chronic disease news

VOLUME 3 ISSUE 2 November 2011

a newsletter of
Centre for Control of Chronic Diseases in Bangladesh

icddr,b brac JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH IDS Institute of Development Studies

Editorial

Dear Readers,

Welcome to the sixth issue of *Chronic Disease News*. This newsletter is designed to keep you up-to-date with the state of chronic disease in Bangladesh, as well as to share the findings of recent research projects undertaken by icddr,b's Centre for Control of Chronic Diseases in Bangladesh (CCCDB).

This issue will inform you about two of our recent study findings. One of the studies focuses on the use of salt in food in a rural area of Bangladesh and the other on the habit of eating fruits and vegetables among the population in Bangladesh.

Next, we report on CCCDB's participation in the semi-annual steering committee meetings of the National Heart, Lung, and Blood Institute (NHLBI)-UnitedHealth Global Health Initiative. The NHLBI and UnitedHealth Group of the USA have been leading the struggle against the global burden of chronic diseases, especially in developing countries, through their joint global network in which CCCDB participates and contributes.

In other news, I am pleased to share an important editorial from one of our leading researchers at the CCCDB, Dr. Tracey Perez Koehlmooos. The editorial on the UN meeting for non-communicable diseases (NCD) was published in the *British Medical Journal* (BMJ). Held in September, this meeting of UN member states saw a serious commitment made to take urgent action to address the global NCD crisis. We republish the editorial here with some comments.

The CCCDB completed the second round of its MPH-Plus (Master's in Public Health) programme in August. The courses were facilitated by international and national supervisors, who provided extensive hands-on training for a period of six months. The overall goal of this programme is to develop a critical mass of MPH graduates with advanced knowledge and expertise in chronic diseases and the skills to design and carry out research in this area. I am happy to share with you that, like in previous years, three of the interns under this programme have attended this year's NHLBI-UH Global Health Initiative Global Steering Committee meeting held October 22-25 in the USA.

I hope you enjoy reading this issue of *Chronic Disease News*.

Alejandro Cravioto
Executive Director, icddr,b

Fruit and vegetable intake in Bangladesh: findings from a population-based study

In the last two to three decades, there has been a growing awareness of the role of diet in the aetiology of chronic diseases. Overall, the epidemiological data indicate that fruits and vegetables offer a degree of protection against a number of chronic diseases.

In many regions of the developing world, consumption of nutritious fruits and vegetables remains low. At present, only a small and negligible minority of the world's population consumes the generally recommended high average intake of fruits and vegetables.

There is a lack of data on the levels of fruit and vegetable consumption and associated determinants in Bangladesh. icddr,b researchers collected data on daily fruit and vegetable consumption among the rural and urban people in Bangladesh as part of the 'Risk Factors and Chronic Diseases Study' conducted in 2009. A total of 39,038 men and women aged 25 years and above, residing in three rural (Matlab, Abhaynagar, and Mirsarai) and one urban (Kamalapur) demographic surveillance sites of icddr,b, participated in this study through a questionnaire.

Development of questions regarding fruits and vegetables intake

To define adequate or sufficient vegetable intake, the CCCDB considered one cup, being equal to 200 grams (cooked), to be the daily minimal requirement (ref: C. Gopalan et al, 1977, pg. 29). For fruits, the consumption of different items was studied. Reported as units of fruits, fruit consumption was converted to cups, equivalent to 30-40 grams, which is the recommended minimal daily intake (C. Gopalan et al, 1977, pg. 29).

Consumption of vegetables and fruits was used to assess the adequacy of the daily diet. The WHO/FAO recommend a minimum intake of 400 grams of fruits and vegetables per day (excluding potatoes and other starchy tubers) for adequate prevention of chronic diseases. The questionnaire included separate questions on vegetable and fruit intake. However, vegetables in the local context include potatoes as well, which make up a substantial proportion of the daily vegetable consumption in Bangladesh.

Patterns and determinants of fruit and vegetable consumption in Bangladesh

There are some remarkable differences between vegetable consumption patterns in the rural sites compared to the urban surveillance site. Urban respondents consume an adequate amount of vegetables less frequently compared to rural respondents (62% versus 93%).

Whereas differences between the age groups in rural areas are relatively small, in urban areas the younger age groups tend to consume an adequate amount of vegetables more frequently compared to older age groups; only 40% of the women aged 60 and above consume one or more cups of vegetables daily compared to 61% of the urban women between the ages of 25 and 30. Between the quintiles, differences are small. However, in the rural areas, the least poor consume slightly more frequently an adequate amount of vegetables, whereas in the urban site, especially the poorest men eat substantially more often one or more cups of vegetables per day compared to the least poor men (72% versus 64%).

