

# Chair's Round Up

Firstly, I would like to wish all readers a prosperous 2006. Looking back over 2005, the SCN made significant steps in promoting the right to adequate food, and highlighting nutrition's role in achieving the Millennium Development Goals. In 2006, the SCN builds on this momentum with continued energy and commitment to ameliorating the world nutrition situation.

This issue of *SCN News* focuses on the critical time of adolescence and its link to good nutrition throughout the life cycle. Worldwide, adolescents are faced with enormous challenges to their nutrition and health. The articles in this issue give an overview of the difficulties adolescents undergo during their passage to adulthood. Authors address issues including: early marriage and care of adolescent girls, HIV/AIDS, anaemia reduction, and adolescent growth. I am a strong advocate of girls' education and fully believe that adolescents, especially girls, can learn important life skills which will affect not just their nutrition and health, but that of future generations.

In March (13<sup>th</sup>-17<sup>th</sup>), the SCN will hold its 33<sup>rd</sup> Annual Session, hosted by the World Health Organization in Geneva, Switzerland. The focus of this year's meeting will be on the double burden of malnutrition. The Symposium and week's activities will address actions needed to tackle this burgeoning problem that affects both the developing and industrialized worlds. An objective for the week is to develop clear messages that nutrition practitioners can use in communicating the need for one agenda in addressing both under- and overnutrition. Most importantly, the time to act is now since global attention has never been greater. This meeting's proceedings will be published in *SCN News* #32 later this year.

Congratulations to Dr Ricardo Uauy, who was recently elected as President of the International Union of Nutrition Sciences. In the Spotlight section of this issue (page 2), Dr Uauy sits down with *SCN News* to talk about his objectives for the International Nutrition Conference 2009 and SCN collaboration. Dr Uauy has also received the Abraham Horwitz Award for Leadership in Inter-American Health in September 2005 for his commitment to health and nutrition problems in the Americas.

Dr Sultana Khanum, has taken up the post of Director, Health System Development, at WHO's Regional Office for South East Asia. Dr Khanum was previously based at WHO's headquarters in Geneva, in the Department for Nutrition for Health and Development. We also welcome Dr Marlis Lindecke, Coordinator for GTZ's Project Global Food Security and Agrobiodiversity, who has replaced Dr Hans Schoeneberger as bilateral representative for GTZ. Dr Schoeneberger has moved to GTZ, Bolivia. Finally, Professor Cutberto Garza has left Cornell University to become Academic Vice President and Dean of Faculties at Boston College. The SCN wishes these colleagues much success in their new positions.

A number of new Working Group Chairs have recently been appointed. The Working Groups are the driving force of the SCN, and we are grateful to the Chairs who take on the task of organizing these groups. If you would like more information or to become involved in the Working Groups, contact details for Chairs and Co-Chairs are listed on the inside back cover of this issue of *SCN News*.

The latest version of the SCN's *Food and Nutrition Library 3.1* CD-ROM is included with this issue of *SCN News*. Since its inception, this CD-ROM has been an invaluable tool for nutrition practitioners, particularly those working in the field where information may be difficult to access. Thank you to Dr Michel Loots from the Human Info NGO for his leadership in this project and his dedication to making this tool accessible to everyone.

*Catherine Bertini*

Chair SCN

# SCN Spotlight



*Dr Ricardo Uauy was an Advisory Group on Nutrition (AGN) member from 1995-1997, and Chair of the AGN from 1998-1999. At the 18th International Conference on Nutrition (ICN) in Durban, South Africa, September 2005, Dr Uauy was elected President of the International Union of Nutrition Sciences. He is also Professor of Public Health Nutrition at the London School of Hygiene & Tropical Medicine, a post he took up at the end of his eight-year tenure as Director of the Institute of Nutrition and Food Technology, Chile. In September 2005, Dr Uauy received the Abraham Horwitz Award for Leadership in Inter-American Health.*

**Ricardo  
Uauy**

***SCN News: Dr Uauy, what stands out as the AGN's most important and memorable achievement during your time as member and Chair?***

*Ricardo Uauy:* The AGN's membership included during these two periods: Julia Tagwireyi, Ruth Oniango, Eileen Kennedy, Lawrence Haddad, Kraisid Tontisirin, Lilian Marovatsanga, Jack Jervell, Sadia Chowdhury and myself. As evident from the list, the AGN members are making or have made major contributions to improved nutrition at the national and international levels. During this time, the AGN provided technical support to the work of the SCN, addressing issues brought to its attention. The review of interactions between UN agencies to address relevant nutrition problems at the country level illustrated the importance of enhancing country level action through emerging UN coordination mechanisms. Probably the most important contribution of the AGN was to realize the need for and establish a commission to examine the nutrition challenges for the new Millennium. The idea was approved by the SCN, with two AGN members providing guidance and assessing the work of this committee. The report, which was completed by 1998 and published in 2000, continues to have far reaching implications for the work of the SCN and the nutrition related work of the UN system.

It is true that the AGN became progressively less critical in the SCN's activities. However, this was mainly due to the greater technical expertise available within the UN agencies and the ad hoc advisory bodies convened by each agency. In addition, there was increasing tension between the staff of some agencies and the AGN; not all agencies appreciated the importance of external oversight provided by the AGN for their activities. Some wanted this only upon their specific request; others did not want this at all. The memorable 2000 AGN meeting held in Geneva provided an opportunity for SCN constituents to examine the status of the SCN and its future projects; the strategic planning effort signalled the need for agencies to take greater ownership of the SCN. The role for external advice in specific technical areas was considered better suited for the Working Groups, the need for assessment and evaluation of UN agencies was left to each agency to determine. The AGN members in some cases joined the UN agencies, leading their nutrition sections, or continued to be linked through their technical role in NGOs or academic institutions. Most of us continue to contribute to the work of the SCN in our various capacities and consider membership in the AGN a privilege and an important step in our international nutrition careers.

***At the 18th ICN meeting in Durban, South Africa you were elected President of the IUNS. A challenge leading up to the next IUNS meeting in Bangkok, Thailand (2009) is identifying the roles and responsibilities of academia, civil society, and the food industry to correct the epidemic health and nutritional imbalances across societies. As president, how will you lead the IUNS towards defining these roles?***

As IUNS president, my job is to work with the Council and the nearly 100 adhering bodies representing national nutrition societies. The newly elected IUNS Council examined the strength of the IUNS as an actor in the international nutrition scene, as defined by: being truly global in representation, presence and scope; taking multi and interdisciplinary approaches in addressing food and nutrition issues; having an established record in strengthening and developing capacity for nutrition research and leadership, especially in developing countries; having as leaders a committed group of nutrition scientists who as council members make the IUNS a credible independent scientific body; being the voice of nutrition scientists in advocating for improved nutrition globally and working in partnership with key UN agencies; and being responsible for the International Congress of Nutrition which serves as the premier global forum for scientific interactions and information exchange.

In discussing IUNS' strategic orientations for the next 4 years, the Council established the need to:

- Enhance collaboration between national IUNS adhering bodies to create regional networks

in order to influence policy and community level decision-makers;

- Increase awareness on the significance of malnutrition in all its forms by promoting multinational training, research and information dissemination activities;
- Promote research collaboration between industrialized & developing countries in the fight against undernutrition and nutrition related chronic diseases;
- Contribute to the process of global harmonization of methods to develop nutrient-based and food-based dietary guidelines, and strengthen the application of INFOODS (International food data systems);
- Facilitate public/private partnership for improved nutrition of populations worldwide;
- Lead nutrition capacity development and strengthening activities. Use modern communication technology to enhance interactions, facilitate publication of research work conducted in less developed countries; and
- Provide direction and technical assistance to developing countries in advancing their training and research programmes.

For more information visit [www.iuns.org](http://www.iuns.org)

***Dr Uauy, you are also very active in promoting a younger generation of nutritionists through the regional Nutrition Leadership Programmes (NLP) and the Capacity Development Programme of the United Nations University. What support do young nutritionists get from these programmes and in what way can SCN members contribute to increasing capacity in young nutrition professionals?***

Building up the next generation of nutrition leaders should be at the core of our activities; the regional NLPs are conducted in every region of the world in conjunction with the UNU, other UN and bilateral agencies, regional Nutrition Societies and academic institutions. These programmes have received UNU and IUNS funding and have also been partially supported by private foundations and industry. NLPs offer a unique opportunity to train young men and women in advocacy, communications, team work and leadership skills, graduates of NLPs are already making a difference in their respective areas of work. SCN members can contribute to these efforts by identifying potential candidates and nominating them for the regional programmes; they can also contribute by funding the participation of accepted candidates through their respective agencies; contribute to the training activities by sharing their work and life experiences on how to lead and be effective in moving from theory to action; finally they can consider inviting NLP graduates from the regional networks to participate in the technical activities of the specific agencies or organizations, within their areas of interest and expertise. IUNS is ready to facilitate these contacts; a registry of graduates is available at the UNU/IUNS/INF global NLP programme office, for more information please contact [iunspresi@gmail.com](mailto:iunspresi@gmail.com).

***You have been Chair of the SCN's Working Group on Nutrition throughout the Lifecycle since 2003 and a member of the taskforce for the next SCN Annual Session (March 2006), which will focus on the Double Burden of Malnutrition. What challenges does the SCN face in communicating to policy-makers the need to tackle both undernutrition and chronic diseases at the same time?***

A first step is to convince ourselves that tackling ***malnutrition in all its forms*** represents an integrated single agenda addressing the root causes of malnutrition 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 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 in practice doing this correctly is the first step in preventing adult chronic disease related to diet and lack of physical activity. The issue is not about choosing between addressing undernutrition in the poor versus overnutrition in the affluent. This is why we have to get the terms right. We must recognize that the interventions required to address stunting are different from those needed to reduce those who are underweight and wasted. We must realize that in most developing regions there is a co-existence between underweight and stunting in infants and children with overweight in the adult population. In transitional countries those living under poverty are at increased risk for early stunting and later suffer overweight and obesity. If we continue to assess nutrition based on weight-for-age alone and not based on the combination of weight- and length/height-for-age indices, we will be unable to define stunting, which is the most frequent alteration of growth and to adequately prevent overweight and obesity.

A proposal for consideration by SCN members should consider a clear definition of at least four commonly used terms (*Malnutrition in all its forms, Underweight, Stunting and Overweight*). **Malnutrition in all its forms** refers to both underweight and overweight. **Underweight** is defined by a low weight-for-age, a

child may be underweight because she or he may be wasted (low weight-for-height) or may be stunted (low length/height-for-age), since underweight children may be of normal weight for stature in case they are stunted, the stunted should be considered as a separate group. **Stunting** refers to low height-for-age independent of their weight-for-age, in fact, some stunted children may have excess weight for their stature. **Overweight**, refers to excess weight for length/height, measured as weight-for-height or BMI for age [BMI is weight (kg) divided by height square(m)], depending on cut-offs for overweight or obesity categories. The use of these four terms requires that we have information on the age, the weight and the height/length of children in order to categorize nutritional status. Finally, we should recognize that nutrient inadequacies due to poor quality of diets lead to deficiencies of one or more micronutrients; these should be categorized as **micronutrient deficiencies**. The prevention of **nutrition related chronic diseases** is a life long process that starts with the achievement of optimal fetal and infant growth and continues throughout the life course with the promotion of healthy diets and active living at each stage.

An agenda to tackle malnutrition in all its forms, the topic of the next SCN meeting, should be developed within a life course perspective. In order to do this we must reach agreement on a set of definitions before we can develop effective communication strategies. Clearly defined terms are a prerequisite to convince key stakeholders, policy-makers and politicians that we can tackle malnutrition in all its forms with a unified agenda leading to effective action.

*The SCN congratulates you on receiving the 2005 Abraham Horwitz Award for Leadership in Inter-American Health and on your commitment to international nutrition worldwide. In an 1995 interview with Dr Horwitz his advice to all of us was to “Keep the faith that you are committed to a most noble cause...” In the spirit of Dr Horwitz, what advice do you have for us?*

My advice to SCN members is to strengthen the critical analysis of current ideas and actions to address food and nutrition problems and be ready to introduce changes to improve the effectiveness of policies and programmes. Business as usual is certainly not enough; progress is indeed being made, but clearly not commensurate with the magnitude of the problem and its consequences. Conquering hunger and malnutrition in all its forms are achievable goals within the timeframe of our generation, global resources are not a limiting factor; as SCN members...we should lead this process and demand nothing less than accomplishing our mission!

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# ADOLESCENCE A PIVOTAL STAGE IN THE LIFE CYCLE



This issue of *SCN News* features articles addressing a population that receives little attention: adolescents. UNFPA's *State of World Population* (2005) estimates that there are 1.2 billion adolescents between 10-19 years of age today. Although not specifically mentioned in the Millennium Development Goals, adolescents are the future adults who will continue the human development achievements set for 2015. Therefore, this stage in the life cycle is critical to ensuring good nutrition in adulthood and continued proper nutrition in future generations.

The period of adolescence is a difficult time for the youth of today, especially in developing countries. In many countries, barely have children escaped the developmental risks to health and nutrition of early childhood, they enter into another critical time of intense physiological and psychological growth. The articles presented here address some of the nutritional problems adolescents are facing and interventions in place at the country level. We thank the authors for sharing their experiences with us.

Cordeiro et al, provide an overview of adolescent growth, and the challenges to the nutritional assessment of this age group. Specifically, variations in the onset of puberty pose problems in determining nutritional status and nutritional requirements in adolescents. Two country studies are also presented; firstly, the results of an evaluation of the adolescent component of a national nutrition programme in Bangladesh (BINP) is reviewed, and secondly, preliminary results are given for a cross-sectional study on the health and nutrition of Tanzanian adolescents in a large rural district.

Two papers address anaemia reduction and supplementation in adolescents in Asia. Soekarjo et al, provide the lessons-learned from three school-based interventions conducted in Indonesia to reduce anaemia in both boys and girls. Their recommendations stress the importance of institutions, such as schools, in carrying out programmes and the need to involve teachers and parents in such activities. Dwivedi and Schultink describe the positive results of an impact assessment of a national iron-supplementation programme in 13 states in India. This programme targeted both school-going and out-of-school girls. Both articles highlight the need for supervision to increase compliance, programme targeting and education for programme success.

Kurz et al, present selected results of studies currently underway on adolescent reproductive health in India. Interventions include: life skills courses, health education, nutrition behaviour change and improvements in reproductive-health services—all of which have an impact on the nutritional status of girls. The authors stress the importance of delaying the age of marriage for girls, which in turn influences the timing of the first pregnancy. Increasing this age should impact the nutritional status of not only the mother, but the infant as well, in a positive way. Kurtz et al, conclude by providing some recommendations on how nutritionists can promote delaying the age of marriage and first pregnancy and improved access to reproductive services.

Sethuraman et al, present qualitative findings from research in South Asia on unmarried adolescent girls. The objective of this research was to understand how unmarried adolescent girls are cared for by their families. This insight will, in turn, serve to better focus and design interventions to delay the age of marriage and improve the nutritional status of young girls.

As Gillespie points out in his article, 50% of those orphaned due to HIV/AIDS are within the 10-14 year age range. This shocking figure underscores the increased food insecurity faced by orphans and vulnerable children, especially in Sub-Saharan Africa. The author describes who are the most vulnerable and the importance of community driven approaches in meeting the needs of orphans. Gillespie suggests designing interventions with an "orphan and vulnerable child lens" to mitigate discrimination in households and address stigma.

Thank you to Dr Venkatraman Chandra-Mouli, from the Department of Child and Adolescent Health at WHO, and Dr Rukhsana Haider, from the WHO Regional Office in South East Asia, for taking the time to review this set of articles and providing an editorial for this issue of *SCN News*. In their review, the authors highlight the lessons learnt from these country examples and identify the opportunities and risks faced by this age group.



# ADOLESCENT MALNUTRITION IN DEVELOPING COUNTRIES

## A CLOSE LOOK AT THE PROBLEM AND AT TWO NATIONAL EXPERIENCES

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### *Introduction*

Adolescent malnutrition in developing countries is, at long last, beginning to receive the attention it deserves. Defined by WHO as individuals between the ages of 10 and 19 years, adolescents make up approximately 20% of the world's population<sup>1</sup>. Although adolescence is a time of enormous physiological, cognitive, and psychosocial change,<sup>2,3,4</sup> WHO<sup>2</sup> acknowledges that adolescents remain “a neglected, difficult-to-measure and hard-to-reach population”. There is, in fact, a dearth of research on adolescent nutrition in developing countries. Most studies of malnutrition in developing countries have concentrated on young children or on the pregnancy period. There have been few population-based studies examining the prevalence of undernutrition (defined as body mass index for age, less than the 5<sup>th</sup> percentile of WHO/NCHS reference data) among adolescents and in turn, fewer examinations with prevalence disaggregated by region or socio-economic status. Similarly, research on the longer-term cognitive and health effects of undernutrition during adolescence has been inadequate. And, perhaps most serious of all, despite some efforts to reach this group through projects differently focused (eg, school health and nutrition, reproductive health, and income generation), there is a virtual absence of cost-effectiveness data on programmatic efforts to address the adolescent malnutrition problem explicitly.

To date, much of what we know about adolescent nutrition in developing countries comes from eleven studies of non-pregnant adolescents, supported by the International Center for Research on Women (ICRW).<sup>5,6</sup> The primary findings of the ICRW studies, later supported by other studies, reveals that stunting is highly prevalent among adolescents, younger adolescents tend to be more undernourished than older adolescents, and that boys are almost twice as undernourished as girls.<sup>7,8,9</sup> The ICRW studies also found that, in contrast to the data on height gains during adolescence, body mass indices (BMI) increased substantially more during the adolescent years for girls (converging towards the 50<sup>th</sup> percentile of the NCHS reference) than for boys (5<sup>th</sup> percentile with substantial increase above the 5<sup>th</sup> percentile after 16 years of age in Nepal).<sup>7</sup> This decline in the prevalence of low BMI with age among adolescents has been confirmed by other studies.<sup>8,9,10,11</sup>

Clearly, adolescence is a pivotal stage of the life cycle, and in turn, provides a unique opportunity to foster a healthy transition from childhood to adulthood. Ensuring that the nutritional needs of adolescents are met is essential to this transition, but critically needed information is sorely lacking. This article seeks to help fill this information gap by discussing some of the primary issues relating to adolescent nutrition and growth—including the problem of measuring it—and then summarizes the findings of adolescent nutrition-related programmatic and research activities recently undertaken in Bangladesh and Tanzania.

### *Adolescent Growth*

Adolescence is a time of intense growth, second only to infancy.<sup>3,12</sup> It is the only period in an individual's life when growth velocity increases.<sup>3</sup> During adolescence, individuals can gain 15% of their ultimate adult height and 50% of their adult weight.<sup>3</sup> This rapid growth is accompanied by an increase in nutrient demand,<sup>3,12</sup> which also is significantly influenced by infection and energy expenditure.<sup>3</sup>

During this period, body proportion, including indices using height and weight measurements, changes substantially. Adolescent boys generally build more muscle mass, gain weight at a faster rate, have a larger skeleton, and deposit less fat than girls.<sup>3</sup> Boys also tend to grow for a longer period of time.<sup>3</sup> For American adolescent males, the most rapid increase in growth and muscle mass occurs



between the ages of 12 and 15 years.<sup>3,4</sup>

For adolescent girls, the greatest gain in height and weight normally occurs in the year preceding menarche,<sup>3,5</sup> and the growth spurt continues for two years after menarche.<sup>4</sup> In a study of adolescent girls in Bangladesh, Riley<sup>13</sup> found the adolescent growth spurt characterized by peak height velocity followed by a high rate of weight gain. Girls continue to gain in height after this period<sup>5,14</sup> and their pelvic bones continue to develop for several years after menarche.<sup>5,15</sup> For the average American female, peak height velocity occurs between 10-13 years.<sup>3,4</sup>

Attainment of full growth prior to pregnancy is highly desirable. Pregnancy puts severe nutritional demands on a woman's body, and among adolescent girls who become pregnant there are high risks of maternal mortality,<sup>5,16</sup> pregnancy complications<sup>5,17</sup> and delivery of low birth weight infants.<sup>5,15,18,19</sup> (see Kurz et al, this issue) A study conducted for UNICEF/Tanzania found that the proportion of low birthweight infants born to adolescent mothers (12-19 years) is significantly higher than for those born to women 20 years or older.<sup>20</sup> The study also found that a majority of the women sampled had their first pregnancy during adolescence.<sup>20</sup> Beyond the issue of low birthweight, adolescent pregnancy has the potential to increase the risk of obstructed labour<sup>15,17</sup> and to adversely affect micronutrient status.<sup>5,21</sup> Pregnancy at a young age sharply increases the likelihood of poor pregnancy and birth health outcomes, primarily because adolescents are primiparity, still growing, have less adequate access to prenatal care, and are poorer than older women.<sup>15</sup>

Efforts to determine the extent of underweight in adolescence pose some specific challenges. Adolescent growth patterns and variations at the onset of puberty make nutritional assessment particularly difficult.<sup>3,22,23,24</sup> Heald and Gong<sup>3</sup> recommend that nutritional assessment of adolescents take into account key developmental changes such as the gender differential in timing of growth, as well as individual variations in the onset of puberty, body composition, and growth spurt. Among rural Bangladeshi adolescent females, it was determined that the rapid increase in BMI, following peak gains in height, could be attributed to physiological as opposed to chronological age.<sup>13,25</sup> Due to the wide range of variance in the onset of puberty and the resulting growth spurt, determining adolescent nutrient requirements should be based on physiological or maturational age, as opposed to chronological age.<sup>3</sup>

In the measurement of adolescent nutritional status and growth, WHO recommends standards using National Center for Health Statistics (NCHS) data on US adolescents as a reference population.<sup>22</sup> Heights, weights, and body mass index (BMI) of adolescents are plotted on NCHS growth charts using these standards.<sup>3</sup> Utilizing the NCHS growth charts as a reference for populations from developing countries has, however, come under much criticism. The use of local reference data is preferable where such data is available. Unfortunately such data usually is not available in developing countries; particularly rare is gender specific reference data, necessary to take into account age differences in maturation. Accordingly, it is likely that most developing countries will continue to use the NCHS references and growth charts for some time to come (See Box on the Challenge of Reference Growth Charts, next page).

Both NCHS<sup>26</sup> and WHO<sup>19</sup> use BMI (weight/height<sup>2</sup>) as a proxy measure for nutritional status of adolescents. BMI and height for age below the 5<sup>th</sup> percentile are used as the reference data for determining undernutrition.<sup>22,27</sup>

### ***Undernutrition among Adolescents in Asia and Africa***

Although data on adolescent nutritional status in Asia and Africa is sparse, that which exists suggests a generally higher prevalence of adolescent undernutrition in South Asia than in South-East Asia or Sub-Saharan Africa, and a higher prevalence in rural than in urban areas.

