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IMTF

**International Malnutrition Task Force
Equipe Speciale sur la Malnutrition
Grupo de Trabajo de Malnutrición**

IMTF UPDATE AND REPORT 2011

Prepared for a Consultants' Meeting on severe acute malnutrition in sub-Saharan Africa

IAEA Headquarters, Vienna, March 19-20, 2012

Activities of IMTF during 2011: Below is a summary of some of the core activities in 2011:

1. Building capacity: Recent IMTF capacity-building activities include:-

- strengthening a network of young African nutritionists, including utilising the FANUS meeting (Federation of African Nutrition Societies) Abuja, September 2011, where agreement was achieved on knowledge-based curricula for training nutritionists in Africa.
- maintaining the IMTF website to provide information about resources, training, evidence-base for treatment guidelines, current events, recent research, and answers to frequently asked questions, as well as information about the Task Force and its activities.
- developing three competency-based eLearning modules for the identification, treatment and prevention of malnutrition that can be incorporated into undergraduate courses in medicine, nursing and health sciences, and into Continuous Professional Development courses for in-service training of health professionals working in facilities or at the community level. The materials were field-tested in Uganda in collaboration with the Uganda Paediatric Association and Makerere University Medical School. Their effectiveness and appropriateness of delivery were assessed using a mixture of quantitative and qualitative methods. Eighty-six doctors, medical students, nurses and nutritionists participated in three half-day trainings.

A project web page (www.som.soton.ac.uk/learn/elearning/projects/malnutrition/) containing a short introductory video was developed along with promotional materials, A1 poster, A6 postcard and A4 handout. A live demonstration and presentation of the project were given at an eLearning event at the University of Southampton in March 2011.

Presentations about the malnutrition eLearning project were also made at the Asia Pacific Conference on Nutrition, Bangkok in June 2011, at CAPGAN, London in July, and at the Annual Scientific Meeting of the Association for the Study of Medical Education, Edinburgh in July 2011. The eLearning project was also presented at FANUS, Abuja, in September 2011 and demonstrations were given throughout the event. 200 copies each of the postcard, leaflet, handout and business card, and 100 CDs were handed out. The materials were much demanded, and an e-mail list of people wishing to register for the course was made. Professor Krawinkel distributed promotional materials at the International Congress of Tropical Pediatrics in Bangkok, in October 2011.

The course was launched through the IMTF website in November 2011 and a YouTube site was set up in January 2012 to which the project video was uploaded. The course was introduced to

elective students at the University of Southampton Medical Faculty and plans are underway to integrate the course into the undergraduate medical curriculum at Kwame Nkrumah University of Science and Technology, Kumasi, and two nursing colleges in the Ashanti Region, Ghana. An abstract about the project has been submitted to the International Association for Medical Education for their conference in Lyon, August 2012.

A 3-year plan has been made to deliver eLearning training programmes in Bangladesh, Ghana, Uganda, and Zambia. The plan includes the structure of the core (IMTF) and country teams, the workflows within each team and between the teams, and job descriptions to guide each partner in identifying their team members. Funding is being sought.

2. Advocacy: Recent examples of IMTF awareness-raising include:-

- advocacy in collaboration with the International Pediatric Association and the passing of Resolutions that the care of children with severe malnutrition should be considered a core competency for all health professionals with responsibility for malnourished children
- motivating national paediatric and nutrition societies to examine medical and nursing curricula to ensure that identification, treatment and prevention of severe malnutrition are core competencies
- published a paper entitled 'Malnutrition treatment to become a core competency' (by C Schofield, A Ashworth, Annan R, and AA Jackson) in Arch Dis Child, March 2011
<http://adc.bmj.com/cgi/content/abstract/adc.2010.209015v1?paperoc>

3. Case-management guidelines

- participated as a member of the Delphi panel which assisted in planning and preparing systematic reviews of the 'Effectiveness of interventions to treat severely malnourished children'. These reviews fed into the WHO Nutrition Guidance Expert Advisory Group (NUGAG) as part of the WHO Guidelines Development Process
- participated as a member of NUGAG (March 2011 and February 2012) which will provide updated evidence-based case-management guidelines and protocols, and provide policy and programme guidance to Member States
- developed and disseminated job aids, wall charts, monitoring tools in relation to implementation of case-management guidelines, and provided technical support.

4. Policy and planning

- supported the scaling-up and integration of community- and facility-based management of moderate and severe malnutrition as a member of the CMAM Forum Steering Committee.

