At present, cardiovascular diseases are the leading cause of death in the region and, overall, their relative contribution to total mortality is twice that of communicable diseases (<http://latinut.net>).

Despite this clear trend, nutrition-assistance programmes in Latin America are still oriented towards decreasing nutritional deficiencies. In a recent survey conducted among eight Latin American countries (Colombia, Costa Rica, Cuba, Chile, Guatemala, México, Perú and Venezuela), it was found that none of these countries reported having a programme for the prevention of nutrition-related chronic diseases (<http://latinut.net>). Although within countries there may be some local initiatives to prevent such diseases, coordinated interventions at the national level are at present, almost nonexistent. Thus, to respond to the question “What is Latin America doing to respond to the nutrition transition?,” the answer would unfortunately be, “nothing or next to nothing.” This inaction is worrisome not only because it presages an unmanageable burden of chronic diseases, but also because it has been suggested that programmes, which in the past were successful in decreasing nutritional deficiencies, may unintentionally contribute to the increasing obesity rates if they are not adequately adapted (Uauy and Kain 2002).

It is important to note, however, that this does not imply that all nutrition-assistance programmes should be abandoned as a country moves into further stages of the nutrition transition. Increasing food security need not imply increasing obesity. In fact, if we take a different perspective, nutrition-assistance programs can become a central and promising way to respond to the challenges associated

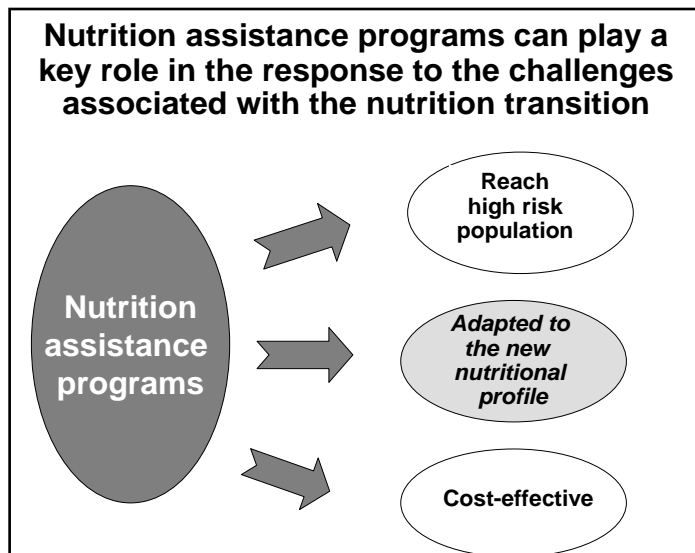


Figure 2

with the nutrition transition if the energy and micronutrient content of the food is carefully determined and physical activity and healthy behaviours are encouraged. Nutrition-assistance programmes reach an important part of the population, especially those who are, or will be, at higher risk in developing chronic diseases. They also represent a more cost-effective alternative than starting from zero because they already have material and human resources that ensure their functioning (Figure 2). In the following section we will present the case of a national welfare programme in Chile, a country experiencing advanced stages of the nutrition transition, in order to demonstrate the changing roles and opportunities of nutrition assistance.

#### ***Changing the role of nutrition-assistance programmes in developing countries: the Chilean National Nursery School Council Programme (JUNJI)***

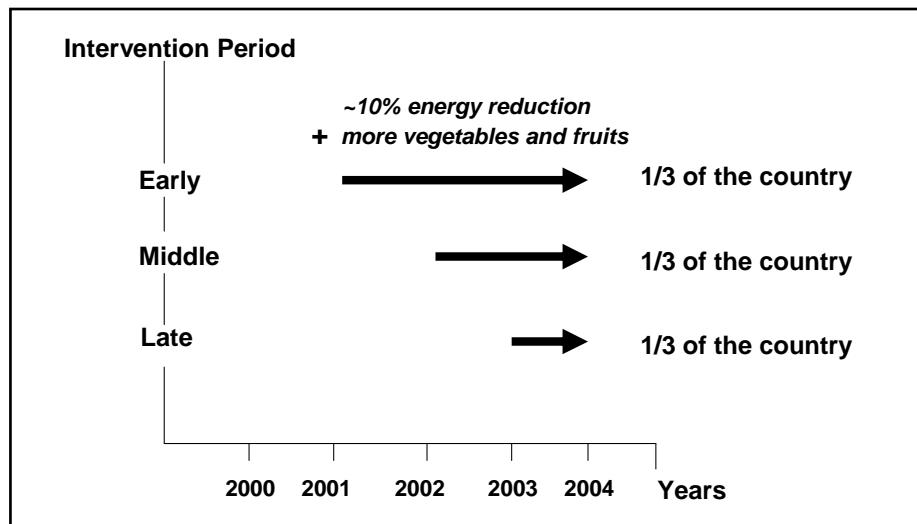
The JUNJI is a national programme whose main objective is “to give free education (including supplementary food and social care) to children between three months and five years of age, in nursery schools and non-conventional programs of preschool education”. It targets children of low-income families, households with a single mother, and families whose mothers work outside the home; actual coverage is around 75% of those in need. In 2004, approximately 125,000 children from all regions of the country were registered in the programme, and this number is expected to increase in future due to preschool education being designated as a government priority. Almost 90% of the beneficiaries are children 2 to 5 years old with the remaining being infants under 2 years. JUNJI provides various educational programmes in order to reach families with different needs (i.e. families from rural or isolated regions, seasonal workers, etc.). The “Classical Nursery School” is the largest educational programme, and as part of it, children attend the nursery school 11 months per year, 5 days per week, all day (8:30am to 4:30pm), and receive breakfast, lunch and an afternoon snack. Until 2001, the daily food offered provided 800 kcal per day for children under 12 months; 900 kcal for children age 12 to 24 months; 900 kcal for children age 2 to 3 years and 1000 kcal for age 3 to 5 years, covering 75% of the daily caloric needs. An additional 100 kcal/day were provided to cases with “nutritional deficit” (weight-for-height < -2SD).

This programme has most likely contributed to the notable decline in underweight and stunting observed in the Chilean preschool population during the past decade, but may also be contributing to the increased obesity rates (Uauy, Corvalán et al. 2005). Between 1996 and 2000, the prevalence of obesity among JUNJI beneficiaries increased from 8.6% to 12.1%. This increase was similar across sex, age groups and community poverty level, with girls and older children consistently more obese. Overall, prevalence of obesity among JUNJI children was greater and increased more rapidly than the levels reported by the Chilean Ministry of Health for the same period, indicating that this is a population prone to overweight. Analysis comparing the prevalence of obesity in children of the same age but with different length of time of participation in the programme showed that obesity rates increased with a longer participation at the programme; the impact of programme participation, however, was weaker than the external impact, due to the fact that most children are already obese before starting the programme (Corvalán, Lera et al. 2006).

In 2001, because of the increasing prevalence of obesity observed in these children, JUNJI decided to reduce the caloric contribution to 700 kcal for those under 12 months; 800 kcal for those aged 12 to



Figure 3 Scheduling of the caloric reduction at the JUNJI programme



24 months; 800 kcal for those from age 2 to 3 years; and 900 kcal for those from age 3 to 5 years (a 10-12% reduction for all age groups), covering 60% of the daily caloric needs based on FAO/WHO 1985 recommendations (equivalent to 72%, of the latest FAO/WHO 2004 recommendations); in addition, more fruits and vegetables and semi-skimmed milk were introduced. Due to existing contracts with the providers of the meals, this change was not immediately implemented throughout the entire country; rather the new dietary programme was phased into the nursery schools, from 2001 to 2003, one third at a time as contracts were completed (Figure 3). This phasing-in, in conjunction with the availability of continued registries (at baseline, during the changes and after the changes) of weight and height for each preschool child enrolled at JUNJI, allows for the evaluation of the effectiveness of this dietary change. These data represent work in progress; however, preliminary unadjusted analysis reported by the programme shows a drop in obesity rates after the implementation of the energy reduction and improvement in food quality.

Making changes at the programme level and only in the dietary component, however, may not be enough. Higher impact may be attained by simultaneously addressing multiple aspects of the programme (ie, dietary intake, nutritional education, physical activity, etc.) and the environment of the JUNJI children. Information regarding home, programme and country environments will be collected in order to identify risk factors and potential barriers to change at the different levels. The final goal is to better understand the environment in which JUNJI functions, in order to provide more effective recommendations to adapt the programme to the new profile of its target population.

**General recommendations: preventing childhood malnutrition in Latin America**

Four concepts should be considered as central for preventing malnutrition in all its forms in Latin America (Box 1).

**ATTACKING THE PROBLEMS OF OBESITY AND NUTRITION-RELATED CHRONIC DISEASES SHOULD BE A PRIORITY FOR LATIN AMERICA**

It cannot be denied that undernutrition remains a significant problem in some countries of Central America and the Caribbean (ie, Guatemala, Honduras and Haiti) and in deprived sectors and regions of several countries in Latin America. Nonetheless, it is also undeniable that obesity and nutrition-related chronic diseases are increasingly the major health threat for the region, especially among the underprivileged. At present in Latin America, nutrition problems related to deficits and excesses are inter-related and should be seen as part of a single and more global problem of malnutrition rather than one of opposite extremes.

International agencies and academia should play a central role in delivering these key messages to the entire population. Policy-makers and the general public should acknowledge this new epidemiological and nutritional situation and not only support but encourage the implementation of actions to prevent the burden of nutrition-related chronic diseases. As a final outcome of all these efforts, governments and international agencies should adapt their focus of action with nutrition policies that will meet the new requirements of the population.

**ADAPT NUTRITION-ASSISTANCE PROGRAMMES TO THE NEW NUTRITIONAL PROFILE OF THE POPULATION**

As mentioned, adapting ongoing nutrition programmes and making use of available resources to re-



## Box 1 General recommendations for preventing childhood malnutrition in all its forms

### 1. Make obesity and nutrition related chronic diseases a priority for Latin America

- International agencies and academia should deliver key messages
- Policy makers and general public should acknowledge the new nutritional and epidemiological situation
- Governments and international agencies should adapt the focus of their actions

### 2. Adapt nutrition assistance programs to the new nutritional profile of the population

- Use anthropometric data to assess trends and nutritional status of target population
- Consider weight, height and age when targeting and monitoring nutritional interventions
- Ensure adequate micronutrient content of food provided rather than just energy-density
- Deliver interventions that are diverse, implemented at multiple levels and that take into account biological and social differences of the target population

### 3. Focus on long term health and overall nutrition

- Consider nutrition as central for alleviating poverty and improving health
- Focus on “malnutrition” in all its forms as an alternative to “under-nutrition” and “over-nutrition”; there are several common strategies
- Follow a life course approach
- Evaluate all nutrition interventions; use standards whenever possible

### 4. Build the capacity to respond to the challenge of the nutrition transition

- Collect information on national trends and define nutrition policies based on this information
- Generate local evidence to define and adapt programs
  - Academia should become an active actor of nutrition policy making
- Re-define human and material resources
  - Train the workforce to make them able to respond to the new situation
  - Facilitate partnerships with other sectors, industry, etc.
  - Build healthy and safe environments for living and working

spond to the challenges associated with the nutrition transition is promising because it permits reaching a significant number of people, and particularly those who are at higher risk of developing nutritional deficiencies and nutrition-related chronic diseases.

Most nutrition-assistance programmes collect anthropometric data from their beneficiaries in order to assess the impact of their interventions. The quality and consistency of this information should be assessed and, if possible, used to evaluate the trends and current nutritional status (eg, stunting, overweight, etc.) of its target population. This information should be used to define the priorities and objectives of the programmes.

Weight, height and age should be the central anthropometric components for targeting and monitoring nutritional interventions in children. In early stages of the nutrition transition, attention should be put on increasing weight in relation to height but not in excess of it. As countries advance into further stages of the transition, nutrition programmes should focus on decreasing stunting, particularly during the first three years of life.

In most regions of Latin America, access to food is no longer a concern, whereas food quality remains a major problem. Food distributed as part of nutrition-assistance programmes should be carefully selected in order to ensure the adequate nutrient content (ie, iron, zinc, vitamin A, etc.) rather than just being energy-dense. Delivering fortified food or even micronutrient supplements should be considered as primary options.

Strategies implemented as part of nutrition-assistance programmes should be diverse (ie, supplementary food, physical activity, education, etc.), should consider actions at multiple levels (ie, individual, family, community, etc.) and should take into account biological and social differences by age, sex, socio-economic status and ethnic background of the population.

#### FOCUS ON LONG TERM HEALTH AND OVERALL NUTRITION

Promoting good health rather than combating disease should be the main goal of nutrition-assistance programmes. “Myopic” interventions, only focused on decreasing a specific problem may have unin-



tended consequences in other aspects of health as has been suggested in the case of the JUNJI programme in Chile or in the case of accelerated size growth during childhood in Guatemala. The simultaneous coexistence of nutritional deficit and excess further complicates this scenario. What interventions can be recommended for a stunted child that will be at higher risk of developing obesity as an adult? Answers will be difficult to find if we think only in terms of either decreasing stunting or decreasing overweight. Conversely, solutions will become much clearer if nutrition is re-considered as central for alleviating poverty and ensuring health. From this perspective, interventions aimed at decreasing malnutrition, either due to deficit or excess, are part of the unique and major objective of decreasing inequalities and ensuring better health to the population.

In fact, a number of strategies are common to the global goal of decreasing malnutrition:

- In terms of growth, we should focus on decreasing stunting during the first years of life, ensuring normal-size growth during childhood and normal pre-pregnancy weight among women of reproductive age.
- Exclusive breastfeeding and appropriate complementary feeding should also be encouraged, as micronutrient levels during pregnancy and infancy are critical.
- Childhood and adolescence are key periods during which obesity tends to develop; therefore, emphasis should be placed on healthy dietary behaviours such as increased consumption of fruits and vegetables and increased physical activity.