In South Asia, a high prevalence of undernutrition (50% or more with BMI <5<sup>th</sup> percentile WHO/NCHS references) among adolescents in rural areas has been documented.<sup>6,8,11,28,29</sup> By contrast, undernutrition (BMI <5<sup>th</sup> percentile of WHO/NCHS reference) among urban adolescents in the Philippines (12-19 yrs)<sup>6</sup> and Malaysia (10-19 yrs)<sup>30</sup> was 6% and 16.4%, respectively. Asian studies, as a whole, found that adolescents have a high prevalence of low vitamin A status,<sup>8</sup> anaemia,<sup>8,11</sup> and other micronutrient deficiencies.<sup>8</sup> In an Indian study, vitamin B complex deficiency was seen in 43.6% of adolescent girls (10-18 yrs).<sup>29</sup> In the Malaysian study, protein and iron intake were associated with weight for age; iron intake was associated with BMI; and skipping meals was associated with stunting.<sup>30</sup>

Few studies in Africa have used the WHO recommended references to assess undernutrition among adolescents. Of those that have, the prevalence of undernutrition among adolescents (again using the <5<sup>th</sup> percentile of the WHO/NCHS reference) is in the range of 4-30%, substantially lower than South Asia.<sup>5,6</sup> Within Africa, higher prevalence of undernutrition among adolescents has been found in Sene-



## 8 Features

### The Challenge of Reference Growth Charts

Utilizing the NCHS growth charts as a reference for populations from developing countries presents some challenges, particularly in overestimating undernutrition:

- Increasing obesity in the United States, particularly among adolescents,<sup>41</sup> clearly influences the distributions of height for age, weight for age, and BMI for age in the NCHS growth charts by skewing the upper end of the data,<sup>42</sup> thus making them less applicable to populations at earlier stages of nutrition transition.<sup>4,\*</sup>
- Sexual development affects height and weight changes of adolescents, and occurs at different rates and varying ages depending on the population.<sup>10</sup> Such differences complicate comparison to reference data unless adjustments are made to correct for physiological age. In the United States, for example, the age of menarche is now between 10-12 years,<sup>22</sup> while in many developing countries the onset of menarche occurs between 13 to 16 years of age.<sup>9,10,34,43,44</sup>
- Variations in nutritional status influence the onset of menarche. Children entering adolescence chronically undernourished are likely to remain underweight during adolescence,<sup>45</sup> as well as experience a delay in reaching sexual maturity and growth.<sup>9,10,34</sup>

#### Recommendations for Assessing Physiological Age

The use of physiological, as opposed to chronological, age is recommended when comparing adolescents from developing countries to the reference population. Tanner (1962) has developed standards for assessing physiological age that are now widely used in clinical settings. Woodruff and Duffield (2000) offer a method to adjust for physiological age. As it is difficult and inappropriate for researchers and field staff to assess Tanner Breast and Genitalia stages outside of a clinical setting,<sup>22</sup> two alternatives are presented for non-clinical settings.

##### Clinical Settings

- For female adolescents, median age of reaching Tanner Breast Stage 2 and median age of menarche should be calculated.<sup>22</sup>
- For male adolescents, median age of attaining Tanner Genitalia Stage 3 and median age of attaining adult voice should be collected.<sup>22</sup>

##### Non-clinical settings

Two alternative recommendations for field settings are:

- Self-assessment of Tanner stages-validated in some developed countries but not in developing countries.<sup>22</sup>
- Using age of menarche for girls and age of voice change for boys as proxy indicators of physiological age.<sup>43</sup>

\*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-deficit regions.

gal (29.8%), Benin (23%) and Sudan (25%).<sup>6,9,31,32</sup> In the study of Sudanese girls (11-18 yrs), the strongest determinants of a girl's nutritional status were degree of sexual maturity (ie, whether or not she had attained menarche), her health status, her mother's weight, and family income status, proxied by whether her mother drove a car or her father owned a car.<sup>32</sup> Studies in Maputo, Mozambique<sup>33</sup> and in Kenya<sup>34</sup> determined that 16% of their adolescent samples were undernourished. In the Mozambican study,<sup>33</sup> a higher prevalence of undernutrition was found among boys than girls (23% vs 9%). By contrast, a very low prevalence of undernutrition (4%) was found in a Cameroon sample of adolescents.<sup>6,35</sup> Further research, particularly longitudinal studies, on adolescent growth and development in a variety of developing country settings is needed to more fully understand the differentials in nutritional status presented in the literature.

A closer look at two national experiences from Asia and Africa reveals the extent of adolescent malnutrition and the potential for programmatic solutions to this issue. Selected findings from these programmatic and research activities undertaken in Bangladesh and Tanzania are presented below.

#### ***Bangladesh Integrated Nutrition Project (BINP)***

The Bangladesh Integrated Nutrition Project (BINP) used innovative approaches to address adolescent malnutrition, including the development of Adolescent Girls Forums and the Newly Wed Couples initiative, that serve as most promising models for other nations interested in improving adolescent health and nutrition. Some of the findings are presented below.

BINP was implemented from 1996 to 2003 by the Government of Bangladesh in cooperation with multiple non-governmental organizations (NGO) and given assistance by the World Bank, UNICEF, the





Canadian International Development Agency (CIDA), the Dutch Government and other donors. It was a multifaceted and complex initiative designed to improve the overall health and nutrition of the country's population. Over the course of the project, BINP regularly expanded its services eventually reaching 16% of rural upazilas (sub-districts) by 2003, after which it was integrated into a larger National Nutrition Program (NNP).

The Community-Based Nutrition Component (CBNC) of BINP was designed to bring about sustainable changes in feeding and eating behaviours of children, in pregnant and lactating mothers at the household level through monthly growth monitoring and promotion, in nutrition education for mothers, and in supplementary feeding of malnourished pregnant and lactating women, as well as of malnourished and growth faltering children under the age of two. BINP also targeted adolescent girls through Adolescent Girls Forums (AGF), during which topics related to health and nutrition were discussed and supplements sometimes provided. At the same time, a Newly Married Couples approach was initiated in one upazila to test the hypothesis that cost-effectiveness is improved by targeting only first pregnancies and working with couples through the 24<sup>th</sup> month of age of their first child, rather than seeking to reach all young children and pregnant women in a community. Data from this study are presently being analyzed.

The AGF originally was piloted among schoolgirls in the Muktagacha project of the Bangladesh Rural Advancement Committee (BRAC), the nation's largest NGO. These periodic counseling sessions, led both by Community Nutrition Workers (CNWs) and adolescents themselves, focused not only on the importance of healthy diets, but also more generally on reproductive health, on the importance of delaying first pregnancy, and on women's rights. Some training in mathematics was offered, using food and nutrients as examples, to increase participants' numeracy skills. Additionally, the girls received a midday snack (200 grams puffed rice, 50 grams of peanuts and 10 grams of molasses),<sup>a</sup> and, in some areas, adolescent girls received weekly iron folate supplements.

Recognizing the difficulties in trying to delay first pregnancy once marriage had taken place, the AGF and the Newly Married Couples initiative changed their message from one of the need to delay the age of first pregnancy to one stressing the importance of delaying the age of marriage. BRAC developed counseling materials in picture form for both of these initiatives. For the AGF, the primary material took the form of 12 flip charts focusing on a different message each month. In 2002, a final evaluation was conducted of the project's impacts in the six first phase upazilas for which baseline surveys (1995) and midterm evaluations (1998) had been conducted. During the final evaluation, 525 adolescent girls (11-19 years of age) from households with children under two were also interviewed—393 from project upazilas and 132 from control/comparison upazilas. In addition, using combined data from all three evaluative surveys, adolescents (14-19 years) comprised 11% (n=1329) of women with children under two.

The evaluation found that adolescent girls in project areas were significantly more aware of the importance of adequate food intake (58.6% vs. 29.4%), rest (80.7% vs. 58.3%), as well as of the importance of immediate initiation and optimal length of breastfeeding (87.0% vs. 70.5% and 75.6% vs. 58.3% respectively) than adolescents in control areas. In project areas, 42% of adolescent girls were members of the AGFs, and nearly three quarters of these reported attending AGFs at least sometimes. The three most significant predictors of girls' knowledge of health and nutrition practices were participation in the AGF, a household's socio-economic status, and the girl's years of education. Over a third of girls in project areas regularly consumed weekly iron tablets.

Among mothers of children under two, both the mean ages of marriage (16.0 vs. 15.4 years) and pregnancy (17.7 vs. 17.1 years) were significantly higher in project areas compared to control areas ( $p < .01$ ) by the end of the project. Mothers in project areas who were under 20 years of age, and likely to have been affected directly or indirectly by AGFs, reported eating more (63.7% vs. 57.7%), resting more (76.2% vs. 65.3%), and lifting heavy objects less (72.7% vs. 54.0%) during pregnancy than mothers 20 years or older.

BRAC is now also experimenting with adolescent forums for boys, recognizing both the importance of male adolescent health and of males having better understandings of women's reproductive health, women's rights, and infant and childcare. Initial results of these initiatives suggest that boys are receptive to new messages and to suggestions for improving their own health and the health of their families.

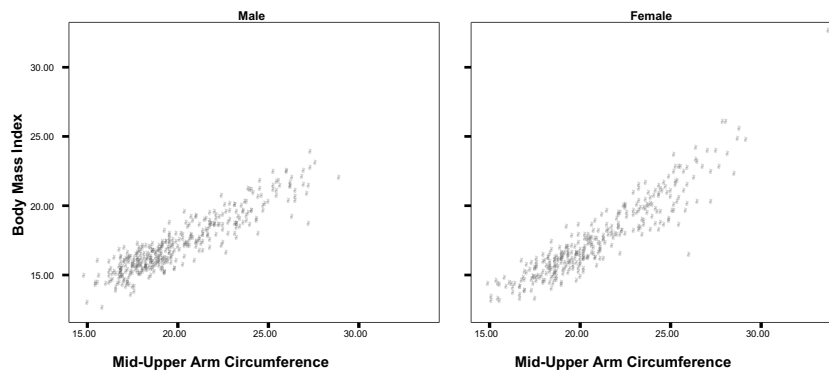
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<sup>a</sup> As the AGF was merged into BINP, the midday snack was eliminated, based on indications that in some girls the food supplement appeared to hasten the age of menarche, and accordingly, the age of marriage.



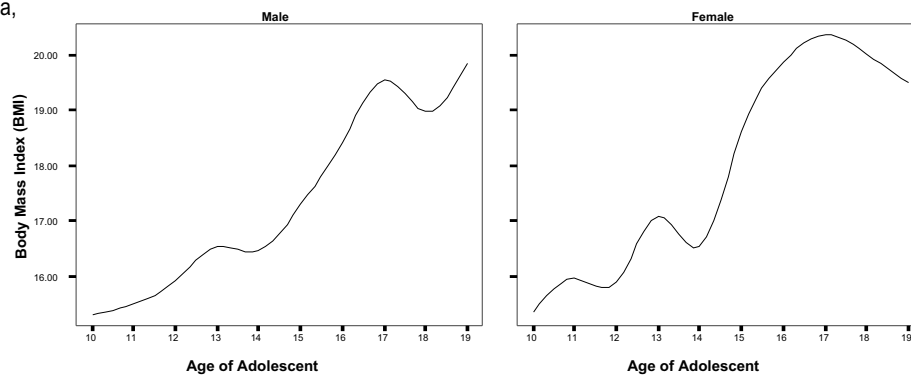
# 10 Features

Figure 1 Body Mass Index (BMI) by Mid-Upper Arm Circumference (MUAC) for Adolescent Males and Females in Kilosa, Tanzania (10-19 years)



Source: Cordeiro LC. 2004. Dissertation Data.

Figure 2 Body Mass Index by Age for Adolescents (10-19 years) in Kilosa, Tanzania



Source: Cordeiro LC. 2004. Dissertation Data.

## Tanzania

Tanzania similarly has demonstrated an increased interest in adolescents and adolescent nutrition. Part of this interest stems from simple demographics with adolescents (10-19 years) representing 23.34% of the country's population.<sup>36</sup> In Africa as a whole, roughly half of the population is under the age of 18 years.<sup>37</sup> Recognizing that the country's future—its leaders, labour pool, parents, caregivers and providers—will emerge from this group, there is a growing commitment in Tanzania to invest in adolescents with a view to attaining a healthier and more productive adult population.

The other basis for concern about adolescents is the devastating effect that HIV/AIDS has had on the population. Sub-Saharan Africa accounts for more than 70% of HIV/AIDS cases worldwide, and is the only region where women living with HIV/AIDS outnumber men.<sup>38</sup> AIDS now is also the leading cause of death of people aged 15 to 49 in Malawi, Tanzania, Uganda, Zambia and Zimbabwe.<sup>36</sup> In Tanzania, 60% of new HIV infections occur in the 15-24 year age group.<sup>39</sup> Challenging socio-economic environments, increasing food insecurity, and severe public health constraints adversely affect adolescent nutritional status and, at the same time, heighten the risk of HIV/AIDS among young people in these countries, thus the urgency in focusing on this population (see Gillespie, this issue).

In 2003-2004, two of the authors of this paper conducted a cross-sectional survey on adolescent health and nutrition under the auspices of UNICEF/Tanzania.<sup>40</sup> This study was conducted in Kilosa, one of Tanzania's largest rural districts. Data on health, diet, physical activity, orphan status, anthropometry, and pubertal landmarks (age of menarche and age of voice change) were collected on a random sample of 691 adolescents (10-19 years) from a cluster sample of 28 villages in the district. Household level data were also collected. Analysis of this data is currently underway.

Preliminary findings indicate a prevalence of undernutrition (BMI <5<sup>th</sup> percentile of NCHS reference) of 19.2%, generally consistent with other figures on adolescent undernutrition in this part of Africa. For both genders, BMI was highly correlated with mid-upper arm circumference (MUAC) (Pearson's correlation 0.92,  $p < 0.001$ ), suggesting the possibility that MUAC may be a useful measurement tool in adolescent projects and studies (Figure 1). BMI for age, improved for both boys and girls through the course of adolescence, with the exception of a downward turn among 18-19 year old females (possibly resulting from smaller numbers in that age cohort) (Figure 2). For both genders, median BMI for age

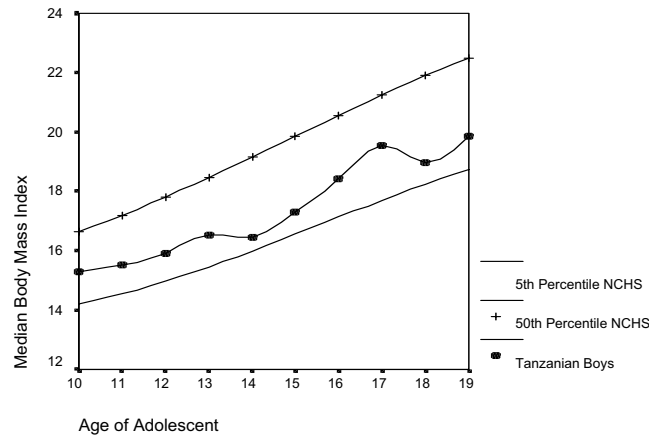


Figure 3 Median Body Mass Index (BMI) by Age of Adolescent Males (10-19 yrs) in Kilosa Tanzania: A comparison with NCHS/WHO references (n=367)

Source: Cordeiro LC. 2004. Dissertation Data.

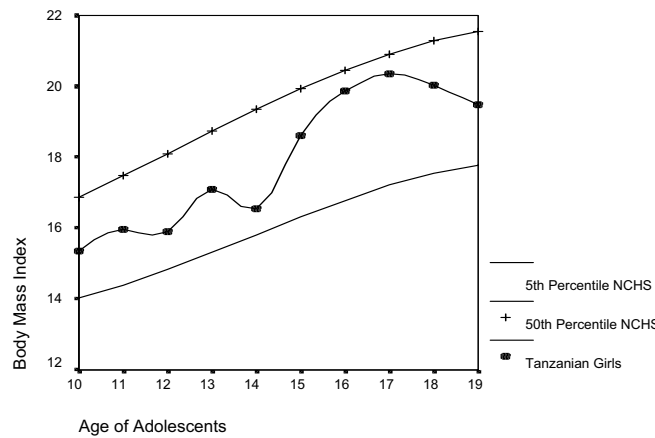


Figure 4 Median Body Mass Index (BMI) by Age of Adolescent Females (10-19 yrs) in Kilosa Tanzania: A comparison with NCHS/WHO references (n=322)

Source: Cordeiro LC. 2004. Dissertation Data.

remained above the 5<sup>th</sup> percentile and below the 50<sup>th</sup> percentile of the NCHS reference population across all ages (Figures 3 and 4, next page). Like other studies on adolescent growth, boys were found to be almost twice as malnourished as girls (64% vs. 36%,  $p < 0.05$ ). Pre-pubescent adolescents were more likely to be undernourished than those reporting that they had attained pubertal landmarks (74.2% vs. 25.8%,  $p < 0.05$ ). Among adolescents reporting that they had not yet reached such pubertal landmarks, younger adolescents (10-14 years) were more likely to be undernourished than those who were older (83.7% vs. 16.3%,  $p < 0.005$ ).<sup>b</sup>

An ongoing analysis by Cordeiro and Levinson (forthcoming) is examining the relationships between adolescent nutritional status and household food security, periodic household food shortages, skipping meals, school attendance, and orphan status. It will also examine the relationship between food insecurity and adolescent behaviours associated with greater risk of HIV/AIDS. Information emerging from this study will be used to guide subsequent efforts by the government and UNICEF, as well as permit the development of Tanzanian counseling materials comparable to those used by BINP's Adolescent Girls Forums in Bangladesh.

**Conclusion**

Increased attention to adolescent malnutrition in developing countries, as reflected in some of the pioneering studies and project activity discussed in this paper, is heartening. However, these seminal efforts must be expanded to better understand the full extent of the problem, its determinants, and—most importantly—to assess the cost-effectiveness of alternative means of addressing the problem in countries of Asia, Africa, and Latin America. Also necessary is the development of a cadre of nutrition professionals in these countries capable of carrying out this work. The SCN, commended here for highlighting the importance of the problem and efforts to address it, should continue its international focus on adoles-

<sup>b</sup> Among those reporting that they had not yet attained certain pubertal landmarks, two were 17 years old (one male and one female) and one was 19 years old (female). The majority in both genders, identified as pre-pubescent, were below 15 years of age.



## 12 Features

cent-related efforts to assure continued advances in programmatic activity and supportive research and training.

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# SCHOOL-BASED SUPPLEMENTATION

## LESSONS LEARNED IN INDONESIA

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### *Introduction*

Anaemia is a widespread public health problem in many developing countries, especially affecting children under five and women of reproductive age, including adolescent girls. Because of its detrimental effects on an individual's development and, hence, for future generations, interventions are urgently called for. Improvement in the dietary intake of iron, vitamin A and other micronutrients is a long-term goal. In view of the high prevalence of anaemia, supplementation is a very suitable intervention as it is cost-effective and results can be seen in a matter of months.

More broadly, the reduction of malnutrition is a key component of reducing global poverty, as reflected in the United Nations Millennium Development Goals,<sup>1,2</sup> since malnutrition and poverty are interlinked.<sup>3</sup> Poverty not only causes malnutrition, but reduced physical and mental development also increases the economic vulnerability of malnourished individuals. Poverty is central in the vicious cycle of malnutrition and associated morbidity throughout the life cycle: malnourished mothers give birth to malnourished children who are future malnourished adults. One way to break this intergenerational cycle is to improve the nutrition of adolescent girls, prior to conception.

This paper discusses the results of three school-based supplementation studies from a programmatic perspective. The main conclusions are presented together with implications for policy development and recommendations for future research and programme implementation.

These studies were part of the OMNI (Opportunities for Micronutrient Interventions, 1993-1998) project, developed by USAID<sup>4</sup> and examined supplementation among adolescents, a relatively new target group. The studies were designed to test the hypotheses that 1) anaemia and subclinical vitamin A deficiency are prevalent among adolescents, 2) supplementation with iron and vitamin A are effective to treat these conditions, and 3) schools are a good channel to reach adolescents.

The first hypothesis was proven to be true, by these as well as other studies.<sup>5,6,7,8,9</sup> While there is no doubt as to the efficacy of iron and vitamin A supplementation in reducing anaemia,<sup>10</sup> their distribution through schools did not automatically lead to effectiveness in reducing anaemia and vitamin A deficiency.<sup>6,11,12</sup> While a large proportion of Indonesian adolescents could be targeted through schools (second study), supplementation programmes using this channel need to overcome many hurdles.

### *Description of the Studies*

Three intervention studies focused on the effectiveness of supplementation with iron and/or vitamin A among school-attending adolescents to reduce anaemia prevalence, and iron and vitamin A deficiency. These were implemented between October 1996 and May 1999 in 24 urban junior high schools in Surabaya, Indonesia. Supplementation was supervised except during holidays, when tablets were to be taken at home.

The baseline survey found an anaemia prevalence of 25.8% among girls, irrespective of maturity phase, and 24.5% and 12.1% among pre-pubertal and pubertal boys respectively. Lower socio-economic status significantly increased the risk of being anaemic.<sup>5</sup>

In the first intervention study, subjects received weekly supplementation for 14 weeks with either 60 mg iron with 250 µg folic acid, or 10,000 IU vitamin A, or both supplements or no supplements at all. There was no significant increase in hemoglobin concentrations. This appeared due to poor compliance related partly to side-effects of the iron tablets.

Adjustments were made for the second study to reduce side effects and enhance compliance. Iron/folate was given as a sugar-coated tablet with the same dose as before, while the dose of the vitamin A was increased to 20,000 IU per week. Placebo's were introduced for both supplements (note that in the previous study there were four groups, but no placebo's for treatment not received) and the duration of the intervention was increased to 22 weeks. Hemoglobin concentrations of urban subjects decreased in all groups, but weekly vitamin A with iron/folate supplementation provided a small but significant

protection against this decrease. In the rural areas, hemoglobin concentrations increased but no effect due to the interventions was found. Indonesia faced an economic crisis in 1997, the effects of which were most felt among the urban poor, resulting in reduced dietary quality,<sup>13</sup> which most likely was the cause of the Hb reduction. Rural populations are less dependent on the cash economy and hence have more protection during times of economic crisis. Sugar-coating of iron tablets had indeed improved compliance by reducing side effects.