Compared to vegetable intake, adequate fruit consumption is much less common. Only 15% of the respondents from the rural sites consumed one or more cups of fruit daily; for men this was between 17% and 18% and for women just under 13%. In the urban site, adequate fruit consumption was more frequent; 23% of the men and 21% of urban women consumed adequate daily amount of fruits. Both in urban and rural sites, adequate fruit consumption was higher in the younger age groups and in the least poor quintiles. The 2005 WHO STEPS survey in Matlab observed little difference by sex; 82% of men and 90.4% of women were having less than five servings of fruits and vegetables per day.

In the urban area, 23% of men (n= 3,917) and 21% of women (n=5,161) consumed an adequate daily amount of fruits. In rural areas, this was 18% and 13% respectively. Male sex [odds ratio (OR)=1.32], young age (OR=1.31), higher education (OR=1.52), more wealth (OR=1.71), and urban residence (OR=1.41) were independently associated with sufficient fruit consumption. The urban respondents less frequently consumed adequate quantities of vegetables compared to the rural respondents (62% versus 93%). An independent association of men (OR=1.14), higher education (OR=1.23), and rural residence (OR=8.06) with daily sufficient vegetable consumption was found.

A sufficient amount of fruits was consumed daily by only 16% of the study population. Knowledge on the role of fruits in health and barriers to inclusion of fruits and vegetables into daily consumption patterns, such as availability and price, needs to be explored. Likewise, rural-urban variation in vegetable consumption should also be studied.

Table 1. Sufficient vegetable consumption, by age group, poverty quintile, and rural-urban residence

	Rural			Urban		
	Male	Female	Total	Male	Female	Total
>= 1 cup of vegetables daily						
Age Group						
25 – 39	92.1	93.4	92.8	66.5	61.1	63.8
40 – 49	93.9	93.2	93.5	67.7	57.0	62.8
50 – 59	93.2	92.2	92.7	63.1	55.0	59.8
60 or above	91.5	89.8	90.6	58.2	39.9	51.3
Poverty quintile						
Poorest	90.5	90.3	90.4	71.7	58.3	65.9
Poorer	92.3	91.8	92.0	63.4	59.3	61.5
Middle	91.8	93.3	92.6	65.4	58.7	62.3
Less poor	94.0	93.3	93.6	65.2	57.8	61.6
Least poor	93.1	92.9	93.0	63.8	57.9	60.9
Total	**92.6**	**92.6**	**92.6**	**65.6**	**58.3**	**62.2**

Table 2. Sufficient fruit consumption, by age group, poverty quintile, and rural-urban residence

	Rural			Urban		
	Male	Female	Total	Male	Female	Total
>= 1 cup of fruit daily						
Age group						
25 – 39	20.8	14.0	17.1	24.0	23.0	23.5
40 – 49	15.2	12.4	13.8	20.0	20.0	20.0
50 – 59	15.8	11.5	13.6	21.3	16.8	19.4
60 or above	14.8	10.5	12.6	21.5	17.5	19.9
Poverty quintile						
Poorest	12.6	7.1	9.7	22.1	14.7	18.9
Poorer	14.6	9.1	11.7	19.8	15.0	17.6
Middle	16.7	11.1	13.8	21.5	19.5	20.6
Less poor	19.3	14.0	16.6	23.5	25.8	24.6
Least poor	22.6	18.8	20.5	24.3	25.9	25.1
Total	**17.5**	**12.7**	**15.0**	**22.5**	**21.3**	**21.9**

Perceptions related to salt use in rural Bangladesh: findings from a qualitative study in Chakaria

The burden of chronic non-communicable diseases (NCDs) is increasing in low- and middle-income countries, especially in Asia. Among the risk factors of chronic diseases, hypertension is a major health problem, as well as a risk factor for stroke, heart attack, heart failure, and chronic kidney failure. Reducing population-based salt intake can make a major and affordable contribution to the prevention and control of hypertension.

There is no information regarding salt consumption patterns in Bangladesh. Measuring salt intake and understanding the perception of using salt in a salt-producing coastal area could provide important information about what strategies would be suitable to reduce salt intake at both population and individual levels.

