

Organizing Committee

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Acknowledgments

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A Brief History of ICDDR,B

- 1960 Pakistan-SEATO Cholera Research Laboratory established
- 1963 Matlab field station started First of a series of cholera vaccine trials launched
- 1966 Demographic Surveillance System established
- 1968 First successful clinical trials of Oral Rehydration Solution (ORS) conducted
- 1969 Relationship between stopping breast-feeding and resumption of menstruation demonstrated
- 1971 Independence of Bangladesh
- 1973 Shift from classical to El Tor cholera identified
- 1977 Maternal-child health and family planning interventions began in Matlab
- 1978 Government of Bangladesh Ordinance establishing ICDDR,B signed
- 1982 Classical cholera returned Field-testing of cereal-based Oral Rehydration Solution began MCH-FP Extension Project began
- 1984 ICDDR,B received UNICEF's Maurice Pate Award
- 1985 Full Expanded Programme on Immunization activities tested in Matlab WC/BS cholera vaccine trial launched
- 1987 ICDDR,B received USAID's Science and Technology for Development Award
- 1988 Treatment of and research on acute respiratory infection began
- 1989 The Matlab record-keeping system, specially adapted for government use, extended to the national family planning programme
- 1991 ICDDR,B scientists assisted in response to the diarrhoeal disease epidemics after the cyclone in southern Bangladesh, and the cholera epidemic in South America 1992 Joint projects of ICDDR,B and Bangladesh Rural Advancement Committee (BRAC) commenced
- 1993 New *Vibrio cholerae* O139 Bengal identified and characterized
- 1994 ICDDR,B celebrates the 25th anniversary of the first successful clinical trial of ORS ICDDR,B team helped slash mortality in Rwandan refugee camps in Goma,Zaire
- 1995 Maternal immunization with a pneumococcal polysaccharide vaccine shown to protect infants up to 22 weeks Visit by the U.S. First Lady Hillary Clinton who praises the Centre as a world resource, and she initiates Lessons without Border
- 1996 First official visit to the Centre by a Prime Minister of the host country
- 1998 ICDDR,B celebrates its 20th anniversary as an international institution. The Dhaka Hospital of the ICDDR,B treated a record number of 157,446 patients due to the unprecedented flood while maintaining a survival rate of over 99.5% for patients admitted to the Hospital
- 1999 The Board of Trustees approved the launching of the Centre's research, service and training initiatives within the context of the following themes: Nutrition, Emerging and Re-emerging Infectious Diseases, Reproductive

Health, Vaccine Evaluation, Case Management, Health Systems Research,
and Environmental Health

Introduction

Each year, the ICDDR,B hosts the Annual Scientific Conference (ASCON) to provide an opportunity for the dissemination of results and lessons learned from recent research work in the health and population sector of Bangladesh. The theme of this year's ASCON is "Health Systems Research: Meeting the Needs of Populations in Transition." The Organizing Committee has invited Dr. Timothy Evans from the Rockefeller Foundation of the USA and Mr. Orville Adams from the World Health Organization, Geneva, as keynote speakers who will provide a global perspective on the topic.

This is not a new field of interest for scientists at the Centre. Our fundamental mission, *to develop and disseminate solutions to major health and population problems facing the world*, and our commitment to attaining the highest level of scientific research to address health, population and development problems make this one of our central areas of research.

The long-standing surveillance activities, community-based studies, and applied research interventions in Matlab, Abhoynagar, Mirsarai, Patyia, Chakaria, and our research sites in Dhaka have, over the years, helped increase national and international understanding of diseases and their prevention. These studies have covered a variety of subjects ranging from case management, control of epidemic outbreaks, vaccine development, child immunization, nutrition, and a broad spectrum of problems in the fields of child survival and reproductive health.

The scientific work of the Centre has also contributed to the strengthening of national programmes and improvements in the health status of the population by providing infrastructural interventions. Specifically, the scientists of the Centre have increasingly concerned themselves with policy and institutional issues, assessing the effectiveness of service-delivery strategies, strengthening national information systems, developing needs assessments that include perspectives of users and providers on health needs and services, and on issues pertaining to financial sustainability, equity, efficiency, logistics, and marketing.

Thus, a significant proportion of the Centre's research activities is devoted to strengthening health systems.