5. Regional: Sub-Saharan Africa

South Africa: National consultative meeting on severe malnutrition

During 2000-2006, four Provinces (Eastern Cape, Kwa-Zulu Natal, North West, and Limpopo) adopted and implemented the WHO facility-based management of severe malnutrition. Rollout training for the other five provinces was completed by February 2011.

A consultative meeting on severe malnutrition was held in Boksburg in January 2012, chaired by Dr

Elizabeth Kaye-Petersen, Director Child Health and Nutrition, Gauteng and Ms Lenore Spies, Director Nutrition, Kwa-Zulu Natal. Attendees were 42 health professionals from all nine Provinces, including Head paediatricians, Child Health representatives, Nutrition representatives, UNICEF and USAID. The objectives were to harmonize implementation of the WHO protocol for management of severe malnutrition and discuss implementation gaps and challenges. The challenges ranged from poor management support, lack of supplies, resistance by dietitians to follow the protocol, rotation of staff, shortage of staff and trained personnel. Recommendations included i) integration of the protocol into other programmes e.g. LITCHI, IMCI; ii) multi-team approach iii) national sourcing-out of supplies (ready-to-use glucose and feeds).

Zambia: The country has signed to Scaling-up Nutrition (SUN) and, after the change in Government in 2011, a new Ministry has been formed (Community Development, Maternal and Child Health). Implementation of WHO facility-based guidelines for management of severe malnutrition started in 2003 with a national training of facilitators and case-management training at the University Teaching Hospital. Thereafter, training has been rolled out to provincial and district hospitals in the whole country. Community management started in Lusaka District in 2005 with support from VALID International, initially in 5 clinics scaling up to 29 clinics by 2007. This programme has been scaled up in other provinces. Doctors, clinical officers, nurses and nutritionists have been trained with support from WHO, UNICEF, and DfID, and a country-wide pool of these cadres now exists. The University Teaching Hospital Department of Paediatrics and Child Health has spearheaded trainings and implementation of case-management guidelines, and in October 2011 three sets of nurses and doctors (total 46) were trained using the WHO updated training modules combined with practical sessions in community management at the community outreach centre. The training was funded by PEPFAR, through the CDC Country Office. The Department offers training to Provincial and District health workers.

Medical students at the Department of Paediatrics receive lectures and tutorials on childhood malnutrition, and students rotate for 2 weeks in the malnutrition ward in their 5th and 7th years. Interns have 1-month rotations, while postgraduate students make 3-4 rotations of 3 months during their 4-year training. Talks are underway between the Government and the School of Medicine for medical students to take the IMCI e-learning course ICATT (IMCI Computerized Adaptation and Learning Tool).

The malnutrition ward at the University Teaching Hospital has 59 beds and remains full with patients sharing beds during the peak season (November to April). Case fatality rates remain high mainly due to staff shortage, late presentation, and high HIV prevalence. In 2009 the Department started a pilot community nutrition outreach programme, including HIV testing, in 2 unplanned communities within Lusaka to identify malnourished children early and provide HIV care. The programme is funded by PEPFAR through CDC. Since Zambia has adopted Provider Initiated HIV Testing and Counselling, all caretakers are offered this service and all HIV infected children and caretakers are referred for enrolment into HIV care.

6. Regional: Asia

Regional training workshops on moderate and severe acute malnutrition

A regional workshop was held in Dhaka in June 2011 in collaboration with ICDDR, B and WHO-SEARO. Doctors, nurses and senior health professionals from 10 countries attended (Bangladesh, Bhutan, DPR Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, and Timor Leste). Senior staff members of WHO, UNICEF and WFP Regional and Country Offices participated.

Afghanistan: Training of trainers workshop for management of severe malnutrition

Facilitators from ICDDR, B conducted a training workshop in Kabul for doctors and nurses from different Provinces in response to an invitation from UNICEF, WHO and the Ministry of Public Health. They also helped the Ministry of Public Health develop and review operational guidelines and training modules on Management of Severe Acute Malnutrition. The training programme was held in July and August, 2011.

Myanmar: Training of trainers workshop for management of severe malnutrition

Facilitators from ICDDR, also went to Yangon and Nay Pyi Taw to conduct a Training of the Trainers workshop for doctors and nurses from different provinces of Myanmar. The training programme was in December, 2011.

Bangladesh: Training of trainers workshop for management of severe malnutrition

A number of Training of the Trainers workshops were also held for senior doctors from the Ministry of Health in collaboration with the Institute of Public Health Nutrition.

At BRAC University, 28 MPH students successfully completed the Nutrition module in November 2011.