This is why icddr,b researchers in the Centre for Equity and Health Systems and the Centre for Control of Chronic Diseases in Bangladesh (CCCDB) are conducting a study to assess the level of salt consumption among the rural adult population in Chakaria, a sub-district of Cox's Bazar in southern Bangladesh. The qualitative component of the study explores the perceptions regarding salt consumption.

Perception of salt

People consider salt as an inseparable part of cooking food. Meat, fish, or vegetable curry is prepared with chilli, oil, and salt. The absence of chilli or oil in food is considered acceptable, but without salt food is inedible. To illustrate the point, one study responder was quoted as saying, "Food without salt is like a pond without water."

Salt is considered an essential condiment. Many poor people cannot buy any vegetables or fish and resort to eating rice with salt and chilli. There is also a practice of starting meals with rice and salt and taking curry later. Salt makes the food tasty, and taste is the main reason for eating. According to a respondent, "Expensive food can be tasteless and useless if it is cooked without the appropriate amount of salt."

People consider salt very beneficial for maintaining the body temperature and keeping the body functioning normally. One study participant said,"We take salt because salt has lots of benefits. Inside our bodies, salty and sweet water flow through air, which keeps our body fit. If somehow we miss this balance, then it will be harmful for our body. Body collects sweet and salt from food. People may die from dehydration, and salt protects body from dehydration."

There are also different views on salt, such as iodized salt can prevent hypertension, salt cleans the body from germs, and it sometimes decreases body fat in the elderly, etc.

Religion has some influence on salt consumption. During a key information interview, one of the religious leaders mentioned "Taking extra salt with rice is Sunnat. Our Prophet used to take extra salt before starting and after finishing a meal. We found it in Hadith. As we are Muslims, we have to follow the rules of Islam." Elderly people mostly abide by this practice, as religious edict takes priority over health concerns in their lives.

Perception of health risk

Some people thought that excessive salt consumption causes hypertension and other chronic diseases like diabetes. Some thought that the kidneys can be damaged by excessive salt consumption. However, they felt that harm is only caused by "KACHA lobon,"or raw salt. There is also a view that excessive raw salt is harmful for pregnant women. The body of a pregnant woman can swell thanks to excessive raw salt consumption.

Most people surveyed believed that salt in cooked food is not as risky for health since heat during cooking negates the harmful effects. There is a perception that if table salt is dry roasted, the water in the salt dries up and salt becomes harmless.

In Chakaria, three types of salt were available in that community: raw salt, iodized salt, and non-iodized refined salt, which is packed locally. Most people use raw salt for cooking. Although raw salt is used in all kinds of cooking, sometimes people take iodized or packet salt with rice or fruits. Iodized salt is refined and that's why people take this salt with rice and uncooked food. Some people use non-iodized refined salt for cooking. Although this salt is produced locally without adding any iodine, people consider this as iodized salt.

Raw salt is more easily accessible and affordable in Chakaria compared to packet salt and, therefore, raw salt is popular in the community. People can buy 42 kgs of raw salt for Tk 100-120 while only 4-5 kgs of iodized salt can be purchased with the same amount of money. Data suggests that many wealthy families also use raw salt. Those who have experience using iodized salt also think that raw salt is more salty than iodized salt and only a small quantity is needed for the required saltiness. Some restaurant owners used locally produced packet salt, which is comparatively cleaner than raw salt. They admitted that they don't use iodized salt because it is costly.

Salt is used in Chakaria to preserve cooked curries. Women preserve their leftover curry by sprinkling salt on it. Salt is also used as pesticide in the paddy fields, on coconut or plum trees, and ponds just before fish farming.

The study team spoke to members of chronic disease clubs in some of the villages for people with known cases of hypertension. The club members were aware of the link between hypertension and salt consumption and usually did not add extra salt to their food. They admitted that they did not have any control over how much salt was added to family foods, though. Further, their family members did not follow their example in terms of not adding salt to foods.

A quantitative study is underway, which will provide information about actual levels of salt consumption. We hope to use this information to design salt reduction strategies at the community and individual level for those at risk of hypertension.

Editorial published in the British Medical Journal

UN meeting for non-communicable diseases

Long-term commitment within countries is needed, with support from global development partners and strong leadership from the UN

Tracey Pérez Koehlmoos

On 19-20 September 2011, the United Nations will host a general assembly high level meeting on the control and prevention of non-communicable disease (NCD). Although the meeting will be held in New York, the eyes of developing country leaders, decision makers, civil society groups, industry, non-governmental organisations, and researchers will be focused on the event and its outcomes. Previous UN summits have provided the catalyst for change. The summit on HIV/AIDS in 2001 resulted in substantial funding and political commitments.

