

glimpse



Benchmarking Micronutrition

Public Policy Solutions

Towards Better Prevention and Diagnosis

Editor's Note



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Executive Director

Welcome to the year's second edition of *Glimpse*, in which we share icddr,b's achievements over the first quarter of 2013. As a leading multi-disciplinary international public health research organisation, our priority areas of research fit into the global context.

For instance, the Copenhagen Consensus 2012 reveals fighting malnourishment as the top priority for policymakers and philanthropists around the world. This conclusion is based on extensive research presented to a panel of economic experts, who identified the smartest ways to allocate money to address global challenges.

Our Centre for Nutrition & Food Security is at the forefront of work in this

arena. This quarter, it collaborated on Bangladesh's first-ever micronutrients survey, participated in the country's first-ever parliamentary advocacy workshop on nutrition and co-sponsored an international symposium and workshop on malnutrition and pneumonia. It also saw one of its assistant scientists become the first in Asia to receive the Gates Foundation's Mycotoxin Grant Award for malnutrition and enteric disease research.

Contributing to the body of scientific knowledge in this and other areas, icddr,b scientists published 60 original papers; three books chapters, conference papers and monographs; and seven letters, editorials and abstracts.

Our Technical Training Unit turned research into knowledge to build capacity. It offered 10 courses for national and international students and public health professionals on subjects ranging from clinical management of diarrhoeal diseases to statistical data management and more.

icddr,b leverages research and knowledge translation to guide public health policy. Towards this end, scientists from three of our 10 centres contributed to a series of policy briefs on population,

health and nutrition based on the sixth *Bangladesh Demographic and Health Survey (BDHS) 2011*. And the Centre for Communicable Diseases released the findings of the collaborative *Hospital Based Rotavirus and Intussusception Surveillance (HBRIS)*.

This quarter, we partnered on a number of fronts to coordinate research findings and assist with advocacy and strategy development to improve public health. We also welcomed a delegation of US Congressional representatives to the main campus on 27 January.

They were accompanied by Centers for Disease Control & Prevention Director Dr. Thomas R. Frieden and US Ambassador to Bangladesh Dan Mozena. Also, Pulitzer Prize-winning *Los Angeles Times* reporter Kenneth R. Weiss visited the Dhaka campus and the Matlab Health Research Centre to conduct research for a book on family planning.

These visitors observed the work of our dedicated staff, who improve health outcomes for those living in Bangladesh. During the quarter, our doctors and nurses treated 30,137 patients at the Dhaka Hospital, 7,405 at the Matlab Hospital and 4,166 at the Mirpur Treatment Centre. We thank them for their service. ■

For more than 50 years, icddr,b has provided practical, low-cost solutions to the health problems affecting billions of people living in poverty in Bangladesh and across the globe. The institution's unique proximity to the health challenges of the developing world, both urban and rural, allows for the development of evidence-based interventions that are relevant, rigorously tested, translatable and scalable in resource-limited settings.

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Addressing Nutritional Deficiencies



Nutrition & Food Security Director Professor Tahmeed Ahmed presents results from the first-ever *National Micronutrient Survey*.

Bangladesh's first-ever micronutrient survey has found that, while the prevalence of under-five and school-age children suffering from anaemia has gone down, almost half of all preschool-age children—and more than half of women—are suffering from zinc deficiency. Lack of such nutrients is linked to malnutrition and can result in poor physical growth and brain development.

Carried out jointly by icddr,b, the Government of Bangladesh's Institute of Public Health and Nutrition (IPHN), UNICEF and the Global Alliance for Improved Nutrition (GAIN), the combined *National Micronutrient Survey* also determined levels of folate and vitamin B12 and updated the status of vitamin A and iodine nutrition in Bangladesh. Findings were shared at an icddr,b seminar in February.

The high level of iron in the local groundwater could explain the decrease in anaemia, while the zinc and B12 deficiency is partially due to a low dietary intake of nutrients from animal sources too expensive for much of the population. Vitamin A deficiency has

remained constant in Bangladesh for some time, with one in five preschool- and school-aged children suffering. Findings show that folate and vitamin B12 deficiency affects nine percent and 22 percent of women respectively.