This is part of a global trend, resulting in substantial reforms in the health systems of many developed and developing countries. Despite recent notable progress in healthcare, Bangladesh still faces many challenges to improve the health status of its population, such as reducing health inequalities, improving the quality of care and public satisfaction with healthcare, and increasing the efficiency and sustainability of service-delivery agencies. Addressing these issues will continue to involve applied research designed to enhance our understanding of the factors affecting provision, organization, and use of health services. The requirement for applied research in health systems may be greater than ever in the light of the accelerating momentum of the epidemiological, demographic and health transitions now underway in many developing countries—areas where the majority of the world's population reside.

For the past three years, ASCON has been open to presenters outside the Centre. The Organizing Committee is particularly pleased to have had a record number of contributions for the 9th ASCON from the Government of Bangladesh, academic and research institutions, and a variety of national and international non-government organizations dedicated to service-delivery and technical assistance. We welcome this participation, which not only highlights the relevance of this topic to service-delivery agencies and the research community, but the common commitment to this field from the broad spectrum of disciplines involved in health development and promotion. This year, we have received contributions pertaining to: health policy and planning; organization of service-delivery; community perspectives on healthcare and participation of stakeholders; case management of specific diseases; delivery of specific services; the health needs of specific populations, such as the urban poor, adolescents, males, and sex

workers; mechanisms to improve disease surveillance; evaluation of programme performance; and health financing strategies.

Our objective is that 9th ASCON not only serves as an opportunity to disseminate research findings, but also provides a forum for exchange of ideas among those responsible for national programmes and international interventions.

David A. Sack, M.D.
Chairperson, Organizing Committee
9th Annual Scientific Committee
(ASCON)
and Director, ICDDR,B

Programme Summary

DAY 1: Friday, 11 February 2000

18:00–18:30 Registration

18:31–19:30 Inauguration
Address of Welcome:

(Sasakawa Auditorium)
Professor David A. Sack
Director
ICDDR,B

Address by Chief Guest:

Professor Dr. M. Amanullah
Hon'ble State Minister for Health and Family Welfare
Government of the People's Republic of Bangladesh

Vote of Thanks:

Dr. Cristóbal Tuñón
Convener, Organizing Committee, 9th ASCON

19:31 Refreshments

DAY 2: Saturday, 12 February 2000

Session I

08:31–09:00 Poster Session

(Lobby, Sasakawa International Training Centre)
Equity Challenges for Public Health in the Context of
Globalization (Sasakawa Auditorium)

09:01–10:30
Keynote Speech:

Speaker:

Dr. Timothy Evans
Head, Health Division
Rockefeller Foundation, New York, USA

10:31–11:00 Tea Break
Concurrent Sessions

11:01–13:00 Session Ia:

Policy and Planning—Organizing Services
(Sasakawa Auditorium)

11:01–13:00 Session Ib:

Service Provision—Case Management
(Seminar Room)

13:01–13:30 Lunch Break
Session II

13:31–14:00 Poster Session

(Lobby, Sasakawa International Training Centre)

14:01–16:00 Session IIa:

Policy and Planning—Gender Issues and Nutrition
(Sasakawa Auditorium)

14:01–16:00 Session IIb:

Service Provision—Delivery of Services
(Seminar Room)

16:01–16:30 *Tea Break*

Session III

16:31–18:00 Session IIIa: Policy and Planning—Organizing Reproductive Health Services
(Sasakawa Auditorium)

16:31–18:00 Session IIIb: Monitoring and Evaluation—Methods and Use
(Seminar Room)

DAY 3: Sunday, 13 February 2000

Session IV

08:31–09:00 Poster Session (Lobby, Sasakawa International Training Centre)

09:01–10:30 *Keynote Speech:* Health Systems Performance Assessment: Improving Service Delivery (Sasakawa Auditorium)

Speaker: Mr. Orville Adams
Director, OHSD, Division of Evidence and Information for Policy, World Health Organization, Geneva, Switzerland

10:31–11:00 *Tea Break*

Concurrent Sessions

11:01–13:00 Session IVa: Monitoring and Evaluation—Economic Issues (Sasakawa Auditorium)

11:01–13:00 Session IVb: Service Provision
(Seminar Room)

13:01–13:30 *Lunch Break*

13:31–14:00 Poster Session (Lobby, Sasakawa International Training Centre)

14:01–16:00 Panel Session: Future Directions in Health Systems Research
(Sasakawa Auditorium)

