OVER A THIRD OF CHILD DEATHS AND 11% OF GLOBAL DISEASE BURDEN DUE TO MATERNAL AND CHILD UNDERNUTRITION

Launch of Lancet Maternal and Child Undernutrition Series

When: 10:30 am, Wednesday January 16, 2008

Where: Science Media Centre, 19 Albemarle Street, London, W1S 4BS (full directions on the next page)

What: More than one third of child deaths and 11% of the total disease burden worldwide are due to maternal and child undernutrition. These and other stark findings are the conclusions of an international collaboration of investigators publishing new findings in The Lancet’s maternal and child undernutrition Series. The London media launch will be chaired by Lancet Editor, Dr Richard Horton, and will include short presentations from authors of each of the five Series papers:

Paper 1: Over a third of child deaths and 11% global disease burden from maternal and child undernutrition; Speaker: Professor Zulfiqar Bhutta, Department of Pediatrics and Child Health, Aga Khan University, Karachi, Pakistan

Paper 2: Poor fetal growth or stunting in first two years leads to large negative consequences in later life; Speaker: Professor Caroline Fall, Medical Research Council Epidemiology Resource Centre, University of Southampton, UK

Paper 3: Maternal and child nutrition interventions could prevent quarter of child deaths in poor communities; Speaker: Professor Simon Cousens, London School of Hygiene and Tropical Medicine, UK
Nutrition is a desperately neglected aspect of maternal, newborn, and child health. The reasons for this neglect are understandable but not justifiable. In his Comment which opens The Lancet’s Series on Maternal and Child Undernutrition, The Lancet Editor Dr Richard Horton draws together the themes of the series, and calls on agencies, donors and political leaders to step up to this very serious challenge.

He says: “Undernutrition is the largely preventable cause of over a third—3.5 million—of all child deaths. Stunting, severe wasting and intrauterine growth restriction are among the most important problems. There is a golden interval for intervention: from pregnancy to 2 years of age. After age 2 years, undernutrition will have caused irreversible damage for future development towards adulthood.”
Dr Horton refers to the statistic that four-fifths of undernourished children live in just 20 countries across four regions, and highlights the countries in most immediate need of action—including Burma, Uganda, India, China and South Africa. He discusses various proven interventions in the battle against undernutrition, including breastfeeding counselling, vitamin A supplementation, and zinc fortification. However, he adds: “These interventions need additional programmatic experience about how to achieve full coverage.”

Whilst stating there is no magic technological bullet to solve the problem of undernutrition, Dr Horton calls for long-term investments in the role of women as full and equal citizens—through education, economic, social, and political empowerment. He says this will be the only way to deliver sustainable improvements in maternal and child nutrition, and the health of women and children more generally.

Dr Horton says that the compelling logic of the scientific evidence presented in the Series is that governments need national plans to scale-up nutrition interventions, systems to monitor and evaluate those plans, and laws and policies to enhance the rights and status of women and children. He says: “Although complex and fraught with political disagreement, none of these solutions are separable from global treaties and negotiations over trade, agriculture, and poverty reduction.”

In his closing remarks, Dr Horton says: “This latest Lancet Series concludes, not surprisingly perhaps, that the international nutrition system is broken. Leadership is absent, resources are too few, capacity is fragile, and emergency response systems are urgently needed. An agency, donor, or political leader needs to step up to this challenge. There is a fabulous opportunity right now for someone to do so. But who?”

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Note to Editors
Two other Comments accompany the Series and are available on request from the Press Office.
OVER A THIRD OF CHILD DEATHS AND 11% OF GLOBAL DISEASE BURDEN DUE TO MATERNAL AND CHILD UNDERNUTRITION

More than one third of child deaths and 11% of the total disease burden worldwide are due to maternal and child undernutrition. These and other shocking statistics are the conclusions of Professor Robert Black, Johns Hopkins School of Public Health, Baltimore, MD, USA, and Professor Zulfiqar Bhutta, Department of Pediatrics and Child Health, Aga Khan University, Karachi, Pakistan, and colleagues, authors of this first paper in The Lancet’s Series on Maternal and Child Undernutrition.

The authors say: “Maternal and child undernutrition is highly prevalent in low-income and middle-income countries, resulting in substantial increases in mortality and overall disease burden”. Undernutrition encompasses stunting, wasting, and deficiencies of essential vitamins and minerals as one form of the condition known as malnutrition, with obesity or over-consumption of specific nutrients as another form.