In the long term, investing in education and programmes for alleviating poverty will also positively impact nutrition status of the population and vice versa.

Standards of normal growth, healthful dietary patterns and physical activity will be necessary for use as comparison when designing and evaluating interventions. The new standard for infant growth of WHO/UNU and the new FAO/WHO recommendations for energy intake based on energy expenditure, are a step in this direction but more will have to be done. In the meantime, we should base our actions on evidence already available with the caution of always evaluating not only intended impact but also the possible generation of unforeseen consequences.

### **BUILD THE CAPACITY TO RESPOND TO THE CHALLENGES OF THE NUTRITION TRANSITION**

Latin America, as a region, has its own particularities and even among its countries there are important differences. Therefore, it is important that each country gather at least:

*Information on national trends:* national surveys should be conducted in order to monitor nutritional trends. The priorities and objectives of nutritional policies should be adapted and based on the results of these surveys. The deliverance of universal or targeted interventions should also be defined based on the nutritional stage of the population.

*Local evidence in order to define and adapt their programmes:* the gathering of evidence relevant to the situation and context by country should be encouraged and considered a priority. Academia should become a full actor in nutrition policy-making by providing evidence to support and guide policies and by shaping the training of professionals capable of working in concordance with the nutritional needs of the country. Good examples of the role of academia in the policy-making process are provided by INSP in Mexico and INTA in Chile.

*Adequate professional and material resources:* each country should invest in preparing leaders at all levels, in training new people and in retraining the existing workforce in order to bring about the necessary changes and to ensure their sustainability over time. Material resources will also have to be adapted to the changing requirements of the population; the participation of different sectors, including the private sector, will be critical in achieving this goal. Finally, the physical environment will also have to be adapted. Ensuring healthy and safe environments for living and working provides the necessary structure for healthful behaviours.

Latin American countries should work together and support one another in facing the challenges associated with the nutrition transition; joint strategies and opportunities for providing mutual technical support should be developed by the region.

### **Conclusion**

Nutrition plays a central role in alleviating poverty and improving health, and therefore political and economic efforts are needed to ensure the adequate nutritional status of the entire population. In the last two decades, countries in Latin America have been successful in decreasing undernutrition. How-



ever, they now face a new but equally taxing challenge, with the emerging epidemic of obesity and nutrition-related chronic diseases. These problems are no longer just a threat but a stark reality for the region. The responses to date, however, are still almost non-existent. Countries in Latin America need to become aware of its new nutritional situation and take action now. Failure here will tip the balance into the nutrition transition “trap”.

### **Acknowledgements**

The author would like to thank Dr Reynaldo Martorell (Emory University), Dr Ricardo Uauy (University of Chile), and Dr Rafael Flores (Emory University) for their encouragement, support and intellectual guidance. The author is also indebted with Dr Juan Rivera (National Institute of Public Health of Mexico) for sharing data and personal experiences with her and Ms Cria Gregory (Emory University) for her assistance in editing this document.

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**OBITUARY**  
**DR LEE JONG-WOOK**  
**DIRECTOR-GENERAL OF THE**  
**WORLD HEALTH ORGANIZATION**

Dr LEE Jong-wook, Director-General of the World Health Organization, unexpectedly died in late May 2006. Dr Lee, a national of the Republic of Korea, was a world leader in public health, who began his five-year term as Director-General of WHO on 21 July, 2003. He was also the first UN agency head from the Republic of Korea. Throughout his 23-year career at WHO, he made a difference in every programme he managed—from the effort to eradicate polio from the Western Pacific, to launching the cutting edge Global Drug Facility so people would have access to tuberculosis medicines.

Dr Lee probably knew the UN system better than most, having worked for WHO for more than 20 years in technical, managerial and policy positions at all levels in the Organization—country, region and headquarters. He began his WHO career in 1983 as a leprosy consultant in the South Pacific, and a year later was appointed team leader for leprosy control in the South Pacific. In 1986 he moved to the Western Pacific Regional Office in Manila, initially in the Regional Leprosy Control Programme and later as Regional Adviser on Chronic Diseases. Prior to joining WHO, Dr Lee worked for two years at the LBJ Tropical Medical Centre in American Samoa.

I knew Dr Lee (or JW) as a friend and colleague for over 15 years—since we were both WHO Officers in the South Pacific Sub-Regional Office in Suva, Fiji. He was fun to work with, both in and out of the office including playing tennis and scuba diving. This enthusiasm for physical activities continued with regular and enthusiastic skiing in Europe when he came to WHO. He tackled every challenge with the same passion, dedication and professionalism. He was unfalteringly committed to WHO's mission, to help all people to attain "the highest possible level of health." He worked across sections within WHO, and across agencies. It is no coincidence that he supported the continuation of the SCN Secretariat being housed within WHO. Growing up in a very different Korea from today, he was personally aware of hunger and undernutrition and he always believed in a holistic approach to health. Consequently, over the years, as he worked in leprosy, chronic diseases, tuberculosis, and later showed global leadership in the prevention, control and treatment of HIV and in preparedness for avian influenza, he knew that programmes needed to go beyond a strict biomedical model and to incorporate nutrition and environmental aspects.

As noted by UN Secretary-General Kofi Annan, Dr Lee, "was a man of conviction and passion. He was a strong voice for the right of every man, woman and child to health prevention and care, and advocated on behalf of the very poorest people." On the other hand, following his appointment as Director of the Stop TB Department in WHO in 2000—and building on previous experience as head of the Global Programme on Vaccines and Immunization—he rapidly built what is internationally recognized as one of the most successful and dynamic global public-private partnerships for health: the Global Partnership to Stop TB. Credited by the Boston Globe as having brought the leadership and political skills needed to build consensus and 'spur former antagonists to work together', Dr Lee led the growth of a remarkable and complex coalition of more than 250 international partners that includes countries, UN Agencies, donors, NGOs, industry and foundations. This is very much in the spirit in which we all work in the SCN.

Dr Lee had very wide-ranging intellectual interests, with a great appetite for knowledge and a hugely retentive memory. He often surprised people with his precise recall of a book or play that he was reading, or had read many years ago, and its application to a current situation. In spare moments he enjoyed classical music, the theatre, reading Shakespeare and other great literature. He will be very fondly remembered for his self-deprecating wit. He often used his quirky, unexpected humour either to put people at ease, to diffuse a difficult situation, or just to make his friends laugh with his astute observations. Those of us who have worked with, or for, JW know that he had an apparently effortless way of getting people to do things—and to do them well. Many times better perhaps, than they had the confidence to expect of themselves.

Dr Lee was 61 years old when he died. We had lunch together a week before he died and he was relaxed, fit and amusing and ironically, talked of the need to live for the moment. He is survived by his wife and son, two brothers and a sister and their families.

*Dr Ian Darnton-Hill, Nutrition Section, UNICEF, idarntonhill@unicef.org*



# Programme News

*WHO, UNICEF and SCN meeting conclusion:  
severely malnourished children can be successfully  
treated at community level*

**INTER-  
AGENCY**

Severe malnutrition, traditionally defined by weight for height less than 70% or -3 Z-scores of the median NCHS/WHO reference or presence of visible severe wasting or of oedema (kwashiorkor), is common not only during food crisis. It is also true to a larger extent in poor countries where many families have limited access to nutrient-rich foods and where childhood infections and poor feeding practices are common (Gross and Webb 2006). It is estimated globally that about 10 million children suffer from severe malnutrition.

The lives of severely malnourished children are at high risk. The prevailing recommendation is to admit such children to hospital or to a specialized therapeutic feeding centre, to treat associated medical complications and to feed them highly fortified milk-based diets. This facility-based approach is efficacious, but in most poor countries, many severely malnourished children never reach a health facility and hence they remain unnoticed and untreated. The facility-based approach also requires that malnourished children and their caretakers stay in the health facilities for several weeks. This is quite disruptive for the rest of the family and often represents another major barrier to treatment.

Several recent studies have suggested that it is possible to treat severely malnourished children, without medical complications, at home by feeding them ready-to-use therapeutic foods (RUTF) instead of referring them to hospital or specialized feeding centres. In contrast to milk-based therapeutic diets, these foods do not contain water, thus preventing bacteria growth if accidentally contaminated. Hence, RUTF can be used at home, even if hygiene conditions are not perfect.

WHO, UNICEF and the UN System Standing Committee on Nutrition organized a meeting in Geneva in November 2005 to examine the implications of this new development for the management of severely malnourished children (WHO/UNICEF/SCN 2005). About 50 international experts and representatives from WFP, UNHCR, Red Cross, research and academic institutions, major international NGOs and representatives of Ministries of Health examined results from research as well as data collected in Malawi, Sudan, Ethiopia, Niger and Bangladesh.

The meeting concluded that:

- it is possible to manage a large proportion of severely malnourished children at home with RUTF instead of referring them to hospital or specialized feeding centres. Community-based management involves the treatment of the child at home with weekly or fortnightly visits to a clinic. This community-based approach entails early detection, provision of antibiotics for infections, and close follow-up, and can be used to treat large numbers of children with a very low case fatality rate.
- when families have access to some nutrient-rich foods, it is possible to successfully treat severely malnourished children at home with carefully designed mixtures of low cost family foods, together with a supplement of minerals and vitamins. However, further research is needed to assess the clinical effectiveness and the feasibility of this approach on a large scale.
- children from 6 to 59 months of age in need of therapeutic feeding can be easily identified in the community by field workers who are trained to use coloured plastic strips to measure mid-upper arm circumference (MUAC). A MUAC below 110 mm was identified as a valid cut-off point for selecting children in need of treatment in this age range.
- children needing hospital treatment can be recognized by trained field workers. They will present anorexia, massive oedema, or other complications, in particular, severe infections.
- provision of RUTF should be considered a priority in all food aid projects in countries with a high prevalence of severe malnutrition. The technology to produce RUTF can be easily transferred to countries for low-cost production, even where industrial capacity is limited.
- treatment of severe malnutrition should be provided free of charge as families of severely malnourished children are among the poorest.

This new approach for the identification and treatment of such children in the community can have a much larger public health impact than a facility-based approach alone. If implemented on a large

scale, it could prevent hundreds of thousands of child deaths annually and contribute to the achievement of MDG 1 and 4.

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**BIODIVERSITY**

***New initiative: Biodiversity for food and nutrition***

At its recent meeting in Curitiba, Brazil, the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) established a cross-cutting initiative on biodiversity for food and nutrition under the existing programme of work on agricultural biodiversity.

Biodiversity, in addition to sustaining food production, underpins dietary diversity, and plays a role in addressing the double burden of malnutrition. The new initiative aims to promote and improve the sustainable use of biodiversity in programmes contributing to food security and human nutrition, as a contribution to achieving the Millennium Development Goals (particularly target 2 of Goal 1 to halve the proportion of people suffering from hunger) and as a means of raising awareness on biodiversity's importance. Given the need to work at the intersection of agricultural biodiversity, nutrition, health and environment, the initiative advocates a multi-sectoral, multi-disciplinary approach to be applied from local to international scale.

The initiative on biodiversity for food and nutrition arises from a consultation process begun in 2004, following a request by COP that the Executive Secretary of the CBD develop options with the Food and Agriculture Organization of the United Nations (FAO) and the International Plant Genetic Resources Institute (IPGRI). In March 2005, these partners, together with the Brazilian Ministry of the Environment, organized a brainstorming consultation on the margins of the 32<sup>nd</sup> session of the UN Standing Committee on Nutrition and involving a number of SCN experts. Subsequent events—including an international consultation in Chennai, India, the first international Conference on Health and Biodiversity, the 28<sup>th</sup> session of the Codex Alimentarius Commission and the 18<sup>th</sup> International Congress of Nutrition—engaged a range of stakeholders. In February 2006, IPGRI, FAO and the CBD, with the support of Canada's International Development Research Centre, convened a stakeholder consultation involving 60 experts representing research and development partners from 25 countries, along with foundations and donor agencies. Together they further defined priority actions and resources for implementation, providing input to the decision taken at COP's eighth meeting.

The framework of the initiative (adopted by decision VIII/23 A) consists of four mutually supportive elements centred on Research, Policy, Conservation and Sustainable Use, and Public Awareness. Priority activities include building the evidence base for the links between dietary diversity and health, incorporating agricultural biodiversity and nutrition into existing national and international policy instruments, promoting biodiversity-friendly markets, and formulating campaigns to change behaviour among consumers.

The initiative will require considerable support, but the wider conservation and use of biodiversity promises to deliver significant benefits for health and nutrition, helping to meet the Millennium Development Goals.

For further information see [www.biodiv.org/food](http://www.biodiv.org/food)

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***International growth standard for preadolescent and adolescent children***

The United Nations University Food and Nutrition Programme is leading a global review of the feasibility of developing an international anthropometric standard for school-aged children. This activity is motivated by first, increasing worldwide prevalence of childhood obesity, second, perceived inadequacy of current standards of measurement, and third, desirability of harmonizing standards for school-age children with the basic approach undertaken most recently by WHO and UNU in developing standards for infants, toddlers, and preschool children. Partial funding for this activity was obtained from the United States Government. WHO and FAO joined the UNU in planning this inter-agency activity. A meeting of all authors and co-authors, hosted jointly by UNU, WHO, and FAO, took place in January 2006 to discuss the feasibility of a new Growth Standard. The project's 12 commissioned papers have been completed and peer-reviewed and will be published in the *Food and Nutrition Bulletin* in December 2006. It was agreed that a single international growth standard for preadolescent and adolescent children could be constructed with careful consideration of the population and individual selection criteria, study design, sample size, measurements, and statistical modeling of primary growth and secondary ancillary data.