Dr Tahmeed Ahmed gave a seminar titled “Severe acute malnutrition: a failure of health systems” at the School of Population Studies, University of Queensland, Brisbane, October 2011.

Research: Please see Annex for ICDDR malnutrition-related research, and publications.

7. Regional: Latin America

Bolivia: An international workshop was held in La Paz, July 2011, to share country experiences in fighting severe acute malnutrition. Participants came from Argentina, Bolivia, Ecuador, Peru and Guatemala, and included staff from 12 Bolivian nutrition rehabilitation units. Updates on malnutrition management were provided by Drs. Hugo Ribeiro and Mamane Zeilane. All countries represented were familiar with the WHO protocol, but only in Bolivia is the protocol applied nationwide. In Bolivia, 12 units in city hospitals manage severe malnutrition: families who refuse referral and children with moderate acute malnutrition are treated in primary health clinics where RUTF and homemade complementary food are provided. During 2011, 403 children with severe malnutrition with complications were admitted to the 12 units with an overall case fatality rate of 4.8%. Additionally, 1000 moderately malnourished children were seen in primary health clinics in scattered rural areas, and follow-up data are being collected.

Plans for 2012 include continuation of promotion of home-made foods to prevent malnutrition, early detection of acute malnutrition, and training of health clinic staff.

8. Provisional plans for IMTF for 2012:

We will build on the links that have been forged during 2011. In particular we aim to:-

- explore possible avenues for providing follow-up support to professional bodies that adopt the IPA Johannesburg Resolution that identification, treatment and prevention of severe malnutrition should be a core competency for paediatricians
- work towards eLearning modules being adopted by relevant professional groups and incorporated into appropriate training programmes. Key enablers have been identified in Bangladesh, Ghana, Uganda, and Zambia
- start to create a web portal that will host, deliver and monitor Continuous Professional Development training in the identification and treatment of malnutrition
- explore the use of mobile phones to deliver key messages from the eLearning materials
- work with alumni from the Africa Young Nutrition Leadership Programme to foster mutually supportive work
- agree competency-based curricula at ANEC (Africa Nutritional Epidemiology Conference) in Bloemfontain, October 2012
- start preparatory work for a major input to the 20th International Congress of Nutrition in Granada, Spain in September 2013.

Annex

Malnutrition-related research at ICDDR,B: Dr Tahmeed Ahmed, Director, Centre for Nutrition and Food Security

1. Randomized, controlled clinical trial of day-care based and hospitalized management of severe and very severe pneumonia, with severe malnutrition, with/without associated co-morbidities in children, Principal Investigator: H Ashraf

A randomized hospital versus day-care (The Radda Clinic equipped with oxygen, suction, pulse oximeter, nebulizer, glucometer) comparative study was carried out to evaluate the safety and effectiveness of the day-care model. Children aged 2-59 months having severe pneumonia with SAM attending either facility were randomized to day-care or hospital-care. Parents brought children at 08:00-17.00 to the day-care clinic daily and received antibiotics, diet, micronutrients, and oxygen therapy if needed. Day-care management continued daily until improvement. For hospital-care, children stayed overnight and received similar treatment with antibiotics, diet, micronutrients, and oxygen therapy daily until improvement.

In total 340 children were randomized. Successful management was possible in 136/170 [80% (95% CI 73.4-85.3%)] day-care children and 144/170 [84.7% (95% CI 78.5-89.3%)] hospital-care children. Of the remaining 34 day-care children, 29 [17.1% (95% CI 12.1-23.4%)] were referred to hospital and 5 [2.9% (95% CI 1.3-6.7%)] discontinued treatment. Of the remaining 26 hospital-care children, 18 [10.6% (95% CI 6.8-16.1%)] were referred to specialized hospitals and 6 [3.5% (95% CI 1.6-7.5%)] discontinued treatment.

Conclusion: children with severe pneumonia with SAM can be treated safely and effectively at established day-care clinics, similar to hospital management, if required logistic support is available.

2. Efficacy of ready-to-use therapeutic food using soy protein isolate in under-5 children with severe acute malnutrition in Bangladesh, PI: Iqbal Hossain

The most expensive raw ingredient in RUTF is milk powder, contributing 30-35% of the total cost of the final product. The objective of this ongoing study is to compare weight gain, rate of weight gain and change of lean body mass with the standard RUTF and an RUTF made from ISP (Soy-RUTF) in a double-blind RCT with 300 SAM children aged 6 to 59 months after completion of their stabilization phase. They will receive take home rations and be followed weekly until -2 WHZ, and thereafter fortnightly until -1 WHZ. In an acceptability cross-over trial with 30 SAM children both products were equally acceptable and no adverse event was observed in any group. The main trial starts April 2012.

