

# glimpse



SPRING 2012

# Executive Director's Note



icddr,b Executive Director Dr. Alejandro Cravioto.

icddr,b continues to share its research knowledge globally through publishing, training and nurturing scientific talent. In the first three months of 2012, our scientists published 39 original papers in scientific journals including *The Lancet*, contributed to two book chapters and two editorials. In March, a record-breaking number of icddr,b's young scientists travelled to the US to present at the International Conference of Emerging Infectious Diseases in Atlanta. Meanwhile, 350 students and professionals attended a range of international seminars in Dhaka. A two-week course in metagenomics and a symposium on Guillain-Barré Syndrome

were the first of their kind to be held in Bangladesh.

In the face of a worrying rise in pre-monsoon diarrhoeal disease cases, our doctors and nurses have done a remarkable job treating over 47,000 patients in the Dhaka and Matlab hospitals, and over 4,000 in the Mirpur Treatment Centre. In March, the Government of Bangladesh requested our technical assistance to set up three new 50-bed diarrhoeal disease treatment centres in and around Dhaka; assistance we were happy to provide.

Internationally, we have continued to develop our emergency cholera preparedness model in partnership with the US humanitarian organisation AmeriCares. Writing in *The New York Times*, Pulitzer Prize-winning author Tina Rosenberg highlighted icddr,b's experience in cholera case management and praised our plans to proactively respond to global outbreaks.

icddr,b was also mentioned in *The New York Times* by Melinda Gates, shortly after

her visit to Bangladesh in early January. In the article, Ms. Gates noted the impact of our family planning work in Matlab, while also highlighting the innovative approach to behaviour-change interventions she saw while visiting the *Introduction of Cholera Vaccine in Bangladesh* feasibility study in Mirpur.

Building on a relationship established with the United Nations Secretary-General's Every Woman Every Child (EWEC) initiative, icddr,b Director of Reproductive Health Dr. Laura Reichenbach represented icddr,b at an EWEC event in Davos during the World Economic Forum. Chaired by Archbishop Desmond Tutu, the event allowed Dr. Reichenbach to meet with global leaders and CEOs committed to improving maternal and child health worldwide.

In this edition of Glimpse, we update you on these and other highlights from the first quarter of 2011. We thank you for your continued support of icddr,b. ■

icddr,b is an international public health research institution committed to creating practical, low-cost solutions to health problems facing those living in poverty in Bangladesh, where the institution is based, and around the globe. icddr,b's proximity to the rural and urban health challenges of the developing world allows for the development of interventions that are realistic, rigorously tested and scalable in resource-limited settings to improve the health outcomes and well-being of those living in low-income countries.

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# The Genetics of Arsenic Toxicity

One of the first large-scale genetic studies conducted in the developing world has discovered a genetic link to arsenic poisoning. The study's international team, including icddr's Dr. Md. Yunus, concluded that people with certain genetic dispositions metabolise arsenic into a more toxic form, which significantly increases the risk of developing arsenic-related diseases.

The study, undertaken at the Matlab Research Centre south of Dhaka, involved almost 3,000 individuals who had been exposed to arsenic for decades. Following the widespread installation of hand-pump wells to tap groundwater during the 1970s, as many as 77 million people—around half of Bangladesh's population—have been inadvertently exposed to dangerous levels of arsenic, making it one of the greatest public health challenges in the country.

In a paper published in the 23 February 2012 issue of the international scientific journal *PLoS Genetics*, the authors suggest that this discovery could lead to new screening and intervention options for people exposed to groundwater

containing high levels of arsenic. According to Dr. Yunus, "It's conceivable that we could use this information in testing and evaluation or, potentially, devise successful biomedical interventions to better treat vulnerable populations." ■



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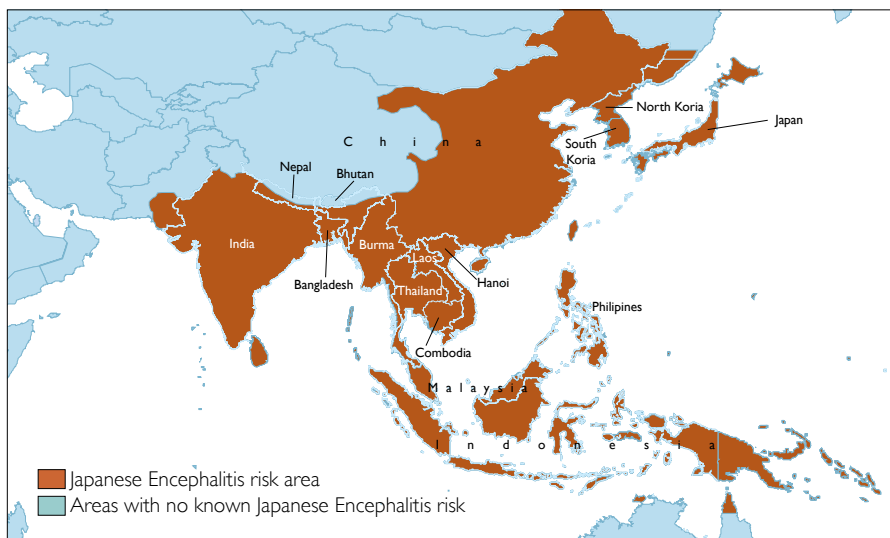
# First JE Vaccine Study in Bangladesh

icddr, in collaboration with PATH and GVK Bio in India, has initiated Bangladesh's first vaccine study targeting the Japanese Encephalitis (JE) virus. The study was launched in early