Micronutrient deficiency is highest among lower socio-economic groups and in households affected by food insecurity, with slum dwellers hit the hardest. Poverty, food insecurity, ignorance, lack of appropriate infant and young child feeding practices, a heavy burden of infectious illnesses and poor hygiene and sanitation are all factors responsible for the high levels of maternal and child undernutrition.

icddr,b Nutrition & Food Security Director Professor Tahmeed Ahmed led a subsequent panel discussion with Members of Parliament at the Parliament House in March. This was the country's first-ever

advocacy workshop on nutrition and provided an opportunity for those at the highest level of policymaking to discuss greater investment and effective policy approaches. The government is already making an effort to mainstream nutrition in existing health and family welfare programmes.

The *National Micronutrient Survey* will serve as a benchmark against which the progress of health and nutrition programmes to reduce micronutrient deficiencies in Bangladesh can be measured. It will further influence policy and programming for nutrition. ■



Survey staff measure the length of a child in northern Bangladesh to assess her nutritional status.

Tackling Typhoid

icddr,b co-hosted the *8th International Conference on Typhoid Fever and Other Invasive Salmonellosis* on 1-2 March in Dhaka. More than 300 international and regional public health experts, scientists and researchers from 12 countries around the world convened in Dhaka to review progress on the control and prevention of typhoid fever, enteric fever (disease caused by typhoid or paratyphoid) and diseases caused by invasive non-typhoidal salmonella.

Typhoid is a global problem. The World Health Organization (WHO) estimates that 21 million people suffer from typhoid fever with 200,000 deaths annually. The burden of this food- and waterborne bacterial disease is greatest in children living in poverty throughout Asia and Africa with poor access to safe drinking water and basic sanitation.

Vaccine Sciences Director Dr. Firdausi Qadri noted, "Typhoid is a silent disease that may go unnoticed until complications set in. There is an urgent need for reliable diagnostics and prevention using vaccines in Bangladesh and globally." Attendees



Left to right: Health Secretary Mr. M.M. Neazuddin, Minister of Health and Family Welfare Dr. A.F.M. Ruhul Haque, Executive Director Designate John D. Clemens, MD, and CaT Director Dr. Christopher B. Nelson.

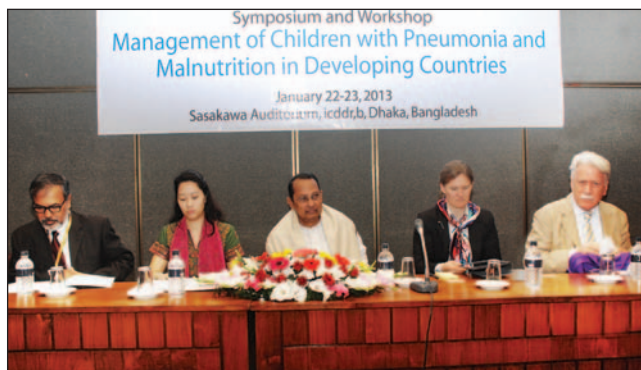
discussed the development and licensing of next-generation vaccines, as well as new and available diagnostics for enteric fever and problems arising from multi-drug-resistant bacteria.

The conference served as a platform to strengthen links between researchers and policymakers in the public health arena and in national governments. It reflected the international effort underway to address these diseases. Evidence-based decision making will be important as policymakers

transition from the currently available WHO prequalified vaccine towards introduction of a new typhoid vaccine into national immunisation programmes.

The Coalition against Typhoid (CaT) Secretariat, along with its partners icddr,b, the Bangladesh Paediatric Association (BPA) and the International Vaccine Institute jointly organised the conference with support from the Bill & Melinda Gates Foundation and the Wellcome Trust Sanger Institute. ■

Community Management of Childhood Diseases



icddr,b Deputy Director Dr. Abbas Bhuiya with panelists at the symposium.