3. Hypophosphatemia (HP) in SAM children with diarrhoea and sepsis or septic shock. PIs: Iqbal Hossain & Tahmeed Ahmed

The study will investigate the prevalence of HP and its relation with anthropometric status, and if sepsis and septic shock are risk factors for HP, and whether HP occurs during re-feeding. Enrolment and study of 170 children has been completed. Data entry and analysis will take until 31 December 2012.

4. Etiology, risk factors and interactions of enteric infections and malnutrition and the consequences for child health and development (MAL-ED), PI: Tahmeed Ahmed

This is a multi-site project to gain a better understanding of the risk factors for malnutrition, enteric diseases and associated health consequences, including developmental impairment. Epidemiological studies (longitudinal and case control) at multiple sites are underway and include assays of gut function, microbiology, anthropometry, nutrition, cognitive function, immunogenicity of common mucosal vaccines, and community surveillance for infectious diseases.

Linked with this is a companion Discovery study (Biomarkers of Malnutrition in Children) to give insights into the genetic basis of malnutrition, and why some children fail to improve despite appropriate treatment of malnutrition. In an under-privileged community in Dhaka, results so far suggest that the nutritional supplement recommended by the then National Nutrition Program does not lead to optimal growth of children suffering from malnutrition; the prevalence of anaemia is high and home fortification of the mid-

day meal with micronutrient sprinkles for two months is not enough to control anaemia; three genes have been identified that could play an important role in protecting against child malnutrition.

5. Development of ready-to-use-complementary food (RUCF) for children in Bangladesh, PI: Tahmeed Ahmed

In collaboration with WFP, two RUCFs have been made from local foods, one based on rice and the other on chickpeas, for preventing malnutrition in food insecure areas or treating moderate acute malnutrition in food insecure households. The acceptability trial in children 6-18 months in Mirpur slum, Dhaka, has been completed. The study ends in April 2012.

6. Development and field testing of RUTFs made of local ingredients in Bangladesh for treatment of children with severe acute malnutrition. PI: Tahmeed Ahmed

This study involves selection of candidate recipes and testing them for acceptability and efficacy. The RUTFs have been developed and the study will continue for the next 1.5 years in collaboration with UNICEF and Nutriset.

7. Evaluation of complementary food supplements for reducing childhood undernutrition. PI: Tahmeed Ahmed

In collaboration with WFP and John Hopkins University a cluster-randomized controlled trial is planned of the impact on wasting and stunting of three complementary foods prepared from local food ingredients in comparison with nutrition education and Plumpy'doz. The proposed trial will be in a rural setting of northwestern Bangladesh with a sample size of 5,320 infants aged 6 months, starting in April 2012.

8. Baseline assessment of anaemia and key IYCF indicators among under-two children and nutritional status of mothers and young children in two rural sub-districts of Bangladesh, PI: Sabuktagin Rahman

Akhoni Shomay (Window of Opportunity) project is a CARE global initiative that focuses on promoting, protecting and supporting infant, young child and maternal nutrition. Results were disseminated among the national stakeholders and at the 25th CAPGAN meeting held in July 2011.

9. National micronutrient status survey in Bangladesh, PI: Sabuktagin Rahman

The survey will assess the prevalence of subclinical vitamin A deficiency, anaemia and iron deficiency, and iodine, zinc and folate/B₁₂ deficiencies in children aged 6 months-14 years, and non-pregnant, non-lactating women of reproductive age. C-reactive protein and alpha-acetylated glycoprotein will be measured to control for infection and inflammation. 150 clusters, 50 each from rural, urban and urban slums, spread over 58 districts of the country were selected by systematic random sampling. Data collection was completed in December 2011. Laboratory analyses are ongoing and data analysis will commence soon.

10. MYCNSIA baseline survey in 6 upazilas and functioning monitoring system implemented in 16 upazilas, PI: Ahmed Shafiqur Rahman

EU-UNICEF joint action 'Maternal and Young Child Nutrition Security Initiative in Asia' (MYCNSIA) focused on improving nutrition security among women and young children in five Asian countries including Bangladesh. The Action will focus on target-specific interventions known to reduce stunting and anaemia. For example for children aged 0-36 months, interventions include counseling mothers and caregivers on key IYCF indicators and the distribution of micronutrient powder; and for pregnant and lactating women the focus is on improving iron/folate tablet compliance and good dietary practices. Activities include baseline and mid-term surveys of nutritional status and key IYCF indicators. Data collection will start March, 2012.