In the third study, conducted only in the third grades of the urban schools, an assessment was made of the effect of more stringent supervision and nutrition education on the regular taking of iron tablets. For 19 weeks, students received weekly either iron/folate or a placebo. With supervision, field workers recorded compliance rates of 87-98% and lower rates in the iron group than in the placebo group. Without supervision during the holidays, self-reported compliance was around 50%, and in the iron tablet group it was higher for girls than boys (48.2% vs 38.4%). Peer pressure to not take tablets and the lack of involvement of the teachers in promoting behavioural change both contributed to poor compliance.

Despite comparable compliance rates under supervision among boys and girls, the expected increase in hemoglobin concentrations among the iron-supplemented group compared to the placebo group was only observed among boys. Supervision thus did not ensure ingestion of the tablets among the girls. Indeed, when asked, girls admitted to having hidden the tablets and then thrown them away or in some cases given them to other family members. While girls pretended to take the supplements, boys defied instructions openly, which led to the difference in recorded compliance rates.

### **Discussion**

The results of these studies were not as straightforward as reported in the few other published studies among adolescents.<sup>14,15,16</sup> However, those were mostly efficacy studies, with strict supervision of supplement ingestion and which only reported results of complying subjects. In contrast, the objective of the present studies was to determine the effectiveness of a supplementation programme. It was found that side effects and peer pressure can reduce compliance to the extent that no or only a limited effect was found of the interventions on hemoglobin concentrations.

#### ADOLESCENTS AS A TARGET GROUP

Although interventions among adolescent girls were originally viewed solely as a means to improve pre-conception nutrition, our results underscore the need to acknowledge adolescents as a target group in their own right, irrespective of their future reproductive roles. In a comprehensive life-cycle approach, a relevant targeting would be geographical (urban slum area or poor rural areas) or by school type (for example public vs private), and adolescents should be included in assessment surveys of the extent of nutritional deficiencies and interventions aimed at reducing their prevalence.

#### ANAEMIA IS PREVALENT AMONG ADOLESCENT GIRLS AND PRE-PUBERTAL BOYS

In the current studies, highest anaemia prevalence rates were found among the girls and among pre-pubertal boys.<sup>5</sup> Male sexual maturation causes a physiological increase in hemoglobin concentration,<sup>17,18</sup> while nutrition requirements decrease after completion of the growth spurt. In girls, any expected age-related increase in hemoglobin concentration is halted by menarche and the ensuing periodic blood loss, while girls' growth spurt also occurs much earlier.<sup>19</sup>

#### SUPPLEMENTATION IS NECESSARY AND EFFICACIOUS

The few published studies on the subject are consistent in showing that anaemia among adolescents is a public health problem. Because of its detrimental effects on individual development, thus on that of future generations, interventions are urgently called for. Supplementation is very cost-effective. Weekly supplementation with at least 60 mg iron/folic acid and 20,000 IU vitamin A is efficacious in increasing Hb, serum ferritin and serum retinol in non-pregnant women of reproductive age, including adolescents.<sup>20</sup> Sixty mg of iron was preferable to 120 mg because of fewer side effects.<sup>15</sup>

#### EFFECTIVENESS OF SUPPLEMENTATION

In the first study, none of the regimens resulted in an increase in hemoglobin concentration. After adjustments to the study design, both sexes in the urban area were shown to benefit from supplementation,<sup>12</sup> although not in rural areas. The combination of vitamin A and iron proved to be most effective. In the third study (supplementation with iron/folate combined with nutrition education) there was an increase in mean hemoglobin concentration among adolescent boys, but not among girls. Poor compliance diminished the intervention's effectiveness. Thus, the results of these studies show that applying an efficacious approach in a routine programme setting does not necessarily yield the desired results.



## 16 Features

### *Programme Requirements for Success*

An analysis of these studies has yielded the following important elements for successful programmes:

#### KEY PROGRAMME PARTNERS

Many partners are involved in school-based interventions. To help ensure success, all parties must be fully committed to collaborate. Students, parents, teachers, school administration officials, and all relevant ministries (among others, health, education, religious affairs, and finance), at central and local levels, should be active participants, ideally from the programme's conception.

Programmes should focus on the health needs and perceptions of the target population rather than on the theoretical ideas of scientists or policy makers.<sup>21</sup> In the case of adolescents, the problem could be defined in terms of academic underachievement, poor school attendance, or poor physical condition leading to decreased economic productivity. All related to poor nutrition, these problems lead to chronic poverty and can be examined objectively.

Teachers are providers in school-based supplementation programmes. It is therefore essential that they be aware of the problem and of the benefits of proposed interventions. Such programmes must be integrated within school routines. The presence of teachers has been shown to enhance compliance<sup>14,22</sup> but in our studies, it was hard to involve teachers. For some, even financial incentives only partially eased their feeling of being overburdened. Teachers' commitment could be improved with intensive, ongoing communication and specific training and by including their role in the intervention in their job description. By providing supplements to teachers, in demonstrating that supplementation can lead to improved academic achievements in students, and by providing quality educational materials about anaemia, teacher involvement may be improved.<sup>21,23</sup>

Parents should also be educated about the problem of anaemia and the benefits of the supplements to ensure that they encourage their adolescent children to take their supplements. Parents may even be directly involved as programme volunteers. Finally, as the target population, the students' perspective should be central to all efforts. In particular, educational messages should focus on addressing students' perceptions and beliefs.

#### PRACTICAL CONSIDERATIONS

Availability of drinking water to take the supplements is not guaranteed at many schools in developing countries. Possible solutions are water dispensers at the schools and sealed plastic water containers. However, one should not underestimate the difficulties involved in logistics, training of teachers, cost and waste. Ideally, clean water or other drinks would be provided in a cooperative effort among different programmes (eg, school feeding initiatives).

The schools have their own schedules to adhere to and data collection activities can be particularly disturbing to the school routine. Supplementation will also coincide with holidays and the Muslim Ramadan month of fasting, leading to either unsupervised or discontinued supplementation.

#### COMPLIANCE: A DETERMINING FACTOR OF EFFECTIVENESS

Effectiveness of supplementation is the product of supplement efficacy, intervention efficiency, and compliance. Supplement efficacy (how well the tablet works after ingestion) has been demonstrated.<sup>15,24</sup> Efficiency of an intervention is defined as how well it is delivered and combines financial, logistic, political and social factors. In our studies, there was no problem with availability of the supplement. Therefore, effectiveness was highly dependent on student compliance.

Compliance was found to be inversely related to side effects (studies 2 and 3). Sex differences were found not only in the levels of compliance, but also in student attitudes: girls were more covert in their non-compliance. There also were urban/rural differences in compliance reporting, for which no explanation was found. Peer pressure was strong and oriented towards non-compliance, while teacher involvement was found to be insufficient. Supervision appeared to have a positive effect on compliance.<sup>6,11</sup>

#### ADVOCACY AND SOCIAL MARKETING AS KEY ELEMENTS

The above illustrates that advocacy and social marketing are essential elements in awareness raising and in programme design and implementation. Moreover, among the general population there is little awareness of causes, consequences and prevention of anaemia. Therefore, any programme addressing a particular target group needs to take into account that information has to be very basic. Targeted education for teachers, students and parents needs to be implemented at regular intervals. We found there to be a need for gender-specific messages to enhance compliance among adolescent boys and girls.



Innovative channels of nutrition education beyond the school setting in delivering social marketing messages should be explored, such as pop-music or comics, advertising in mass media, through (religious) groups for youths, women, and men, or even through television soap operas.

#### MONITORING AND EVALUATION OF PROGRAMMES

The only way to assess programme effectiveness is through rigorous monitoring and evaluation, using well-defined outcome indicators, in addition to process indicators. By continuously assessing the effect as well as factors obstructing or contributing to successful programme implementation, informed decisions can be made to modify, continue and expand programmes.

However, there is still a need to further develop adequate and feasible approaches for programme evaluation, and to quicken the transition process from research to policy and programmes.<sup>25</sup> In general, there are three ways to evaluate programme impact: adequacy, plausibility and probability assessment.<sup>26</sup> Where probability assessments are widely used in randomized controlled trials, the plausibility approach, which assesses whether the programme seemed to have an effect above and beyond external influences, is not.

The advantage of the plausibility approach is that it can be used when randomization to treatment is not possible for ethical reasons, when the treatment cannot be blinded or because the programme has already started. Plausibility can only be demonstrated if all other likely explanations for an observed impact can be formally discarded. The plausibility that the intervention was the cause of the statistically significant improvement found can be shown for example by dose-response relationships within treatment groups, changes over time, and/or concurrent changes in multiple indicators or processes.

#### **Conclusions and Recommendations**

Lessons learnt and recommendations coming out from these studies include:

- As micronutrient deficiencies are prevalent among adolescents, their assessment should be included in related surveys and interventions. Data with regard to adolescents should be reported separately according to sex, age and maturity phase, and sampling frames should take into account differences in socio-economic status;<sup>5</sup>
- Institutions, such as schools, offer a window of opportunity to reach this target group, but pre-conditions need to be met to optimize the effects of the intervention. Teachers' job descriptions should also include their supplementation-related tasks;
- The supplementation programme should be accommodated within school schedules and particular care should be taken regarding supplementation and monitoring activities during holidays and examination periods;
- Drinking water should be available and supplementation tablets should be "palatable" with respect to appearance and side-effects;
- The client perspective (in this case of students, teachers and the community) should be included in programme design, implementation, monitoring and evaluation. Any programme addressing a particular target group should include raising awareness about anaemia in general. Furthermore, messages should be focused on the target group and this might mean that gender-specific messages are needed;
- All programmes should have built-in monitoring and evaluation components to determine effectiveness and to make adequate adjustments during programme implementation; and
- Finally, to be meaningful for policy-makers and programme managers, it is more important to know *what works, under which circumstances and at what cost*, rather than what *should* work, based on results of studies under ideal, rather than real-life conditions. A plausibility approach, rather than randomized controlled trials, is most appropriate for programme evaluation.

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## REDUCING ANAEMIA AMONG INDIAN ADOLESCENT GIRLS THROUGH ONCE-WEEKLY SUPPLEMENTATION WITH IRON AND FOLIC ACID

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### *Introduction*

In India, anaemia is highly prevalent. Nearly 85% of pregnant women,<sup>1</sup> 50% of non-pregnant non-lactating women and about 75% of young children suffer from anaemia.<sup>2</sup> Although the number of studies on adolescent anaemia is limited, the prevalence among this population is also likely to be high. A multi-centre study carried out in 16 districts of 11 states indicated an overall anaemia prevalence of 90.1% in adolescent girls (11 to 18 years of age).<sup>3</sup>

Recognizing the severity of the situation, the Indian Government started a National Anaemia Prophylaxis Programme in 1970 [later renamed the National Anaemia Control Programme (NCAP) in 1991]. The target population was comprised of pregnant women, lactating women, and family members. Its aim is to reduce the prevalence of anaemia in women of reproductive age and in preschool children. However, despite these programmes there has only been a limited decrease in the prevalence of anaemia in any of the vulnerable populations over the past 40 years. For example, the prevalence of anaemia in children less than six years of age decreased minimally from 77% in 1970 to 70% in 1999.<sup>4</sup>

Seeking a more effective approach, the supplementation of adolescent girls was piloted in several states in India. It is based on the concept of the life cycle, recognizing that many women are already anaemic before they become pregnant. During adolescence, the requirements of iron are high<sup>5</sup> and in the Indian context, the lack of adequate dietary intake of iron aggravates the problem of anaemia (iron intake of girls 10 to 17 years of age is estimated to be 46% to 64% of the Recommended Daily Allowance<sup>6</sup>). Nutritional deficiencies in adolescent girls have far-reaching implications. Anaemic adolescent girls may be future anaemic adult women with compromised physical and mental growth. They have low pre-pregnancy weight, are more likely to die during childbirth and deliver low birthweight babies, thereby continuing the cycle of ill health.<sup>7,8</sup>

An analysis of studies on the efficacy of intermittent iron supplementation conducted by Beaton and McCabe (1999) concluded that weekly supplementation of children and adolescents was effective if delivered under supervision to ensure compliance.<sup>9</sup> Studies conducted in India confirmed that weekly supplementation of adolescents is effective in reducing anaemia prevalence.<sup>10,11,12</sup>

In a collaborative effort between the Department of Education and the Department of Women and Child Development of the Ministry of Human Resource Development, and the Ministry of Health and Family Welfare of the involved States, with support from UNICEF India, a weekly iron-supplementation programmes to control anaemia in adolescent girls was initiated. This programme has two distinct target groups: girls in school and out-of-school girls, and is being implemented in 13 states with varying coverage. The states include: Andhra Pradesh, Assam, Chattisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

### *Objectives of the Review*

The adolescent anaemia programmes have a common set of general goals/objectives but were initiated at different times with modifications in terms of scope and activities in line with state specific issues. Also, impact assessments have been conducted for some of the programmes but these assessments were conducted independent of each others' programmes and independent of this review.

The objectives of this review were to: summarize and analyze the status/characteristics of the various adolescent anaemia programmes operating in India; summarize and analyze the results of the impact assessments that have already been conducted; and, to estimate and analyze the differences in costs of the programmes vis-à-vis the impacts.

<sup>a</sup>The views expressed in this article are those of the individual authors and do not represent the views of the organizations for which they work



Table 1 Reach of programmes

State	Age of girls targeted	In school girls	Out of school girls	Total number of girls targeted (as of June 2004)
Andhra Pradesh	10-15 yrs	3071	-	3071
Bihar	11-18 yrs	260,000	131,000	391,000
Gujarat	13-19 yrs	250,000	9,500	259,500
Jharkhand	11-18 yrs	128,527	130,454	258,981
Karnataka	11-16 yrs	4613	-	4613
Madhya Pradesh	10-18 yrs		256,371	256,371
Chhattisgarh	10-18 yrs	24,219	29,291	56,110
Maharashtra	14-18 yrs	65,041	35,081	100,122
Orissa	10-19 yrs	148,972	1,812,127	1,961,099
Rajasthan	10-19 yrs	-	175,883	175,883
Tamil Nadu	10-19 yrs		5,300,000	5,300,000
Uttar Pradesh (G)	10-19 yrs	6,750	22,030	28,780
Uttar Pradesh (L)	11-18 yrs	12,691	10,000	22,691
West Bengal	10-19 yrs	449,194	74,000	523,194
<b>TOTAL</b>				<b>8,795,530</b>

### Methods

Main sources of information for this review include programme documents, and impact assessment reports; communications with UNICEF Officers in India; and, discussions with some Principal Investigators (PIs). Impact assessments were not standardized. Although some of the impact assessments did test for significance between the intervention and the control group, in order to standardize the method, Chi Square Test using EpiInfo was used to re-analyze the significant difference in anaemia prevalence from baseline to endline. Full data sets were not available for further analysis.

### Programme Approach—A Summary

Most of these programmes were initiated as pilot programmes/projects in order to demonstrate effectiveness and feasibility for scale-up. The majority of adolescent anaemia programmes were initiated between the years 2000 and 2002, with those in Karnataka and Chhattisgarh being initiated in 2003 and 2004, respectively. All programmes supplement adolescents weekly with 100 mg elemental iron (as ferrous sulphate) and 500 micrograms of folic acid.

Most state programmes also provide albendazole to treat worm infestation except Bihar, Jharkhand, Gujarat, Rajasthan and Tamil Nadu. Uttar Pradesh is the only state that also links tetanus toxoid immunization with the programme.

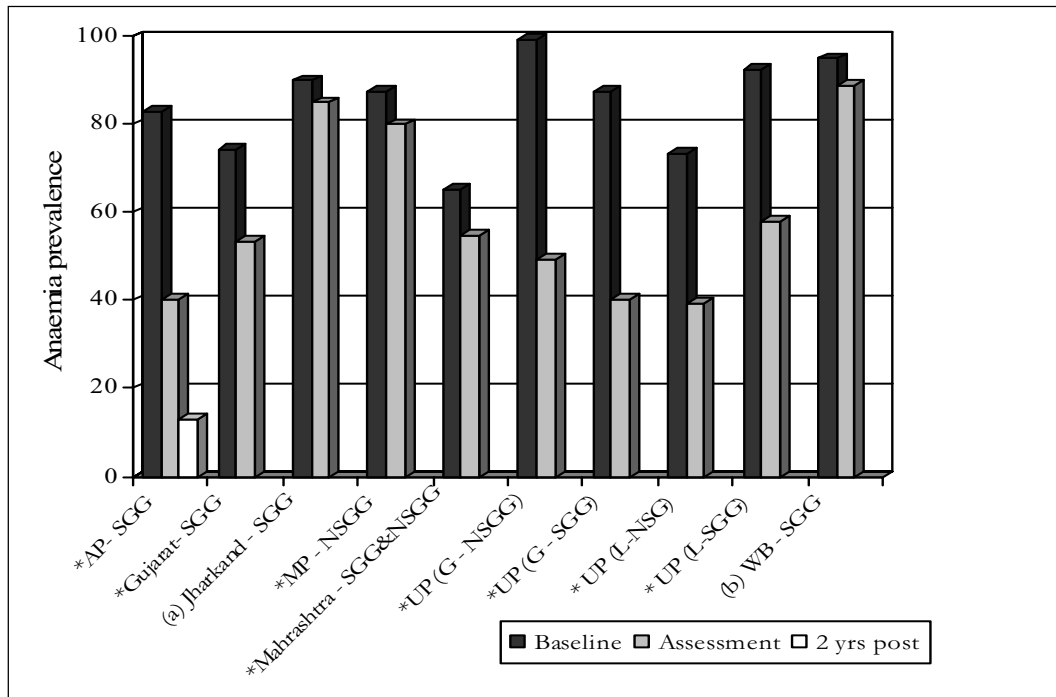
School girls receive supplements at school under supervision of the teachers on a fixed day. For this purpose, all involved teachers received training about the causes and consequences of anaemia and iron deficiency, about the positive impact of supplementation and its possible side effects; they were trained to organize and monitor the supplementation. Similar training was organized for community health and nutrition workers. Parents and community leaders were informed through pamphlets and parent-teacher contacts as well as through health and nutrition workers in the community. The adolescent girls themselves received oral as well as written information through the schools, which included dietary advice. In many states the supplementation programme is linked to broader life-skills education training that addresses issues such as appropriate age of marriage.

Approaching non-school girls was less straight-forward because these girls do not have a daily/weekly gathering place such as a school. Programmes utilized the Integrated Child Development Services network of the Government of India with its outreach to more than 600,000 villages. For this purpose, the community child-development and nutrition worker (Anganwadi worker) was trained to offer information to adolescent girls and their parents and to provide the supplements. In most states, the girls come weekly to the community center to receive the iron-folate tablet where it is also ingested. Some states attempt to strengthen this approach by using school going girls to reach-out to their non-school peers. As of the end of 2004, some 8.8 million girls (school going and non school going) were targeted in the above programmes (see Table 1 for details).

### Method of Impact Assessment

Impact assessments were conducted in seven of the programmes: Andhra Pradesh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Uttar Pradesh (programmes in two districts—Lucknow and Gorakhpur) and West Bengal.<sup>13</sup> Of the assessments carried out, three targeted out-of-school girls only, five targeted school girls and one covered both categories.

The impact assessments were based on reported compliance with tablet intake and on the analysis of



Graph 1 Change in anaemia prevalence by programme (hb<12g/dl)

Notes:

\* statistically significant difference (Chi square test, p<0.001, CI 95%)

(a) Baseline is the ICMR estimation of anemia (Chi Square Test not possible)

(b) out-of-school non participants represent baseline and school going participants represent assessment (Chi Square Test not possible)

hemoglobin concentration. Randomly selected (non-paired) samples for hemoglobin measurements were collected before the start of the programme and 12-14 months after programme initiation. Only in Andhra Pradesh was an additional impact assessment conducted two years after initiation.

The method of blood collection within each site was the same for baseline and endline, but varied between sites. Finger-prick blood samples were collected on filter paper and analysed using the cyanmethemoglobin method in Madhya Pradesh, Andhra Pradesh, Jharkhand, Uttar Pradesh (Path, OMNI, 1997).<sup>14</sup> In Maharashtra, venous blood was analysed using the cyanmethemoglobin method. In Gujarat, venous blood was analysed using a cell counter. In West Bengal finger-prick blood was analysed using Sahli's method. The sample sizes varied per site and ranged from 297 to 2860. Gujarat was the only site where, in addition to hemoglobin, serum ferritin concentration was also analysed in a paired sub-sample.

**Results**

For school girls, compliance was mainly assessed by teachers who kept registers. For non-school girls, the community health and nutrition worker kept a register. In most cases, self monitoring cards are also provided. However, for the assessment the information source was mainly recall. Compliance rates varied from 75% to 90%. Compliance was lowest in West Bengal and in Maharashtra where a problem with tablet delivery occurred.

Side effects were reported by up to 50% of girls. The symptoms reported varied from black stool, nausea, giddiness, heartburn to vomiting. In programmes that reported side effects at baseline and then again at end line, it was revealed that the side effects eventually decreased (Gujarat and Uttar Pradesh). Benefits were reported by the majority of girls. They reported feeling healthier, less sleepy and fatigued, and that they could concentrate better in school. They also reported regularization of menstrual cycles and brighter skin.

Prevalence of anaemia at baseline was high across all programmes [non school going girls (NSGG) and school going girls (SGG)], varying from 54% to as high as 99%. As a result of the intervention, the decrease in anaemia prevalence rates was significant in all programmes where statistical analysis could be conducted (see Figure 1). The decrease in anaemia prevalence varied, from a decrease of five percentage points in Jharkhand to 43 percentage points reported in Andhra Pradesh, and 50 percentage points in Uttar Pradesh after a one year of intervention. Andhra Pradesh, which also conducted an assessment two years post initiation, reported a total reduction of about 70 percentage points.



## 22 Features

Serum ferritin levels were collected from a sample in Gujarat. The baseline revealed prevalence of low ferritin with the paired analysis reporting 50% (<12 ng/ml). One year later, the prevalence of low ferritin levels decreased to 41%. The median ferritin increased from 11.9 ng/ml at baseline to 15.3 ng/ml one year later.

The costs of the programmes were assessed taking the following factors into consideration: provision of information and education materials and activities, iron-folate tablet supplies, planning and monitoring, and training of teachers and other involved workers. Salary costs of the teachers and other workers were not included. The estimated costs varied from US\$0.30 to US\$0.90 per targeted girl, per year.