Pneumonia is the leading cause of death in children worldwide, killing an estimated 1.2 million of those under the age of five every year—more than AIDS, malaria and tuberculosis combined.

Proper nutrition has been shown to aid in the prevention and control of the disease.

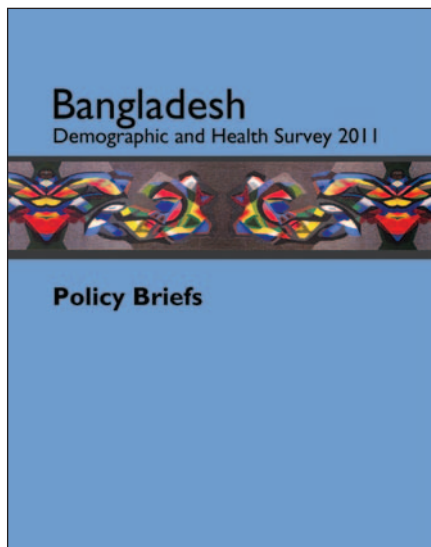
To address the issue, Nutrition & Food Security organised a two-day *Management of Children with Pneumonia and Malnutrition in Developing*

Countries: International Symposium and Workshop. Held on icddr,b's main campus on 22-23 January, the event was co-sponsored by the UBS Optimus Foundation, UNICEF and Save

the Children and supported by the Government of Bangladesh, the Asian Development Bank and the World Health Organization.

Most pneumonia cases can be diagnosed and treated with inexpensive oral antibiotics and malnutrition addressed with micronutrients, diet and supportive care. Recent icddr,b studies found daycare management of both pneumonia and malnutrition cases to be just as effective as hospital management. Such a community-based solution to treatment would be cost- and time-saving for the population and would free up bed space for other children who need hospital care. ■

Guiding Health Policy in Bangladesh



icddr,b scientists played a lead role in developing policy briefs to accompany the sixth *Bangladesh Demographic and Health Survey (BDHS) 2011*. The briefs were presented to policymakers and donors at a launch event in January and are expected to guide the future direction of Bangladesh's health programmes.

The BDHS is part of the worldwide Demographic and Health Surveys programme (MEASURE DHS) that

provides data for a wide range of monitoring and impact evaluation indicators in the areas of population, health and nutrition.

This nationwide sample survey of men (15-54 years) and women of reproductive age (12-49 years) collected data from almost 18,000 households and was designed to provide vital information on fertility and childhood mortality levels; fertility preferences; use of family planning methods; maternal, child and newborn health; knowledge and attitudes towards HIV/AIDS and other sexually transmitted infections (STI); and community-level data on accessibility and availability of health and family planning services.

The BDHS report was funded by USAID and undertaken by Bangladesh's National Institute of Population Research and Training (NIPORT) and private-sector firms Mitra and Associates (Bangladesh) and ICF International (US) in 2010. icddr,b, Save the Children, Eminence and MEASURE Evaluation, with support from USAID, collaborated on producing the five policy briefs.

In his presentation at the launch event, Dr. Peter Kim Streatfield, director of Population, Urbanisation & Climate Change, noted, "Fertility decline in Bangladesh must continue for the next four decades to achieve population stability by 2050. Behaviour change communication interventions need to be expanded and improved and wider exposure to family planning messages ensured."

Speaking for Nutrition & Food Security, Professor Tahmeed Ahmed said, "Childhood malnutrition in Bangladesh is still common, and maternal nutrition has not improved much. A multi-sectoral lifecycle approach to break the vicious cycle of undernutrition is required."

"The public health system must adapt to the changing causes of under-five deaths in Bangladesh," added Dr. Shams El Arifeen, director of Child & Adolescent Health. "Effective strategies for preventing and managing neonatal infections and preventing deaths due to asphyxia and preterm birth are crucial for continuing the significant advances in improving child health and survival." ■



Population, Urbanisation & Climate Change Director Dr. Peter Kim Streatfield (far right) presents the policy brief on fertility and family planning during the dissemination of the BDHS 2011.