They estimate that stunting, severe wasting, and intrauterine growth restriction together were responsible for 2·2 million deaths (2005) and 21% of disability-adjusted life years (DALYs) for children under five-years. Deficiencies of vitamin A and zinc have by far the highest disease burden in the micronutrients studied, and were estimated to be responsible for 0·6 million and 0·4 millions deaths, respectively, in 2005, and together cause 9% of global childhood DALYs. Iodine and Iron deficiencies have small disease burdens, partly because of intervention programmes—but sustained effort is needed to further reduce their burden. The paper also examines the effect of suboptimum breastfeeding, which is estimated to be responsible for 1·4 million child deaths and 44 million DALYs in children under five years.

By doing an analysis that accounted for co-exposure of these nutrition-related factors, the authors found that they were together responsible for 35% of child deaths globally and 11% of the total global disease burden. The authors conclude: “The high mortality and disease burden resulting from these nutrition-related factors make a compelling case for the urgent implementation of interventions, to reduce their occurrence or ameliorate their consequences.”

Further, the authors identify key areas where further research is required—including developing methods to assess nutritional status and its determinants; the prevalence of micronutrient deficiencies (eg, vitamin A, iron, zinc) in populations; consequences of nutritional deficiencies for mortality from HIV/AIDS, malaria, tuberculosis and other infectious
diseases; consequences of nutritional deficiencies on immune systems, brain development and cognitive ability; overlap of micronutrients and their joint effects on mortality and disease; and finally development of international fetal and newborn growth standards.

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EMBARGO: 00:01H (UK time) Thursday January 17, 2008

POOR FETAL GROWTH OR STUNTING IN FIRST TWO YEARS OF LIFE LEADS TO HUGE NEGATIVE CONSEQUENCES IN LATER LIFE

Poor fetal growth or stunting in the first two years of life leads to irreversible damage, including shorter adult height, lower attained schooling, reduced adult income and decreased offspring birthweight for women. These are the conclusions of Professor Caroline Fall, Medical Research Council Epidemiology Resource Centre, University of Southampton, UK, and Professor Cesar Victora, Universidade Federal de Pelotas, Brazil, and colleagues, authors of the second paper in The Lancet’s Series on Maternal and Child Undernutrition.

The authors analysed the association between child and maternal undernutrition with human capital and risk of adult diseases in low- and middle-income countries (LMICs), focussing on five long-standing studies in Brazil, Guatemala, India, the Philippines, and South Africa. They showed that indicators of undernutrition (maternal height, birthweight, fetal growth restriction, and the child’s weight, height, and body-mass index [BMI]) at age two years were related to adult outcomes (height, schooling, income/assets, offspring birthweight, BMI, glucose concentrations, blood pressure). The strongest associations with undernutrition were found for shorter adult height, lower levels of schooling, and reduced economic productivity, and, for women, lower offspring birthweight.

Further, the authors found that children who are undernourished in the first two years of life, and who put on weight rapidly later in childhood and in adolescence are at high risk of chronic diseases related to nutrition, such as high glucose concentrations, hypertension and increased levels of harmful fats in their blood. But they found no evidence that rapid weight gain or height gain in the first two years of life increases the risk of chronic disease, even in children with poor fetal growth. Height for age at two years was the best predictor of the child’s future economic productivity (human capital).
The authors say: “We conclude that damage suffered in early life leads to permanent impairment, and might also affect future generations. Its prevention will probably bring about important health, educational, and economic benefits. Chronic diseases are especially common in undernourished children who experience rapid weight gain after infancy....at the same time as investments are made against undernutrition, middle-income countries undergoing the nutrition transition should also address the negative consequences of rapid weight-gain, especially in later childhood.”

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MATERNAL AND CHILD NUTRITION INTERVENTIONS COULD PREVENT A QUARTER OF CHILD DEATHS IN POOR COMMUNITIES

Implementation of existing maternal and child nutrition-related interventions could prevent 25% of all child deaths in the 36 countries with the highest burden of undernutrition. Breastfeeding counselling and vitamin A supplementation are currently the nutrition strategies with the greatest potential to cut child deaths. These are the conclusions of Professor Zulfiqar Bhutta, Department of Paediatrics and Child Health, Aga Khan University, Karachi, Pakistan, and Professor Simon Cousens, London School of Hygiene and Tropical Medicine, UK, and colleagues, authors of the third paper in The Lancet’s Series on Maternal and Child Undernutrition.