### **Conclusion**

It is evident that weekly supplementation of adolescent girls with iron folate tablets did lead to a marked decrease in the prevalence of anaemia. In some cases, a large impact was reported, as in Andhra Pradesh, with a decrease in prevalence of anaemia by 70% in two years. In some other states, the impact after one year was more modest. Reasons for the small but significant decrease in anaemia prevalence may include a low compliance with prescribed tablet intake (in spite of high reported values), and a possible multi-causality of anaemia such as a deficiency in other vitamins and minerals or genetic causes. It could also be that a larger reduction in anaemia prevalence may be achieved only after a prolonged supplementation period, on a once-per-week basis, which should lead to a sustained improvement in iron status and to a decrease in anaemia. The supplementation programme should continue until other sources of iron intake become more available, be it from natural dietary sources and/or from fortified food.

This review also concludes that programmes targeting out-of-school girls can be successful as the interventions targeting these girls also resulted in significant decreases in anaemia prevalence (as high as 50 percentage point decrease).

The main success factors for supplementing adolescents (in school or out of school) as reported in the impact assessments can be summarized as follows:

- Ensuring compliance through semi-supervised intake.
- Counseling not only the beneficiaries but the community at large in terms of the benefits and possible side effects. Information on anaemia prevention should not only focus on negative health impacts (eg. maternal death and low birth weight), but should put more emphasis on issues of immediate relevance to adolescent girls such as improved performance in studies and sports, and improved well-being. Stressing the need for an improved dietary intake is both crucial and an integral part of the programme.
- Ensuring continuous tablet supply.
- Regular monitoring— although self-monitoring cards are useful they alone will not ensure compliance, at least not at programme outset as side effects tend to deter girls. Therefore, it is important to have health staff available during the first phase to ensure beneficiaries that the side effects are normal and will subside if certain precautions are taken (e.g. not taking pills on an empty stomach). Monitoring by teachers and/or community child-development and nutrition workers, can in the end, become just another necessary task among hundreds and therefore may be open to error. Therefore, involvement of the community, including health staff, is crucial to ensure compliance.
- Integrating the intake of iron-folate into broader life-skills education for girls. Many of the programmes reviewed have a wider array of activities of which tablet provision is but one. It is important to plan for a holistic programme and approach.
- Ongoing promotion of the programme by all relevant stakeholders, including direct involvement from health staff, the district administration and key community leaders.

**Funding.** It is clear that if well conceived the supplementation component of an overall package of services for the adolescent girl costs very little. Recurrent costs include purchase of tablets, supply of information education and communication materials and monitoring forms, and provision of on-the-job training. State governments, with the help of the central government, are taking on the responsibility of scaling up the use of their own resources. Programmes such as in Bihar and Jharkhand, have been instrumental in involving local businesses to support the programme.

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# DELAYING AGE OF MARRIAGE AND MEETING REPRODUCTIVE HEALTH NEEDS OF MARRIED ADOLESCENT WOMEN FINDINGS FROM INDIA

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Jasmin Prasad, Christian Medical College

## *Introduction*

Marriage among adolescent girls younger than 18 years often has significant negative consequences for them and their newborns. As early marriage often means early childbearing, girls who marry young face serious health and nutrition consequences: higher rates of maternal mortality;<sup>1,2</sup> higher risk of obstructed labor and pregnancy-induced hypertension;<sup>3</sup> and amongst their newborns, higher rates of low birth weight, premature birth<sup>4</sup> and infant mortality.<sup>5</sup> The causes of this set of higher health risks tends to be behavioural. That is, girls might have risks similar to adult women if they had the same health and nutritional status as adult women before pregnancy, and received the same care while pregnant. However, their preparation for and care during pregnancy tends to be less than among adult women, and therefore the consequences tend to be worse.<sup>5</sup> In addition to the health consequences, child marriage generally causes girls to drop out of school,<sup>6</sup> which in turn limits their income-earning potential.<sup>7</sup> Girls married at a young age also often experience higher rates of domestic violence and sexual abuse.<sup>8</sup> The timing of marriage and childbearing is a lynchpin in the life cycle of malnutrition. When young women bear children before they are ready, their own maternal health and nutrition are compromised as is that of their newborns, thus perpetuating the cycle of malnutrition through the generations.

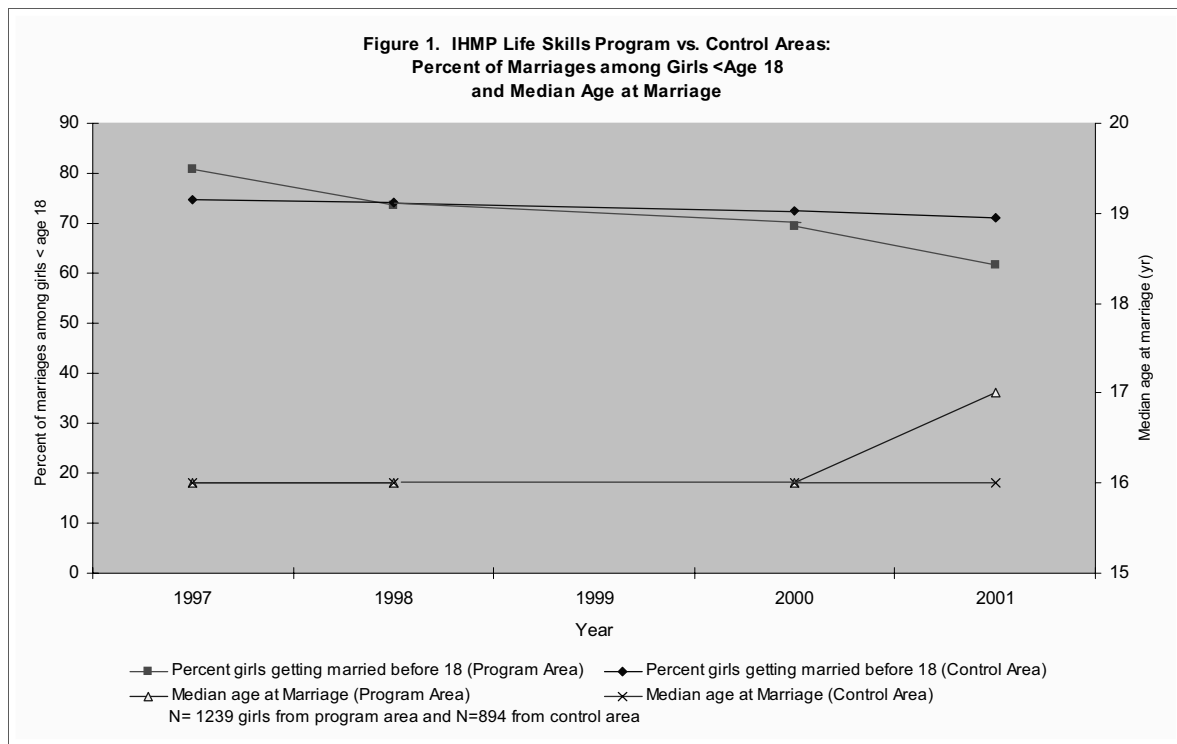
Child marriage is prevalent in many developing countries, especially Sub-Saharan Africa and South and Central Asia, albeit with variations. In Africa: 77% of women 20-24 years old were married before age 18 in Niger; 71% in Chad; 57% in Mozambique; and 31% in Togo. In South Asia: 65% of women 20-24 years old were married before age 18 in Bangladesh; 48% in India; and 14% in Sri Lanka.<sup>7</sup>

There is a trend toward delaying age of marriage in the world, including many developing countries. Largely associated with education, this trend is due to parents wanting more education for their daughters.<sup>9</sup> This is occurring slowly, however, and is not reaching girls in many areas most in need of the benefits of higher age of marriage and childbearing.

The wide variety of its negative consequences and the high degree of its prevalence in the developing world make child marriage a serious threat to child health and nutritional status, women's health and nutritional status, girl's education, and the earning power of women. Delaying age of marriage and childbearing, therefore, could enhance nutrition outcomes and outcomes from other development efforts.

Documented evidence is rare on programmatic approaches to increasing age of marriage, or on how to better meet the reproductive health needs of young mothers. Findings on postponing marriage and childbearing, and on meeting the reproductive health needs of the young mothers from a set of studies underway on adolescent reproductive health in India, are described below. Results are drawn from descriptive and intervention research in India carried out by five groups: Christian Medical College (CMC), Vellore, Foundation for Research in Health Systems (FRHS), Ahmedabad, Institute for Health Management, Pachod (IHMP), King Edward Memorial (KEM) Hospital and Medical Center, Pune, and Swaasthya, New Delhi along with the International Center for Research on Women (ICRW), Washington, DC. As there had been so little reliable information on adolescent reproductive health in India,<sup>10</sup> an earlier phase of descriptive research had been conducted, from which the priority areas for intervention were chosen. To design appropriate interventions, each of the five groups conferred in the participating communities. Then each group carried out one to three of the following interventions between 2002 and 2005: life skills course, health education, nutrition behavioural change communication, counseling, community mobilization, creation of social support groups, training of "trusted adults", and, finally, improvement in reproductive tract infection diagnosis and treatment and govern-





ment provision of reproductive-health services. Selected results, relevant to the age of marriage and provision of better care and services to married adolescent women, are reported below.

**Life Skills Programme**

In an area in rural Maharashtra where the median age of marriage was found to be as low as 14.5 years,<sup>11</sup> a one-year life skills course was offered by IHMP to unmarried 11-17 year old girls. All girls within this age range from a community of 18 villages were followed for two years, regardless of whether they participated in the course or not. All eligible girls from these 18 villages (about 1200) were offered the course, but during this first time it was offered, only about 400 participated (30%). They were compared to a control community of 17 villages. The proportion of marriages that occurred among girls less than 18 years old steadily decreased in the programme group from 80.7% in 1997 to 61.8% in 2001, a statistically significant change. The change in the control group for the same period was not significant: 74.8% to 71.0% (Figure 1). In the programme group, the median age of those who did marry increased from 16 years in 1997-2000 to 17 years in 2001, whereas it did not change in the control group. There are no other known influencing factors that could account for the differences between the programme and control groups. These data indicate that the programme had a significant influence in reducing child marriage in the overall programme area, not just among the group of girls who participated in the life skills course.<sup>12</sup>

Community input to the programme design was critical to these substantial reductions in child marriage. Early on, IHMP held focus groups with community members to discuss the causes and possible responses to the low age of marriage amongst their girls. Parents reported that schools based in their villages provided only four years of formal education. They were not willing to send their daughters for further education to school outside the village because they worried about their daughters’ safety from the approaches of men and boys during their daily walk to school. They would, however, send their daughters for informal education like a life skills course if it was within their villages. And having their girls in an education programme, parents reported, would allow them to overcome the social pressure to get their daughters married off early.

The programme had the following components, the combination of which was considered important:

- A life skills course of 225 sessions spanning one year of five evening meetings per week, including opportunities for group discussion and interaction. The variety of topics covered were: social issues and institutions like marriage, family and society, and differences among people according to gender, class and caste; roles of local government bodies like the Panchayati Raj and police; child health and nutrition; reproductive and sexual health; and numerous other categories.
- Individual projects within the community by the girls, eg, the literate girls in the course teaching illiterate girls in the community how to read and write.



- Recruitment, training and placement of teachers with eight years of education to teach in their home villages.

Monthly group meetings with parents, for women one month and for men the following one.

Since the first course reported above, this programme has reached many more girls with IHMP having implemented it for four more years. Subsequent offerings attest to the programme's replicability, ability to be upscaled, and sustainability. Most girls 11-17 years old in the areas that were initially designated as programme and control areas have been enrolled, and an evaluation of further progress on the age of marriage is underway. The programme has generated substantial interest in the state of Maharashtra, and the state's health directorate and UNFPA have recently begun offering a similar course scaled up throughout the state, albeit for a shorter four-month duration.

### ***Delaying Age of First Pregnancy Following Marriage***

Strong social pressure in India to bear a child soon after marriage has led to the common pragmatic wisdom that delaying marriage is more feasible for delaying childbearing than delaying pregnancy itself. However, unpublished descriptive findings from a study by FRHS in rural Maharashtra indicated that there was a large unmet need among young married women for contraception to delay first pregnancy. Eighty percent of 300 married women, 15-19 years old, in the study said they felt a need to delay conception, desiring more time than social pressure would allow to adjust their lives as newly married young women living and doing domestic work in the household of their husbands and parents-in-law. More surprising was that 17% of the girls reported using a contraceptive spacing method in the first year of their marriage. The condition under which these girls used the method is important, as qualitative data indicated, and suggests the opportunity for promoting spacing among newly married couples in the future. Contraception was used when the newlyweds talked about adjusting to newly married life and together agreed to use contraception. Such discussions mark a breakthrough from the normal "culture of silence" around issues of sex and reproductive health. While encouraging, the time during which contraception was used in this study sample was short – not more than one year – due to the same social pressure:

*We used [contraceptives] for 1 year, then we stopped. My friends used to comment, you have been married for more than a year, how come your wife has not yet conceived?*

—Young husband, Maharashtra

More intervention research is needed to explore how to meet the unmet need of contraception among newlyweds, in view of India's limited options of contraceptive spacing methods.<sup>13</sup>

### ***Meeting the Reproductive Health Needs of Married Adolescent Women***

In India, most female adolescents 15-19 years old are married. Little is known about whether and how their reproductive health needs are met, particularly as regards gynaecological problems, family planning, and infertility. From the five sets of studies, three results in particular exemplify how health-seeking behaviour is limited by embarrassment and a culture of silence if the problem is gynaecological or related to sexual practices, e.g. reproductive tract infections (RTIs) or sexually transmitted infections (STIs) (FRHS and CMC findings); and how health-seeking behaviour, at least in the obstetric realm, increases if husbands are involved (FRHS finding). Young women in India suffer silently, in particular with regard to RTIs, a cause of infertility, chronic poor health, and prematurity and low birthweight among their newborn. What seems indicated is increased access of married adolescent women to existing health services and care at home, rather than the need for different services *per se*. Also underlined is the importance of the husband and his family as the context in which care and services are to be made available because they take and implement important decisions for married adolescent girls, who have little social status and can make few decisions on their own that affect their well-being.

In the FRHS descriptive study among 300 young married girls above, as well as a sample of their husbands and mothers-in-law, work, fertility and the culture of silence surrounding sexual matters were the strongest factors that influenced the seeking of health care. Husbands made decisions about seeking care, mothers-in-law had influence over these decisions, and girls had neither decision-making power nor influence.<sup>14</sup>

The occurrence of a health symptom or condition triggered a four-step process to determine the need for health care (Figure 2, next page): was the symptom identified by the young married girl as a felt need for seeking treatment (felt need); did she tell a family member about the need (expressed need); did the family member(s) think the need justified seeking treatment (assessed need); and was action taken by the family and health providers to provide treatment (addressed need)? Each step required

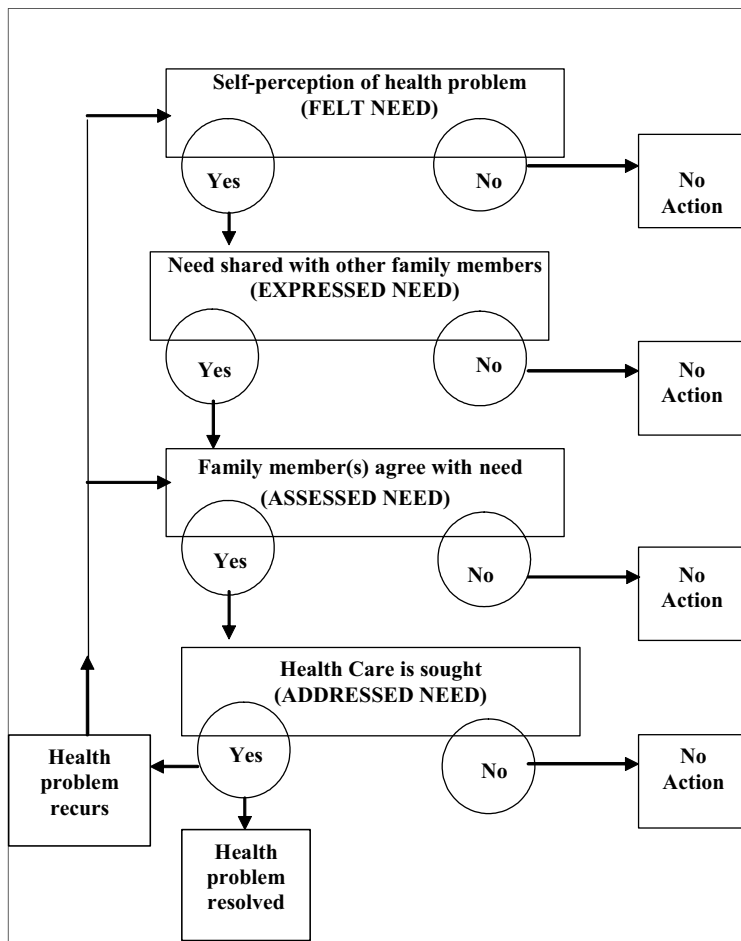


Figure 2 FRHS Diagram for steps in decision-making about seeking health care for married adolescent women

that the previous step be taken. For example, girls did not seek health care without first discussing their symptom with another family member for it to be assessed by one or more of them. The extent to which a health need evolved in that process differed according to the severity of the symptom or condition. Girls were treated quickly when it was debilitating enough to keep her from performing domestic work, e.g. high fever, broken bone. They were also taken for preventive care or treatment during a pregnancy because newborns and their health are valued in the family. However, girls and their husbands were often embarrassed to express needs related to their sexual lives, especially with perceived infertility and gynaecological problems, and as a result, few of these problems were addressed. (FRHS' subsequent intervention study is focusing on a broader approach to community mobilisation so as to encourage demand for health services while simultaneously improving their provision by government; results forthcoming.)

In the CMC descriptive community-based cross-sectional study of RTIs 1996–1997 among married women 16–22 years of age in Tamil Nadu, women were questioned about symptoms, received pelvic and speculum examinations, and had laboratory test samples taken. Qualitative and quantitative data on treatment-seeking behaviour were collected. Fifty-three percent of women reported gynaecologic symptoms, 38% had laboratory findings of RTIs, and 14% had clinically-diagnosed RTIs: pelvic inflammatory disease (PID) and/or cervicitis. According to laboratory diagnoses, 15% had STIs and 28% had endogenous infections. Multivariate analysis indicated three predictors of having an STI: women who worked as agricultural laborers were 2.4 times more likely to have an STI; women who were married five years or more were 2.1 times more likely; and women who had been tubectomized were 2.0 times more likely to have an STI. These three predictors suggest sexual patterns conducive to spreading STIs. The fourth predictor protected against the risk of having an STI: women who had more than five years of education were only 0.6 times as likely to get an STI compared to those with less than five years.<sup>15</sup>

Two-thirds of women presenting symptoms had not sought any treatment; the reasons cited were absence of a female provider in the nearby health-care center, lack of privacy, distance from home, cost, and a perception that their symptoms were normal. Young married women in this rural Indian community have a high prevalence of RTIs but seldom seek treatment. Education and outreach are needed to reduce the stigma, embarrassment and lack of knowledge related to RTIs. The low social status of



women, especially young women, appears to be a significant influence on their low rates of treatment for these conditions. (CMC's subsequent intervention study to address the high prevalence of RTIs compares health aides to medical doctors with regard to diagnosis, treatment and counseling among the 15-30 year old married women along with many of their husbands; results forthcoming.)

A potential ingredient for improving the reproductive health of the youngest women is the greater involvement of their husbands more in their health care during pregnancy and delivery. Recent findings from the FRHS intervention study in rural Maharashtra suggest that a majority of almost 1000 husbands were knowledgeable about prenatal, delivery and postnatal care. Men were often excluded, however, from participating in routine care because the medical system does not accommodate them and the community considers maternal care as exclusively women's domain. Young, newly-married women experience pregnancy and childbearing in an environment where they have little or no autonomy in decision-making, finances or mobility to seek care. Thus, it may be crucial to get husbands involved, since they are often the decision-makers, the ones who have to accompany the young woman to a clinic, and the ones who pay for care.<sup>16</sup>

### ***Implications for Nutrition***

Interventions aimed at delaying age of marriage to beyond adolescence and at improving the reproductive health of young married women are likely to improve the nutritional status of young women, young mothers and their infants. Women would probably experience improved obstetric and birth outcomes, and be better able to take care of their newborn infants. By delaying age of marriage and childbearing, thus altering a key contributor to chronic malnutrition, one may be able to enhance, complement, and even multiply the ways of targeting on-going nutrition interventions to mothers.

What role for nutritionists to promote delaying age of marriage and childbearing beyond at least age 18 and improving reproductive health services to married adolescent women? Nutritionists may consider a range of collaborative efforts with other programmers:

- become aware of programmatic efforts that delay age of marriage and improve reproductive health services for the adolescents, or advocate for them;
- support social workers, public health practitioners and medical staff as they carry out these programmes;
- consider ways in which the nutrition content of a programme could be strengthened to further improve nutritional status, thus enhancing, perhaps even multiplying nutritional impacts; and
- investigate the effectiveness of these interventions to improve nutritional status, and the conditions under which the improvements occur.

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# **NUTRITION AND CARE OF UNMARRIED ADOLESCENT GIRLS**

## **QUALITATIVE FINDINGS FROM SOUTH ASIA**

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### ***Introduction***

Within the life cycle of malnutrition, improving the nutritional status of adolescent girls is important. Recent demographic health surveys (DHS) in India and Bangladesh find that the prevalence of malnutrition in adolescent girls<sup>a</sup> aged 15-19 years is almost 50%, compared to around 40% in older women of childbearing age.<sup>1</sup> In South Asia, adolescent malnutrition, coupled with early marriage and childbearing, contribute significantly to the prevalence of low birth weight (LBW), and maternal and child malnutrition.<sup>2</sup> Recent estimates suggest that 48% of adolescent girls are married before the age of 18 and, in this context, adolescent pregnancy occurs mostly within marriage.<sup>3</sup> It is important to recognize that for adolescent girls, the decisions about when to marry and when to have children are not made by them, but by their natal and marital families. The pressure on adolescent girls to conceive immediately after marriage is tremendous.<sup>4</sup>

The implication of responding to this pressure to conceive soon after marriage is that the period between marriage and first conception is typically short, perhaps too short to be able to target this period effectively. Interventions that target the period before marriage may offer a promising alternative. Interventions to improve adolescent nutrition and pre-pregnant weight are critical. To improve the design of interventions that target adolescent girls, there is a need to understand how they are cared for by their families in the years leading up to their marriage. This type of inquiry is best addressed by using qualitative research methods. This paper presents qualitative data on unmarried adolescent girls. It focuses on care for adolescent girls before their marriage, and health and nutrition within a socio-cultural context in which gender discrimination is significant. Care is defined here as the provision by the family and household of time, attention and support to meet the physical, mental and social needs of the growing adolescent girl.<sup>5</sup>

These findings are part of a three-site qualitative study that is reaching completion in South Asia. The objective of the larger study is to understand the practices, perceptions, and gender constraints that influence adolescent girls' and young women's nutritional status, and LBW in India and Bangladesh. The three research partners, the Institute for Health Management in Pachod (IHMP), Maharashtra, India, the Foundation for Research in Health Systems (FRHS), Gujarat, India, and the Centre for Health and Population Research, ICDDR'B in Bangladesh, which have partnered with the Nutrition and Gender Initiative at ICRW, followed a common protocol at each of the study sites. Each partner has two sites for data collection. In India, data were collected in Rajasthan and Maharashtra, and in Bangladesh in Matlab and Mirzapur. Data collection methods include focus-group discussions (FGDs), unfinished stories (narrative scenarios), in-depth interviews (IDIs), and key-informant interviews (KIIs). The study participants included unmarried adolescent girls, newly married women and adolescent girls, new mothers, and their families. The results will be used subsequently by study partners and ICRW's Nutrition and Gender Initiative, to design programmes to improve the nutritional status of unmarried and newly married adolescent girls. The results will also be communicated to relevant policy-makers and programmes. The findings in this paper suggest that there are a variety of ways in which adolescent girls are cared for. Implications for future interventions are discussed in the final section.