The UN meeting is a crucial moment. This is especially true because it developed in the shadow of global efforts to achieve the millennium development goals, which do not include NCD. NCD is by far the largest killer on the planet and has continued to advance in low and middle income countries, so that the cause of 63% of all global deaths receives less than 3% of international development assistance for health. About 80% of deaths caused by NCD occur in developing countries and generally in a younger population than in high income countries. Over the next 10 years, the World Health Organization predicts that deaths from NCD will increase by 17% globally, with the greatest increases in the African (27%) and the Eastern Mediterranean (25%) regions. In terms of the highest absolute number of deaths, the Western Pacific and South East Asian regions are projected to lead the field. Because of the scope of the problem, predicted economic impact, and general lack of preparedness to tackle it in many countries, health ministers from low and middle income countries have been the major catalyst for the meeting.

As we head into the final days before the meeting, there is much wrangling over the outcomes document, particularly over targets and resources, and some fear that if world leaders do not turn up with open minds and potentially open chequebooks that NCD might drop off the agenda for 10 years, especially with such tough economic times in so many high income countries. However, it seems unlikely that NCD will disappear from the global health agenda now. Whatever happens at the UN meeting, it has led to the creation of the NCD Alliance and has begun to increase public consciousness about these diseases.

Some claim that NCD may be one of the greatest hindrances to development and alleviation of poverty. In that light the UN should learn from the models of AIDS and tobacco control. Perhaps the central message that must emerge from the UN meeting is that a "whole of government and whole of society" approach is needed to tackle NCD. Only limited progress can be made if action is expected only from within the health system. This is an important message for low and middle income countries. We need to prepare national plans and create partnerships with all stakeholders and emphasise the importance of public health measures beyond the service provision level; we also need to look beyond health policy and include urban planning, agriculture, taxes, indoor air pollution, trade, finance, public transportation, civil society, education, and more. Recommendations for food and agriculture sectors to work on NCD are emerging along with the UN meeting.

WHO needs to act as the conductor of the UN family and bring together the Food and Agriculture Organization (vital if agriculture is to be transformed to tackle undernutrition and overnutrition better); UN Habitat (to build urban design into its work with a focus on restoring mobility, and safe walking and cycling into everyday lives); Unicef (to use its powerful Convention on the Rights of the Child to tackle many aspects of NCD and move beyond a sole focus on health matters that affect survival in under 5 year olds); the World Bank and International Monetary Fund to ensure that fiscal policy and development finance support NCD goals, and more. The model for this leadership comes to us from tobacco prevention through the Ad Hoc Committee of the UN Economic and Social Council.

Although our governments might need technical help for some of the needed steps, they can also identify focal points for NCDs at the national level, along the model of national tobacco control programmes. Considering the burden of disease for NCDs, a heart disease focal point or a diabetes focal point should not be considered out of the question.

Physical activity is another area that may require a focal point to build it into health prevention among adults and into health education for children, as well as planning for safe places to engage in sport or even pavements for safe walking.

Outside of the UN meeting there must be a global commitment, a global partnership, and a global plan, preferably with targets and some resources such as the Stop NCDs Partnership. The encouragement of global support for research and networks must continue to build so that we can figure out what works and how to apply it across settings. The United Health-National Heart, Lung and Blood Institute Centers of Excellence network is a comparably small but important example of how research can be funded and capacity can be built across developing countries, but these 11 centres alone cannot reach every country and population that is in need.

In addition to leadership at the UN and national levels, technical support from WHO, the World Bank, and other UN bodies will be needed, along with the provision of more resources for NCDs; not just financial resources, but also investment in knowledge generation, synthesis, and translation. Experts need to be available to help countries with implementing situation assessments of burden, policy, and programmes that may already exist; planning; developing multisectoral approaches and interventions; and training field workers even for deceptively simple tasks like conducting a WHO-STEPS survey.

The strengthening of health systems, although necessary, will not be a sufficient solution for this pressing development problem. Long term commitment within countries is needed now to create change, and countries should demand technical support and financing from global development partners along with strong leadership from the UN.