The authors reviewed interventions to promote breastfeeding; strategies to promote complementary feeding, with or without provision of food supplements; micronutrient supplementation; general support strategies for family and community nutrition; and reduction of disease burden, eg, promotion of handwashing strategies to reduce malaria burden during pregnancy. They studied how these factors affected children’s growth patterns and risk of death. In populations with enough food, education about complimentary feeding increased the height-for-age Z score* by 0·25 standard deviations (SDs), while provision of food supplements increased the score by 0·41 SDs in food-insecure populations.

Further, they found that management of severe acute malnutrition (SAM) using WHO guidelines can reduce case-fatals related to this condition by 55%. However this requires admission to a health facility. Less intensive, community based management of SAM using ready-to-use therapeutic foods also has the potential to reduce mortality substantially and
is likely to be easier to implement at high coverage. For pregnant women, supplementation with iron folate increased their blood haemoglobin levels at term by 12g/L, decreasing the risk of death for women who experience haemorrhage, while supplementation with multiple micronutrients reduced the risk of low birthweight at term by 16%. However, the authors note that more research is needed to assess maternal nutrition interventions at sufficient scale. For children, vitamin A supplementation in the neonatal and in late-infancy periods were recommended, as were preventive zinc supplements, iron supplements in non-malaria endemic areas, and universal promotion of iodised salt.

Modelling the effects of these nutrition-related interventions, the authors estimated that, if implemented at high coverage in the 36 countries with the highest burden of undernutrition, they could reduce mortality between birth and 36 months by about 25%, reduce stunting at 36 months by 36%, and reduce the disability-adjusted life-years (DALYs) associated with stunting, severe wasting, intrauterine growth restriction, and micronutrient deficiencies by around 25%.

But the authors add that nutrition strategies on their own are not enough, saying: “Although available interventions can make a clear difference in the short term, elimination of stunting will also require long-term investments to improve education, economic status, and empowerment of women.”

They conclude: “Attention to the continuum of maternal and child undernutrition is essential to attainment of several of the Millennium Development Goals and must be prioritised globally and within countries. Countries with a high prevalence of undernutrition must decide which interventions should be given the highest priority, and ensure their effective implementation at high coverage to achieve the greatest benefit. We have shown that the evidence for benefit from nutrition interventions is convincing. What is needed is the technical expertise and the political will to combat undernutrition in the very countries that need it most.”

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Note to Editors

*Height for age Z score is an internationally accepted measure for evaluating stunting or how short a child is in comparison to the normal range. For the Series, this has now been estimated using the new WHO growth reference standards based on breastfed children.
80% of the world’s undernourished children live in just 20 countries,* and intensified nutrition action in these countries can lead to achievement of the first Millennium Development Goal (MDG1)† and greatly increase the chances of achieving goals for child and maternal mortality (MDGs 4 and 5)‡. These are the conclusions of Dr Denise C Coitinho, World Health Organization, on temporary secondment to World Food Programme (WFP) to coordinate the inter-agency team on child hunger and undernutrition; and Dr Jennifer Bryce, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA, and colleagues, authors of the fourth paper in The Lancet’s Series on Maternal and Child Undernutrition.

The authors say: “Despite isolated successes in specific countries or for interventions—eg, iodised salt and vitamin A supplementation—most countries with high rates of undernutrition are failing to reach undernourished mothers and children with effective interventions supported by appropriate policies.”

They address seven key challenges for addressing undernutrition at national level: getting nutrition on the list of priorities; keeping it there; doing the right things; not doing the wrong things; acting at scale; reaching those in need; data-based decisionmaking; and building strategic and operational capacity. The authors say: “Interventions with proven effectiveness that are selected by countries should be rapidly implemented at scale. The period from pregnancy to 24 months of age is a crucial window of opportunity for reducing undernutrition and its adverse effects. Programme efforts, as well as monitoring and assessment, should focus on this segment of the continuum of care.”

The paper looks at the varied situation within and across Latin American countries, which as a whole have experienced a large drop in stunting, being underweight, and wasting; and China, where a multisectoral approach has seen rapid nutritional improvement.