### ***Menarche: a Turning Point in the Lives of Unmarried Adolescent Girls***

Girls begin experiencing social changes shortly before and after the onset of menarche. From about

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<sup>a</sup> The data collected in these surveys are for married adolescents and women only, aged 15-49 years.



the ages of 10 to 12 onwards, girls are socialized differently than boys. Girls are no longer allowed to go out and play; they must take on greater domestic responsibilities within their homes; and they are more directly taught by their mothers and sisters-in-law on how to behave in their future marital homes. Several study participants, including unmarried girls, were of the opinion that:

*A girl learns from her mother how to be a good wife and daughter-in-law. A mother's desire is that the daughter should please her in-laws and never behave in a way that brings shame to her natal home.*  
—IDI with an unmarried adolescent girl, 14 years old, Rajasthan, India.

Study participants stated that attire, mobility, food and health are realms that change for girls after menarche:

*When she becomes 10-11 years old then we pay more attention to her. Maybe then everybody thinks 'I have to give her in marriage within the next 2-4 years. Who knows who she will be married off to?' So we start paying more attention to her food, mobility and dress.*  
—FGD with fathers of unmarried adolescent girls, Bangladesh.

Following menarche, girls are required to dress differently<sup>b</sup> according to the local customs. From this point forward, adolescent girls must be accompanied at all times if they want to go anywhere outside the home, and they must justify their need to go out. The final decision to allow an adolescent girl to go out is taken by the parents, often the father:

*When I reached puberty, my mother placed restrictions on going out of the house. I have to take my mother's permission to go anywhere. I can go unaccompanied to my friend's house just opposite my house. But if I want to go anywhere further, I go with my brother. I don't go anywhere without my mother's permission. My mother decides where I can go. My mother forbids me from talking to boys or strangers. All these restrictions began after I reached puberty/menarche.*  
—IDI with unmarried adolescent girl, 14 years old, Rajasthan, India.

*Girls who have reached puberty are only allowed to talk to their female friends, that too if the friend lives near her house. She is never allowed to leave home for more than an hour. If she is not back in time, she is definitely beaten by her parents, as it is not proper behaviour to break rules.*  
—FGD with mothers of unmarried adolescent girls, Rajasthan, India.

The limits on mobility also significantly affect girls from being able to pursue their education further because middle schools and higher secondary schools are far from their homes, and it is not considered to be safe for girls when travelling to and from schools that are far away.

Some parents hastened to add that girls' lives were easier now than in the past:

*We think girls are now in a better situation. We used to be extremely orthodox. Earlier a girl couldn't go outside without a veiled face (burka) and barefooted. Now times have changed and restrictions are no more. One has to change according to the time.*  
—FGD with fathers of unmarried adolescent girls, Rajasthan, India.

Many study participants were of the opinion that girls and boys are cared for equally:

*Beta beti do aakhon saman nahi hote? Koi farak kaise karega?" (aren't both son and daughter like our pair of eyes? How can you differentiate between the two?)*  
—FGD with mothers of unmarried adolescent girls, Rajasthan, India.

Only a few expressed that girls are less-well cared for compared to boys because they will be married in the near future and so are not seen by the family as a viable asset:

*...a son's earnings will stay in the family, but a daughter would go away. Yes, less care is taken of her. This is why daughters get less care than sons.*  
—FGD with fathers of unmarried adolescent girls, Bangladesh.

### **Preparing for Marriage: A Time for Extra Care**

Families feel that their family honor depends on a girl remaining chaste until marriage, and they describe protecting their daughters' virtues as a significant responsibility and burden. Several study participants felt that as the onset of menarche signaled a marriage in the near future, it was the time to

<sup>b</sup> In Rajasthan, girls begin wearing saris as would adult women, and in Bangladesh, girls begin wearing the salwar Kameez, the tunic and pants traditional to the region.



give girls extra care, so that they could be married to suitable grooms from good families:

*Yes, they think about her [unmarried adolescent girl]. They think she will live in my home only for a few more days. When she gets married she may not be fed well. So more care is taken of her. People keep an eye on them when they become adults (i.e. reach puberty) and reach a stage appropriate for marriage.*

—FGD with fathers of unmarried adolescent girls, Bangladesh.

*When she crosses the age of ten, we start to buy her dresses, oil, soap and all the other things. We just try to keep her nice as much as we can.*

—FGD with fathers of unmarried adolescent girls, Bangladesh.

Some also stated that, as parents, though they had their daughters' best interests at heart, they could not assure their daughters' happiness after their marriage, so there are efforts to provide them with as much as they can before. In particular, some parents were of the opinion that in the years preceding their daughters' marriage, their health and diet became important, and they sought to provide more for them during this period.

In large part, parents stated that the investment and concern over nutrition, health, and overall well-being was linked to improving their daughters' marriage prospects as well as to ensure that they could fulfill their duties in their future marital home:

*Yes, she [unmarried adolescent girl] has a very important position in our family – she is Laxmi the Goddess of Prosperity of our family. It's our duty to do everything for her as long as she is a part of our family... She is not part of our family forever, but still she is endearing to us... She is more dedicated to her parents... a son doesn't do as much as a daughter does.*

—FGD with fathers of unmarried adolescent girls, Rajasthan, India.

*An adolescent girl will go to a marital home. If she does not have good health then it would affect her marriage prospects. So this is why her health should be considered important.*

—FGD with fathers of unmarried adolescent girls, Bangladesh.

Many parents stated that the major constraints in providing for their families and their daughters were socio-economic factors; most felt that they did not discriminate against their daughters in terms of how much food they gave, or in terms of health care:

*We are all villagers – so we can't give enough food. This is why they do not have good health. We do not have enough income and all the family members depend only on my income. So, I can't afford to give them good dress and good food.*

—FGD discussion with fathers of unmarried adolescent girls, Bangladesh.

### ***Pregnancy: Problematic in Adolescence***

Several study participants, including adolescent girls, acknowledged that early marriage had negative implications for birth and pregnancy outcomes and for the mother's long-term health as well. The study participants articulated that early marriage leads to early pregnancy and that an adolescent girl's body cannot readily cope with pregnancy as well as an adult woman's body. They acknowledge that this can weaken both the mother and child and can increase the risks for mother and child:

*Movan Kunwar said "Laxmi should not marry now. Meena [Laxmi's older sister] was married at the age of 15 and her life got spoilt. She has all kinds of complications due to her early marriage. She was not physically prepared to deliver a baby but is pregnant. She is weak now and if she delivers a baby her body will get weakened and her child will also be weak. ...Considering all of this if Laxmi is also married at this age, her life would also be a mess like Meena's"*

—unfinished story FGD with unmarried adolescent girls, Rajasthan, India.

*It's necessary for an adolescent girl to eat well so that when they get married, they will have strong healthy children.*

—IDI unmarried adolescent girl, 17 years old, Rajasthan, India.

The data suggests that many study participants understand and can articulate the link between good diet leading to good health, and diet and health contributing to adolescent growth and development:

*...to keep her healthy feed her a good diet...inclusion of green vegetables in her diet but sometimes we get these green vegetables and sometimes they are not available... She should be provided vegetables, ghee*





*[clarified butter], milk, meat and fish for her better health. But there should be money to purchase all this. If her health is fine her development will also be well. If a girl's health is fine then development will automatically be on track.*

—FGD fathers of unmarried adolescent girls, Bangladesh.

*...taking proper food is related to growth. Generally girls grow up between the ages of 10-20 and boys between the ages of 12-25 years.*

—FGD mothers of unmarried adolescent girls, Bangladesh.

It is interesting to note, however, that participants did not suggest that an adolescent girl's growth and development can be undermined by early pregnancy.

### ***Age of Marriage: Desired vs. Actual Age***

While participants clearly articulated the problems associated with early marriage, views on the desired age versus the actual age of marriage do conflict. Responses reflect external forces that play a role in the reality of why early marriage persists. On this topic, study participants differed and spoke of the conflict between the age they desired for their daughters' to be married and when they actually decided to have them married. Many study participants felt that marrying adolescent girls off at an older age, closer to the legal age of marriage would be better:

*In our community girls get married at the latest by the age of 18. Earlier girls were married by the age of 10. We feel that 18 is the right age for marriage for a girl. There are community organizations that say that one should educate daughters till the 10<sup>th</sup> grade and that daughters should be married only after they have completed 10 or 12 years of school...If a girl gets married at a younger age, her health is affected and she becomes very weak. If she gets married at or after 18, she is healthier and delivers a healthy child.*

—FGD with mothers of unmarried adolescent girls, Rajasthan, India.

But in practice, many parents felt that social norms and expectations placed tremendous pressure on them to marry their daughters' off early, and in reality they succumb to these pressures:

*...when a girl grows up and has completed 13 years of age and reached menarche, her parents start worrying about her and think that they should get her married soon 'ab uske hath jaldi pile karvadene chahiye' (now her hand has to be given away quickly). 'Kuch galat balat ho gaya to logo kiya moo dikhayenge?' (if something bad happens [to the girl] how will people be able to show their face to others?) ...Though they do not want her to marry early, they do get her married early.*

—unfinished story FGD with mothers of unmarried adolescent girls, Rajasthan, India.

In their view delaying marriage reduced the prospects of finding suitable grooms, and also left them with the responsibility of keeping their girls out of harm's way and chaste until marriage, which they consider a significant burden.

### ***Implications for Future Interventions***

Menarche is a profound turning point for adolescent girls, carrying both positive and negative consequences. Positive ones include some families feeling that girls get more attention in terms of health and nutrition to prepare them for their forthcoming marriage. Negative ones include restrictions on mobility, social interaction and access to education. With these changes also come the expectation that girls will follow strict social norms and gender roles in preparation for marriage. Importantly, these study findings show that the data from across the three study sites are consistent with each other. The socio-cultural practices that affect adolescent girls in their transition to adulthood are strikingly similar across the three sites.

The fact that some families are prepared to invest in their daughters' health and nutrition, albeit in the context of their marriage and childbearing, is notable; these families felt that adolescent girls were not treated unequally in terms of nutrition and health. It seems generally understood that adolescent growth is linked to good nutrition and health, and that adolescent pregnancy carries significant risk for the mother and child. But prevailing socio-cultural norms around marriage put tremendous pressure on the parents of adolescent girls to conform and marry their daughters early. While some parents and girls agree that older age at marriage is preferable, in practice, girls are still being married at a young age.

Parents clearly state that the constraints in providing more to improve their daughters' nutrition and health are largely socio-economic in nature. The range of views on how adolescent girls are cared for,



and some parents' perceptions that adolescent girls need additional care, suggest an opportunity to introduce targeted programmes for unmarried adolescent and pre-adolescent girls and their parents within the context of the lifecycle of malnutrition. These targeted interventions could provide parents with support in promoting and improving the nutritional status of their daughters, particularly their pre-pregnant weight – a key determinant of low birth weight. Moreover, families and communities that want to invest more in the health and nutrition of adolescent girls could be approached by nutrition and health programmes to help in the development of effective strategies to improve the nutritional status of adolescent girls. The interest expressed here in adolescent girls' health and nutrition is an opportunity for nutritionists to play an active role in identifying community-based solutions to improving adolescent nutrition and pre-pregnant weight.

There are programme interventions that already target adolescent girls, such as adolescent-friendly reproductive health services; life-skills programmes to increase the age of marriage; interventions to delay first pregnancy; and keeping girls in school through incentives to families. If parents are in favor of investing in their daughters' health and nutrition, then these adolescent-friendly programmes could expand their scope to also improve the nutritional status of unmarried adolescent and pre-adolescent girls. For its part, the Nutrition and Gender Initiative will work with its partners in India and Bangladesh to incorporate these findings into existing programmes and guide them to expand their scope to also target unmarried adolescent and pre-adolescent girls and their parents to improve their nutritional status.

Outside of nutrition and health programmes for adolescent girls, interventions to delay the age of marriage need more effort, if not by nutritionists, then at least with their support. It is important for nutrition programmes to play an active role in advocating for and partnering with other development efforts and strategies to encourage a delay in the age of marriage, given the limitations to delaying first conception after marriage and the long-term consequences of adolescent malnutrition and early pregnancy. Finally, it is important to note that, though these findings show encouraging signs in how some families perceive unmarried adolescent girls should be cared for, overall, gender discrimination is still widely prevalent. It remains an integral element in the cultural backdrop in this region and continues to define how adolescent girls are cared for.

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# LOST YOUTH

## CHILDREN AND AIDS IN AFRICA

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Among the many devastating consequences of the AIDS epidemic in sub-Saharan Africa, the rapidly growing orphan population demands particular attention. Today, over 12 million children in the region have been orphaned by AIDS, and numbers are rising rapidly.<sup>1</sup> Millions more are living with chronically-ill parents, and about three million children are themselves infected with the virus. Estimates differ, but some organizations predict a tripling in the numbers of orphans in the next five years.

Many orphans<sup>b</sup> are adolescents—some 50% within the 10-14 year age range according to DHS data.<sup>2</sup> There are also many children who, though not orphans, are becoming vulnerable as a direct or indirect result of HIV and AIDS. When parents fall sick, particularly in poor families, children come under intense stress that may continue in different forms for the rest of their lives. They may be taken out of school to farm land or to take part in income-generating activities. They may also become caregivers themselves or even heads of households. In many cases, such children become increasingly vulnerable to malnutrition, ill-health, abuse and exploitation. There are psychosocial effects, which although under-researched are potentially very damaging, encompassing these stresses, both in the short and long term.

While there are many different aspects to vulnerability (eg, biological, economic, emotional) the focus in this short article is on the food and nutrition dimension. The reader is referred to Gillespie et al<sup>3</sup> for discussion of the wider aspects of vulnerability and policy responses.

### ***Nutritional Vulnerability***

Evidence of the impact of orphanhood on child health and nutritional status, at this point in time, is mixed. In a meta-analysis of national nutrition and health surveys, undertaken in Sub-Saharan Africa over the last five years, orphaned children however defined, were not worse off in terms of anthropometry than other children.<sup>4</sup> In a Malawi study of maternal orphans,<sup>5</sup> the lack of association between either the mother's HIV status or the child's orphanhood and their risk of stunting, wasting, or reported ill health was explained as due to a lack of discrimination on the part of fostering extended families. Yet, in a Tanzanian study, orphaned children were more likely to be stunted,<sup>6</sup> with the most severely affected being children in the poorest households, those with uneducated parents and with least access to health care. Foster and Williamson<sup>7</sup> have also shown that orphans in Tanzania and Zambia were more likely to be stunted but no more likely to be wasted than non-orphans. In Uganda, orphans' health and nutritional status was worse, and their use of public services much lower than that of non-orphans.<sup>8</sup>

The type of orphanhood does matter. It is generally held that maternal orphans are at greater health risk following the loss of their primary caregiver. In Tanzania, Ainsworth and Semali<sup>6</sup> show that the mother's death was associated with an average decline of one standard deviation in child height-for-age, while a paternal death was associated with a decline of one-third of a standard deviation. The impact of maternal loss is severe regardless of household assets, while the impact on paternal loss is felt only among poor households. In one study, however, children who had lost a father were more likely to be malnourished than non-orphans.<sup>9</sup> Ntozi *et al.*<sup>10</sup> found that surviving fathers in Uganda provide more care than mothers because, it is suggested, the fathers have more means, and the husband's relatives often deny widows the opportunity to look after the orphans.

It is important also to keep the focus on vulnerable children, especially whose parents are living with HIV and AIDS, not just orphans. In a Ugandan study, for example, 15% of children whose parents were infected with HIV and 19% of orphans self-reported as being in poor or very poor health. One-third of older children living with an HIV-positive adult (34%) and of older orphans (31%) stated that there were some days when they do not get enough to eat.<sup>11</sup> When a parent falls ill, children often

<sup>a</sup>The author is grateful to the World Food Programme for funding IFPRI to undertake research on orphans and vulnerable children in 2004-5, including case studies in Malawi, Mozambique and South Africa, and a regional analysis by Tulane University and co-funded by UNICEF. This article is largely based upon the review of this research.<sup>3</sup>

<sup>b</sup>UNAIDS defines an orphan as "a child under 15 years of age who has lost their mother (maternal orphan) or both parents (double orphan) to AIDS", a definition which excludes paternal orphans, orphans aged 15-18, and non-AIDS orphans.



shoulder new responsibilities including domestic chores such as cooking, cleaning, carrying water, doing laundry, caregiving activities such as feeding, bathing, toileting, giving medication and accompanying relatives for treatment, growing food or involved in income-generating activities and child-care duties.<sup>7</sup> These extra responsibilities can have serious implications for a child's schooling.<sup>3</sup>

There is some evidence of the increasing burden of orphan care becoming manifest in food security indicators. The Rivers *et al.*<sup>4</sup> DHS analysis found that 38% of households with more than one orphan were classified as “food insecure with child hunger”, significantly more than households with only one orphan (7%) or no orphans (13%). A much larger percentage of orphans live in households that are classified as “food insecure with child hunger”, and those with chronically sick members were also found to be more food insecure. While households can manage to absorb one orphan without being impacted significantly, they appear unable to take on more orphans without affecting livelihood activities. As mortality rates increase and the population of orphans continues to rise, more and more households will be faced with the decision of whether to foster more than one orphan at a time.

More detailed research is needed to distinguish the various dynamics of interaction in different socio-economic contexts, and at different stages of the epidemic. One aspect of emerging evidence is clear: households and communities have extraordinary coping capacity in the face of AIDS. This capacity, however, may now be on the verge of being overwhelmed in many places.

### ***Protecting Children Affected by AIDS***

Knowledge and experience in orphan care is relatively thin on the ground but key principles for orienting policy, in the context of increasing child vulnerability, are now beginning to emerge:

#### CHILD VULNERABILITY MUST BE VIEWED IN THE CONTEXT OF POVERTY

Any approach to strengthening the capacity of extended families and communities to cope with increasing numbers of orphans must take account of the many overlapping vulnerabilities that households are struggling with in their day-to-day lives. Vulnerability is not a static condition—it is a dynamic condition that is exacerbated by dramatic change and a limited capacity to respond to change.<sup>12</sup>

The fate of orphans thus needs to be considered in the context of poverty as it is the main reason for a household not taking in an orphaned child.<sup>13,14,15</sup> It is not education in orphan care that is lacking, rather the insufficient financial capacity to do what would otherwise come naturally.

#### POVERTY SHOULD BE DEALT WITH BOTH HOLISTICALLY AS WELL AS THROUGH THE EYES OF A CHILD

Strategies and interventions aimed at poverty reduction that bolster the capacity of communities and households, usually also benefit children. As children generally have no say in the design of strategies, an “orphan and vulnerable child (OVC) lens” may be a useful tool to mitigate any discrimination found in households or to address issues of stigma at the community level.

Such an approach would entail drawing up a checklist of key questions that aim at understanding how traditional mitigation strategies affect the lives and livelihoods of orphans and vulnerable children. It would also assist policy-makers in formulating specific strategies to ensure that children affected by AIDS receive adequate care and resources—while understanding that children are part of the larger family unit and that solutions should, as far as possible, protect the livelihood of the entire family.

Formulating a workable strategy, based on maximizing incentives is thus the goal. A school feeding programme, for example, is likely to benefit the nutrition of the orphan while, at the same time, provide a transfer to the household. Further, bolstering volunteer visiting programmes, eg, with village youth, would provide support for targeted households as well as allowing members of the community to watch over children to ensure that no exploitation or abuse takes place.

#### BUILD FROM THE BASE UP

An overriding policy and programming principle is to build progressively from the household and community level, while ensuring a sectoral response that enables resilience. Not only does this help ensure that solutions remain relevant, but it also maximizes sustainability and scale.

To ensure adequate care of orphans and vulnerable children, an appropriate starting point would be the extended family and kin group. The fostering of children by relatives has thus far been the most prevalent, effective and desirable first line of response.<sup>8</sup> A South African study has found that when potential caregivers are able to obtain government grants, as well as have access to counselling services, the extended-family safety net seems capable of offering protection to many of the children



### Scaling up OVC care in Malawi

*Scaling-up HIV/AIDS Interventions Through Expanded Partnerships (STEPs)* is a community-driven approach to scaling up HIV/AIDS interventions in Malawi. Supported by USAID and Save the Children US (SC), STEP started in 1995 (then called Community-based Options for Protection and Empowerment) as a service-delivery programme in one district in Malawi, to assist children affected by HIV/AIDS. Through evaluations, SC realized such an approach was unsustainable, cost-ineffective and not scalable. Based on the recommendations of the evaluations and the field experience, the programme revitalized the dormant decentralized AIDS committees (at district, community and village levels) and their technical sub-committees, under the National AIDS Commission, in the Namwera community of Mangochi to mobilize collective action to combat the epidemic.

Based on the positive experience in Namwera, STEP changed its initial strategy to that of an external change agent, assisting communities with community mobilization and capacity building so that communities become empowered to act collectively to address their own problems. Village AIDS Committees identify the vulnerable and plan responses on the basis of the nature and magnitude of vulnerability within the villages, the needs of the vulnerable and the capacity within the villages to respond. They also monitor the activities and mobilize resources. As the needs of the most affected communities are crosscutting, the programme evolved into a truly multi-sectoral programme with activities along the continuum of prevention, care, support and mitigation. STEP has also influenced national policies related to HIV/AIDS and children. Through partnerships and training other NGOs/community-based organizations in the programme approach of community mobilization and facilitating collective action, STEP and similar models aim to cover 75% of Malawi's population.<sup>20</sup>

affected by HIV and AIDS.<sup>16</sup> The primary obstacles to providing adequate care are, thus, not socio-logical but economic. These problems however are likely to become insurmountable for increasing numbers of households in the future, as rising numbers of orphans put increasing stress on this traditional system.