***Harmonization of nutrient-based dietary standards***

The United Nations University Food and Nutrition Programme is leading a global review of potential approaches for harmonizing nutrient-based dietary standards. The importance of wholesome food supplies lead national governments to name expert groups at regular intervals to formulate and promulgate nutrient-based dietary standards. Unfortunately, unnecessary discrepancies arise among such efforts because there is no global consensus regarding approaches for the derivation of specific recommendations. These discrepancies create problems for health, trade, and other national and international authorities. Thus, it is difficult to resolve differences that arise in first, setting national and international nutrition standards and public and clinical health objectives, second, designing national and international food policies, and third, enhancing the transparency of the application of national standards to trade and other regulatory and normative activities with economic, health, and safety implications. Resolution of these differences is most problematic for developing countries who most often sift through disparate recommendations without the infrastructures that are available in more developed economies. UNU has commissioned, received drafts, reviewed and nearly finalized ten state-of-the-art papers related to the harmonization of present approaches. The completed papers were used as the core documentation for a jointly planned UNU/FAO/WHO consultation sponsored by UNU and the EC, held in Florence, Italy in December 2005. The completed manuscripts will be published in the *Food and Nutrition Bulletin* in early 2007.

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## **SCN ENDORSES THE NEW WHO GROWTH STANDARDS FOR INFANTS AND YOUNG CHILDREN**

The Standing Committee on Nutrition of the United Nations System (SCN) welcomes and endorses the long-awaited WHO Child Growth Standards, released on April 27, 2006.

For the first time, the new WHO Child Growth Standards provide an effective tool for detecting undernutrition, overweight and obesity in children in all countries of the world, thus addressing the double burden of malnutrition that is increasingly affecting populations on a global basis. The new growth standards demonstrate that children born in different regions of the world, and given an optimum start in life, have the potential to grow and develop within the same range of height and weight for age. These growth standards are based on a careful long-term study of infants and children from Africa, Asia, Europe, Latin America, and North America. These children were fed according to accepted international nutritional standards, and their mothers were adequately nourished and avoided known adverse factors such as tobacco exposure.

Growth charts based on the new WHO Child Growth Standards will differ from any existing growth charts in a number of innovative ways. For the first time they will describe “how children should grow,” which is a prescriptive approach, not just a descriptive one. These standards show that all children across all regions can attain a similar standard of height and weight and development with adequate feeding practices, good healthcare and a healthy environment. It is, then, a more proactive way of measuring and evaluating child growth, setting out normative conditions and evaluating children and populations against that standard. As such, a key characteristic of the new standard is that it establishes breastfeeding as the biological “norm” and the breastfed infant as the standard for measuring healthy growth. Previous reference charts were based on the growth of a mixture of breastfed and artificially-fed children. Furthermore, the pooled sample from the six participating countries allows the development of a truly international standard, in contrast to the previous international reference based on children from a single country. The development for the first time of standardized Body Mass Index (BMI) charts for infants to five years of age is a major innovation in assessing healthy weight growth of children. Additionally, the development of Windows of Achievement for six key motor development milestones will provide a unique link between physical growth and motor development.

The SCN is fully committed to supporting and promoting the adoption of the new WHO Child Growth Standards globally. The growth standards establish guidelines for the healthy growth and development of all infants and young children in all countries. They also provide support for good general mother and child health care practices such as immunization, sound nutrition (starting with exclusive breastfeeding for the first six months of life), and adequate pre- and post-natal care for mothers (including good nutrition and avoidance of tobacco). The new Growth Standards provide further support for the promotion of internationally recognized infant and young child feeding recommendations: exclusive breastfeeding for the first six months of life, thereafter the introduction of adequate complementary foods while breastfeeding is continued to two years and beyond. The growth standards will be widely used as a tool in public health, public nutrition, medicine and by governmental and health organizations for monitoring the well-being of children and for detecting children or populations not growing properly or who are under- or overweight, requiring specific health and nutrition responses. The SCN will promote the new growth standards in all of the activities carried out under its mandate, in order to achieve its vision of a world free from hunger and malnutrition.

Many SCN members collaborated in and supported the realization of the Multi Centre Growth Study led by WHO. The project was supported financially by the Governments of Brazil, the Netherlands, Norway, Oman, and USA, and the Bill & Melinda Gates Foundation. Many other governments, non-governmental organizations and UN agencies, and in particular the United Nations University and UNICEF actively collaborated in its realization. Further information on the study and on the new WHO Growth Standards for Infants and Young Children can be obtained at the WHO website ([www.who.int/nutrition](http://www.who.int/nutrition)).



# Speakers' Corner

## OBESITY AT ADOLESCENCE

### PREVENTION IS TIMELY EVEN IN LOW INCOME COUNTRIES

Hélène Delisle

TRANSNUT (WHO Collaborating Centre on Nutrition Changes and Development) and

Department of Nutrition, University of Montreal

Irene Strychar

Professor and member of TRANSNUT

#### *Introduction*

In general, adolescents have received little health and nutrition attention (Kennedy Elder 2004) when compared to younger children and adults, except for issues of reproductive health. However, there are adolescent-specific priorities, with one undoubtedly being the prevention of obesity and its associated risk of chronic diseases, which are on the rise even in low income countries. This has led the World Health Assembly to adopt, in 2004, the WHO Global Strategy on Diet, Physical Activity and Health. The World Youth Report 2003 (United Nations 2004) refers to chronic diseases associated with lifestyles—such as obesity, cardiovascular disease and the early onset of type 2 diabetes—among health issues facing youth today. The common belief that obesity is mainly a problem of the wealthy is giving way, as chronic diseases can no longer be associated only with affluence (Ezzati et al. 2005). The period of adolescence may represent a window of opportunity to shape and consolidate healthy eating and lifestyle behaviours, so as to prevent obesity and other nutrition-related chronic diseases.

The transition from childhood to adulthood may extend over variable periods of time, and it may not even be perceived in some cultures. Adolescents are not a homogeneous group—there are wide variations in development, maturity and lifestyle, even within a given culture. Caution is, therefore, needed before drawing conclusions about problems and approaches.

#### *The obesity pandemic*

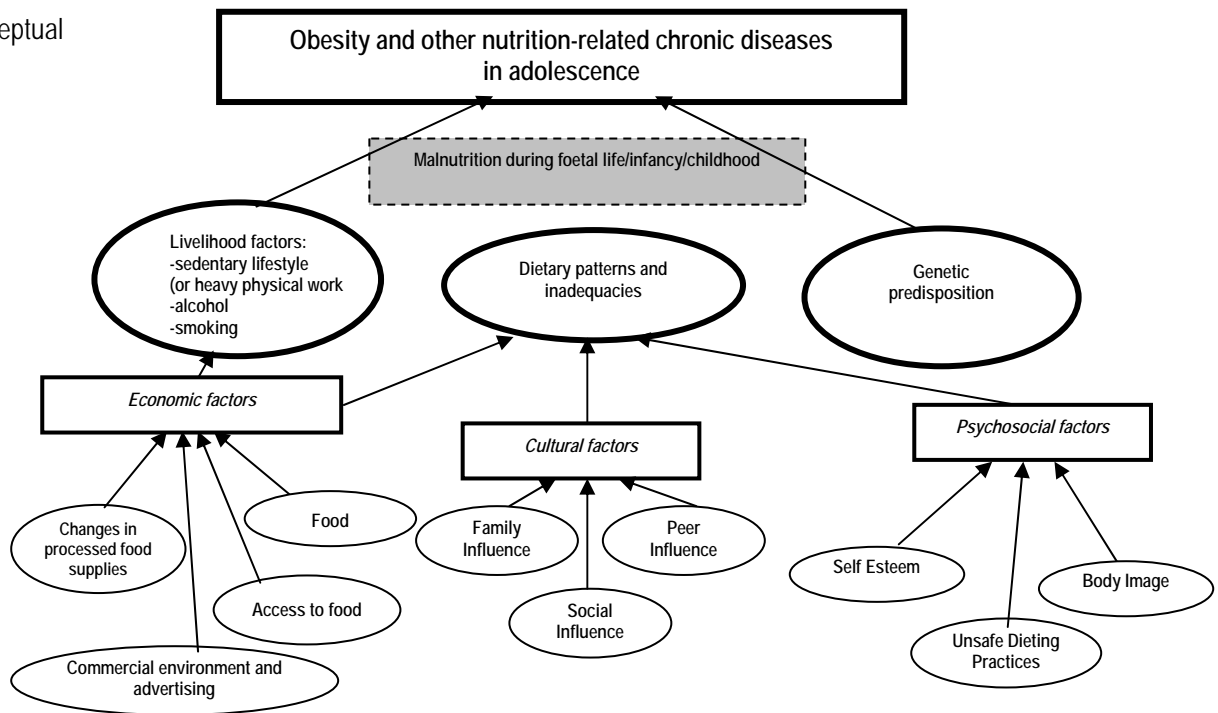
Obesity has become a pandemic, and is now recognized as a public health problem (WHO 2000, 2002, 2005). Yet, there are still very little data on obesity worldwide, particularly in developing countries. Based on national cross-sectional data collected in 36 developing countries over the last decade, it was concluded that among young women, the rate of overweight now exceeds that of underweight (Mendez et al, 2005). The determinants of obesity in adolescence are not well identified, and in the absence of consistent cut-off points and reference values for anthropometric indicators of obesity in this age group, comparisons are difficult to make. There is, however, a growing consensus in the scientific community (Wang 2004) to use the International Obesity Task Force (IOTF) definition based on BMI (Body Mass Index) cut-off points obtained from six national cross-sectional surveys on growth in Brazil, Great Britain, Hong Kong, the Netherlands, and the United States (Cole et al. 2000). In the United States, the 2000 CDC (Centers for Disease Control) Growth Charts are used to define obesity among children 2-18 years of age; the obesity cut-off is the 95<sup>th</sup> percentile, with another cut-off for overweight at the 85<sup>th</sup> percentile (Institute of Medicine 2005).

Despite the fact that different countries use different criteria to define obesity, there are nevertheless some global trends that require immediate attention. In the United States, an estimated 15.5% of adolescents were obese in 1999 (NCHS 2005). Yet, the problem is not limited to developed countries, with high or increasing rates of overweight and obesity in children and adolescents being reported in countries in all developing regions (Abalkhail 2002; WHO 2000, 2005; Sidhu et al. 2005; Labadarios et al, 2005). In China, for instance, problems of overweight associated with urban living, high income, and adolescence are emerging (Wang et al. 1998). PAHO/WHO (2003) states that the problem of obesity among children in Chile, Mexico, and Peru is alarming. Globally, it is estimated that approximately 10% of all children and adolescents are overweight or obese (WHO 2005).

Changing diets and decreasing physical activity explain the increasing prevalence of obesity. In some cultures, the fact that overweight is socially desirable may be an additional factor. Socio-cultural restrictions to adolescent girls' mobility may also contribute to lack of physical activity. Furthermore, foetal and early infancy malnutrition, as evidenced by low birthweight and failure to thrive in the first years of



Figure 1 Conceptual framework



life, may be additional risk factors for obesity and associated co-morbidity later in life, as emphasized in a recent international workshop (Delisle 2005). Adolescents who were small at birth tended to put on more than normal amounts of weight during their periods of growth (Léger & Czernichow 1999). In Senegal, girls whose growth had been stunted between 6-18 months, showed a tendency at adolescence to accumulate more upper-body subcutaneous fat compared with non-stunted girls; in addition to remaining shorter at adolescence (Bénéfice et al. 2001a).

Obesity in adolescence is an issue because it tends to persist into adulthood (Freedman et al. 2005). Some 80% of children who were obese at 10-14 years and who had at least one obese parent remained obese as adults (Whitaker et al. 1997). Abdominal obesity (high waist-hip ratio or high-waist circumference) is already associated with adverse blood-lipid profiles in adolescents, as shown in the longitudinal study of Bogalusa (Freedman et al. 1999a, b). The incidence of type 2 diabetes, previously seen primarily in adults, is now a more frequent occurrence among obese adolescents (Woodward-Lopez et al. 2005).

Obesity also imposes a heavy health and social burden, and it is widely recognized that treatment is not only costly, but remarkably ineffective (WHO 2000). Weight-loss maintenance ranges only from 2% to 30%; but obesity reduction programmes appear to be more successful in adolescents than in adults (Douketis et al 1999). Prevention, therefore, is crucial and adolescents should be a priority target in developing countries, particularly in urban settings, where the nutrition transition is fuelled by urbanization and globalization.

### *Adolescents' eating and lifestyle patterns*

Adolescents' eating habits are frequently erratic, a common factor of nutritional risk, irrespective of the setting. When there are no major economic or food security constraints, food choices are primarily determined by cultural factors. Personal preferences take precedence over eating habits learned at home as adolescents progressively take control over what they eat, and where and how they eat (Shepherd & Denison 1996). The following features are quite typical of adolescents and have a bearing on diets: search for identity; struggle for independence from parental control and acceptance by peers; concern about appearance; susceptibility to commercial and peer pressure; and limited concern about health (Spear 1996). Some questionable dietary habits appear to be quite common among adolescents, at least in industrialized countries, including: snacking (usually on energy-dense foods), skipping meals (particularly breakfast) or irregular meals, high consumption of fast food and sweetened drinks, low consumption of fruits, vegetables and of dairy products in some instances, and faulty dieting practices among girls (Cavadani et al. 1999; Douch et al. 1995; Nowak & Speare 1996; Neumark-Sztainer et al. 1998; Ludwig et al 2001). Even in developing countries, particularly in cities, some of these patterns are likely to be common among adolescents, but little information is available. In Nepal, a study among school children revealed that 'fast food' (ready-to-eat snacks, chips, etc.) were preferred by more than two-thirds of those surveyed, and that advertising influenced preferences among 80% of them (Sharma 1998). Ado-



lescents may be seen as 'early adopters' of new products or ideas, considering the overwhelming influence that the media can have upon them (Strasberger & Donnerstein 1999).