Training Future Health Leaders

icddr,b works to build Bangladesh's local capacity for clinical services, statistical data management, monitoring and evaluation and more. In January and March of this year, our Technical Training Unit (TTU) organised a number of courses for the development of future national public health leaders.

The Introductory Course on STATA Training, held on 15-31 January, in collaboration with the Bangladesh Bureau of Statistics (BBS), instructed 16 Ministry of Planning officials in the use of STATA—software for

statistical data management. This was the second time the course was held to provide hands-on training that meets professional requirements on statistical data presentation, report writing and Ministry of Planning specifications.

The Epidemiology, Clinical Management and Prevention of Diarrhoeal Diseases and Malnutrition course took place on 6-10 January for 12 fellows of the College of Physicians & Surgeons, and on 13-17 January for 28 fellows of the College of General Practitioners. The week-

long, intensive trainings instructed participants in the management of diarrhoeal diseases and associated malnutrition for better patient care. They featured a special focus on dietary management for children suffering from severe acute malnutrition (SAM).



Bangladeshi faculty demonstrate “Uptech Spacer with Mouth Piece” during the International Asthma Diploma Module course at icddr,b.

The International Asthma Diploma Module was a six-month course begun on 21 January for 50 national health professionals with classes held at icddr,b. Sponsored by Bangladeshi pharmaceutical company Beximco Pharma Ltd., the course was organised with icddr,b's Centre for Control of Chronic Diseases, the UK's Open University and Education for Health and Bangladesh's International Primary Care Respiratory Group (IPCRG). ■



Participants of the STATA training.

Mentorship Bears Fruit

Dr. Mustafa Mahfuz, an assistant scientist in the Centre for Nutrition & Food Security, is the first in Asia to receive the Mycotoxin Grant Award for



malnutrition and enteric disease research. The Bill & Melinda Gates Foundation presented the award to three

institutions in early 2013—icddr,b and the US universities of Pittsburgh and Cornell. Dr. Mahfuz's achievement demonstrates the benefits of nurturing young talent—a central tenet of icddr,b's

Strategic Plan 2020.

Dr. Mahfuz will use the US\$750,000 award grant to conduct a two-year study into the association between aflatoxin (a form of toxin generated from fungi commonly found in maize and ground nuts) exposure and childhood stunting. Reports from Africa suggest that aflatoxin exposure is associated with stunting, but the connection has not been evaluated elsewhere.

Bangladesh has one of the highest rates of stunting in the world. This form of chronic malnutrition is associated with increased rates of infectious

disease, impaired learning capabilities and reduced work productivity.

Dr. Mahfuz's study will explore the burden of aflatoxin exposure among children under five living in the urban slums of Bangladesh and in rural South Africa. Findings will improve scientific and public health understanding of aflatoxin as a potential food toxicant.

The study will be conducted in collaboration with the University of Venda, South Africa; the University of Virginia, US; the University of Pittsburgh, US; and the Malnutrition-Enteric Disease (Mal-ED) consortium at the Foundation for the National Institutes of Health (NIH), US. ■

Collaborating for Policy Change

Several events took place in February of this year that highlight icddr,b's collaborative research for policy change. These include:

Opportunities and Challenges of Implementing Health Insurance for the Poor in Bangladesh. icddr,b organised this event in collaboration with the Health Economics Unit of the Ministry of Health and Family Welfare (MoHFW). It provided a crucial forum for discussing the Government of Bangladesh's (GoB) decision to include health insurance in its health financing strategy and planning.

The GoB hopes to introduce a tax-funded, publicly financed health insurance scheme, implemented through private insurance intermediaries, on a pilot basis in early 2014. icddr,b researchers and different national NGOs shared the status, opportunities and barriers related to different ongoing health insurance programmes.



From right to left: Deputy Project Coordinator Dr. Mohammad Iqbal and Research Investigator Md. Imran Reza Khan of Universal Health Coverage, at the health insurance workshop.