Community-driven approaches that build on existing community structures such as self-help groups, and women's and church groups, offer great potential for complementing and augmenting family-based support systems.<sup>14</sup> Service delivery approaches through the public sector or NGOs may work in urban and peri-urban areas, but are costly and hard to adapt for widely-dispersed rural populations.

Based on their research in Tanzania, Urassa *et al.*<sup>17</sup> have suggested that, as the number of orphans increases, communities will not necessarily have to develop radically different coping mechanisms. The challenge, and probably the only feasible intervention, they argue, is to develop community-based support systems that focus on the most vulnerable households and extended families, using only limited external support. Citing experience from community-driven approaches to other development challenges, Binswanger *et al.*<sup>18</sup> concur—communities could be provided with the training, facilitation and financial means to manage the basic social protection of vulnerable families in their midst, with such efforts being coordinated at the local level. Community-driven approaches are well placed to respond to the demands for local information and knowledge, resulting in locally appropriate responses. Such local knowledge, rather than standardized approaches imposed from elsewhere, better deals with questions as to who is vulnerable and the major characteristics of vulnerability. External responses may be seen by community members as inappropriate if they undermine existing responses and cannot be sustained. Intervention planning must, therefore, take into account the cultural context and seek to strengthen family and community capacities. Little work, however, has been done in detailing specific strategies and interventions, which would make such an approach feasible and sustainable for institutions already under increasing stress and diminishing resources.

Focusing on strengthened community systems, however, should not in any way imply that communities are to be left without support. It is the partnerships between community groups and other institutions, including governments, that will be key. There is no “one-size-fits-all” approach that can be applied across countries or even within a given country. The specificity of child vulnerability requires that any intervention be carefully tailored and implemented within children's social, cultural and economic environments.

#### SCALE UP

Considering the magnitude and worsening situation of children affected by AIDS in Sub-Saharan Africa, current responses remain woefully inadequate. Even in one of the more progressive countries, Uganda, efforts by NGOs, governments and donors thus far reach only 5% of the 1.7 million orphans in the country.<sup>18</sup> In the most developed social welfare systems in the continent—South Af-



rica—fewer than 2% of eligible households in one study area receive cash grants to which they are entitled.<sup>16</sup> Most support services in the country—whether governmental, non-governmental, faith-based or community-based organizations—are small-scale, piecemeal, ad hoc and uncoordinated.

Just as the vulnerability of children is embedded within issues of household and community vulnerability and poverty, so should responses, as far as possible, be aimed at tackling underlying causes of such vulnerability. Multiple causes of child vulnerability should be matched with multisectoral solutions, facilitated by applying an OVC lens to different sectoral policies and programmes. In doing so, stigma may be reduced as the issue becomes more acknowledged and the organizational scale of response also grows. The 2004 consensus framework for the protection, care and support of orphans and vulnerable children<sup>19</sup> is probably the best current example of a multisectoral approach in the context of AIDS.

In sum, although more and better research is clearly needed, there is also an immediate need for concerted and large-scale action. A useful approach for most stakeholders would be to adopt a structured “learning-by-doing” mode and progressively build a reference library of operationally-relevant research from various social and cultural contexts while developing tools and processes to turn evolving local understanding into appropriate local responses. Strategically, the principle of capacity strengthening from the ground-up, viewed through the eyes of a vulnerable child, should be central. The aim is to build on what works, including extended family support, and augment such local responses through strengthening community capacity while progressively aligning sectoral support and incentives.

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# ADOLESCENT NUTRITION

## LESSONS LEARNT AND CHALLENGES AHEAD

### EDITORIAL

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#### *Introduction*

The focus of this issue of *SCN News* is on the nutritional challenges facing adolescents today, and how they are being addressed. Adolescence, the second decade of life (10-19 years), is a period in which an individual undergoes major physical and psychological changes. Alongside this, there are enormous changes in the person's social interactions and relationships. Adolescence is more of a phase rather than a fixed time period; a phase in which an individual is no longer a child, but is not yet an adult.<sup>1</sup>

Over half a century ago, WHO defined health as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.<sup>2</sup> Good nutrition is an essential precondition for health and well-being, and for the realization of a person's full potential. This applies to adolescents, just as it does for infants and children.

In every country and community, there are many adolescents who make the transition into adulthood in good health. Unfortunately, there are also many other adolescents who do not do so. Like in other age groups, poor nutrition in adolescents is the result of dietary inadequacies that result from a complex mesh of socio-economic factors (eg, poor access to food) and psycho-social factors (eg, cultural norms which influence eating habits). Key nutrition problems in developing countries include micronutrient deficiencies—iron deficiency anaemia in particular, undernutrition, eating disturbances and disorders, diet-related chronic diseases associated with conditions such as obesity and diabetes, and HIV-related illnesses. (Obesity, in fact, is a fast growing problem in many developing countries, while eating disturbances and disorders are still relatively uncommon).<sup>3</sup>

Exacerbating the challenges to nutrition in young girls is the practice of too early pregnancy. Women who have not yet finished growing and/or are undernourished run a higher risk of problems during pregnancy and childbirth, and of delivering low birth-weight babies.<sup>4</sup> Globally, an estimated 25% of women have their first child in their adolescent years. In some regions such as South-East Asia, the problem is much worse. In countries in this region, between 24-60% of women below the age of 20 are married, and are 'at risk' both because there is enormous pressure on them to have babies and because they are undernourished, with short stature (<145 cm) and low weight (<38 kg).<sup>5</sup> The Millennium Development Goals (MDGs) specifically mention improving child survival (MDG 4) and maternal health (MDG 6) as essential to human development. Improving the nutrition of adolescent girls and preventing too early pregnancy and child birth need to be key elements to achieving these goals.

#### *Lessons being learnt from intervention studies and programmes*

An overall strategy to ensure good nutrition in adolescents should aim at promoting good nutrition on the one hand, and preventing and responding to health and nutrition problems on the other hand. In places where too early pregnancy is an important cause of morbidity and mortality in adolescent girls and infants, actions to postpone child bearing should play an important role.<sup>4</sup> The papers presented as part of this *SCN News* describe programmes and intervention studies that strive to do this.

Dwivedi and Schultink describe pilot programmes in 13 Indian States aimed at reducing anaemia prevalence in girls in- and out-of-school. The primary component of the programmes was weekly administration of iron and folic acid supplements by trained teachers in the school setting, and by trained community health workers in community centres. In several, but not all the states, this was combined with abendazole administration. The other components of the programme were the provision of health education to adolescents, linked in some cases to life-skills education programmes, and parent education. Twelve to fourteen months after the programmes were initiated, the decrease in anaemia prevalence ranged from 5% in one state to 50% in another.<sup>6</sup>

Soekarjo, de Pee, Kusin and Bloem describe three intervention studies in Indonesia, which aimed to test the effectiveness of micronutrient supplementation programmes in reducing the prevalence of





anaemia, as well as that of iron and Vitamin A deficiency in school-going adolescent girls and boys in Indonesia. The primary intervention component in these studies was weekly supplementation of tablets of iron-folic acid and Vitamin A. In the first study, plain tablets were used, whereas in the second study, sugar coated ones were included. The third study aimed to evaluate the effects of education and supervision on compliance. All three studies assessed anaemia prevalence and compliance. The studies showed only a limited effect on reducing anaemia prevalence, and point to lack of compliance as a key factor contributing to this.<sup>7</sup>

Cordeiro, Lamstein, Mahmud and Levison describe the activities of the Bangladesh Integrated Nutrition Project that aimed to improve the health and nutrition of the population. As part of this multi-faceted project, adolescent girl forums (AGF) were piloted to assess their effectiveness in promoting healthy eating practices, consumption of iron and folate supplements, and in delaying marriage and first pregnancy. The primary intervention component was counseling sessions conducted by community nutrition workers and adolescents. Other components included numeracy training and the administration of a midday snack. An evaluation that was carried out in six upazilas (administrative units) six years after the initiation of project, showed that the mean age of marriage and of pregnancy was significantly higher in the project areas, and especially in those women who had been involved in the AGF. Further, pregnant women in project areas who had been involved with the AGF were taking care of themselves better (eg, eating more and resting more) than women in control areas.<sup>8</sup>

Kurz, Barua, Khale and Prasad describe an intervention study conducted by the Indian Institute of Health Management whose aim was to test the effectiveness of a package of interventions in delaying the age of marriage among girls aged 11-17 in a rural community in Maharashtra State of India. The primary intervention component was a life-skills course of 225 sessions spanning one year. Five evening meetings were conducted every week by teachers who had been recruited, trained and placed in their home villages. The other intervention components were monthly group meetings with parents, and the involvement of girls in projects in their villages. At the end of one year, the median age of marriage of girls in the intervention villages had risen from 16 to 17, and the proportion of girls who were married below the age of 18 in the intervention group, was significantly lower than in the control group.<sup>9</sup>

The initiatives described in these papers are important ones. Firstly, they underline the feasibility of programmatic actions to improve the nutritional status of pre-pregnant adolescent girls in developing countries. Secondly, they underline the potential benefits of such actions. Thirdly, they highlight the challenges in implementing them. For example, Dwivedi et al, point to logistic challenges such as maintaining an uninterrupted supply of micronutrients; Soekarjo et al, point to the need to engage families and communities in addition to reaching out to adolescents, in order to influence behavioural outcomes; and Kurz et al, point to the need to work with communities to develop interventions that are acceptable to them.

### ***Opportunities and risks***

Adolescence has been described as a time of opportunity, but also of risk. It presents a window of opportunity because actions could be taken to address problems originating earlier in life, as well as to set the stage for reducing the likelihood of problems in adulthood. The initiatives from Bangladesh, India and Indonesia point to how this window of opportunity could be used to reduce anaemia and Vitamin A deficiency. The initiatives from Bangladesh and India also point to how supplementation programmes could be linked to programmes aiming to knowledge and practice on good eating.

At the same time, adolescence is a period of risk; a period when health problems with potentially serious consequences occur, and problem behaviours which have potentially serious adverse effects on future health, are initiated. In their paper, Kurz et al, describe the nutritional and health risks resulting from social and cultural pressure for too early marriage and child bearing. They also highlight the enormous obstacles that young married and pregnant adolescents face in obtaining the health services they need. These themes are developed further in the paper by Sethuraman, Barua, Naved and Khale which presents selected findings of their qualitative studies in India and Bangladesh.<sup>10</sup> These findings—which will contribute to strengthening and expanding the scope of intervention studies and programmes—suggest that families are well aware of the special needs of their daughters as they evolve from girls into young women, and want to do the best they can to ensure their health and well-being (including nutrition). However, prevailing social and cultural norms and economic constraints hinder their ability to do this. The authors stress that gender discrimination is still widely prevalent and continues to define what female adolescents can be 'permitted to do' and how they should be 'cared for'.



Another major risk for this age group is HIV/AIDS. In their paper, Cordeiro et al outline the findings of an assessment of the nutritional status of adolescents in a rural district of Tanzania, one of many countries in East and Southern Africa which is coping with a huge HIV/AIDS burden. In his paper, Gillespie cites data from Malawi, Tanzania and Uganda to highlight the nutritional vulnerability of children and adolescents orphaned by AIDS in Africa.<sup>11</sup> These findings point to the pressing need to address the pandemic of undernutrition that is unfolding in many Sub-Saharan African countries in the wake of the AIDS pandemic. Gillespie's paper contains both a message of hope—that communities, and particularly households, have a tremendous coping capacity, and a warning—that this runs the risk of being overwhelmed by the steadily increasing number of orphans. Gillespie calls for research to understand how communities and households cope in different socio-economic contexts and what could be done to strengthen them, all the while using a vulnerable child's perspective.

To conclude, there are many nutritional problems facing adolescents. Problems that are caused by a web of interrelated factors; problems that need to be addressed by concerted and coordinated multi-sectoral action. The papers in this issue of *SCN News* point to some of the key problems and to ways and means of overcoming them. Moreover, approaches have been proposed in which nutritionists can play a valuable role in doing this. Valuable lessons have been learnt; lessons that need to be applied widely, and integrated into ongoing national HIV/AIDS, reproductive health, child survival and adolescent health programmes.

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# Programme News

## Project Description

## A2Z

USAID's newly awarded Micronutrient and Child Blindness Project, A2Z, will implement and strengthen micronutrient programmes to: improve the nutrition and health of vulnerable populations; provide global technical leadership in micronutrients; and support organizations which work to prevent child blindness. A2Z will expand coverage of vitamin A, zinc, anemia reduction, and iodine interventions primarily through country and regional programmes.

The Academy for Educational Development (AED) and its partners will provide technical assistance and expertise in nutrition and micronutrients. AED has 25 years experience managing multi-faceted, results-oriented, USAID projects, including fostering of private-sector partnerships, behaviour change communications, and monitoring and evaluation. Helen Keller International (HKI), Johns Hopkins University, and University of California-Davis provide, through research and provision of technical guidance, expertise in programming for micronutrient deficiency control, especially vitamin A, zinc, and iron, using supplementation and food-based strategies.

International Life Sciences Institute, the secretariat to the IVACG and INACG, will facilitate a new Micronutrient Forum to provide respected scientific and policy guidance through biennial Forum Meetings and consultative group activities. The Institute of Food Technologists offers food technology transfer and capacity building for local food manufacturers and regulatory agencies. Management Sciences for Health addresses capacity-building and strengthening of health systems, critical to scaling-up delivery of micronutrients. Social Sector Development Strategies provides expertise in cost-effectiveness analysis. The International Eye Foundation and HKI will collaboratively lead blindness prevention and eye health activities.

A2Z will work with private sector partners, BASF, Compact, DSM Nutritional Products, H.J. Heinz, Land O'Lakes, Nutriset, Procter & Gamble, Unilever, and Valid to build on their expertise, production capabilities, and access to markets to increase demand and delivery of micronutrient-related products and services. Resource partners, Catholic Relief Services and World Vision, will work with A2Z to expand services at the country level.

A2Z will support USAID Missions in various ways: mainstream micronutrient interventions within health systems and maternal and child health strategies; introduce appropriate technology and best practices in food fortification and nutritional products; initiate or strengthen national micronutrient coordinating committees and task forces to build consensus; preparation of state-of-the-art tools and guidelines; undertake market and consumer research; strengthen quality assurance mechanisms; assist/improve data collection and analysis; estimate costs and identify new financing options; and transfer and adapt new effective approaches among countries.

A2Z staff include Jean Baker, Project Director; Phil Harvey, Technical Director; Tina Sanghvi, Country Programs Director; Ame Stormer, M&E Specialist; Omar Dary, Food Fortification Specialist; Jack Fiedler, Health Economist; Lily Clement, Blindness Specialist; and Joe Diederich, Finance and Operations Manager. A2Z is managed at USAID by Emily Wainwright.

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## New Study: Nutritionally-Enhanced Biofortified Rice Reduces Iron Deficiency

## Harvest Plus

Breeding rice with higher levels of iron can have an important impact on reducing micronutrient malnutrition, according to a new study released in the December issue of *Journal of Nutrition*. The research, conducted by scientists from the Philippines and the United States, is a major step forward in the battle against iron deficiency, one of the developing world's most debilitating and intractable public health problems affecting nearly 2 billion people. The results are especially significant for rice-eating regions where many of the world's poor and undernourished live.

The lead authors of the article, Dr. Jere Haas from the Division of Nutritional Sciences at Cornell University, Dr. John Beard and Dr. Laura E. Murray-Kolb from the Department of Nutritional Sciences at Pennsylvania State University, Prof. Angelita del Mundo and Prof. Angelina Felix from the University of the Philippines Los Baños, and Dr. Glenn Gregorio from the International Rice Research Institute (IRRI), oversaw a study in which religious sisters in ten convents in the Philippines

included the nutritionally-enhanced rice in their diets. This study, noted as 'proof of concept,' shows that if plants are bred with higher levels of iron they can improve the nutritional status of people who consume them.

After a 9 month, double-blind study, the iron status of women who ate biofortified, iron-rich rice was 20% higher than in women who ate traditional rice. The study was conducted in the Philippines, where researchers monitored the diets of 192 Catholic sisters in ten convents. Subjects were randomly assigned to consume either high-iron biofortified rice (3.21 mg/kg Fe) or a local variety of rice (0.57 mg/kg Fe). The high-iron biofortified rice contributed 1.79 mg Fe/day in contrast to 0.37 from the local variety, resulting in a 17% difference in total dietary iron consumed. The study found a modest increase of serum ferritin and total body iron, but no increase in hemoglobin. After controlling for baseline value and daily rice consumption, non-anaemic subjects had a 20% increase in ferritin and body iron. The greatest improvements in iron status were in non-anaemic women who had the lowest baseline iron status and those who consumed the most iron from the experimental rice.

The iron-rich variety of rice used in the research (known technically as IR68144-3B-2-2-3) was developed and grown at the International Rice Research Institute (IRRI). The research initiative was originally spearheaded and funded by the Washington-based International Food Policy Research Institute (IFPRI), with support from the Asian Development Bank and the Micronutrient Initiative. Harvest-Plus-an international, interdisciplinary research programme focused on breeding crops for better nutrition and led by IFPRI and the International Center for Tropical Agriculture (CIAT)-will continue to work with these research findings and partners to increase the level of nutrient density in rice to be even more effective through a process known as "biofortification."

Haas JD, et al. Iron-Biofortified Rice Improves the Iron Stores of Nonanemic Filipino Women. *Journal of Nutrition* (135) December 2005, pp. 2823-2830.

### HKI

#### *Eating Orange Fights Vitamin A Deficiency and Poverty*

Helen Keller International (HKI) recently launched a four-year project, funded by The McKnight Foundation, to introduce and promote new varieties of orange-fleshed sweetpotatoes (OFSP) in Burkina Faso. Consumers in the United States commonly eat orange-fleshed sweetpotatoes, an excellent source of vitamin A, but elsewhere in the world, sweetpotatoes are white-fleshed and contain no vitamin A. Introducing OFSP varieties has shown to be effective in controlling vitamin A deficiency (VAD) and improving food security. The McKnight Foundation has supported similar projects in Eastern Africa, but the introduction of OFSP in West Africa remains limited. HKI initiated this newest project in an effort to demonstrate the potential for OFSP to alleviate malnutrition in the fragile Sahel region of West Africa, where Burkina Faso is located.

At a workshop held in September 2005 in Ouagadougou as part of the project, HKI worked with representatives from the United Nations Food and Agricultural Organization (FAO), the National Farmers Federation, the French Agency for Food Security, other NGOs and the Ministries of Agriculture, Education and Health to develop a plan for OFSP production and consumption. Mr. Sylvestre Tapsoba, Director of the Nutrition Directorate in the Ministry of Health, stressed the importance of integrating different approaches and involving partners in strategies to combat malnutrition.

It is estimated that over 42% of children under five in Sub-Saharan Africa are at risk of VAD, a type of micronutrient malnutrition that can cause blindness and even death. Adequately controlling VAD will avert more than 645,000 child deaths each year in Sub-Saharan Africa. The magnitude of VAD in Burkina Faso is alarming. According to the World Health Organization and FAO, the country is one of 35 identified as being the most severely affected by VAD.

A harsh climate and the lack of natural resources and maritime access contribute to Burkina Faso's vulnerability to VAD. Agriculture is by far the leading sector of the economy. In food-based pilot projects to control VAD, OFSP have been shown to be well accepted, as well as rich in vitamin A and resistant to pests and diseases, making them an ideal food in improving human nutrition and generating income. In addition, sweetpotatoes are more frequently consumed by women and children, the groups at greatest risk of mortality and morbidity due to VAD.

At the workshop, Dr. Robert Mwangi of the National Agricultural Research Organization in Uganda related the success story of one family that benefited from OFSP. The family, which lived in a small grass-thatched hut, eventually accumulated enough assets to allow them to purchase a four-room house and farm animals, and send their seven children to school, all made possible through the sale of sweetpotatoes. Dr. Mwangi stated, "The financial support from The McKnight Foundation for re-

search/development should translate into improving the livelihoods of the . . . poor." In addition to these financial gains, the family also benefited from the nutritional value that the OFSP provide them. HKI's new OFSP project will cover the Eastern Region of Burkina Faso (Gourma, Komandiaré and Gnagna), as well as one province of the Sissili Region (Koudougou).

Contact: *Katie Haxall, info@hki.org*

### *Progress in Fortifying Rice*

## PATH

Rice is the world's most widely consumed staple. Adding fortificants to rice is more challenging than fortifying other major grains: very little rice is made into flour—which is easier to fortify—before being consumed, and consumers are picky about rice's organoleptic (eg, color, taste, odor, feel, etc) properties, often rinsing it multiple times before cooking, and reacting to small price increases.

In the 1980s, Bon Dente International, Inc., developed the Ultra Rice® technology using a low-pressure cold-extrusion process to reconstruct grains from low-cost broken rice and added nutrients, binders, and antioxidants. The resulting grains could be blended with natural rice in about a 1:100 ratio. Realizing that PATH was better positioned to ensure that Ultra Rice reached the billions who need it in low-income countries, Bon Dente donated the patent rights to PATH. A grant from the Bill & Melinda Gates Foundation has allowed PATH to make product development improvements, resulting in two premixes: one that can carry fat-soluble vitamins and another that can carry water-soluble vitamins and minerals. Trials have found Ultra Rice efficacious in improving human status of vitamins A and E and iron. PATH continues to promote the use of Ultra Rice in low-income countries, with good progress recently in Colombia, Brazil, India, and China.

**Colombia** In 2002, a Bogotá-based rice mill began to market rice fortified with vitamin A, zinc, folic acid, and thiamin. Since 2004, 66,000 children have received Ultra Rice daily in school meals in Medellín. The cost of fortification is offset by increasing the quantity of otherwise hard-to-sell broken rice grains in the premix-rice blend. Iron will be added to the premix in 2006, and expansion to other areas of the country is expected.

**Brazil** A multimicronutrient-fortified rice product is expected to be available on the market in early 2006. PATH's Brazilian partner is exploring ways to reach low-income consumers, with little to no cost premium. Additional distribution mechanisms, including the government's Zero Hunger programme, are being explored.