In many industrialized countries, eating disturbances and disorders have led to chronic illness among adolescent girls. Anorexia and bulimia are only the extreme end of a broad spectrum of disordered eating. Such disorders are still rare in areas where obesity is not widespread or stigmatised by society (WHO 2000), but they tend to increase with "westernization" and media exposure in developing countries (Littlewood 2004). Many theories have been proposed to explain the relationship between body-image disturbances and eating disorders, but it is widely accepted that socio-cultural factors, including the media, have the strongest influence (Heinberg et al. 1996; Andrist 2003). As part of nutrition promotion and obesity prevention, it is therefore important to encourage the development of a positive body image and self-esteem among adolescents, as will be further discussed.

It is noteworthy that healthy eating and other healthy behaviour are often closely related. Conversely, alcohol consumption, smoking, lack of physical activity, over-eating, and poor dietary choices tend to cluster (Milligan et al. 1997). Amounts of physical activity is an example of how widely varied adolescent nutrition-related problems can be. For example, in high-income societies, physical activity tends to diminish during adolescence, particularly among girls (Dinger & Waigandt 1997). In contrast, in poorer countries, adolescent boys and girls may be expected to engage in heavy physical work many hours a day, as observed, in Malawi and Senegal (Fazio-Tirrozzo et al. 1998; Bénéfice et al. 2001b). This impinges on energy requirements and also possibly on weight status. While working may impose intense physical activity and energy demands among poor rural adolescents, sedentary lifestyles are increasing with urbanization, even in low-income countries. Eating and lifestyle patterns that can affect nutritional status of adolescents are summarized in Figure 1.

### ***Strategies for obesity prevention in adolescents***

The importance of preventing obesity among adolescents is globally relevant. In developed countries, and in an increasing number of developing countries, the occurrence of obesity along with other chronic diseases is observed among lower income population groups (WHO 2000; Oliver & Hayes 2005). Yet, high-risk behaviour leading to obesity tends to first occur among those socio-economic groups with time and money to consume processed foods, and use motorized transportation, tobacco and alcohol. As such items become more widely accessible, these risks spread to poorer groups.

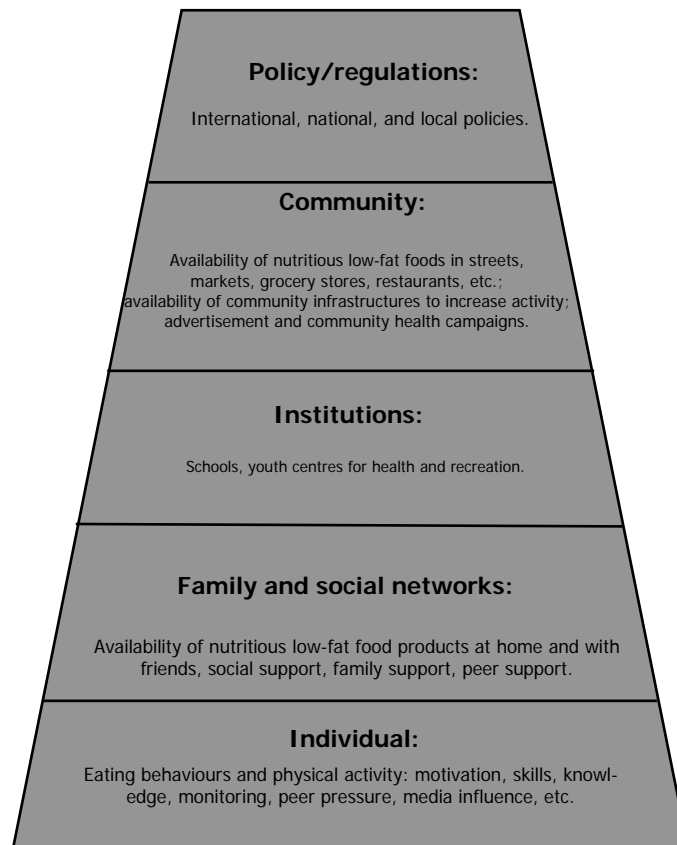
The health promotion approach, which act on the determinants of health and aims at empowering people to assume responsibility for their own well-being, is particularly appropriate for addressing obesity prevention in adolescents. There is evidence that among adolescents in particular, programmes are more effective when they deal with multiple-health and development issues (Kurz & Johnson-Welch 1994). An ecological approach coupled with a life course perspective, may be a useful framework for adolescent obesity prevention (Institute of Medicine 2005; Wethington 2005; Heart and Stroke Foundation 2005). Various factors, including culture, family and peers are taken into consideration (Bandura 1986), which may influence actions and change at various levels (individual, family, social networks, institutions, community, and policy/regulations). Adolescent transitions (changes in social roles, evolving changes in personal responsibilities and/or circumstances) and social influences, can all positively or negatively affect change. Examples of actions that could be taken are outlined in Figure 2 (next page).

Understanding how adolescents themselves view health-related concerns, such as obesity, is central to developing of an effective strategy. The use of a mix of models and approaches appears promising. Among others, the life events approach, used to explain adolescents' perception of health, may also provide insights for nutrition-promotion strategies (Cordonnier 1995) considering that future health risks are usually beyond adolescents' time perspective (Contento et al 1992). A review of 14 interventions for obesity prevention in childhood concluded that nutritional education and promotion of physical activity together with behaviour modification, reduction of sedentary activities, and the involvement of the family, could be part of programme effectiveness (Bautista-Castaño et al 2004). Linking behavioural change with reduced long-term health risks does not appear to be very rewarding; on the other hand, a focus on overall well-being, resulting from healthful behaviour, is more likely to have a positive effect. It is not easy to modify eating and lifestyle patterns of adolescents, particularly in industrialized societies (McGill & McMahon, 2003); however, it may be more feasible in developing countries where the environment is less conducive to overeating and physical inactivity. Hence, social marketing techniques may be particularly effective with adolescents, considering their tastes (and preferred target) for commercial advertising (Kotler & Roberto 1989; Wodarski et al 1996).

Primary prevention of obesity is essentially the promotion of healthy eating and physical activity. Improving access to high nutritional quality foods and enhancing control by adolescents over their food resources, should become major components of a supportive environment (Chauliac et al. 1996). Obe-



Figure 2 Actions for change in obesity prevention among adolescents



sity has to be regarded as an environmental, as well as a behavioural issue, both being closely linked. Strengthening adolescents' skills for adopting healthy lifestyles and eating habits is also central. Self-esteem as a means of resisting adverse influences would need to be strengthened. Programmes will need to address location-specific issues, along with availability of resources, but some generic nutrition messages are applicable in many settings for promoting healthy eating and preventing chronic diseases. Prevention messages should emphasize the benefits of food variety, the consumption of fruits, vegetables and other sources of fibre, as well as moderation of saturated fat (as well as avoidance of *trans* fatty acids). Food-based dietary guidelines are useful in nutrition education (WHO 1998), and, where available, will assist teachers and health workers in their nutrition-promoting activities. Specific dietary advice for the prevention of obesity may include sensible snacking, avoiding unsafe dieting practices and skipping meals, and moderate consumption of sweetened beverages. Encouraging physical activity requires particular emphasis (Calderon et al. 2005).

Schools are an important milieu to reach adolescents. WHO's 'health promoting schools' programme (WHO 1996) provides an appropriate model for enhancing nutrition among adolescents who are in school. Schools provide a wealth of opportunities to improve nutrition: through curriculum content, gardening, cooking and eating (Hall & Bundy 1998), through environmental changes aimed at offering healthier food products and providing infrastructure to improve physical activity levels, and through adolescent-teacher-parent interactions. School-health and nutrition programmes can have practical benefits, can be implemented at low cost, and teachers can be trained to play important roles in this (Schucksmith & Hendry 1998). Documented evidence of their impact, particularly upon young people, is accumulating (WHO 1998; Gortmaker et al 1999).

In situations of eating disturbances, strengthening self-esteem, promoting a positive body image and weight management programmes in school environments can be highly pertinent at adolescence, particularly for girls (Boachie & Grewal 2005) (McVey et al. 2004). Prevention of eating disturbances should target: feelings of being unattractive, critical thinking about socio-cultural and peer pressures, understanding physical development, and improved knowledge and skills for healthy eating and weight management (Rosen & Neumark-Sztainer 1998). Ideally, these should be combined with opportunities for healthy eating in school.

The school may also serve to monitor BMI, through the systematic--perhaps yearly--measuring of weight and height. Those students found to be above the selected BMI cut-offs, as well as those who begin crossing BMI centiles without necessarily being overweight (Baker et al. 2005), could be referred to health services for personal guidance. Adolescents with unsafe dieting practices or those with a fam-





ily history of diabetes or cardiovascular disease should get individual support and closer monitoring in weight reduction/maintenance.

Assessment of obesity is essential, and there is a dire need for improved techniques adapted to working with adolescents. Nonetheless, existing height and BMI reference data (Cole et al 2000) are useful. At the individual level, obesity needs to be confirmed with skin-fold thickness or waist circumference measurements, as high BMI may not necessarily correspond to obesity (Dietz & Robinson 1998). Nutritional assessment also involves dietary assessment, which is all too often by-passed as unnecessary or too complex at population or individual levels. Simple dietary quality indices may be developed or adapted from existing tools (WHO 1998). Dietary diversity, which is easily assessed, can be a reliable indicator of diet quality (Ruel 2002). At minimum, fruit, vegetables and fat intake should be assessed (Kumanyika et al. 2002). In high-risk adolescents, there should be a systematic dietary enquiry covering meal and food intake patterns, eating venues, access to food (food security), perceptions of food, body weight, physical activity and relevant community resources.

### Conclusions

Dietary and lifestyle changes typical of nutrition transition, have increased obesity among adolescents in several developing countries. The period of adolescence provides a window of opportunity for effective interventions to encourage sound nutrition and to prevent obesity. Although it should be a priority worldwide, the prevention of obesity among adolescents is a challenging issue for several reasons, particularly in developing countries. Since health is not a major concern among youth at that age, linking efforts to affect behavioural change with those aimed at overall well-being, while at the same time using social marketing techniques, are promising strategies for adolescents. Adolescents are seldom seen as a priority group in nutrition interventions as they tend to be reasonably healthy. Furthermore, in low-income countries, obesity is often considered a problem of the affluent, although it is rapidly increasing in nearly all population groups, at least in cities. A paradigm shift is needed if any efforts to alter the myth that chronic diseases target only the rich (Ezzati et al. 2005). As a matter of fact, several developing countries are now faced with a double burden of malnutrition: persistent undernutrition combined with increasing rates of nutrition-related chronic diseases, such as obesity. The challenge is to simultaneously focus on nutritional deficiencies and imbalances by promoting diets that are both adequate and "prudent" so to prevent chronic diseases.

Nutrition promotion needs to be the pillar of an overall strategy to address adolescent obesity. Schools, in urban areas particularly, appear to be an important entry point assuming that those adolescents are at higher risk of obesity and are more likely to be attracted to Western lifestyles and values. Yet, there is little data on adolescent nutritional status, eating patterns, influencing factors, and on the impact of nutrition interventions in adolescence. A better understanding of these factors is needed to design education programmes aimed at the prevention of obesity and related morbidity risk. Furthermore, the feasibility of routine surveillance of weight and height in schools, including those of adolescents and younger children, merits being explored; still, appropriate anthropometric reference data for international use are lacking along with dietary enquiry tools specifically designed for adolescents. Finally, there is an urgent need for evaluation research on the processes and desired outcomes of school-based interventions in obesity prevention.

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### OUR ROLE AS NUTRITIONISTS IN THE CALL BY THE WORLD BANK TO PUT NUTRITION AT THE CENTRE OF DEVELOPMENT

Claudio Schuftan

Our colleagues at the World Bank (WB) are once again calling for nutrition to be mainstreamed in development work (World Bank 2006). While I could, once again, not disagree more with that, I consider myself a nutrition activist. As such, I try to have practical experiences influence theory, as well as use theoretical considerations in our practice. The idea I pursue is one in which progressive engagement on the right to food and nutrition should lead to an activism in which profession, compassion and political solidarity become one and the same. If there are no bearings, we just go in circles. As the WB document says, we need to build up our capacity as activists to motivate others.

Apathy encourages stagnation in our work. It is necessary to transform apathy into activism and to consolidate gains and negotiate hard for better social conditions for those we purport to work for. It is visionaries who communicate their visions to others, the true hands-on practitioners.

Can we shift our attention from merely reaching the poor with nutrition interventions towards a deeper understanding of the issues of poverty and inequality and their underlying dynamics? What ultimately counts is our social and political accountability and our nutrition work in true partnership with the poor.

Part of it is explicitly recognizing that political processes and issues of power determine the content, direction and implementation of food and nutrition policies and programmes. Together with the marginalized and poor, as nutrition activists and from our respective professions, we can be strong political players instead of implicitly protecting narrow group interests through our work under the wings of governments, industry and international agencies that are often unmindful of the real interests of the poor—despite their public statements to the contrary.

It is ultimately our networked power that will achieve higher levels of emancipation towards eventually reversing violations of the right to food and nutrition in all domains. Does the WB document also mean/intend this?

Keep in mind that processes are occurring every day that make people poor. So, it is legitimate to ask, “Where is the end of ‘survival’ and where is the beginning of ‘living’? Poverty changes people’s incentives and the constraints under which they operate; it results in a chronic sense of helplessness. The poor are excluded from a share of their nation’s resources. That is why, to end protein-energy malnutrition, the distribution of wealth is as important, if not more, as its creation.

People experience poverty and the violation of their right to food and nutrition differently according to their gender, age, caste, class and ethnicity. For us in nutrition work, poverty is to be seen as multi-dimensional, related to powerlessness, to exclusion, to exploitation, victimization and violence. It is also related to migration, forced displacement, rising urbanization and loss of livelihoods. Does this coincide with how the WB document sees it?