Dr. Halida Hanum Akhter
Director, BIRPERHT

Dr. A.K. Azad Khan
Honorary Secretary General
Diabetic Association of Bangladesh

Mr. Jay Anderson
Team Leader, Population, Health and Nutrition Office
USAID

Professor John C. Caldwell
Australian National University and IISSP

Australian National University and IUSSP

Chairman

Mr. Muhammed Ali
Chief Adviser and Head, Management Change Unit
Ministry of Health and Family Welfare

Professor David A. Sack
Director, ICDDR,B

16:01–16:30 Tea Break

16:31–18:00 Concluding Session

(Sasakawa Auditorium)

Summary:

Dr. W. Abdullah Brooks
Convener, Scientific Committee, and Co-convener,
Organizing Committee, 9th ASCON

Address by Chief Guest:

Mr. D.K. Nath
Additional Secretary
Ministry of Health and Family Welfare
Government of the People's Republic of Bangladesh

Concluding Remarks by Chairperson:

Professor David A. Sack
Director, ICDDR,B

Programme Details

DAY 1: Friday, 11 February 2000

18:01–18:30 Registration

18:31–19:30 Inauguration

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Address of Welcome:

Professor David A. Sack
Director, ICDDR,B

Address by Chief Guest:

Professor Dr. M. Amanullah
Hon'ble State Minister for Health and Family Welfare
Government of the People's Republic of Bangladesh

Vote of Thanks:

Dr. Cristóbal Tuñón
Convener, Organizing Committee, 9th ASCON

19:31 Refreshments

DAY 2: Saturday, 12 February 2000

Session I

08:30–09:00 Poster Session

(Lobby, Sasakawa International Training Centre)

09:01–10:30 Keynote Speech:

**Equity Challenges for Public Health in the Context of
Globalization** (Sasakawa Auditorium)

Speaker:

Dr. Timothy Evans
Head, Health Division
Rockefeller Foundation, New York, USA

**10:31–11:00 Tea Break
Concurrent Sessions**

11:01–13:00 Session Ia:

Policy and Planning—Organizing Services
(Sasakawa Auditorium)

Chairperson:

Mr. M.A. Muktadir Mazumder
Joint Chief (Planning)
Ministry of Health and Family Welfare
Government of the People's Republic of Bangladesh

Co-chairperson:

Dr. Abbas Bhuiya, PHSD, ICDDR,B

Delivery of Community-based Health Services: A
Dilemma in Healthcare Reform—

I. Bashir, M. Desmet, N. Sohel, A.Q. Chowdhury, K.K. Saha, and B.C. Dhar

Use of Thana and Union-level Government Facilities:
Challenge for the Health and Population Sector
Programme, Bangladesh—**S.M. Asib Nasim and
Enamul Karim**

Experience of Zonal Health and Family Planning
Coordination Committees in Urban Dhaka—**Jahanara
Khatun, Mohammed Ashraf Uddin, A.K.M.
Sirajuddin, and Meghla Islam**

Perceptions on Effects of the Thana Functional
Improvement Pilot Project: Service Provider, Client, and
Community Perspectives—**Rukhsana Gazi** and A.H.
Nowsher Uddin

Ambulance Operation in the Thana Functional
Improvement Pilot Project—
**A.T.M. Iqbal Anwar, Mahbub Murshed, and A.M. Zakir
Hussain**

BRAC Health Centre: An Ethnography—
Shahaduzzaman

Disease Prevalence, Health-seeking Behaviour, and
Scope for Preventive and Curative Treatment of Female
Factory Workers—**Sabrina Zaman, Selina Begum,
Andrew Thorne-Lyman, and Saskia dePee**

11:01–13:00 Session Ib:

Service Provision—Case Management
(Seminar Room)

Chairperson:

Professor Mahmud Hassan
Pro-Vice-Chancellor and Professor
Department of Gastroenterology, Bangabandhu Sheikh
Mujib Medical University, Dhaka

Co-chairperson:

Dr. M.A. Salam, CSD, ICDDR,B

Energy Intake During Pregnancy and Lactation by Rural
Bangladeshi Women: Consequences on Maternal
Nutrition—**Dewan S. Alam, Joop M.A. van Raaij,
Joseph G.A.J. Hautvast, M. Yunus, and G.J. Fuchs**

Nutritional Supplementation to Malnourished
Bangladeshi Pregnant Women: Impact of
Supplementation Duration on Birth-weight—**Rubina
Shaheen, Andres de Francisco, Shams El Arifeen,
and Lars Åke Persson**