11. The effect of prenatal food and micronutrient supplementation and early postnatal intervention on body proportions and composition at 5 years of age. Follow-up of the MINIMat trial, PI: Ashraful Islam Khan

This follow-up addresses body composition, metabolic function, immune responses and cognitive function of the offspring at age 5 years related to the MINIMat nutrition interventions in pregnancy, and to the carefully monitored pre- and post-natal events of the mother and child.

12. Use of bioelectrical impedance analysis to assess body composition in rural Bangladeshi children: validation study with deuterium dilution technique, PI: Ashraful Islam Khan

Body composition was assessed by bioelectrical impedance analysis using Tanita TBF-300MA Body Composition Analyzer (Tanita Corporation, Tokyo, Japan). The objective was to validate a new analyzer and develop a population-specific equation utilizing the deuterium dilution technique. All children from the MINIMat 4.5 follow-up cohort and their siblings aged 4-10 years were eligible.

13. Efficacy and acceptability of ready-to-use therapeutic food (RUTF) in children aged 6-24 months with severe acute malnutrition (SAM) in Bangladesh. PI: Sayeeda Huq

This in-patient, randomized, open-label, controlled clinical trial is comparing the efficacy of Plumpy'nut with a local diet (khichuri and halwa) in nutritional rehabilitation of children with SAM aged 6-24 months, after stabilization. The outcomes of interest are rate of weight gain; changes in body composition (stable isotope technique); cost effectiveness; number and proportion of fecal bacteria and concentration of short chain fatty acids; genetic polymorphisms; diversity of colonic bacteria. So far 47 SAM children have been enrolled and the study will continue until the end of 2012.

14. Efficacy of L-isoleucine and L-arginine added to the diet in the treatment of diarrhoea with or without pneumonia in malnourished children. PI: Dr NH Alam

This research will examine the effects of L-isoleucine and L-arginine on the severity of acute diarrhoea in malnourished children and on the duration of diarrhoea and respiratory symptoms, and measure the concentration of antimicrobial peptides in stools. In a double-blind RCT with a factorial design, 120 malnourished children (W/A <75% and >55%) aged 6 to 36 months with acute watery diarrhoea with or without pneumonia will be studied (30 in each of the 4 cells). 110 study subjects have been enrolled: of whom 104 have successfully completed the study, 4 were referred to other wards for complications and 2 withdrew consent. Data entry is ongoing.

15. Comparison of rapid and slow rehydration of severely malnourished children suffering from dehydrating diarrhoea and impact on renal function and subsequent growth. PI: NH Alam

In this RCT 224 children aged 6 to 60 months with SAM and a history of watery diarrhoea and signs of severe dehydration will be randomized to slow rehydration (over 10 to 12 hours) following WHO guidelines or to IV rehydration over 6 hours. The primary outcomes are incidence of overhydration, heart failure and ORS failure, and secondary outcomes are improvement of renal function and improvement of appetite.

By December 2011, 45 patients were recruited, all of whom successfully completed the study. No patient has developed overhydration or heart failure, or any other adverse effects. Recruitment is slower than expected since cholera incidence is half the usual rate.

16. A study of pneumonia etiology and post-discharge follow-up of severely malnourished Bangladeshi children. PI: Md. Jobayer Chisti

The aim is to determine the infective organism of pneumonia (including bacteria, respiratory viruses and *Mycobacterium tuberculosis*) in severely malnourished children with pneumonia, and the prevalence of TB among children with severe malnutrition and acute pneumonia. This study is on-going, and 300/450 patients have been enrolled.

17. Monitoring growth and nutritional status of children in rural Bangladesh. PI: ASG Faruque

Due to the slow progress in reducing malnutrition, Bangladesh is not on track to meet MDG1. CARE Bangladesh will work with the national and local governments to use the Window model to design a national model for nutrition that will create the greatest value when implemented at scale.

A cohort analysis is being used to assess the age-appropriate initiation of feeding behaviours, identify critical windows for growth faltering, and assess the factors associated with changes in nutritional status. The temporal sequence of behaviours and outcomes will be clearly established, strengthening inference of causation. Aims include identification of factors associated with success or failure of initial intentions to achieve optimal infant and young child feeding practices; risk factors for under-nutrition among exclusively breastfed infants; risk factors for sub-optimal complementary feeding practices among infants and young children at 9 months and during the end line assessment. Data collection, data entry and initial analysis are on-going.

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