Let’s face it: much of our work, especially in micronutrition, has become a ‘nutrition repair industry’ of the damage done by poverty. A sustainable approach to poverty reduction is complex and requires three types of measures to ensure: a) that the ‘improving poor’ continue to improve; b) that the ‘coping poor’ graduate out of their precarious state; and c) that the ‘declining poor’ have an opportunity to reverse their condition. How much of this do we do in our nutrition work?

Poverty which is forced on individuals and families who have no other choice is unequivocally linked to injustice—and potentially to rebellion. It represents a denial of human rights on a massive scale. Should this fact not make a difference in our day-to-day work? And does the new WB document calling for nutrition to be placed more at the centre of development see it anywhere near the same way?

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## HOLDING BIG FOOD COMPANIES ACCOUNTABLE TO THEIR HEALTH ROLE

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Are the world's powerful food companies being as diligent as they might be in helping tackle the world's burden of diet-related ill-health? In May 2004, the 57<sup>th</sup> World Health Assembly made history in agreeing the Global Strategy on Diet, Physical Activity and Health (DPAS). Although not as strong as some wanted, with Resolution 57.17, governments at last shared a commitment to prevention.<sup>1</sup>

DPAS asked companies, as 'stakeholders', to commit themselves to actions to promote healthy diets and physical activity in accordance with national guidelines and international standards. But how can company performance be audited? Such an exercise is complex for those companies that operate on the scale of world markets annually worth £1.8 trillions. The marketing budget alone of McDonalds, for instance, (and of Coca-Cola) nearly equals the entire biennial budget of the WHO for all health matters.<sup>2</sup> These companies are powerful entities in shaping the context within which food choice occurs.

At the national level, the UK's National Consumer Council has developed a Health Responsibility Index but applied it to retailers only. Two banks, concerned about food manufacturers' exposure to litigation for causing obesity by marketing and offering an 'unhealthy' products, have conducted studies of European food processors.<sup>3</sup> J P Morgan's recent report is the best to date.<sup>5</sup>

At City University, London, we set out to try to develop a more truly global methodology.<sup>6</sup> Borrowing methods first developed in environmental auditing, our study reviewed companies' own statements on DPAS-related matters. The 28 questions ranged from whether health criteria were featured in research and development budgets to whether there was a stated policy on marketing, in general, and with regard to children in particular. It also sought information on the core WHO 2004 requests to lower fat, trans-fat, sugar, salt, and portion sizes. Company annual reports, accounts, Corporate Social Responsibility reports, and main headquarter websites were searched from July-October 2005 for the global top ten food manufacturers, ten food retailers and five foodservice (two contract and three fast-food catering) companies.

Company performance was mixed, with retailers the worst performing sector. Companies most under public scrutiny in their home markets—such as McDonalds or Pepsico in the USA and Cadbury Schweppes in the UK—reported, in fact, beginning to address health issues. But generally, company official statements were too often characterized by vague statements rather than tight, verifiable Key Performance Indicators. Only six of the 25 companies reported they had a designated board or high-level director responsible for health. Only four had a statement on advertising (mostly an 'off-the-shelf' policy from an industry think-tank) and only six had one on the sensitive issue of marketing directed at children. Ten reported commitments on lowering salt, and eight on reducing transfats, but only five on reducing sugar, four on fats and just two on portion sizes. Eleven out of 25 had statements on labelling policy.

Findings include:

- Only six of the 25 companies reported they had a designated board or high-level director responsible for health issues.
- Only four of the ten manufacturers and three of the ten retailers, but three of the five foodservice companies, referred to health in their statements of purpose and values or Corporate Social Responsibility.
- Ten reported commitments on lowering salt, and eight on reducing transfats, but only five on reducing sugar, four on fats and just two on portion sizes.
- Only four companies gave a statement on advertising (mostly an 'off-the-shelf' policy from an industry think-tank) and only six on the sensitive issue of marketing directed at children.
- Eleven out of 25 had statements on labelling policy.
- Only six companies provided any figures on research and development spending.

Judging by parameters, the world's top food companies have a long way to go before they can be deemed fully engaged. The full City University report is available on:

[www.city.ac.uk/citynews/archive/2006/04\\_april/04042006.html](http://www.city.ac.uk/citynews/archive/2006/04_april/04042006.html)



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## **THE DOUBLE BURDEN OF MALNUTRITION: THE ROLE OF MATERNAL AND CHILD HEALTH CLINICS**

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The importance of maternal weight gain during pregnancy and weight maintenance during the lactation period and its influences on foetal and infant growth and development has been well documented. In developing countries, assessment of maternal weight gain during pregnancy is often hampered by late attendance or non-attendance at the maternal and child health clinics (MCH). Maternal weight during the lactation period is also routinely assessed, but with less emphasis on outcomes. Growth assessment is useful in defining the health and nutritional status of children and is meant to detect growth faltering, failure to thrive, excessive growth, and the impact of different feeding methods. The focus in developing countries is on underweight without much attention to overweight, which is a slowly developing problem.

A nutritional status assessment was done in the MCH clinic at the Provincial General Hospital (Nakuru, Kenya) on mother-infant pairs after delivery. Infants were weighed immediately after birth and thereafter mother-infant pairs were weighed during immunization visits at 6, 10 and 14 weeks. Maternal height and infant length were measured once.

During the lactation period, 5.1% of the mothers were underweight and 25.3% were overweight to obese. 10.1% of the infants were of low birth weight (<2.5kg). When infant weight was converted to Z-scores (NCHS/WHO 1977), the results for weight-for-age at 6, 10 and 14 weeks were as follows: underweight at 2.9%, 2.2%, 5.1% and overweight at 4.3%, 3.9%, and 4.0% respectively. Stunting at 14 weeks was at 8.5% while wasting at 14 weeks was at 2.9% and overweight at 10.9%.

The results of this assessment of mothers and their infants in the MCH clinic clearly show the double burden of malnutrition in this community. Being underweight and overweight are concurrent in both mothers and infants raising the need for dual-focussed strategies for interventions taking into account the well-documented adverse effects of malnutrition on future health. Traditional practices of screening only for underweight infants should be refocused to include mothers and overweight in infants, as this is becoming a problem in developing countries. The MCH clinic is an important avenue to assess and intervene in the fight against the double burden of malnutrition in those countries.

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# Publications

## Understanding the Links Between Agriculture and Health

2020 Focus Brief

Edited by Corinna Hawkes and Marie Ruel

International Food Policy Research Institute

Good health and productive agriculture are both essential in the fight against poverty. Agriculture and health interact, presenting both risks and opportunities for the poor. To highlight these interactions, IFPRI's 2020 Vision for Food, Agriculture, and the Environment programme has released a new set of briefs: "Understanding the links between agriculture and health," edited by Corinna Hawkes and Marie Ruel. The 16 briefs deal with the key health issues linked with agriculture, specific agricultural systems or practices that affect health, and the policy issues affecting their interaction. The briefs bring together the breadth of evidence available on the linkages between agricultural producers, systems and outputs, and a wide array of health conditions, including nutrition, malaria, HIV/AIDS, occupational health hazards and foodborne diseases. The agricultural systems covered are livestock and fish production, urban agriculture, agrobiodiversity and agroforestry. Also highlighted is the key role of technology and the natural environment. The briefs are set within a conceptual framework explaining how these different aspects are linked, and also present an historical overview of how the links have changed over time.



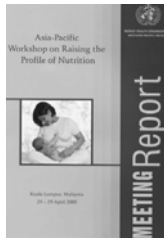
The briefs show that the linkages between agriculture and health are bidirectional; agriculture affects health and health, in turn, affects agriculture. The process of agricultural production and the outputs generated can contribute to both good and poor health, among producers as well as the wider population; in the other direction, the occurrence of these health conditions has significant implications for agriculture: in the general population, the prevalence of malnutrition and disease influences market demand for agricultural products, while in agricultural communities, workers in poor health are less productive, a situation that fosters a downward spiral into further ill health and poverty.

As in the case of HIV/AIDS, the disease affects agriculture because it reduces the resources households are able to devote to agricultural production. Agriculture can also affect the dynamics of HIV/AIDS since poor women, unable to maintain a livelihood through farming, may resort to transactional sex, increasing risk of infection. Similarly, agroforestry can contribute to rural food and health systems and help buffer households against health and nutrition shocks. Yet households suffering the effects of chronic illness or death are less likely to adopt agroforestry practices due to delayed payoffs and high management demands.

The briefs examine the trade-offs between agricultural practices and health. Food produced through urban and peri-urban agriculture, for example, provides the urban poor with a significant amount of their required nutrients. However, these much needed nutrients come at the expense of increased health risks if biological waste is used in an inappropriate way when fertilizing crops.

The briefs address these complexities by setting out some of the approaches needed to create improved synergies between the agricultural and health sectors. But they also recognize the challenges in bringing the sectors closer together in the policy-making process—challenges that now present barriers to opportunities to address poverty. This can and should change; the briefs make it clear that there is real potential for effective agricultural interventions, backed up by sound policy, to promote health, and for the health sector to take actions leading to greater agricultural productivity and demand for agricultural outputs, thus increasing national and local capacity to promote good health.

To download or order hard copies go to [www.ifpri.org/2020/focus/focus13.asp](http://www.ifpri.org/2020/focus/focus13.asp)



**Asia-Pacific Workshop on Raising the Profile of Nutrition**  
World Health Organization  
2005, 33pp  
[www.who.int](http://www.who.int)

This meeting report summarizes a 5 day workshop on advocacy and communication for improved nutrition in the Asia-Pacific region. The workshop was organized by the WHO Regional Office for Western Pacific, in collaboration with the WHO Regional Office for South-East Asia, UNICEF Regional Office for East Asia and the Pacific, the University Putra Malaysia, the Ministry of Health of Malaysia, the International Nutrition Foundation, and the UN University. Participants from Bangladesh, Fiji, India, Malaysia, Mongolia and Vietnam gathered in Malaysia to learn about the use of Profiles, a process for nutrition policy analysis and advocacy. The workshop had 3 objectives: to identify the needs and challenges in improving nutrition; to discuss ways to strengthen advocacy and institutional capacity in nutrition, particularly by introducing the Profiles tool; and to outline next steps in increasing commitment to nutrition interventions in countries. The report introduces the background, objectives, organization, and participants and resource persons involved in the workshop. It summarizes the proceedings of the workshop and the participant evaluations. Then the report draws conclusions about obesity and overweight, national level follow-up, regional support for iron interventions, and greater technical coverage of Profiles modules.



**Corporate Africa's Nepad Business and Investment Guide 2006**  
Times Media Group Ltd.  
Issue 2006 Vol 2, 277pp  
[www.corporate-africa.com](http://www.corporate-africa.com)

This publication highlights the recent work and progress of the New Economic Partnership for African Development (NEPAD). NEPAD is a sustainable development initiative striving to achieve economic and social revitalization in Africa through constructive partnerships between Africa and the developed world. NEPAD is a pledge by African leaders that affirmatively demonstrates their shared commitment to eradicating poverty and facilitating sustainable development in their countries. NEPAD focuses on the adoption and implementation of approved policies, strategies and programmes and on strengthening political leadership to guarantee such implementation. The NEPAD Business and Investment Guide, published bi-annually, highlights relevant issues relating to regional political, social and business agendas, cross-border cooperation, anti-corruption measures, provisions for infrastructure, good health-care and education; clean water; and hope that persists despite the conflicts, diseases and poverty that continue to challenge Africa today. It considers these and other issues in a series of articles organized according to the following thematic areas: leaders, health, partners in development, economics, sports and leisure, industry, people and places, new economic vision, development organs and markets.



**Fighting an Old Battle in a New World: How IBFAN Monitors the Baby Food Market**  
Annelies Allain  
Development Dialogue  
2005, 123pp  
[ibfanpg@tm.net.my](mailto:ibfanpg@tm.net.my)

In her latest contribution to Development Dialogue, Annelies Allain continues to monitor and report on the progress of the International Baby Food Action Network (IBFAN). IBFAN is an NGO founded just over 25 years ago to monitor the ability and willingness of governments and companies to implement the International Code of Marketing of Breast Milk Substitutes ("The Code"). Every two or three years since the Code's adoption in 1981, IBFAN has published summary reports on how the Code has been implemented. With the latest edition (2004) showing that there is much work still to be done, the struggle continues. In this publication, Allain reflects on 25 years of IBFAN's work—on campaigning, on the successes and defeats, on the challenges that remain, and on the lessons to be learned.

**eHealth Tools & Services: Needs of the Member States**  
World Health Organization  
2006, 36pp  
[www.who.org](http://www.who.org)

WHO established the Global Observatory for eHealth (GOe) in early 2005. The Observatory seeks to improve global health by providing Member States with valuable information and guidance on effective practices, policies and standards in eHealth. And while eHealth is one of the fastest growing areas in health today, little systematic research has been done to guide eHealth policy and practice. In response to this information gap, the WHO and the GOe undertook the first global survey on eHealth. The survey dealt with seven key themes in the eHealth domain, one of which is the subject of this report. The survey tried to identify the current and most important needs of Member States relating to eHealth. The report summarized those identified needs, analyzed the results of the survey, and recommended that WHO take action in the following areas: provision of generic tools, access to existing tools, facilitating knowledge exchange, providing eHealth information, and education.