Efficacy of Bismuth-Subsalicylate in Treatment of Acute
Diarrhoea and Prevention of Persistent Diarrhoea—
**Hafizur Rahman Chowdhury, Md. Yunus, K. Zaman,
Anisur Rahman, Shah M. Faruque, Andres G.
Lescano, and R. Bradley Sack**

Change in Children's Fluid Intake Between Healthy Periods and Diarrhoea Episodes in Rural Bangladesh: Some Policy Implications—**K. Zaman, D.A. Sack, J. Chakraborty, Md. Yunus, A.H. Baqui, and R.E. Black**

Plan of Action for Therapeutic Efficacy Testing of Antimalarials in Bangladesh and Results of the First-year Activity—**Md. Ridwanur Rahman, A. Mannan Bangali, M.A. Faiz, Mushfiqur Rahman, Md. Abu Taher, Md. Mustafizur Rahman, and Ataul Haq Mahmood**

Evaluation of "New Clinical Case Definition for Uncomplicated Malaria" Applied in National Guidelines in Bangladesh—**M.A. Faiz, E.B. Yunus, M.R. Rahman, M. Amir Hossain, E. Rahman, and S.N. Bhuiyan**

13:01–13:30 Lunch Break

Session II

13:31–14:00 Poster Session (Lobby, Sasakawa International Training Centre)

14:01–16:00 Session IIa: Policy and Planning—Gender Issues and Nutrition
(Sasakawa Auditorium)

Chairperson: Dr. Makhduma Nargis
Joint Secretary (Coordination) and
Line Director (Construction)
Ministry of Health and Family Welfare
Government of the People's Republic of Bangladesh
Co-chairperson: Dr. Ishtiaq Bashir, PHSD, ICDDR,B

Malnutrition of Women: A Major Problem Yet to be Addressed by Policies and Programmes in Bangladesh—**Lynnda Kiess, Saskia dePee, Nasreen Huq, Tabibul A. Khan, Mamunur Rashid, Nigar Sultana, and Martin W. Bloem**

Understanding Male Perspectives in Reproductive Health Throughout the Life Cycle and Its Implication for Policy Intervention—**S.M. Nurul Alam**

Involvement of Fathers in Child-rearing Activities in Rural Bangladesh—**Masud Reza, Ali Ashraf, Barkat-e-Khuda, and Yousuf Hasan**

Universal Salt Iodination: Does the Population in Coastal Area Benefit?—**Manzoor A. Hanifi, Ariful Moula, Shahidul Islam, Didarul Alam, Mosammat Mobashara, and Sabrina Rasheed**

Promotion of the Lactational Amenorrhoea Method by Community-based Peer Counsellors—**R. Haider, I. Kabir, A. Ashworth, and S.R.A. Huttly**

Women's Empowerment and Contraceptive Use in Rural Bangladesh—**Ariful Islam and Shameem Ahmed**

Gender and Injury-related Deaths in Population of 10-49-year Age Group in Matlab, Bangladesh: Levels, Trends, and Circumstances—**Abdur Razzaque, Kapil Ahmed, Nurul Alam, and Kim Streatfield**

Characteristics of Burn-related Deaths in Bangladeshi Women Aged 10-50 Years—**Mahbubur Rashid, Halida H. Akhter, M. Hafizur Rahman, and Hussain R. Yusuf**

14:01–16:00 Session IIb: Service Provision—Delivery of Services
(Seminar Room)

Chairperson: Dr. A.M. Zakir Hussain
Director(PHC and DC)and Line Director,ESP
Directorate General of Health Services
Government of the People's Republic of Bangladesh
Co-chairperson: Dr. Firdausi Qadri, LSD, ICDDR,B

Rapid Appraisal of Management of Tuberculosis in Two Thanas of Bangladesh—**S.M. Tariq Azim, Cristóbal Tuñón, and M. Tajul Islam**

Validity of IVACG-simplified Dietary Assessment in Identifying Pregnant and Lactating Women at Risk for Vitamin A Deficiency in Rural Bangladesh— **Dewan S. Alam, Joop M.A. van Raaij, Joseph G.A.J. Hautvast, M. Yunus, M.A. Wahed, and G.J. Fuchs**

Managing Acute Respiratory Infections in Children by Community Health Volunteers: The BRAC Experience—**Abdullahel Hadi**