Progress made in Bangladesh

When asked about the editorial, Dr. Koehlmoos added: "While I was at the IOM (Institute of Medicine) meeting in July, it was shocking to me that the health ministers and representatives of the other countries lacked so many resources and in some cases felt that they could not rely on their field workers to do a reliable STEPS survey. Also, each of them felt the need for health economist and systems specialists to better understand the situation and plan for future NCD programmes. It made me appreciate the giant steps taken already in Bangladesh to do things like the World Bank and IOM papers looking at policy, programmes and burden of disease, to approve and implement the Framework Convention on Tobacco Control, to include NCDs as a priority issue in the new health sector programme, the high quality and experience of our data collectors, and the unity and rigor that efforts like the CCCDB bring to long term national disease-specific programmes."

Dr. Tracey Pérez Koehlmoos.
CCCDB

Source: BMJ 2011; 343:d5762. The editorial was published in the British Medical Journal (BMJ) *on 13 September 2011. References are available on request.*

The second CCCDB MPH-Plus programme, titled 'Certificate in Advanced Research Methods,' took place from March-August this year. Students from this group pose with their course facilitators Prof. Louis W. Niessen, Mr. Henry Lucas (Institute of Development Studies), and Dr. Dewan S. Alam. Among other CCCDB staff members, Mr. Abdul Wazed and Ms. Nazratun Nayeem Monalisa are also shown.

CCCDB participation in the NHLBI-UnitedHealth Global Health Initiative

The National Heart, Lung, and Blood Institute (NHLBI) and UnitedHealth Group of the USA fight against the global burden of chronic diseases with a special emphasis on developing countries. As part of their work, they have facilitated the inception of the Centre for Control of Chronic Diseases in Bangladesh (CCCDB) as a Centre of Excellence. Through NHLBI-UnitedHealth Global Health Initiative semi-annual meetings like in Delhi (2009), Guatemala (2010), Washington (2010, 2011), and Cape Town (2012), CCCDB participates in NHLBI-UnitedHealth global network activities.

The meetings are chaired and mentored by Dr. Cristina Rabadan-Diehl, project director and deputy director of the Office of Global Health, NHLBI, and Dr. Richard Smith, director of the UnitedHealth Chronic Disease Initiative. Both contribute immensely to the collaborative efforts of NHLBI/ UHG Centres of Excellence.
The CCCDB works in various subcommittees on epidemiology, community health workers, and training. It focuses on disease areas such as pulmonary diseases and diabetes, with active participation of the principal investigators (PI) and investigators from both the Centres of Excellence and developed country partners under the network. The CCCDB, through its members, participates in all of these activities during the meetings and throughout the year.

Participants and invited colleagues get the chance to highlight important issues related to implementation of chronic disease research and programme implementation. In recent meetings, Dr. Fernando Althabe of the Institute for Clinical Effectiveness and Health Policy, Argentina, spoke on best practices in programme implementation. Professor Eric Peterson, Professor of Medicine at Duke University, USA, spoke on improving cardiovascular disease patient care and monitoring on a large scale.

Deneen Vojta and Tom Beauregard from the UnitedHealth Group focused on diabetes prevention at the population level. Economic and reimbursement topics were addressed by Kalipso Chalkidou from the National Institute of Health and Clinical Excellence, while CCCDB's Professor Louis Niessen and Professor Tom Gaziano from the Brigham & Women's Hospital, USA, discussed the cost of NCDs (non-communicable diseases) and NCD prevention.

At the October meeting in Washington, D.C., the PIs of each Centre of Excellence presented a report. Professor Alejandro Cravioto, executive director of icddr,b and PI of the CCCDB, focused on research activities and presented CCCDB first findings. Following up on the UN meeting on NCDs, Dr. Arun Chokalingam, director of the NHLBI Office of Global Health, facilitated a discussion on 'Where we are now after the UN meeting.'
He concluded that strong and lasting commitment is needed from national governments and social partners world-wide. Existing effective and low-cost interventions need to be made available at full-scale and the financing mechanisms must be developed to do so.

Three interns under the CCCDB's MPH-Plus [Master's in Public Health] programme also attended the October meeting. As in previous years, they presented findings from CCCDB research projects and visited the National Institutes of Health (NIH) Clinical Centre and National Library of Medicine.

We are honoured to be able to participate and contribute as members of this advanced and stimulating network. It offers icddr,b and its CCCDB a platform to discuss our findings and to find collaborative partners across the world. It is a forum for its researchers that helps to shape and build a meaningful research and health policy career.

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Design & Page layout: Mohammad Inamul Shahriar, Communications Unit, icddr,b
Printed by: Printlink Printers