**Frontline Issues in  
Nutrition Assistance:  
Hunger Report 2006**

Bread for the World Institute  
2006, 196pp  
[www.bread.org](http://www.bread.org)

The Hunger Report highlights several major issues in nutrition assistance, such as food stamps, child nutrition programmes, understanding malnutrition, ending chronic hunger in the developing world, and acute hunger in emergencies. While some areas of the world have made real progress towards reducing and eliminating hunger, in many other areas hunger continues to rise. The report advocates for strengthening direct nutritional assistance to vulnerable groups as a way to make immediate progress towards fighting hunger, increasing knowledge and understanding about issues of hunger globally (including the United States), and utilizing that knowledge and understanding to be a voice for change and a source of action. The report concludes by empowering readers to get involved and make a difference in reducing poverty and hunger in the United States and internationally. It also briefly illustrates the US Government's responses to both

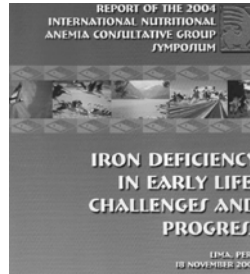
**Household Food Insecurity Access  
Scale for Measurement**

**of Food Access:  
Indicator Guide**  
FANTA

January 2006, 31pp  
[www.fantaproject.org](http://www.fantaproject.org)

FANTA published the Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide in February 2006. FANTA, in collaboration with Cornell and Tufts Universities, developed the HFIAS measure and guide with a standardized questionnaire and data collection and analysis instructions. There is strong demand among Title II food aid programme managers for a relatively simple, methodologically rigorous measure of household food insecurity—particularly the access component—that can be used to guide, monitor, and

evaluate programmes. In response to this demand, FANTA has attempted to identify a scientifically validated, simple, and user-friendly approach for measuring the impacts of Title II programmes on the access component of household food insecurity.



**Iron Deficiency in Early Life:  
Challenges and Progress**

Report of the 2004 International Nutritional Anemia Consultative Group Symposium INACG & USAID  
2005, 74pp  
<http://inacg.ilsii.org>

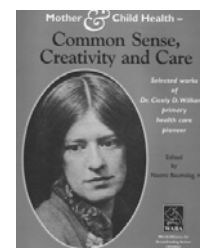
The International Nutritional Anemia Consultative Group works to reduce the prevalence of iron deficiency anemia and other nutritionally preventable anemias worldwide. To do this, INACG sponsors international meetings and scientific reviews and organizes task forces to analyze issues related to etiology, treatment, and prevention of nutritional anemias. This INACG symposium focused on advances in assessment, supplementation trials, child development, and programme implementation. The symposium addressed topics such as maternal nutritional status, fetal growth and iron status during infancy; the effects of iron-folate supplementation on mortality; the effects of iron supplementation on growth and development, and the implementation of various programming. The report summarizes the presentations given at the symposium and the open discussions that followed.



**Measuring and Interpreting  
Malnutrition and Mortality**

World Food Program  
2005, 231pp  
[www.wfp.org](http://www.wfp.org)

This manual is intended to provide guidance on issues pertaining to nutrition and mortality surveys, to standardize survey methodology used by WFP staff and other data collectors, and to standardize survey data interpretation and reporting. It aims to ensure that nutrition data collected by implementing partners and secondary sources conforms to WFP reporting needs, is reported more methodically, and is analyzed in a statistically suitable way. The manual addresses the following topics: defining and measuring malnutrition, defining and measuring mortality, designing a survey, using and interpreting survey results for decision-making, and considering ethical issues when conducting a survey and/or assessment. The final chapter in the manual provides an example of a good survey report. The report should serve as a reference guide and as a complement to current WFP Advanced Nutrition Training. It can also help prepare readers for framing questions and discussions with nutrition professionals.



**Mother and Child Health  
Common Sense, Creativity and Care**

Naomi Baumslag, MD, ed  
World Alliance for Breastfeeding Action  
2006, 178pp  
[www.waba.org.my](http://www.waba.org.my)

In celebration of WABA's 15 year anniversary, this book features the life, work, and philosophy of Dr Cicely D Williams, a primary health care pioneer particularly known for her dedication to maternal and child health. Dr Williams

was an internationally renowned 20<sup>th</sup> century paediatrician and a leading advocate of the breastfeeding movement. She is remembered for her valuable contributions to current knowledge about the practice of international child health. The foreword to the book suggests three characteristics that set Dr. Williams apart: (1) simplification and attention to detail—Williams believed that often simple solutions could yield the greatest results; (2) discover the obvious, or at least make it obvious to others—Williams knew that the key to health improvements came from within the community itself, especially the mothers; and (3) have reverence for life, and irreverence for institutional wisdom and established thinking—Williams felt that health improvements were too important to be left entirely up to the health establishment, and that practical answers could be found in many different political and social sectors if one could only take the time to look and listen. Dr Williams believed that the mother was the key to improving child and family health, and that communication, education, and information would empower women to better promote and protect their family's health. The experience and wisdom in her work and her writings continue to have relevance for today's healthcare practitioners and policy-makers.

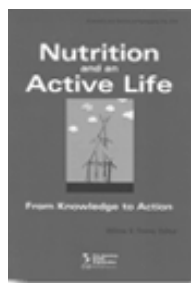


### **Nestlé Foundation Report 2005**

Nestlé Foundation  
2006, 60pp  
[www.nestlefoundation.org](http://www.nestlefoundation.org)

Report 2005 of the Nestlé Foundation for the study of problems of nutrition in the world reports on the Foundation's recent projects and activities in the fight against malnutrition. The Foundation supports and initiates research in human nutrition with public health relevance in developing countries, with a particular emphasis on macro- and micronutrient deficiencies and child nutrition. The 2005 report highlights the Foundation's enLINK Initiative, a project focusing on information transfer in the area of nutrition. The enLINK Initiative seeks to

"enlink," or connect, cultures, institutions, and local people to study and reduce the effects of malnutrition globally. To accomplish this, the Initiative advocates "enlinking" different strategies and approaches that address malnutrition at many levels, from medical and hygiene issues, to agricultural strategies, to improved education and information. The Report also covers new research projects in macronutrients, micronutrients, and child development, and features Vision 2005, which considers other timely issues related to malnutrition such as the double burden of malnutrition and obesity, malnutrition and malaria, and changing scientific literature.



### **Nutrition and an Active Life: From Knowledge to Action**

Pan American Health Organization  
2005, 247pp  
[www.paho.org](http://www.paho.org)

This publication, written by leading international public health professionals, highlights 13 case studies on a variety of topics including control of vitamin A deficiency, folic acid fortification of bread, control of iodine deficiency disorders, and the contribution of research to infant breast-feeding policies, as well as successful community projects to promote increased physical activity and the role of urban planning and public transportation in reducing the prevalence of sedentary lifestyles, among other important topics. Nutrition and an Active Life: From Knowledge to Action will become an important resource on best practices at the national and community levels for professionals working in health promotion, maternal and child health, nutrition, fitness, social marketing, and public health education. The editor, Dr Wilma B. Freire, PhD, collected these articles with the intention of offering information of successful experiences that can be applied elsewhere. The publication is in Eng-

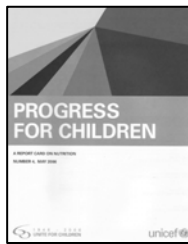
lish. A version in Spanish will be released in April 2006.



### **Nutrition: A Foundation for Development**

Farsi translation of the SCN's  
Development Briefs  
Translated by Reza Amani  
and Davoud Vahabzadeh  
2006, 127pp  
[www.unsystem.org/scn/](http://www.unsystem.org/scn/)

The international nutrition community has made great advances in understanding the root causes, effects and magnitude of global malnutrition and human suffering. However much work remains. Members of the international nutrition community recognize the need to better integrate their work with the work of its partners in development. Nutrition: A Foundation For Development is a compilation of briefs on of the latest research findings in nutrition as they relate to other development sectors. The briefs are designed to facilitate dialogue between nutrition and other development professionals. They are organized both as a complete set or as stand-alone briefs that make the case for integrating nutrition into the work of the development community. This informal Farsi translation by Reza Amani and Davoud Vahabzadeh has kindly been made available to the SCN for its Farsi readership. Dr Amani is Head, Department of Nutrition, Ahvaz Jundi-Shapour University of Medical Sciences, Davoud Vahabzadeh is an MSc student at the Ahvaz Jundi-Shapour University of Medical Sciences. They can be contacted through the SCN Secretariat ([scn@who.int](mailto:scn@who.int)). The Farsi translation can also be downloaded from the SCN website at [www.unsystem.org/scn/](http://www.unsystem.org/scn/)



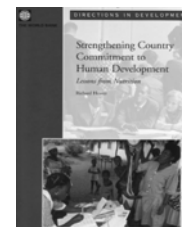
**Progress For Children:  
A Report Card on Nutrition**  
UNICEF  
Number 4, May 2006, 33pp  
[www.unicef.org](http://www.unicef.org)

Progress For Children: A Report Card on Nutrition is the 4<sup>th</sup> report in a UNICEF series that monitors progress for children towards the Millennium Development Goals (MDGs). The Report Card measures the world's performance on nutrition, using the prevalence of underweight among children under five as its primary indicator. The international community has pledged to halve the proportion of underweight children by 2015, but is still not on track to reach that target. The Report Card first presents an overview of nutrition as the foundation of survival and development: it introduces and defines the key issues and provides information on child nutrition, including information on other nutrition indicators and nutrition in emergencies. The Report Card then presents and analyzes regional and country data for South Asia, Eastern/Southern Africa, West/Central Africa, Middle East/North Africa, East Asia/Pacific, Latin America/Caribbean, Central and Eastern Europe and the Commonwealth of Independent States, and Industrialized Countries. The Report Card concludes with brief recommendations and a global call to action, urging efforts at the micro, meso, macro and global levels, as well as partnerships across all sectors of society.



**Protecting and Promoting Good  
Nutrition in Crisis and Recovery:  
Resource guide**  
Food and Agriculture Organization  
2005, 162pp  
[www.fao.org](http://www.fao.org)

The Food and Nutrition Division of FAO has prepared this book to complement the *Technical Handbook Series on FAO's Emergency Activities*. This book offers guidance to programme planners and technicians in the fields of nutrition, food security, agriculture and community and social development for adopting and implementing both short- and long-term strategies to combat household food insecurity and malnutrition during periods of crisis and recovery. During such periods, lack of access to adequate food can lead to widespread malnutrition. While temporary food distribution and supplementary feeding in the acute stages of crisis are common and necessary humanitarian interventions, this book also emphasizes the crucial role of longer-term assistance strategies which help communities transition from aid dependency to self-sustaining nutritional well-being. The book represents a compilation of publications, reports and documents related to experiences of crisis around the world. The book serves as a valuable resource guide for use in different working environments, countries and regions.



**Strengthening Country Commitment  
to Human Development:  
Lessons from Nutrition**  
The World Bank  
2005, 91pp  
[www.worldbank.org](http://www.worldbank.org)

The success of all human development programmes, including nutrition programmes, fundamentally depends upon the level of commitment of politicians, bureaucrats, and communities to implement such programmes in the short- and long-term. More precisely, the success of human development programmes depends on two key variables: adequate financial backing from countries and sustained commitment to programme implementation. This book proposes that the identifiable need to evaluate and strengthen country commitment should prompt the creation of a new field of systematic professional practice. It argues that the new field should require expertise in political and policy analysis, organizational behavior, and strategic communication. The book considers the following thematic concepts: commitment as a special problem in nutrition, defining commitment, assessing commitment to policies and programmes, commitment and strategic choices, strengthening commitment to investment, sustaining commitment through implementation, capacity building and commitment building, and finally, conclusions and recommendations. The book utilizes stories of successful and failed country programmes in nutrition to illustrate its concepts and to offer practical advice on evaluating and strengthening commitment across sectors, over the long-term.



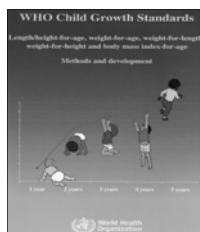
**The State of the World's Refugees: Human Displacement in the New Millennium**  
Oxford/UNHCR  
[www.oufp.com](http://www.oufp.com)  
[www.unhcr.org](http://www.unhcr.org)  
2006, 237pp

This publication focuses on issues of internal and cross-border displacement around the world occurring since 2000, the year the last edition of this series was published. While the total number of refugees in the world has declined in recent years, in many places protracted refugee crises persist, with no end in sight. In still other places, the number of internally displaced persons continues to rise. Policy-makers also struggle to respond to the complex issues of asylum and migration. This publication analyzes recent developments in displacement, refugee and asylum policy and practice, discusses practical and durable solutions to protracted refugee crises and examines responses to internal displacement. It also integrates country examples, maps, graphs and tables into the text.



**Vitamin A and the Common Agenda for Micronutrients**  
**Report of the XXII International Vitamin A Consultative Group Meeting**  
 IVACG & USAID  
 2005, 102pp  
<http://ivaag.ilsa.org>

The International Vitamin A Consultative Group (IVACG) works to reduce vitamin A deficiency in the world. IVACG attempts to stimulate and disseminate new knowledge in a way that enables others to understand it and apply it practically. It also provides policy statements and recommendations for use by others in programme development. This meeting aimed to advance the prevention of vitamin A and other micronutrient deficiencies, to improve understanding of the diversity of nutrient-nutrient and nutrient-disease interactions, and to consider how increased knowledge of these effects can be used to enhance the effectiveness and safety of micronutrient interventions. This report summarizes the first three days of proceedings and the official "IVACG Meeting." Some of the topics covered at the meeting are as follows: food-based approaches for controlling vitamin A deficiency, assessment, infection, maternal and newborn outcomes, multiple micronutrients, determinants of vitamin A deficiency, recent surveys, and topics relating to supplementation.



**WHO Child Growth Standards**  
**Methods and Development**  
 World Health Organization  
 2006, 312pp

A 1993 WHO review of the uses and interpretation of anthropometric references concluded that the NCHS/WHO growth reference, which had been recommended for international use since the late 1970s, did not sufficiently repre-

sent early childhood growth and that new growth references were needed. In response to this recommendation, the WHO Multicentre Growth Reference Study (MGRS) was undertaken and implemented between 1997 and 2003 to generate new growth and development curves for children around the world. The MGRS collected primary growth data and other information from several thousand healthy breastfed infants and young children from such diverse places as Brazil, Ghana, India, Norway, Oman and USA. This report presents the growth standards developed from the MGRS data. The report is designed to serve as a tool which captures the best description of physiological growth for children under five years of age. The MGRS was uniquely designed to produce a standard based on healthy children living under favourable conditions likely to foster their full genetic growth potential, such as breastfeeding. This report presents the first set of WHO Child Growth Standards and explains the methodology used to generate these standards. These standards include length/height-for-age standards, weight-for-age standards, weight-for-length and weight-for-height standards, and body mass index-for-age standards.