March at the Matlab Health Research Centre and has enrolled 1,000 Bangladeshi infants between 10 and 12 months old. Study participants must have completed all doses of WHO-

recommended EPI (Expanded Program on Immunisation) vaccines at least four weeks prior to the JE vaccination. The study will assess the overall safety and immunological reactions of the JE vaccine in different lots manufactured by the Chengdu Institute of Biological Products, Beijing, China.

Every year, between 30,000 and 50,000 people in Asia contract the JE virus. Ten thousand to 15,000 of these people die, with the majority of victims being under 15 years of age. Spread chiefly by mosquitoes, JE is the most commonly documented cause of viral encephalitis in Asia. With no available treatment following infection, vaccination is the best means of avoiding the potentially lifelong neurological defects and a fatality rate of between 10% and 30%. ■





# Mapping Gender Violence



Bangladesh has achieved remarkable success increasing women's literacy and reducing maternal and child mortality. However, studies consistently indicate that the prevalence of violence against women and girls remains pervasive. Following the successful introduction of the Bangladesh National Women's Development Policy 2011 and the Domestic Violence (Prevention and Protection) Act 2010, icddr,b and the Population Council have gone on to launch a further study into

domestic violence, with funding from DfID.

Called Addressing Gender-Based Violence against Women and Girls in Bangladesh: From Evidence to Policy, the study, announced in February, will generate evidence for policymakers and programme implementers on factors associated with gender-based violence in high-, medium- and low-prevalence areas of Bangladesh. It also will identify strategies and mechanisms that communities recommend for preventing such violence. ■

# First GBS Symposium in Bangladesh

Following the eradication of polio in Bangladesh, Guillain-Barré Syndrome (GBS) has become the most frequent cause of acute flaccid paralysis (AFP), a clinical manifestation characterised by weakness or paralysis in the arms and legs.

GBS is an auto-immune nervous system disorder that is usually triggered by an acute respiratory or intestinal infection. The condition is frequently severe and results from nerve damage caused by the body's own immune defences. A lack of awareness and information about GBS in the developing world presents a major limitation in containing its rate of prevalence.

This challenge was discussed during the first international GBS symposium to be held in Bangladesh. The event was organised by the Emerging Diseases & Immunology Research Group of icddr,b's Centre for Food & Waterborne Diseases, in

collaboration with the Society of Neurologists of Bangladesh. It was held at Bangabandhu Sheikh Mujib Medical University (BSMMU) on 27 March.

The symposium offered participants a unique opportunity to share findings on the immunobiology and genetics of GBS. Participants discussed the new diagnostic tools that can more accurately predict the outcome of

the disease, and methods to target those who will benefit most from medical interventions.

The symposium followed a collaborative WHO study published in the *Neurology and Emerging Infectious Diseases Journal* in 2010 and 2011 respectively. It was developed with the support of icddr,b and revealed a high incidence of GBS in Bangladeshi children under the age of 15. ■



Dr. Zahirul Islam, icddr,b assistant scientist and research group coordinator with Emerging Diseases and Immunobiology, speaks at the Guillain-Barré Syndrome Symposium.

# Assessing the Needs of the Disabled Poor

Disability affects one out of every five of the world's poorest people, but given the scarcity of socio-economic data, addressing their needs is challenging. In order to redress this barrier to care, icddr and The University of Melbourne in Australia are undertaking a collaborative study to measure the prevalence of disability, quality of life, social participation and the level of access to related development programmes.

In 2009, AusAID, one of icddr's core donors, granted an Australian Development Research Award to the University of Melbourne to develop a Rapid Assessment of Disability (RAD) Toolkit for use by governments, NGOs and other organisations. Thanks to the university's past collaboration with icddr on poverty eradication programmes involving the disabled, this year it chose icddr scientists Dr. Nafisa Lira Huq and Dr. M.A. Quaiyum to field test the finalised toolkit in Bangladesh.

The toolkit involves a four-part questionnaire, created in collaboration with Australian and Bangladeshi disability organisations and service providers. icddr scientists will test the toolkit with the assistance of field research supervisors and data collectors, who are themselves disabled. The team will survey some 3,000 people in the northwest district of Rajshahi, using

randomly selected clusters over a three-month period.

"Quite often, people with disabilities know they are being denied rightful access to a particular service from their workplace or neighbourhood. Hopefully, this toolkit will identify existing services and amenities, as well as the reasons why such services are not provided to the disabled," said icddr scientist Dr. Nafisa Lira Huq. ■



An icddr field research assistant interviews a person with a physical disability.