The authors caution that nutrition resources should not be used to support actions unlikely to be effective in the real life setting of a particular country, nor to support actions that have not been proven to have a direct effect on undernutrition. The authors say: “In addition to health and nutrition interventions, economic and social policies addressing poverty, trade, and agriculture that have been associated with rapid improvements in nutritional status should be implemented. There is a reservoir of important experience and expertise in individual countries about how to build commitment, develop and monitor nutrition
programmes, move toward acting at scale, reform or phase-out ineffective programmes, and other challenges. This resource needs to be formalised, shared, and used as the basis for setting priorities in problem-solving research for nutrition.”

They conclude by asking: “What can be done?....there are no simple prescriptions to reduce undernutrition, although high coverage with four or five of the proven interventions would certainly have a sizeable effect....the charge to nutrition leaders at country level is to review their existing strategies and programmes to ensure that priority is given to interventions with a proven effect on undernutrition in pregnant women and children younger than two years of age, and then to develop feasible strategies for increasing public demand for these interventions and delivering them at scale.”

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Note to Editors

“The 20 countries with a stunting prevalence equal to or higher than 20% in children under the age of five years, that together account for over 80% of the world's undernourished children, are: Democratic Republic of Congo, Ethiopia, Kenya, Madagascar, Nigeria, South Africa, Sudan, Uganda, Tanzania, Egypt, Yemen, Afghanistan, Bangladesh, India, Burma, Nepal, Pakistan, Indonesia, Philippines, and Vietnam.

†MDG1: Reduce by half the proportion of people living on less than a dollar a day, and reduce by half the proportion of people who suffer from hunger. MDG4: Reduce by two thirds the mortality rate among children under five. MDG5: Reduce by three quarters the maternal mortality ratio (source: United Nations website).

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THE INTERNATIONAL NUTRITION SYSTEM: FRAGMENTED, DYSFUNCTIONAL AND DESPERATELY IN NEED OF REFORM

The international nutrition system—made up of international and donor organisations, academia, civil society, and the private sector—is fragmented and dysfunctional, and needs reform. These are the conclusions of Professor Saul Morris, London School of Hygiene and Tropical Medicine, UK, and Dr Bruce Cogill, Unicef, New York, USA, and colleagues, authors of the fifth and final paper in The Lancet’s Series on Maternal and Child Undernutrition.

The authors say: “Financial, intellectual, and personal linkages bind these organisations loosely together as components of an international nutrition system...we argue that such
a system should deliver in four functional areas: stewardship, mobilisation of financial resources, direct provision of nutrition services at times of natural disaster or conflict, and human and institutional resource strengthening.”

Their analysis of evidence to date finds that currently, there are substantial shortcomings in each of the areas above. Fragmentation, lack of evidence for prioritised action, institutional inertia, and failure to join up with promising developments in parallel sectors are recurrent themes. Many problems are systemic within organisations in the field.

The authors say: “The funding provided by international donors to combat undernutrition is grossly insufficient and poorly targeted, and is inappropriately dominated by food aid and supply-led technical assistance. Much more investment is needed in human and institutional capacity for nutrition in low-income and middle-income countries.”

They suggest five priority areas for action to create a much stronger international nutrition system. First, a new global governance structure, in which all stakeholders in undernutrition could come together to press for ways forward for the most pressing issues. The authors say this should take place within the next six months. Secondly, they call for a more effective UN: namely that the UN standing committee on nutrition becomes a forum that makes individual UN agencies accountable for results. Thirdly, less duplication by parallel organisations, eg, among individual donor projects coexisting with various initiatives. Fourthly, more investment in capacity strengthening in countries with high burdens of undernutrition, with the authors stating strengthening of regional and sub-regional networks should be a priority, due to its potential to reach a larger number of beneficiary countries.

Finally, the authors call for research leadership in areas that matter; on the editors of academic journals with an interest in maternal and child undernutrition to meet in 2008 to develop a strategy to increase the profile of the subject; on major donors to clarify how their funding will reduce the imbalances highlighted in the series; and on research and training groups in high-income countries to use their expertise to progress scaling up of successful nutrition projects.

The authors conclude: “The moment is ripe for these reforms. Their implementation would transform the political salience of undernutrition, and offer the chance of a better, more productive life to the 67 million children born each year in the countries most severely afflicted by undernutrition.”

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