**India** Market research in three states suggested that Ultra Rice would be widely accepted. The Ministry of Science and Technology has decided to champion the introduction of Ultra Rice fortified with iron and folic acid and is funding a series of additional studies by the National Institute of Nutrition. Transfer of the technology to a local company will begin in early 2006.

**China** The Public Nutrition and Development Center (PNDC), the government agency responsible for setting national fortification strategies, has recently decided that Ultra Rice is the best rice fortification technology for reaching low-income consumers. PATH provided PNDC with equipment and training that facilitated pilot-scale testing and research, resulting in a nutrient blend suitable for rice fortification. PNDC is working to identify entrepreneurs and to set up a pilot trial using Ultra Rice in school feeding.

The Philippines and Vietnam have also expressed interest in technology transfer. Additional potential uses for Ultra Rice include humanitarian assistance, aid to people living or affected by HIV/AIDS, and tuberculosis programmes. PATH is currently working with many partners to explore such future options.

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### *Strengthening School Health and Nutrition Programmes Sub-Regional and National Activities in 2005*

## PCD

Understanding that illness in school children can result in impaired learning has led to the recognition that improving children's health is essential to maximizing the potential in their education and to helping countries meet their Education for All (EFA) goals. In 2005, the Partnership for Child Development (PCD) helped lead two workshops assisting African countries to understand the health problems of children, to formulate relevant action and to plan for action. In March, in collaboration with the Eastern and Southern Africa Centre of International Parasite Control (ESACIPAC), a sub-regional

meeting, with 24 participants from the education and health sectors of ten African countries, was held at the Kenya Medical Research Institute (KEMRI), Nairobi. In September, a national workshop was held for Eritrean government and regional officials in the capital, Asmara.

### *The approach*

The health problems that hinder children's education differ from country to country. Appropriate responses will necessarily differ too. A widely-recognized means of planning such responses is the FRESH (Focusing Resources on Effective School Health) Framework. The FRESH approach promotes school-health interventions under four "pillars":

- school-based health and nutrition services
- skills-based health education
- ensuring clean water and sanitation in schools; and
- development of health-related school policies.

### *The Workshops*

During the workshops, the FRESH formula served to guide countries' school-health planning. In Kenya, country teams exchanged experiences and increased their capacity to plan, manage, monitor and evaluate school-health and nutrition interventions. An important aspect of the workshops was learning how interventions could be delivered in an integrated manner so that their impact could be synergised and enhanced. The outputs of the workshops were implementation plans tailored to the specific needs of the each countries.

In Eritrea, education and health-sector representatives from the country's government and regions assessed the progress of the country's national school health programme established in 2004 and planned for the future. The programme is already reaching almost all Eritrea's schools and health facilities. A results-based planning process was used to develop a specific, comprehensive and costed SHN package of activities for the academic year 2005/06.

### *Ongoing support*

In 2006, PCD will continue to support country efforts to strengthen school-health and nutrition programmes. The sub-regional course, to be run again in 2006 in Kenya, will see online support maintained through the highly popular and expanding school-health and nutrition website [www.schoolsandhealth.org](http://www.schoolsandhealth.org) (see also Bulletin Board, this issue). New publications to support activities are sourcebooks on *School based HIV/AIDS prevention* and *Enabling Access to Education for Orphans and Vulnerable Children*, and the review article on *School-age children: their nutrition and health*, originally published in *SCN News* #25 (2002), is being updated and will be reprinted in booklet form in 2006.

In addition, PCD and Action Aid, UK will host the next meeting of the UN Inter-Agency Task Team on HIV/AIDS and Education (IATT) scheduled for May 2006 in London and will include a one day open symposium on HIV/AIDS and Education. The IATT was established at the request of Ministries of Education in Africa and is a multi-partner effort, involving countries, development partners, civil society and the private sector.

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## **REALIZING THE RIGHT TO ADEQUATE FOOD AND ACHIEVING THE MILLENNIUM DEVELOPMENT GOALS CHALLENGES FACING THE NUTRITION COMMUNITY**

An SCN workshop addressing the realization of the right to adequate food and achieving the MDGs was held during the International Union of Nutritional Sciences' 18<sup>th</sup> International Congress of Nutrition in Durban, South Africa, September 2005. The meeting was jointly chaired by former SCN Chair, Dr Namanga Ngongi, and Professor Arne Oshaug of Akerhus College in Oslo, Norway. Six presentations were organized into three blocks related to: realizing the human right to adequate food (HRAF); national nutrition plans and poverty reduction programmes; and human-rights based nutrition capacity building. Some 70 participants took part in the four hour workshop.

The lessons learnt from the SCN country case studies on integrating human rights into national approaches—prepared for the SCN 32<sup>nd</sup> Session, Brasilia, March 2005—were presented by Roger Shrimpton. The case studies were developed in a participatory fashion, with country teams facilitated by SCN consultants. Workshops were held in Angola, Bolivia, Brazil and Mozambique to facilitate the understanding of nutrition causality and the right to adequate food, in order to strengthen national development plans for poverty reduction and realize the HRAF. In all countries there was a lack of common understanding among development actors about the programme components needed to ensure both food and nutrition security. Recommendations included the development of a food and nutrition policy framework to help define the interventions that will enhance the realization of the HRAF, together with a strategy to communicate a common vision among the UN agencies on how to promote the realization of HRAF and the right to be free from hunger and malnutrition.

The Brazilian experience on operationalizing and monitoring the HRAF, presented by Flavio Valente, highlighted the major advances achieved through the national food and nutrition council (CONSEA), including: publicizing the voluntary guidelines and promoting their use by public officers through capacity building; mainstreaming HRAF into programmes for school feeding, family income transfer and family health; and establishing a food and nutrition surveillance system linked to HRAF budget monitoring. The ongoing challenges include the building of a human rights culture in the face of a long established "charity" or "favour" system of social programmes, and the transformation of rights-holders into claim-holders through decentralization and strengthening of local organization partnerships.

Meera Shekar presented the World Bank's experience with integrating nutrition into national poverty reduction strategies, and showed an analysis which demonstrates that increasing income alone will not ensure the achievement of MDG 1 (on poverty and hunger reduction). The World Bank now advocates improving the nutrition components of Poverty Reduction Strategy Papers (PRSPs) at the country level to reduce the negative outcomes of malnutrition on capacity of human capital, economic growth and poverty reduction. An analysis of PRSPs in 40 countries with a high burden of malnutrition revealed that although nutrition is included in most PRSPs in the problem definition stages, only a third of countries have an allocated budget for nutrition activities; it further showed that the activities selected for programme inclusion were often not the most appropriate for the problems described, and that protein-energy malnutrition or growth failure is rarely tackled in any PRSP. The challenges are two fold: Firstly, for advocacy purposes to reposition nutrition not just as a human rights issue, nor as a food or consumption issue, but also as a driver of economic growth; Secondly at the programme level to scale up and sustain existing efforts.

Chizuru Nishida presented the WHO experience with promoting national nutrition plans and policies since the International Conference on Nutrition (ICN) in 1992. Reviews of nine strategies and actions agreed to at the ICN by 119 countries were not very positive. Over a half encountered obstacles to their implementation, including the low priority given to nutrition by national governments. Since 2000, with the advent of the MDGs, WHO has supported 14 regional training courses promoting the use of intersectoral food and nutrition plans and policies, taking into consideration the various food and nutrition related WHO global policies, including infant and young child feeding, diet and physical activity, and food safety. Training tools developed in support of country efforts to build national capacity for implementing national food and nutrition plans, include the use of the "Profiles" software developed by the Academy for Educational Development to calculate the costs of malnutrition for each country. The training courses have promoted the use of a common framework for addressing both over- and undernutrition, which increasingly are affecting both rich and poor countries alike, and incorporating other emerging issues such as HIV/AIDS.

Tola Atinmo, from the Department of Human Nutrition at the University of Ibadan, Nigeria, presented his experience on building human-rights based nutrition capacity within African countries. There are many hindrances to

*Continued on the next page....*

building capacity for realizing the right to adequate food in Africa, including inadequate in-country capacity, institutional weaknesses, lack of multidisciplinary approaches, and failure to consider sustainability of development efforts. The use of expatriate expertise has rarely solved the problem, and the need to be patient and build local capacity through “learning-by-doing” exercises cannot be overemphasized. The various approaches to building human-rights based nutrition expertise include sensitizing stakeholders, highlighting strategies necessary for capacity building, and identifying locally available resources and structures that can be harnessed. The right to adequate food should be achieved by promoting appropriate activities at various levels of society that are inter-related and mutually supportive. This should include at the individual and household level, promoting the adoption of appropriate life skills related to income generation, food production and utilization, family size and women’s status. At the community level, development associations should be supported which enhance communal efforts to increase food production and job creation, create cooperative societies providing microcredit, and promote good governance. The private sector should be encouraged to increase their social responsibility through the sponsorship of youth development programmes for skills creation, assisting small scale farmers to increase food production outputs, organizing women oriented programmes, and providing basic amenities to host communities. Governments should be encouraged to implement the Voluntary Guidelines, and international bodies should promote the right to adequate food through capacity building exercises.

Urban Jonsson presented UN System activities being developed for capacity building in rights-based programming through Action 2. This involves a collaborative effort through the Office of the High Commissioner for Human Rights, the United Nations Development Group and the Executive Committee for Humanitarian Affairs for strengthening human rights-related actions at the country level, including building and strengthening national human rights protection systems, and incorporating human rights into country level analysis, planning and programme implementation. In 40 pilot countries between 2004 and 2007, Action 2 envisages integrating human rights into UN common analysis and planning frameworks to ensure that they are human-rights based, that human rights principles are integrated into PRSPs, and that MDG reporting will reflect human rights concerns. The UN country teams will also be supported to both facilitate the ratification of the relevant human rights treaties by states which have not done so, and to strengthen support for national human rights mechanisms, including the treaty body reporting process. Dr Jonsson emphasized that the achievement of the MDGs be pursued in a manner consistent with the realization of human rights treaties that should form the basis of all UN work, as stated in the Millennium Declaration.

In summing up the rich discussions that ensued after the presentations, Dr Ngongi emphasized how important the development of an interagency communications strategy was to improve actions needed to realize the right to adequate food and to be free from hunger and malnutrition. Without such an effort it would be difficult for the SCN to achieve its vision and mandate of a world where hunger and malnutrition are no longer impediments to human development. He noted the comments made by Leslie Burgess on how the UN System had evolved considerably since his time as SCN Secretary in the 70s, and how it was very heartening to see the SCN promoting the harmonization of food and nutrition activities at the country level, and even carrying out country case studies. This was something that would have been unimaginable 20 years ago. The level of inter-agency collaboration seemed much greater now than it has been at any time in the past. The prospect put forward for linking the work of the UN Resident Coordinator System and country teams to the UN human rights mechanisms and to the reporting mechanisms of the treaty bodies, seemed to be a particularly promising and challenging one. How this would be linked to the development of the new Human Rights Council being proposed for the UN was also something to be given careful consideration. It would seem very appropriate for the SCN to take on such a task in relation to the realization of the right to adequate food and to be free from hunger and malnutrition.

Arne Oshaug completed the summing up by emphasizing five points that he had drawn from the discussions: firstly, that while there is nothing wrong with demonstrating the utility of promoting human nutritional wellbeing, it is preferential that such arguments always be couched in the ethical, moral and legal arguments of a human-rights-based approach; secondly, that the Voluntary Guidelines for the realization of the human right to adequate food offer a tremendous opportunity not just for FAO, but for all UN agencies to work together in a very concrete and specific fashion; thirdly, that while the conceptual framework of causality of malnutrition importantly defined food, health and care as the underlying cause of malnutrition, the policy framework for developing interventions needs to identify what sectoral actors to enlist so that nutrition remains a priority; fourthly, that the life-cycle approach to malnutrition has obviously not been sufficiently internalized and interpreted by food and nutrition development actors, and should be addressed more adequately in the development of interventions; fifthly, there is an enormous amount of work and experience being devoted to national food and nutrition policy frameworks and improving both the human rights dimension and the nutrition content of poverty reduction strategies. The challenge facing the SCN is how to harmonize the various actors to create a positive synergistic force for the development and wellbeing of all people.





# Speaker's Corner

## A GLOBAL STRUGGLE FOR HEALTH RIGHTS

Michael C Latham

Professor, Graduate School, International Nutrition

Cornell University

Many circumstances around the world are working against the provision of health care to those in greatest need: the US occupation of Iraq; the Israeli wall isolating Palestinian communities; widespread spraying of herbicides in Colombia in the war against drugs, and before that in Vietnam; genocide in Sudan's Darfur region; discrimination against aboriginals in Australia, against tribal peoples in Asia, and indigenous populations in the Andes; millions of HIV-infected people, particularly in Africa; and the lack of health insurance coverage for underprivileged Americans. These populations suffer from one common effect—they experience serious health and nutritional consequences, particularly for children and women.

In July 2005, as a WABA delegate, I attended the second People's Health Assembly held in the beautiful historic city of Cuenca, Ecuador. The first Assembly in Bangladesh in 2000 recognized the goals embodied in the "Declaration of Alma Ata." This latter international assembly, held in the former Soviet Union, was sponsored by WHO and unanimously called for "Health for All by 2000."

The second People's Health Assembly, although scientifically grounded, was more of an opportunity for underprivileged groups and "rebels" from around the world to present testimonials. It was attended by some 1300 people from 80 countries. I found the testimonies of the diverse struggles both moving, sometimes saddening, but often energizing. War, oppression and poverty only serve to perpetuate ill health and malnutrition. There was almost total consensus that an important cause of the ill health of the world's deprived population was neo-liberalism. Neo-liberal policies of the rich northern hemisphere negatively affect the poor, mainly in southern regions. The impact on the environment was also widely discussed.

The most moving testimonials, however, were from health workers working in many countries like Iraq, Palestine and Colombia; from areas such as Chiapas in Mexico, and Darfur; from indigenous peoples in the Andes, Australia's aboriginal groups, and tribal people from Asia; from AIDS victims in Africa and disabled people in many countries. And yes, even the poor from Tennessee, USA.

Dr Salam Ismaël, an Iraqi physician, who is General Secretary of Doctors of Iraq based in Baghdad stated that his "loyalties belong only to the Iraqi people." He continued that, "after two years of occupation of my country, I see nothing but the suffering of people." He stated that there is uncontrolled corruption, and the "entire health system is in shambles." He described violence against doctors, destruction of health facilities and a deteriorating health situation since the occupation. Malnutrition has increased substantially. Perhaps the most moving report from Iraq described US soldiers bursting into a hospital in Falluja, arresting a physician as he was delivering a baby, without allowing him to cut and tie the umbilical cord." During the siege of Falluja, many patients died because they were not allowed to go to hospitals, and ambulances were shot at by US troops. "More than 100 doctors have been killed in Iraq since the invasion, and thousands have left the country," Dr. Ismaël reported.

Amal Daoud from Bizreit University, and Joan Jabran from the Health, Development and Information Institute, both based in Ramallah, gave convincing testimonials on the deterioration of health care in Palestine, especially for women and children. Seriously aggravating the situation is what was termed Israel's "apartheid wall," which was begun in 2002, and is planned to be over 450 miles in length. This wall was proclaimed by the International Court of Justice on July 9, 2004 to be "contrary to international law." Apart from its economic and agricultural impact, the wall is already seriously impairing the access of many Palestinians to health care. Some 71 primary health clinics will be isolated from the rest of the west bank. In most parts of Palestine, restriction of free movement of Palestinians with check points, and road blocks, have denied seriously ill Palestinians medical care, resulting in many deaths.

"Plan Colombia" involves vast areas of that nation's land being subject to aerial spraying of herbicides. The impact on the environment and on people's health, particularly that of children, was movingly de-



scribed by Jose Alvaro Restrepo of Collective of Lawyers of Colombia.

Although the Vietnam war ended 30 years ago, the legacy of the US chemical warfare continues. During that war, some 80 million litres of dioxin-laced herbicides, often termed Agent Orange, were sprayed onto food crops and foliage in Vietnam. The health effects of this spraying were enormous, but recent scientific studies show that the impact of dioxin poisoning can be passed on from one generation to the next, often resulting in grotesque birth deformities. The Hanoi Government has repeatedly asked, not for war reparations from the US, but aid for the victims of Agent Orange, estimated to number 800,000 people, but to no avail. Recently a victim's organization has launched a class action suit in US courts against corporations who manufactured these toxic herbicides.

The US role in the war and present occupation in Iraq; the almost total US support for Israel, and the failure to make that support dependent on tearing down the "apartheid wall"; the US as the architect and implementer of Plan Colombia; and its failure to assist Vietnamese victims of US chemical warfare, lead Americans at the Cuenca Assembly to express shame for what their government has been doing overseas. However, most Americans attending the Assembly were peace and health activists, and fervent supporters of the People's Health Movement, and the struggle of the underprivileged.

At Cuenca, Lorri Smith, a young Tennessean movingly shared with the participants the major failure of the United States to ensure "health for all." A college-educated single white mother, Lorri worked for a large international insurance brokerage firm. After being diagnosed with the incurable, chronic diseases of lupus and multiple sclerosis, she lost her job and her health insurance. While still needing costly health care, she was first eligible for TennCare, the Tennessee Medicaid Programme, which the Governor of Tennessee is presently dismantling. As Lorri put it, 323,000 of the sickest and most vulnerable in Tennessee will lose their health care, or see it seriously curtailed. She said that she may die due to the absence of the right to care. This testimony from Tennessee is, in one form or another, being repeated throughout the USA. Today's wealthiest country was condemned by the People's Health Assembly, not only for its international actions endangering health, but for its huge failure to protect the health of its own underprivileged citizens.

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**The next issue will be published summer  
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# Publications

## FREEDOM FROM WANT: THE HUMAN RIGHT TO ADEQUATE FOOD

George Kent, Georgetown University Press (<http://press.georgetown.edu>)  
2005, 290pp

George Kent's book is timely. It follows soon after the adoption of the "Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security" (Voluntary Guidelines) by FAO member states in November 2004. As the second major publication on the right to food to appear in 2005 (see also: Barth Eide and Kracht (eds.), *Food and Human Rights in Development*, Intersentia, 2005), it reflects growing interest in and attention to this topic, and contributes to its better understanding.

*Freedom From Want: The Human Right to Adequate Food* is written from a political scientist's perspective for broad readership; lawyers should keep this in mind and not expect a legal treatise. The book provides both a good overview of the current right to food debate and its context, and more detailed treatment of some specific right to food issues such as water, refugees and humanitarian assistance. It is a highly readable work that deals with many of the complexities surrounding the right to food in a practical way. Decision-makers, administrators, academia, civil society and the general public alike will find it useful.

Kent manages to integrate insights and materials from a number of disciplines. Part I entitled "Foundations" begins with a chapter on Food and Nutrition that explains the nature and complexity of hunger and malnourishment in both rich and poor countries. Information on concepts such as undernutrition, malnutrition, nutrition security, and food security will be valuable, in particular, for non-nutritionists. Kent then provides an overview of the international human rights system (Chapter 2). Next, in Chapter 3, he outlines why and how "Adequate Food is a Human Right" and sets out clearly the difference between rights and needs. The second part of Kent's book, Human Rights Systems, is dedicated to chapters on Governance, Rights and Entitlements, Obligations and Commitments, and Accountability Mechanisms, amongst others.

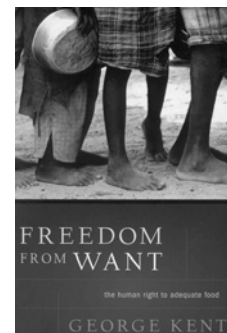
Conceptually, Kent follows broadly the understanding and analytical framework of the right to food and government obligations adopted by the Committee on Economic, Social and Cultural Rights. Practical applications of the right to food are provided in chapters on specific country approaches and the implications of this right for issues such as "Feeding Infants", "Water", and "Trade". These chapters provide good introductory, although sometimes cursory, reading. Particularly interesting is the discussion on breastfeeding in the context of infant's right to adequate food and the rights of the mother. In the chapter on "Trade", Kent presents the discussion whether trade poses a risk to the right to food and makes an attempt to contrast and reconcile the difficulties posed by food being both a human right and an article of trade. He includes a number of thought provoking questions that could stimulate discussion within a classroom or workshop setting. In addition, many references to websites within the text and in a sources part of the book make it of practical use.

Throughout the book, Kent uses good examples to explain the right to food. He shows how Government services become rights-based when the services that clients are entitled to are specified, and when mechanisms to review decisions and to provide effective remedies exist should someone be denied access unjustly. He explains, that the obligation to progressively realize the right to food can mean that a very poor country might limit its initial commitment to feed malnourished children only to those younger than five years of age, whereas more affluent countries may immediately guarantee services for all who lack adequate food (p. 111).

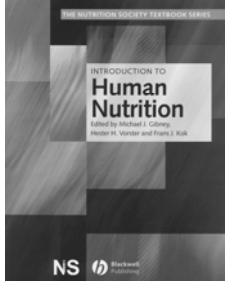
Possibly due to the author's taking what can be described as an "advocacy approach", and his clear commitment to advancing the right to food, some difficult issues are glossed over too easily. For example, the protracted debate about the scope of the right to life would have warranted a more differentiated discussion about the relationship between the right to life and the right to food than the mere assertion that the right to life "clearly implies the right to adequate food and other necessities for sustaining life" (p. 48). In addition, and contrary to Kent, the law does not always favour the interests of those who are more powerful (p. 76). Property rights protect the property of both the rich and the poor, and important bodies of law such as social security legislation or labour rights are especially designed to protect the less powerful. Given our affiliation, we would have welcomed a more detailed section on the Voluntary Guidelines and the inclusion of [www.fao.org/righttofood](http://www.fao.org/righttofood) in the list of relevant websites.

All in all, Kent's book is a valuable addition to existing right to food literature. It does not presuppose any prior right to food knowledge and can hence be recommended to readers who are unfamiliar with economic, social and cultural rights, the human rights system or the right to food. It is useful to have current thinking on right to food dealt with completely and coherently in one book. We thus recommend "Freedom from Want" to anyone interested in or concerned with this important topic.

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The Nutrition Society has produced a series of four textbooks designed to provide students with the required scientific basics of nutrition in the context of a systems and health approach. Each book is fully peer reviewed, to ensure completeness and clarity of content, as well as to ensure that each book takes a global perspective. A unique feature of the Nutrition Society Textbook Series is that each chapter has its own website, [www.nutritiontexts.com](http://www.nutritiontexts.com), with downloadable teaching aids, suggestions for projects, updates on the content of each chapter and sample multiple choice questions. Information on how to order these textbooks can be found at [www.nutritiontexts.com](http://www.nutritiontexts.com)



## **Introduction to Human Nutrition**

Edited by Michael J Gibney, Hester H Vorster and Frans J Kok  
 Nutrition Society Textbook Series  
 Blackwell Publishing  
 2005 reprint, 342pp

Essential reading for students of nutrition and dietetics, along with students who major in food science, medicine, pharmacy and nursing. Chapters cover body composition, energy metabolism, dietary reference standards, vitamins, and much more.