**WHO Child Growth Standards**  
**Acta Paediatrica, International Journal of Paediatrics**  
 Mercedes de Onis, Cutberto Garza, Adelheid W. Onyango & Reynaldo Martorell, eds.  
 Taylor & Francis Group  
 Vol 95, April 2006, Supplement 450,  
 104pp  
[www.tandf.no/paed](http://www.tandf.no/paed)

This supplement combines several papers which analyze the new WHO Child Growth Standards and related data (see above). The publication is divided into five sections: the first provides an overview of the MGRS sample statistics and baseline characteristics, the second describes the methods used to standardize the assessment of anthropometric measure-

ments and motor development assets, the third examines differences in linear growth and motor milestone achievement and considers the appropriateness of pooling data to create one international standard, the fourth reviews the methods used to construct the growth standards based on length/height, weight and age, and finally, the fifth examines the relationship between physical growth indicators and ages of achievement of major motor milestones used to develop the standards.



**The World Health Report 2006:**  
**Working Together for Health**  
 World Health Organization  
 2006, 302pp  
[www.who.int](http://www.who.int)

The World Health Report 2006: Working together for health focuses on assessing the current crisis facing the global health workforce and suggests ambitious strategies to start addressing this crisis over the next ten years. The report estimates that almost 60 countries globally faced shortages of nearly 4.3 million doctors, midwives, nurses, and support workers. The problem is most pronounced in some of the world's poorest countries, where medical staff is often urgently needed. Presently, the vast majority of the world's 59 million global health workers are concentrated in the Americas, where more than half the world's financial resources for health are also concentrated. Yet only four in every one hundred health workers are located in sub-Saharan Africa, which has a high proportion of the world's global burden of disease and less than one percent of the world's financial resources to fight these diseases. This report presents ways to better balance the world's health workforce, arguing that all countries can enhance workforce productivity through short- and long-term strategies. It proposes a 10 year action plan to help countries build their health workforces and strengthen their health systems through global partnerships—working together for health.

### *The Lancet Series*

Undernutrition underlies over 50% of child deaths throughout the world and is an important factor in child development, maternal health and adult productivity. As accelerated efforts are required to address global undernutrition, a group of public health scientists has come together to help provide an evidence-base for expanded nutrition-related programmes and interventions. The leading medical journal *The Lancet* has expressed interest in publishing the results of this group's work in a series of five papers on maternal and child undernutrition in 2007. It is anticipated that the series will provide new information on: the global burden, determinants and consequences of undernutrition, including both the short-term effects on mortality and disability and the long-term effects on chronic diseases in adulthood; the findings of a broad review of the evidence on the effectiveness and potential impact of nutrition-related interventions and policy options, and recommendations for action at national and international levels to reduce undernutrition and its adverse effects.

Work on the series began with a consultative meeting to provide a forum for a broad discussion of objectives and scope of the series and of plans for the review of evidence. It also began to engage the global food, nutrition and health communities to help work through the follow-up action needed to place nutrition-related interventions among the world's priorities. The series is being developed by writing teams for each of the five papers, involving specialists from the fields of nutrition, agriculture and public health from institutions such as: the Aga Khan University, Pakistan; Cornell University; Emory University; the Federal University of Pelotas, Brazil; the Institute for Nutrition and Food Technology, Chile; the Institute of Public Health, Mexico; the International Center for the Diarrheal Disease Research, Bangladesh; Johns Hopkins School of Public Health; the London School of Hygiene & Tropical Medicine; UNICEF; the University of California, Davis; the University of Natal, South Africa; WHO, the World Bank, and various other institutions.

The series will also undertake national consultations in a number of countries in Africa and Asia. The review of evidence and new analyses will involve many other individuals and it is intended that these be published in full in addition to their publication in *The Lancet* series. The drafts of the series papers will be reviewed by additional experts and will subsequently be subjected to *The Lancet's* peer-review process before acceptance for publication. *The Lancet* has indicated that it will announce shortly a call for submission of research papers on nutrition-related topics to be published around the same time as the series.

**We need your help to ensure the accuracy and relevance of this exercise.** Please complete our very short survey which you can locate online at: [www.surveymonkey.com/s.asp?u=486952084200](http://www.surveymonkey.com/s.asp?u=486952084200)

A link is also available from the SCN's webpage at: [www.unsystem.org/scn/](http://www.unsystem.org/scn/)

**Micronutrient Forum**  
***Consequences and Control of Micronutrient Deficiencies:***  
***Science, Policy, and Programs— Defining the Issues***  
**16–18 April 2007**  
**Istanbul, Turkey**

**CALL FOR ABSTRACTS**

The Micronutrient Forum will hold its first international meeting in Istanbul, Turkey on 16–18 April 2007. The theme of the meeting is “Consequences and Control of Micronutrient Deficiencies: Science, Policy, and Programs—Defining the Issues.”

The Micronutrient Forum builds on the success of the International Vitamin A Consultative Group (IVACG) and the International Nutritional Anemia Consultative Group (INACG), which were both established by the United States Agency for International Development (USAID) in 1975.

The Micronutrient Forum will serve as a stimulus for policy-relevant science and as the internationally recognized catalyst for moving the global community towards consensus around evidence-based policies and programmes that reduce micronutrient deficiencies around the globe.

Meeting participants are welcome from a wide diversity of relevant disciplines such as maternal and child health, nutrition, biochemistry, agriculture, horticulture, education, communications, and development. Participants are expected to include representatives from international agencies, national ministries, educational and research institutions, food and chemical industries, and non-governmental organizations.

Programme managers and researchers are encouraged to submit abstracts for oral and poster presentations describing **new** data on the topics that follow. Abstracts must pertain to the micronutrient deficiencies of primary interest to the Micronutrient Forum, namely **vitamin A, iron, folate, iodine, and/or zinc**.

- Defining “Deficiency Disorders”
- Systems for increasing multiple micronutrient status
- Health consequences of micronutrient deficiencies
- The relevance of micronutrient-micronutrient interactions on micronutrient intervention design
- Cost, coverage, sustainability, and impact of micronutrient intervention programs
- The science base needed for national policy formulation and programme commitment
- The interactions of micronutrients with infectious diseases
- Preference will be given to abstracts describing well-designed studies, providing new and potentially important findings with data that relate to the above topics.

**For more information and to submit your abstract go to: [www.a2zproject.org](http://www.a2zproject.org)**

**To submit your abstract directly go to:**

***<http://ilsi.conference-services.net/authorlogin.aspconferenceID=888&lan>***

**Abstracts must be received by 15 August 2006.**

The Micronutrient Forum is sponsored by the Micronutrient Forum and the Local Organizing Committee of the Ministry of Health of Turkey. The International Life Sciences Institute (ILSI) Research Foundation serves as the Secretariat for the Micronutrient Forum through A2Z —the USAID Micronutrient and Child Blindness Project. A2Z is managed by the Academy for Educational Development (AED) and funded through September 2010 by the United States Agency for International Development (USAID), Health, Infectious Disease and Nutrition (HIDN) Office of the Bureau of Global Health, Cooperative Agreement, Leadership with Associate Awards, GHS-A-00-05-00012-00.

To receive more information about the Micronutrient Forum, contact the Micronutrient Forum Secretariat at the ILSI Research Foundation, One Thomas Circle, NW, Ninth Floor, Washington, DC 20005-5802, USA, Tel: 202-659-9024, Fax: 202-659-3617, Email: [mnforum@ilsi.org](mailto:mnforum@ilsi.org).

# Bulletin Board

## Conferences

**Geneva Forum:  
Towards Global  
Access to Health  
August 30-  
September 1, 2006  
Geneva, Switzerland**

The Geneva Forum: Towards global access to health, jointly organized by the Geneva University Hospitals and the Medical School of the University of Geneva, will take place August 30-September 1, 2006 at the Centre International de Conférences de Genève (CICG). Plenary themes include: access to health, where do we stand?; equity in access to health, dream or reality?; public private partnerships: the solution for the future?; critical view on the role of hospitals in increasing access to health; global gaps in research, capacity building and human resources; and global access to health: an agenda for the future. Parallel sessions will focus on access to health systems; health and inequities; access to drugs, vaccines and diagnosis; civil society and social issues in health; and capacity building and partnerships. Information and registration at: [www.bcuge.ch/genevhealthforum](http://www.bcuge.ch/genevhealthforum)

**SAVE THE DATE!**  
***Culina Mutata:***  
**The Changing Kitchen**  
**An International**  
**Conference on Food**  
**and Nutrition in**  
**Honour of the**  
**Prominent Scientist**  
**Carl von Linnæus**  
September 3-5, 2007  
Uppsala, Sweden  
[www-conference.slu.se/culinamutata](http://www-conference.slu.se/culinamutata) for more information.

**IUFoST  
13<sup>th</sup> World Congress  
of Food  
Science &  
Technology:  
FOOD IS LIFE  
September 17-21, 2006  
Nantes, France**

This is the first time in 10 years that Europe has hosted the World Congress. Several symposia have been confirmed, including: micro- and nano-scale techniques in the analysis of food structures, analytical methodology in food safety, engineering of tailor made foods, and carotenoids: micronutrients from food important for human health. The Congress will also welcome SCN Chair Catherine Bertini, former Executive Director of the World Food Programme, and recipient with the World Food Prize, as its IUFoST Distinguished Lecturer. For more information visit: [www.inra.fr/iufost2006](http://www.inra.fr/iufost2006)

**30<sup>th</sup> US National Nutrient Databank Conference  
The Role of Food Composition in  
Improving Dietetic Practice  
September 19-20, 2006  
Honolulu, Hawaii**

This conference will be held as a workshop in conjunction with the American Dietetic Association (ADA) 2006 Food and Nutrition Conference and Exposition (FNCE) at the Hawaii Convention Center and Hilton Hawaiian Village in Honolulu, Hawaii on September 19 and 20, 2006. The conference will host sessions on topics such as food composition data, meeting dietetic needs for food composition data, databases for dietary supplements and botanicals, and unique foods of the Pacific, to name a few. To register, visit [www.eatright.org/fnce2006](http://www.eatright.org/fnce2006). You can register for the NNDC alone or in combination with the FNCE. Early bird registration deadline: July 19, 2006.

**10<sup>th</sup> ECOWAS  
Nutrition Forum:  
Nutrition and Diet  
Related Diseases:  
The Double Burden  
of Malnutrition  
September 18-22, 2006  
Sainte Vicente,  
Cape Verde**

The Economic Community of West African States (ECOWAS) nutrition forum gathers bi-annually to unite national multisectoral nutrition networks within the 15 member states and coordinated by the West African Health Organization (WAHO). Contact **Ismael Thiam** [ithiam@wahooas.org](mailto:ithiam@wahooas.org) for more information.

**SAVE THE DATE!**  
**10<sup>th</sup> European  
Nutrition Conference**  
July 10-13, 2007  
Paris, France  
[www.fens2007.org](http://www.fens2007.org) for  
more information.  
email contact:  
[fens07@b-c-a.fr](mailto:fens07@b-c-a.fr)

**1<sup>st</sup> World Congress of  
Public Health  
Nutrition  
VII Congreso de la  
SENC  
September 28-30, 2006  
Barcelona, Spain**

The Spanish Society of Community Nutrition (SENC) and the International Union of Nutritional Sciences (IUNS) invite you to participate in the 1<sup>st</sup> World Congress of Public Health Nutrition/VII Congress de la SENC at the International Convention Centre of Barcelona 28<sup>th</sup>-30<sup>th</sup> September. The Congress will offer sessions, roundtable discussions, and symposia on various hot topics in global, regional, and local public health nutrition. For more information visit [www.nutrition2006.com](http://www.nutrition2006.com) or email the Congress Secretariat at [nutrition2006@reunionsciencia.es](mailto:nutrition2006@reunionsciencia.es).

**2006 Annual  
Conference of the  
British Association for  
Parenteral and Enteral  
Nutrition  
November 1-2, 2006  
Brighton, England**

First announcement and call for abstract submissions. For details see Direction to Contributors, Abstract Submission Forms and Copyright Assignment Forms on the BAPEN website: [www.bapen.org.uk](http://www.bapen.org.uk). Registration details to follow at [www.sovereignconference.co.uk](http://www.sovereignconference.co.uk)

**4<sup>th</sup> Euro Fed Lipid Congress: Oils, Fats and Lipids for a Healthier Future**  
**October 1-4, 2006**  
**University Complutense of Madrid Spain**

The European Federation for the Science and Technology of Lipids (Euro Fed Lipid) invites you to attend the 4<sup>th</sup> International Congress in Madrid, Spain. The congress offers an impressive series of lectures, poster sessions, and workshops focusing on the latest developments in this field. Programmes include: analytics and authenticity; interdisciplinary sessions on trans fatty acids; olive oils; oil sources: plant lipids; frying oils and frying products; lipid bioscience; animal nutrition and animal fats; processing and environment; marine lipids; human nutrition and health; and other topics. For more information visit [www.eurofedlipid.org](http://www.eurofedlipid.org) or email [info@eurofedlipid.org](mailto:info@eurofedlipid.org). Register online no later than August 11 to guarantee early bird registration fee: [www.eurofedlipid.org/meetings/madrid](http://www.eurofedlipid.org/meetings/madrid).