# Towards Universal Healthcare

Funded by a Red Cross consortium including Dutch, German and Swiss societies, icddr's Chakaria Community Health Project has been operational since 1994. Chakaria is an impoverished rural area in southwest Bangladesh, and home to one of icddr's nine field sites. Here, icddr trains community

health workers and educates local residents about their health needs and available services. Most recently, the Community Health Project has sought to address the costs of healthcare, which are prohibitively high for poor families.

On 31 December, 2011, a research team, led by icddr Centre for Equity & Health

Systems Director Dr. Abbas Bhuiya, discussed a community-based financing model featuring universal health coverage with local people during the Chakaria Health Fair. According to Dr. Bhuiya, "The model has the potential to provide access to vital health services for everyone, without the risk of financial hardship or ruin."

The 2011 Bangladesh Health Watch report, published in mid-February 2012, supports the concept and lauds icddr's efforts to offer affordable healthcare. Bangladesh Health Watch is a civil society initiative of the James P. Grant School of Public Health, which monitors progress in the national health sector. Dr. Bhuiya said the report is "spot-on in pointing out that the poor must spend a disproportionately high amount of their income on healthcare costs. This is precisely what we are seeking to address in Chakaria." ■



Panel discussions at the Chakaria Health Fair led by Dr. Abbas Bhuiya.



# Knowledge Sharing

icddr,b conducted almost one dozen national and international seminars and courses during the first three months of 2012 for a total of 386 participants from around the world. The most popular short courses included: An Introductory Course on Metagenomics and Health (the first course of its kind in Bangladesh), the Statistical Report Writing Course for Biosafety and Biosecurity Officials and the Introductory Course on Epidemiology and Biostatistics.

For two weeks in February, a group of international scientists from the University of Colorado in Boulder, USA, shared their expertise in metagenomics, nutrition and health with local researchers. As icddr,b scientist, and the event's coordinator, Dr. Dinesh Mondal, explained, "Metagenomics allows scientists to fully grasp the complexity and diversity



*Participants at the metagenomics course.*

of our microflora, and the evidence heightens our awareness about the impact of disturbing the internal microbial balance."

Nutrition & Food Security Director Dr. Tahmeed Ahmed said, "Following

the success of this course, we are now considering further collaborations to take our research to the next level. Events such as these are absolutely vital for exchanging ideas and discussing future plans." ■

# Young Researchers Break Record

Researchers from icddr,b's Centre for Communicable Diseases gave a record 24 presentations at the renowned International Conference of Emerging Infectious Diseases (ICEID).

The conference, sponsored by the US-based Centres for Disease Control and Prevention (CDC), was held in Atlanta, Georgia, USA, from 11 to 14 March. ICEID brings together international

public health professionals to exchange scientific and public health information on emerging infectious diseases.

icddr,b's continuous effort to build capacity and global recognition for its young scientists has forged new ground with this historic achievement. "The outstanding performance by our young Bangladeshi scientists during ICEID demonstrates an enormous level of productivity and academic rigour," said Communicable Diseases Director Dr. Stephen P. Luby. "Our record-breaking delegation was bigger than any other from a country hosting a CDC Global Disease Detection programme and is a reflection of their talent and the strong support provided by the entire team here at icddr,b." ■



*The record number of researchers and scientists from icddr,b who participated in the International Conference of Emerging Infectious Diseases in the US.*



# Melinda Gates Visits icddr,b

2012 got off to an encouraging start with a visit from Melinda Gates, co-chair of the Bill & Melinda Gates Foundation. Over the course of her three-day stay in Bangladesh, Ms. Gates toured the Dhaka Hospital, met with icddr,b scientists and travelled to icddr,b field sites in Dhaka's densely populated suburbs. The visit provided an opportunity for her to see the wide range of interconnected health challenges and solutions related to child and maternal health.

In Mirpur, to the northwest of the city, Ms. Gates visited the foundation-funded *Introduction of Cholera Vaccine in Bangladesh* project, where 240,000 people are enrolled in a feasibility study to assess the effectiveness of mass cholera vaccination, combined with behaviour change education and tools.

Ms. Gates also visited the Mirpur field office of the foundation-funded, multi-country MAL-ED (malnutrition and enteric disease) project, which is investigating the relationship between malnutrition and intestinal infections and the consequences of these conditions on various aspects of child development.



Melinda Gates talks to icddr,b's Dr. Azharul Islam Khan, Chief Physician and Head of Diarrhoeal Disease Unit, as Dr. Trevor Mundel, President of the Gates Foundation's Global Health Program, and icddr,b Medical Director Dr. Mark Pietroni look on.

The following day, Ms. Gates travelled to the Kamalapur field site, where icddr,b is participating in the PERCH (Pneumonia Etiology Research for Child Health) project, a seven-country study investigating the current and likely future causes of childhood pneumonia in places with the highest pneumonia burden. In icddr,b's field clinics and in the community, Ms. Gates actively engaged with mothers and

children, showing her personal passion and commitment to the foundation's causes.

icddr,b has worked closely with the Gates Foundation for over a decade. In 2001, it received the first-ever Gates Award for Global Health in recognition of icddr,b's discovery and development of Oral Rehydration Solution. Today, icddr,b serves as a key Gates Foundation partner. ■



icddr,b thanks its core donors for their continued support.



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