## **Nutrition & Metabolism**

Edited by Michael J Gibney, Ian A Macdonald and Helen M Roche  
 Nutrition Society Textbook Series  
 Blackwell Publishing  
 2005 reprint, 385pp

This text book builds on the first book, *Introduction to Human Nutrition*, and forms the basis for subsequent specialization in either public health nutrition or clinical nutrition. This edition is meant for professionals in nutrition, dietetics, food science, medicine, physiology, health sciences and other related areas. Chapters cover molecular aspects of nutrition, energy, protein and amino acids, macronutrients, pregnancy and lactation, among other important topics.

## **Public Health Nutrition**

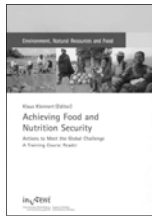
Edited by Michael J Gibney, Barrie M Margetts, John M Kearney and Lenore Arab  
 Nutrition Society Textbook Series  
 Blackwell Publishing  
 2005 reprint, 378pp

The third in the set of four books, *Public Health Nutrition*, takes into account the real potential to reduce the burden of noncommunicable chronic disease through diet. Chapters cover nutritional epidemiology, assessment of nutritional status in individuals and populations, dietary guidelines, food choice and other topics of interest.

## **Clinical Nutrition**

Edited by Michael J Gibney, Marinos Elia, Olle Ljungqvist and Julie Dowsett  
 Nutrition Society Textbook Series  
 Blackwell Publishing  
 2005 reprint, 480pp

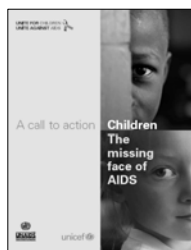
The last in the series, *Clinical Nutrition*, focuses on the sick and metabolically compromised patient. It parallels the text on *Nutrition & Metabolism* in dealing with clinical nutrition on a system by system basis. It covers the scientific basis underlying nutritional support, medical ethics, and nutritional counselling. The book ends with illustrative clinical case histories.



**ACHIEVING FOOD AND NUTRITION SECURITY**

A Training Course Reader  
 Klaus Klennert, editor  
 Inwent, 2005, 206pp  
[www.inwent.org](http://www.inwent.org)

This publication is based on the totally revised and updated background papers to the training workshop on “Food and Nutrition Security-Assessment Instruments and Interventions Strategies.” This workshop was an answer to the demands expressed by practitioners from governmental, as well as nongovernmental organizations working in the field of food and nutrition security. The reader is divided into eight different topics, including: concept of food and nutrition security; food and nutrition security situation at the beginning of the new millennium; instruments for the assessment and analysis of the food and nutrition security situation at the macro, micro and meso levels; designing a plan for assessing and analysing food and nutrition security; actions to improve food and nutrition security at the macro, micro and meso levels; and developing appropriate strategies for food and nutrition security.

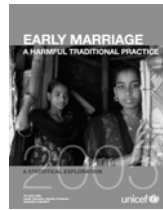


**A CALL TO ACTION:  
 CHILDREN THE MISSING FACE  
 OF AIDS**

UNICEF and UNAIDS  
 2005, 25pp  
[www.unicef.org](http://www.unicef.org)

This publication highlights the devastating impact AIDS is having on children. The Unite for Children, Unite against AIDS campaign is a global effort by UNICEF, UNAIDS and many partners to accelerate action to help those children at risk of HIV infection and those already infected and affected by HIV/AIDS. This publication provided facts on new HIV infections among children under 15, deaths of children under 15 due to AIDS, impact of AIDS on child

mortality, among many more astounding figures on the impacts of this disease. It also provides priority actions on how to tackle this problem.



**EARLY MARRIAGE  
 A HARMFUL TRADITIONAL  
 PRACTICE**

UNICEF  
 2005, 40pp  
[www.unicef.org](http://www.unicef.org)

Of particular relevance to this issue of *SCN News* on adolescent nutrition, this UNICEF publication attempts to quantify the extent of the problem of early marriage—marriage under the age of 18. The report presents a global assessment of child marriage levels, differentials in child marriage rates according to socio-economic and demographic variables, characteristics of the union, and knowledge and access to sexual and reproductive health information and materials. It utilizes household survey data from the Demographic and Health Surveys to assess child marriage levels by country and provide further analysis of how child marriage correlates with additional indicators.



**GLOBAL HEALTH WATCH  
 2005-2006  
 AN ALTERNATIVE WORLD  
 HEALTH REPORT**

Zed Books  
 2005, 368pp  
[www.zedbooks.co.uk](http://www.zedbooks.co.uk)

This publication, a collaboration of leading popular movements and NGOs, is a challenge to the major global bodies that influence health. It compiles hard-hitting, evidence-based analysis of the political economy of health and health care. It offers a comprehensive survey of current knowledge and thinking in the key areas that influence health, focusing on the health and welfare of poor and

vulnerable groups in all countries, including climate change, water and nutrition. This report is a call to action, with a resource section that suggest actions that everyone can take. Its recommendations show how better global health governance and practice could work for Health for All.



**HEALTH AND THE MILLENNIUM  
 DEVELOPMENT GOALS**

WHO  
 2005, 82pp  
[www.who.int/mdg](http://www.who.int/mdg)

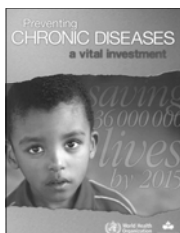
2005 is a critical year for reaching the MDGs. Evidence suggests that while there has been some progress, too many poor countries are falling behind in health. This report explains some of the reasons for the slow progress and suggests solutions. It identifies five challenges (strengthening health systems; prioritizing health in development; diverse and evolving needs of countries; mobilizing resources for health in poor countries; and improving the quality of health data) that are holding back progress and focuses on WHO’s strategies on addressing them.

**THE MILLENNIUM DEVELOPMENTS  
 GOALS**

**RAISING THE RESOURCES TO  
 TACKLE WORLD POVERTY**

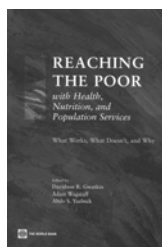
Fantu Cheru & Colin Bradford, eds.  
 Zed Books  
 2005, 238pp  
[www.zedbooks.co.uk](http://www.zedbooks.co.uk)

This book provides an up-to-date and detailed overview of the diversity of new proposals and mechanisms currently being discussed in order to raise the necessary financial resources to make the achievement of the MDGs a reality by 2015. Key resource flows examined include ODA, foreign direct investment, remittances by migrants, commodity export prices, and new ideas to secure sustainable debt relief. The editors conclude with a thought-provoking set of ideas about the political requirements for effective global economic governance aimed at achieving the MDGs.



**PREVENTING CHRONIC DISEASES  
A VITAL INVESTMENT**  
WHO  
2005, 182pp  
[www.who.int](http://www.who.int)

This publication dispels the long-held misunderstandings about heart disease, stroke, cancer and other chronic diseases that have contributed to their global neglect. Eighty percent of the 35 million chronic disease-related deaths per year will occur in low and middle income countries. Those in poor countries develop chronic diseases and die from chronic diseases at younger ages than do people in high income countries. This report gives practical advice for reducing deaths and improving the lives of millions of people. Significant improvements in chronic disease prevention and control can be achieved even with low levels of resources. This book tries to provide a way forward.



**REACHING THE POOR WITH  
HEALTH, NUTRITION, AND  
POPULATION SERVICES**  
**WHAT WORKS, WHAT DOESN'T  
AND WHY**

Davidson R Gwatkin, Adam Wagstaff,  
and Abdo S Yazbeck, eds.  
The World Bank  
2005, 353pp  
[www.worldbank.org](http://www.worldbank.org)

According to this new publication by the World Bank, health, nutrition, and population programmes often fail to reach those poor people that need them the most, contrary to what health policy makers in developing countries and international assistance agencies intend and assume is happening. Based on the findings of the new report, a follow-up action plan has been agreed to identify and encourage those strategies that give disadvantaged groups the health, nutrition, and population services that are

needed for healthy, productive lives. The report advocates a process of adaptation, recommending that country policy-makers seek to fit to their own settings those strategies proven successful elsewhere that seem most relevant to their own situation.



**REPOSITIONING NUTRITION AS  
CENTRAL TO DEVELOPMENT**  
**A STRATEGY FOR LARGE-SCALE  
ACTION**  
The World Bank  
2006  
[www.worldbank.org/nutrition](http://www.worldbank.org/nutrition)

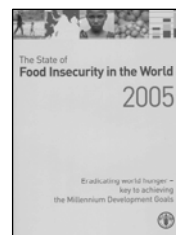
This book makes that case that development partners and developing countries must increase investment in nutrition programmes. This is based on evidence that the scale of the problem is very large and that nutrition interventions are essential for speeding-up poverty reduction, have high benefit-cost ratios, and can improve nutrition much faster than reliance on economic growth alone. Improved nutrition can also drive economic growth. The report proposes to the international development community and national governments a global strategy for accelerated action in nutrition.



**STATE OF WORLD  
POPULATION 2005**  
UNFPA  
2005  
[www.unfpa.org](http://www.unfpa.org)

This report sends a simple, but powerful message: gender equality reduces poverty and saves and improves lives. It also explores the degree to which the global community has fulfilled pledges made to the world's most impoverished and marginalized peoples. The report tracks progress and links between poverty, gender equality, human rights, reproductive health, conflict and violence against women and girls. A chapter is dedicated to the

period of adolescence, particularly relevant to this issue of *SCN News*.



**THE STATE OF FOOD INSECURITY IN  
THE WORLD 2005**  
FAO  
2005, 36pp  
[www.fao.org](http://www.fao.org)

This year's edition of SOFI stresses that food comes first. This report documents hunger and malnutrition as major causes of the deprivation and suffering targeted by all of the other MDGs. It also advocates for giving priority to rural areas where 75% of the world's hungry live. Chapters focus on: education and undernourishment; saving children's lives by reducing hunger; gender equality and the empowerment of women; improving maternal health; combating HIV/AIDS, malaria and tuberculosis; and improving environmental sustainability and food security for the rural poor.



**THE STATE OF THE WORLD'S  
CHILDREN 2006**  
UNICEF  
2005, 143pp  
[www.unicef.org](http://www.unicef.org)

This year's report focuses on the excluded and invisible children not benefiting from past development gains. These are the children without adequate access to education, to life-saving vaccines, and to protection. In progressing towards achieving the MDGs, the poorest and most vulnerable children must not be left behind. The report focuses on five areas: commitments to children; the root causes of exclusion; invisible children; how to include children; and how to work together to tackle this problem. As like every year, statistical tables are provided on key indicators for countries and territories, including nutrition indicators.

# Bulletin Board

## Conferences

### Bioavailability 2006 Optimizing Dietary Strategies for Better Health in Developing Countries

7-10 March 2006  
Chiang Mai, Thailand

This conference will include plenary sessions, short oral communications, workshops and poster presentations on the theme of biofortification of staple foods, dietary diversification, minor plant components and chronic disease.

[www.bio-2006.com](http://www.bio-2006.com)

### 6th International Dietary Assessment Methods Conference

April 27-29, 2006  
Copenhagen

For more information:  
[www.icdam6.dk](http://www.icdam6.dk)

### Asian Congress of Nutrition Diet, Nutrition and Optimal Health: From Food Supply to Nutrigenomics

The 10<sup>th</sup> ACN will be held at the International Convention Center, Taipei, Taiwan 9-13 September 2007. Contact [2007acn@gmail.com](mailto:2007acn@gmail.com) or visit [www.2007acn.org.tw](http://www.2007acn.org.tw)

Would you like to post a notice on this board?

The next issue of *SCN News* will be published in mid 2006.

Please send your contributions to [scn@who.int](mailto:scn@who.int)

### International Conference on Agrarian Reform and Rural Development FAO and Brazilian Government

Porto Alegre, Brazil  
7-10 March 2006

This conference will review agrarian reform and rural development issues worldwide and to identify sustainable rural development options that can contribute to rural poverty and hunger reduction. The conference secretariat has launched an internet site, [www.icarrd.org](http://www.icarrd.org), for more conference information and with discussion forums that will contribute to the exchange of information and ideas on the conference themes.

### 13<sup>th</sup> World Congress of Food Science & Technology Food is Life

17-21 September 2006  
Nantes, France

The congress will include symposia, invited lectures, workshops and poster sessions covering the entire field of food science and technology. For more information, contact [infost@nantes.inra.fr](mailto:infost@nantes.inra.fr) or visit [www.inra.fr/infost2006](http://www.inra.fr/infost2006)

### SAVE THE DATE! 19<sup>th</sup> International Congress of Nutrition 2009

Nutrition Security  
for All  
4-9 October 2009  
Bangkok, Thailand  
[www.icn2009.com](http://www.icn2009.com) for  
more information.

### NAFA 2006

#### Novel Aspects of Fatty Acids: Nutrition and Biological Function

June 14-16, 2006

Swedish Nutrition Foundation

This symposium will have state-of-the-art presentations by internationally leading scientists on newly discovered key functions of fatty acids and specific lipid components, as well as future challenges for research in this area. Visit [www.nafa2006.com](http://www.nafa2006.com) for more information.

### International Symposium on *Building Leadership Skills in Food and Nutrition Essential for National Development*

June 23-25, 2006 at CFTRI, Mysore – 570 020, India  
*Symposium*

Central Food Technological Research Institute (CFTRI), Mysore, India, in association with the International Union of Nutritional Sciences, International Nutrition Foundation, Tufts University and the United Nations University, invites internationally recognized scientists with interest in leadership and capacity development issues in the area of food and nutrition for participation in the international symposium on *Building Leadership Skills in Food and Nutrition Essential for National Development* in June 2006.

There is a growing recognition among institutions engaged in many facets of capacity development in developing countries that the present tools (eg, training modules) are inadequate. There is a need to evaluate and strengthen the current efforts being made in different countries towards capacity building in food and nutrition.

#### *Objectives*

- This symposium aims to bring together individuals with interest in building human capacity and leadership on food for nutrition in developing countries; and
- It will explore how leadership skills can be developed in food and nutrition for critical national development. It will consider enhancing organizational, technical and scientific skills to address global nutritional challenges as an essential and challenging task.

The symposium will identify needs for training in several areas of food and nutrition. They include multidisciplinary perspectives, nutrition policy and research, communication, education, evaluation and monitoring, quality assurance and project implementation, among others.

Participants from international and bilateral agencies, NGOs, foundations, universities and industry are welcome.

Contact Dr V Prakash, Director, CFTRI for further details.

Dr V Prakash  
Director, CFTRI  
Mysore – 570 020, India  
Fax: +91 - 821 - 2516308

[prakash@cftri.com](mailto:prakash@cftri.com) or [nutritionleader@cftri.com](mailto:nutritionleader@cftri.com)



## Courses

### Public Health in Complex Emergencies Training Course

May 8-20, 2006

Asian Disaster

Preparedness Center, Thailand

November 6-18, 2006

Institute of Public Health, Makerere University, Uganda

The training programme is a 2 week residential course that focuses on critical public health issues faced by NGO/PVO personnel working in complex emergencies. The goal of the course is to enhance the capacity of humanitarian assistance workers and their organizations to respond to the health needs of refugees and internally displaced persons affected by these emergencies. For information on the course in Thailand, please visit [www.adpc.net](http://www.adpc.net) (click on trainings and workshops). For information on the course in Uganda, visit [www.ipb.ac.ug](http://www.ipb.ac.ug)

### Breastfeeding Practice and Policy Course

19 June-14 July 2006

Centre for International Child Health in collaboration with WHO and UNICEF London, UK

This course provides comprehensive scientific technical and practical training on all aspects of breastfeeding, from birth to two years or beyond. It aims at developing participants' capacity to take an active role in protecting, promoting and facilitating optimal infant feeding practices. Contact [bfeed@icb.ucl.ac.uk](mailto:bfeed@icb.ucl.ac.uk) for more information.

### Workshops on Enhancing the Efficiency of Nutritional Investigations (June 19-22) & Metrological Concepts for Strengthening Food and Nutritional Measurements (June 26-30) at

Central Food Technological Research Institute, Mysore – 570 020, India

Central Food Technological Research Institute, Mysore, India in association with the International Union of Nutritional Sciences, International Nutrition Foundation, Tufts University (Friedman School of Nutrition Science and Policy) and the United Nations University is proposing to hold two workshops for capacity development through well designed workshops listed below:

These workshops are supplement to the proposed International Symposium on *Building Leadership Skills in Food and Nutrition Essential for National Development*, June 23-25, 2006, at CFTRI, Mysore – 570 020, India, aimed at strengthening the leadership and capacity development efforts in food and nutrition.

The number of participants for each course is limited to 20 and includes course registration fee. For details please contact Course Director(s) or CFTRI for more details.

**Enhancing the Efficiency of Nutritional Investigations (June 19-22)**, Course Directors: Dr Gary Gleasen, Dr Nevin Scrimshaw, President, International Nutrition Foundation and Senior Advisor, UNU ([nsscrimshan@infoundation.org](mailto:nsscrimshan@infoundation.org))

This workshop familiarizes participants with the types of methodology in the context of overall criteria for planning sound and cost effective nutritional studies and research. The workshop emphasizes criteria for selecting appropriate approaches based on subject areas, objectives, and various investigation functions ranging from situation assessment, project planning, program monitoring to evaluation.

**Metrological Concepts for Strengthening Food and Nutritional Measurements (June 26-30)**, Course Director: Dr Venkatesh Iyengar, Adjunct Professor, Tufts University ([venkatesh.iyengar@tufts.edu](mailto:venkatesh.iyengar@tufts.edu))

This workshop facilitates public health and nutrition investigators to develop awareness for current concepts in measurement practices. Understanding the steps of a measurement process and the associated metrological principles enhances the reliability of the result generated, thereby, contributing to sound decisions. The workshop emphasizes the economic benefits associated with reliable analytical results and stresses the need for sustainability of analytical quality assurance in several areas of food, nutrition and related physiological measurements.

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[prakashb@cftri.com](mailto:prakashb@cftri.com) or [nutrileader@cftri.com](mailto:nutrileader@cftri.com)

### 2<sup>nd</sup> International Technical Workshop on Strengthening School Health and Nutrition Programmes May 10-19, 2006 Kenya Medical Research Institute, Nairobi

This workshop is aimed at the needs of education, health and community development professionals and project managers with a particular focus on the reality of programming in low income countries. It will provide an up-to-date, comprehensive introduction to concepts and current practice in improving the health, nutrition and education of school children. It will address issues of management and implementation of programmes that respond to country-specific needs. The course faculty will be drawn from current practitioners with recognized international and regional expertise in school health and nutrition. Further information from Richard Suswillo, Partnership for Child Development [r.suswillo@imperial.ac.uk](mailto:r.suswillo@imperial.ac.uk)



### 5th Africa Nutrition Leadership Programme South Africa

November 2-10 2006

The 5th 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.africanutritionleadership.org](http://www.africanutritionleadership.org). At this site also the link can be found to the Netherlands Fellowship Programme that provides a number of grants for this course. Entry requirements are: PhD and/or a number of years of working experience and foremost leadership potential.

### Nutrition and Human Rights

A six-week postgraduate course on Nutrition and Human Rights will be offered again in 2006 by the University of Oslo and the Akershus University College, from early May to mid-June. It provides 10 credits in the European Credit Transfer System (ECTS) and is open to anyone with a B.Sc. in human nutrition or documented equivalent background.

Others who may be interested in applying will be evaluated and accepted on a case-by-case basis. There is no financial support for this course, thus participants must have their own funding. There is no tuition fee (a small registration fee is required). Living costs in Norway are relatively high. For more information contact [globalnutcourses@basalmed.uio.no](mailto:globalnutcourses@basalmed.uio.no).

## New Resources

### Partnership for Child Development School Health and Nutrition mailing list and website

The mailing list serves as a forum for debate and acts as a contact point for interested organizations and individuals. The list currently has nearly 400 subscribers, including members of UN agencies, bilaterals, NGO's, policy planners and implementers in developing countries. Contact Dr Celia Maier, [c.maier@imperial.ac.uk](mailto:c.maier@imperial.ac.uk)

PCD has developed and administers the School Health website, [www.schoolsandhealth.org](http://www.schoolsandhealth.org), which is supported by the World Bank, WHO, UNESCO, UNICEF, USAID, and other. It provides a source of technical information, resources and documents relating to school health and nutrition. The website houses a sub-site, dedicated to HIV/AIDS and Education that is supported by the IATT Working Group and provides information on current workshops and events, and downloadable documents. It also hosts regional network communications pages for HIV/AIDS and Education that are currently available for West Africa and which are under construction for East Africa, Central Africa and Lusophone Africa. The School Health website is a popular resource, currently receiving approximately 2,500 visits per day.

### EpiHandy

#### A new tool for collection and handling of research data using handheld computers

This new tool has been developed at the Centre for International Health, University of Bergen, Norway, in response to problems faced in management of relief operations/ research in remote rural areas of Ethiopia, where great problems in obtaining reliable and updated data were faced. EpiHandy consists of several interrelated programmes including industry standard SQL databases for storage of data. Visit [www.epihandy.com](http://www.epihandy.com) for more information.

A downloadable CD with material on Infant Feeding in Emergencies, including Modules 1 and 2 developed by the IFE Core Group, is available at [www.flyingdudes.com/ife](http://www.flyingdudes.com/ife)

### A CD-ROM on Community Nutrition from Teaching-aids At Low Cost (TALC)

A new TALC CD-ROM on 'Community Nutrition' is now available. It is intended for nurses, other health care providers, development professionals and trainers in resource-poor countries (particularly Africa) who have limited access to web-based reference materials.

The CD-ROM is partly funded by UNICEF. It contains several hundred recent items including manuals, training courses, academic papers, briefs, practical guidelines, pictures and slides donated by international and national agencies, universities, non-governmental organizations and private individuals.

A number of free copies are available for target users. If you would like one, please send us an email, fax or letter saying who you are, why you would like a copy and how you plan to use the CD.

Please note that, although the CDs are free, TALC has a limited budget for postage costs. Thus, anyone requesting large numbers (e.g. libraries and institutions) will be expected to pay the postage. Please say, when ordering the CDs, how you will pay this. If you are an individual requesting a single copy with the postage paid by TALC, please explain why you are not able to pay the postage. TALC will then assess your request for a free CD and may be able to send it.

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