**SAVE THE DATE!**  
**Micronutrient Forum: Consequences and Control of Micronutrient Deficiencies: Science, Policy, and Programmes: Defining the Issues**  
 April 16-18, 2007  
 Istanbul, Turkey  
<http://a2zproject.org/forum.btm> for more information or email: [mnforum@ilsa.org](mailto:mnforum@ilsa.org)

**9<sup>th</sup> European Health Forum Gastein: Health Sans Frontières**  
**October 4-7, 2006**  
**Bad Hofgastein, Austria**

The forum will address topics such as pandemic challenges, health policy innovation, European Union healthcare, health professional migration, healthcare infrastructure, and European Health Technology Assessment (HTA) through series of parallel forums, plenary sessions, and workshops. Several social programmes will also be offered. For more information see [www.ehfg.org](http://www.ehfg.org) or email [info@ehfg.org](mailto:info@ehfg.org). Registration deadline: October 4, 2006.

## Courses

**The 24<sup>th</sup> Leeds Course in Clinical Nutrition**

September 5-8, 2006  
 St. James University Hospital, Leeds, UK  
 Topics include: approaches to nutrition in the community, nutritional support, diabetic nutrition, lipids and obesity, special nutritional situations, and managing the nutritional extremes. Payment due at least 28 days before course. For more information, see [www.clinicalnutrition.co.uk](http://www.clinicalnutrition.co.uk), or email course assistant Nina Rowland at [clinicalnutrition@leeds.ac.uk](mailto:clinicalnutrition@leeds.ac.uk)

**5<sup>th</sup> Africa Nutrition Leadership Programme**  
**South Africa**  
 November 2-10 2006

The 5<sup>th</sup> edition of this course will be held in November 2006. The course is a joint initiative of South African (North-West) and Dutch (Wageningen) universities. Detailed information can be found at [www.africannutritionleadership.org](http://www.africannutritionleadership.org). At this site also the link can be found to the Netherlands Fellowship Programme that provides a number a grants for this course. Entry requirements are: PhD and/or a number of years of working experience and foremost leadership potential.

**Wageningen International Training Programme 2006**  
 Wageningen, The Netherlands

The various programmes offered by Wageningen International aim to address professional development issues for mid-career professionals in government, nongovernmental, commercial, and other research and training organizations. Courses may be taken alone or as part of a more comprehensive training programme. For more information on courses, see [www.wi.wur.nl/uk/newsagenda/agenda/courses](http://www.wi.wur.nl/uk/newsagenda/agenda/courses) or email [training.wi@wur.nl](mailto:training.wi@wur.nl)

**MSc European Food Regulatory Affairs Distance Learning**  
 Academic Year 2006

The MSc in European Food Regulatory Affairs is a two-year, part-time distance learning course developed by the Irish Universities Nutrition Alliance (IUNA), a formal association of the nutrition units of Trinity College Dublin, the University College Cork, and the University of Ulster. The programme is offered by the University of Ulster's online campus in association with Trinity College Dublin and University College Cork. The programme incorporates elements of science, law and policy as they pertain to regulation of the food chain. Modules include: Introduction to the European Union and Food Regulatory Affairs; International Food Regulatory Affairs; Risk Analysis; Food and Health; Farm to Fork regulation of the food chain; Current Issues in food regulatory affairs; and a research project. For further details, please visit the IUNA website [www.iuna.net](http://www.iuna.net) or CampusOne website <http://campusone.ulst.ac.uk>, or email the Course Director at [mckevita@tcd.ie](mailto:mckevita@tcd.ie)

Would you like to post a notice on this board?

The next issue of *SCN News* will be published in late 2006. Please send your contributions to [scn@who.int](mailto:scn@who.int)



## New Resources

### The Johns Hopkins Center for Global Health

The new Johns Hopkins Center for Global Health will facilitate collaboration among the University's Bloomberg School of Public Health, School of Medicine, and School of Nursing on matters relating to the global problems of HIV/AIDS, malaria, tuberculosis, malnutrition, hepatitis and other threats to international public health, with particular focus on developing countries. The three schools house nearly two dozen programmes which operate more than 400 projects around the world. [www.hopkinsglobalhealth.org](http://www.hopkinsglobalhealth.org)

### New scientific bibliography on zinc-related articles available on the IZiNCG website

The International Zinc Nutrition Consultative Group (IZiNCG) has launched a new interactive website to facilitate access to zinc-related scientific publications reflecting current knowledge of zinc nutrition for public health programmes, which is available at: [www.izincg.org](http://www.izincg.org)  
For more information, please contact: Sonja Hess, [izincg@ucdavis.edu](mailto:izincg@ucdavis.edu)

### New Quarterly Bulletin from the Food Ethics Council

The Food Ethics Council recently published the first issue of its new Bulletin. The bulletin presents opposing views and serves as a forum for friendly debate on key issues in food and farming. Each bulletin features news and analysis from those working in various sectors of food policy, from food producers to policy makers. The launch issue is available free online through the library link off of the Food Ethics Council mainpage, located at: [www.foodethicscouncil.org](http://www.foodethicscouncil.org). Subsequent issues available to subscribers for a small fee. Details can be found at [www.foodethicscouncil.org/subscribe/subscribe](http://www.foodethicscouncil.org/subscribe/subscribe)

### GeoNetwork open source software from WFP & FAO

The WFP and the FAO recently launched a new and improved tool in the global fight against hunger and rural poverty--the GeoNetwork. GeoNetwork open source software uses satellite imagery, spatial databases and interactive maps from FAO, WFP, and others to track the causes of food shortages in developing countries. The GeoNetwork enables free and easy data and information sharing between different FAO Units, other UN Agencies, NGOs and other institutions. FAO GeoNetwork website: [www.fao.org/geonetwork/srv/en/main.home](http://www.fao.org/geonetwork/srv/en/main.home). WFP GeoNetwork website: <http://vam.wfp.org/geonetwork/srv/en/main.home>.

### AptePursuit: A New Food and Nutrition Consulting Company

AptePursuit is a new food and nutrition consulting company which also offers extensive expertise in all other areas of humanitarian assistance. AptePursuit was recently founded by Dr Judit Katona-Apte, formerly of the WFP. The highly experienced staff of AptePursuit offers consultation on development programme design, implementation, monitoring, and evaluation. They also offer customized food and nutrition training. The staff has experience on all major continents and in several topical areas, including but not limited to: general health and nutrition; food economics and food security; emergency feeding and disaster mitigation; HIV/AIDS, TB and malaria; and maternal and child health. More information available at [www.aptepursuit.com/default.aspx](http://www.aptepursuit.com/default.aspx)

### IAEA Nobel Cancer and Nutrition Fund

This special Fund supports fellowships and training for improved cancer management and childhood nutrition in the developing world. The IAEA Nobel Cancer and Nutrition Fund was created from the agency's share of the Nobel Peace Prize, which was awarded to the IAEA and its Director General Mohamed ElBaradei in 2005. In the area of cancer management, the Fund will support training in radiation oncology through IAEA's Programme of Action on Cancer Therapy (PACT); in the area of nutrition, the Fund will support capacity building efforts which utilize nuclear techniques to develop nutrition and health interventions that benefit children in the developing world. The IAEA encourages cash and in-kind contributions from member states and donors. For more information, please see the Nobel Fund's website at: [www.iaea.org/nobelfund](http://www.iaea.org/nobelfund) or email Ms. Lena Davidsson at [L.Davidsson@iaea.org](mailto:L.Davidsson@iaea.org)



# 33<sup>rd</sup> Session of the Standing Committee on Nutrition Geneva, Switzerland

13-17 March 2006

## *Double Burden of Malnutrition - A Common Agenda*

### *The participants in the 33rd Annual Session of the SCN*

agree current actions to combat malnutrition in all its forms are insufficient. Also agree that an adequate response to ensure that malnutrition is no longer a major impediment to human development in the next generation requires unprecedented collaboration. It means that the UN family, national governments, civil society and the private sector must come together in a broad based alliance with one vision. This collaboration should be developed within the promotion and protection of all human rights, especially the right to adequate food and the right to the highest attainable standards of health.

### *The Problem*

We live in a world of great and increasing inequity between and within countries. This is unacceptable.

In this world, 800 million people are suffering from undernourishment and about 170 million infants and young children are underweight. More than 5 million children die each year as a result of under-nutrition.

And further, billions of people suffer from micronutrient deficiencies (so-called 'hidden hunger') especially of iron, vitamin A, iodine and zinc. Under-nutrition is the main threat to health and well-being not only in middle- and low-income countries but also globally.

At the same time, childhood obesity is becoming a recognized problem even in low income countries. More than a billion adults worldwide are overweight, of which 300 million are obese.

These issues are still perceived to be separate. In reality both are often rooted in poverty and co-exist in communities, and even the same households, in most countries.

While under-nutrition kills in early life, it also leads to a high risk of disease and death later in life.

This is the double burden of malnutrition.

This double burden of malnutrition has common causes, inadequate foetal and infant and young child nutrition followed by exposure (including through marketing practices) to unhealthy energy dense nutrient poor foods and lack of physical activity. The window of opportunity lies from pre-pregnancy to around 24 months of a child's age. Schools provide a natural setting for effective interventions for older ages and to promote adequate nutrition to future mothers.

Malnutrition in all its forms amounts to an intolerable burden not only on national health systems but the entire cultural, social and economic fabric of nations, and is the greatest impediment to the fulfilment of human potential.

Yet, despite the impact of malnutrition in all its forms on mortality, morbidity, and national economies only 1.8% of the total resources for health-related development assistance are allocated to nutrition activities. Of the World Bank's total assistance to developing countries only 0.7% is for nutrition and food security. At country level, the financial commitment is even less.

Adequate food is a human right and good nutrition is essential to achieve the aims of the Millennium Declaration, including those expressed by the Millennium Development Goals. Without progress towards tackling malnutrition, these goals will not be achieved.

## *The Solution*

UN agencies, bilateral partners, civil society have come together to help put nutrition at the centre of development. We collectively urge:

National governments, in their internal policies, and also through their foreign policies and development assistance, to promote nutrition actions that reduce under and over-nutrition and diet-related chronic diseases. They should do this within the context of respecting, protecting and fulfilling the right to adequate food, and should ensure that these actions are adequately funded.

UN agencies, to act together through the UN system SCN in the context of the UN reform to accelerate the prevention and mitigation of all forms of malnutrition throughout the life cycle, towards the achievement of the MDGs and beyond. The UN agencies should also promote the integration of nutrition programmes at country level and mainstream them into national development policies.

Civil Society and non-governmental organizations, to advocate and adopt policies and practices that tackle the double burden of malnutrition and hold governments accountable at all levels. The private sector, especially those in the food and beverage business, to support the achievement of the MDGs including by adopting responsible marketing practices on breastmilk substitutes and energy-dense, nutrient-poor foods and drinks.

All constituents of the SCN will work together to raise the profile of nutrition and to increase the investments in nutrition at global, national and local level to tackle the double burden of malnutrition with one shared vision. The top priorities are to:

- Empower **all women** and protect their nutrition, human rights and entitlements and those of their children, through knowledge, skills, policies and regulations.
- Focus on the **window of opportunity** from pre-conception to around 24 months of age, the critical period when the foundation for life long health is set.
- Urge **schools**, including pre-schools, to be nutrition and physical activity-friendly, in order to promote health and well being throughout life.
- Promote the production and consumption of culturally appropriate foods that are rich in **micronutrients**, and promote micronutrient supplementation when and where needed.
- Recognize that the basic determinants of health and disease are social and environmental, and ensure **healthy choices** are accessible, affordable and safe.
- Target **the poor** and socially marginalized, including indigenous populations, people living in emergencies and those affected by HIV/AIDS.
- **Build awareness, institutional capacity and leadership** at national, sub-national, community and global levels for accelerating action on nutrition.



UNITED NATIONS SYSTEM  
**STANDING COMMITTEE  
ON NUTRITION**

The Administrative Committee on Coordination (ACC), which was comprised of the heads of the UN Agencies, recommended the establishment of the Sub-Committee on Nutrition in 1976, following the World Food Conference and with particular reference to Resolution V on food and nutrition. This was approved by the Economic and Social Council of the UN (ECOSOC) by resolution in July 1977. Following the reform of the ACC in 2001, the ACC/SCN was renamed the United Nations System Standing Committee on Nutrition or simply “the SCN”. The SCN reports to the Chief Executives Board of the UN, the successor of the ACC. The UN members of the SCN are ECA, FAO, IAEA, IFAD, ILO, UN, UNAIDS, UNDP, UNEP, UNESCO, UNFPA, UNHCHR, UNHCR, UNICEF, UNRISD, UNU, WFP, WHO and the World Bank. IFPRI and the ADB are also members. From the outset, representatives of bilateral donor agencies have participated actively in SCN activities as do nongovernmental organizations (NGOs). The SCN Secretariat is hosted by WHO in Geneva.

The *mandate of the SCN* is to serve as the UN focal point for promoting harmonized nutrition policies and strategies throughout the UN system, and to strengthen collaboration with other partners for accelerated and more effective action against malnutrition. The *aim of the SCN* is to raise awareness of and concern for nutrition problems at global, regional and national levels; to refine the direction, increase the scale and strengthen the coherence and impact of actions against malnutrition worldwide; and to promote cooperation among UN agencies and partner organizations. The SCN’s annual meetings have representation from UN agencies, donor agencies and NGOs; these meetings begin with symposia on subjects of current importance for policy. The SCN brings such matters to the attention of the UN Secretary General and convenes working groups on specialized areas of nutrition. Initiatives are taken to promote coordinated activities—interagency programmes, meetings, publications—aimed at reducing malnutrition, reflecting the shared views of the agencies concerned. Regular reports on the world nutrition situation are issued. *Nutrition Policy Papers* are produced to summarize current knowledge on selected topics. *SCN News* is published twice a year, and the *NICS* (formerly *RNIS*) is published quarterly. As decided by the SCN, initiatives are taken to promote coordinated activities—interagency programmes, meetings, publications aimed at reducing malnutrition, primarily in developing countries.

**MS CATHERINE BERTINI**  
CHAIR

**DR ROGER SHRIMPTON**  
SECRETARY

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