Participants reiterated the need for education and the establishment of an autonomous regulatory body for policy guidelines. Additional investment to strengthen the upzila health complexes, with the introduction of a quality assurance and accreditation system, is essential.

Collection of Medical Evidence in Rape Cases: Practices, Procedures and Policies. This national conference brought together legal and medical professionals, police,



Participants at the medical evaluation conference.

women's rights activists and researchers to discuss gaps in the collection of medical evidence and to review existing laws, policies and practices. According to one participant, 1,599 rape cases and 750 attempted rape cases were filed between 2008 and 2012, but only two of those cases ended in a conviction.

The event took place under the auspices of the Growing Up Safe and Healthy (SAFE) project, which works to address sexual and reproductive health and rights and violence against women and girls in urban Bangladesh. It is led by icddr,b with Bangladesh Legal Aid and Services Trust, the Population Council, Nari Maitree (We Can Campaign) and the Marie Stopes Clinic Society.

During the closing speech, State Minister for Women's and Children's Affairs Dr. Shirin Sharmin Chaudhury said, "Rape is not simply a human rights violation; it's a criminal offence and must be treated as such. There must be coordination among the investigators, hospitals and courts to ensure justice to the victim."

Hospital Based Rotavirus and Intussusception Surveillance (HBRIS). icddr,b conducted surveillance in collaboration with the Bangladesh Institute of Epidemiology, Disease Control and Research (IEDCR); the US Centers for Disease Control & Prevention

(CDC) and USAID. Collaborators and stakeholders attended the presentation of the findings.

Conducted in five hospitals in Dhaka, Rajshahi, Sylhet, Rangpur and Chittagong divisions, the surveillance reported that 67 percent of children under five years of age, who were hospitalised for diarrhoea, had rotavirus. The majority of rotavirus cases were seen predominantly in male children ages 6 to 11 months. Ten children under two years of age had intussusception (a rare disease). Six genetic strains of rotavirus were also detected.



Left to right: USAID Population, Health, Nutrition and Education Director Mr. Gregory Adams; IEDCR Director Professor Mahmudur Rahman; Communicable Diseases Director Dr. James Heffelfinger and Surveillance and Outbreak Investigation Research Group Head Dr. Emily Gurley present HBRIS findings.

Rotavirus is the most common cause of severe diarrhoea among infants and young children. The World Health Organization has recommended that a rotavirus vaccine be included in all national immunisation programmes. The objectives of the surveillance are to estimate the proportion of diarrhoea hospitalisation among children under five years of age, which are attributable to rotavirus; to describe the predominant strain of rotavirus throughout Bangladesh; to determine the age, region and seasonal distribution of hospitalisations associated with rotavirus; and to estimate the frequency of hospitalisation associated with intussusception among children under two years of age in surveillance hospitals. ■

International Visitors



Members of the US delegation with Dr. Abbas Bhuiya (left), Dr. Thomas R. Frieden (2nd from right) and H.E. Dan Mozena (3rd from right).

A delegation of US Congressional representatives, accompanied by Centers for Disease Control & Prevention (CDC) Director Dr. Thomas R. Frieden and US Ambassador to Bangladesh Dan Mozena, visited the icddr,b campus. The delegates represented the subcommittee that determines funding for the US Department of Health and Human Services, which oversees both the CDC and the National Institutes of Health (NIH).

The group toured the Dhaka Hospital, meeting with staff and patients in the Short Stay Ward, the Nutritional Rehabilitation Unit and the Special Care Unit. At a roundtable discussion with media on public health issues in Bangladesh, Dr. Frieden praised the high quality and international standards of icddr,b's research.

Pulitzer Prize-winning *Los Angeles Times* reporter Kenneth R. Weiss also

visited the Dhaka Hospital before heading to Matlab for three days. He was researching family planning and its impact on women's lives to expand the five-part newspaper series, *Beyond 7 Billion*, into a book. "I have travelled a long way just to visit Matlab, to see in person how its family planning programme fits into the sweep of history and how it was made," said Mr. Weiss. ■



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