Involving the Community in Developing an Effective Healthcare System: Recent Experiences from the Chakaria Community Health Project—**Abbas Bhuiya, Mohammad Iqbal, Nandita Nazma, Ariful Moula, Didarul Alam, Shahidul Islam, Mosammat Mobashara, Manzoor A. Hanifi, Sujaul Islam, A.K.M. Nurul Islam, and Hosne Ara Rina**

Managing Reproductive Tract Infections/Sexually Transmitted Infections in Bangladesh: A Review of Recent Findings—**Jozef Bogaerts, Motiur Rahman, and Tasnim Azim**

Sexuality, Reproductive Health Problems, and Healthcare-seeking Patterns of Adolescents in Rural and Urban Areas of Bangladesh—**Rukhsana Gazi, Quamrun Nahar, Cristóbal Tuñón, and Meghla Islam**

Reproductive and Sexual Health Promotion in a Sensitive Sociocultural Environment: Developing a Module for the Grassroots—**Hashima-e-Nasreen, Abbas Bhuiya, A.M.R. Chowdhury, and Syed Masud Ahmed**

16:01–16:30 Tea Break
Session III

16:31–18:00 Session IIIa: Policy and Planning—Organizing Reproductive Health Services

(Sasakawa Auditorium)

Chairperson: Dr. Jahir Uddin Ahmed

Director, MCH Services and Line Director, ESP

Directorate of Family Planning

Government of the People's Republic of Bangladesh

Co-chairperson: Dr. M.A. Quaiyum, HPED, ICDDR,B
Knowledge and Attitudes of Adolescents Toward
STDs/AIDS—**Quamrun Nahar, Cristóbal Tuñón, and
Barkat-e-Khuda**

Lessons Learned from a Sexual and Reproductive
Health Project in Rural Bangladesh—**Sharful Islam
Khan, Hashima-e-Nasreen, Abbas Bhuiya, A.M.R.
Chowdhury, Sadia Chowdhury, Sayed Masud
Ahmed, and Kathy Cash**

Can Medicine-sellers in Pharmacies Meet the Needs of
STD Clients?—**Saifur Rahman, Mohsin U. Ahmed,
and Barkat-e-Khuda**

Sexual Health Needs Assessment for HIV Intervention:
A Participatory Approach with Hotel and Restaurant
Workers in Sylhet—**A.B.M. Kamrul Ahsan**

Anthropological Perspectives on Refusal for Emergency
Obstetric Care in Rural Bangladesh—**Lazeena Muna,
James L. Ross, Sandra L. Laston, and Abbas Bhuiya**

Practices and Prejudices of Traditional Birth Attendants
in Rural Bangladesh—**Rezina Razzaq, A. Khanum,
Ariful Islam, and M.A. Quaiyum**

16:31–18:00 Session IIIb: Monitoring and Evaluation—Methods and Use
(Seminar Room)

Chairperson: Ms Lynnda Kiess

Country Director

Helen Keller International, Bangladesh

Co-chairperson: Dr. K. Zaman, PHSD, ICDDR,B

Hospital-based Surveillance of Invasive *Streptococcus
pneumoniae* and *Haemophilus influenzae*-
associated Diseases in Bangladeshi Children and their
Antimicrobial Resistance: A Preliminary Report—
**Shahadat Hossain, Mahbubur Rahman. A.H. Baqui,
Nazmun Nahar, Fahmida Tofaill, V.I. Mathan, and
George J. Fuchs**

Prevalence of Childhood Anaemia and Its Determinants
from the Bangladesh National Micronutrient Survey
1997-1998—**Lynnda Kiess, M. Rashid, T.A. Khan,
Nasreen Huq, I.D. Hill, Nasima Akhter, and M.W. Bloem**

Using Routine Surveillance to Improve the National
Vitamin A Week Campaign—**Andrew Thorne-Lyman, M.**

*Rashid, Abdul Hye, **Nasima Akhter**, B. Alam, Lynnda Kiess, and M.W. Bloem*

Implications of Healthcare Provision on Mortality Due to Acute Lower Respiratory Infection in Bangladeshi Children—**Mohammad Ali, Michael Emch, Fahmida Tofail, and A.H. Baqui**

Impact of Disability on a Rural Community: Survey Experience from Bangladesh—**G.M. Monwar Hosain and M. Atiar Rahman**

DAY 3: Sunday, 13 February 2000

Session IV

08:31–09:00 Poster Session (Lobby, Sasakawa International Training Centre)

09:01–10:30 Keynote Speech: Health Systems Performance Assessment:

Improving Service Delivery

(Sasakawa Auditorium)

Speaker: Mr. Orville Adams

Director, OHSD

Division of Evidence and Information for Policy

World Health Organization, Geneva, Switzerland

10:31–11:00 Tea Break

Concurrent Sessions

11:01–13:00 Session IVa: Monitoring and Evaluation—Economic Issues

(Sasakawa Auditorium)

Chairperson: Professor Sushil Ranjan Howlader

Director, Institute of Health Economics

University of Dhaka, Dhaka

Co-chairperson: Dr. Subrata Routh, HPED, ICDDR,B

Costing of Activities of the Bangladesh Integrated Nutrition Project at the Community Level: An Analysis Based on Community Nutrition Centres in Five Thanas of Bangladesh—*M. Mahmud Khan and **Shakil Ahmed***

Willingness to Sharing of Costs by Patients Attending a Specialized Hospital in Sylhet—*M. Manirul Islam and **S.M. Faridul Islam Latif***

Charging Fees for EPI Services: Who are Unwilling to Pay?—*Atia Hossain and **Subrata Routh***

Role of Private Providers in Healthcare: Lessons from Bangladesh on Public-Private Mix—*M. Mahmud Khan and **Zahidul Quayyum***

Evaluating Economic Impact of the Health and Population Sector Programme and Essential Services Package: A Suggested Framework—*Tim Ensor and **James Killingsworth***

11:01–13:00 Session IVb: Service Provision

(Seminar Room)

Chairperson: Professor Q. Quamruzzaman
President, Dhaka Community Hospital Trust
Co-chairperson: Dr. Tasnim Azim, LSD, ICDDR,B

User Participation: A Way to Establishing Community-
managed Healthcare System—**Shehlina Ahmed** and
Md. Khairul Islam

Urinary Lactose Level of Mothers as an Index of
Lactation Performance—**Shah Md. Keramat Ali** and
Raghib Ahsan

Strengthening RTI/STI Services: Experiences from Two
Family Welfare Centres—**Ismat Bhuiya** and Ubaidur
Rob

Perspectives of Stakeholders in Establishment of Rural
Community Clinics in Bangladesh—**Sukumar Sarker,**
Ziaul Islam, Subrata Routh, Barkat-e-Khuda, S.M.
Asib Nasim, and Md. Mesbahuddin

Health Systems Research on Management Support
Systems for Effective Delivery of the Essential Services
Package—**S.M. Tariq Azim, Cristóbal Tuñón, and**
Nural Anowar

Quality of Birthing Care from Women's Perspective—
Kaosar Afsana and **Sabina Rashid**

Tapping Missed Opportunities: An Innovative Approach
Based on Screening Algorithms—**Rasheda Khanam,**
S.U. Alamgir, and Subrata Routh

13:01–13:30 Lunch Break

13:31–14:00 Poster Session (Lobby, Sasakawa International Training Centre)

14:01–16:00 Panel Session Future Directions in Health Systems Research

(Sasakawa Auditorium)

Dr. Halida Hanum Akhter

Director, BIRPERHT

Dr. A.K. Azad Khan

Honorary Secretary General

Diabetic Association of Bangladesh

Mr. Jay Anderson

Team Leader, Population, Health and Nutrition Office

USAID

Professor John C. Caldwell

Australian National University and International Union

for the Scientific Study of Population (IUSSP)

Mr. Muhammed Ali

Chief Adviser and Head

Management Change Unit

Ministry of Health and Family Welfare

Government of the People's Republic of Bangladesh

Chairman Professor David A. Sack

Director

ICDDR,B

16:01–16:30 Tea Break

16:31–18:00 Concluding Session (Sasakawa Auditorium)

Summary: Dr. W. Abdullah Brooks
Convener, Scientific Committee, and Co-convener,
Organizing Committee, 9th ASCON
Address by Chief Guest: Mr. D.K. Nath
Additional Secretary
Ministry of Health and Family Welfare
Government of the People's Republic of Bangladesh

Concluding Remarks

by Chairperson: Professor David A. Sack
Director
ICDDR,B

Posters

Coordinators: **Ali Ashraf, Jatin N. Sarker, and Aminul Arifeen, HPED, ICDDR,B**

Hann-reduction Intervention among Injecting Drug Users: Assessment of Process Impact **A.H. Towfique Ahmed** (Page 64)

Role of Political Commitment in Policy and Planning Under Health Systems Research **Julia Ahmed** (Page 65)

Consequences of Induced Abortion in Rural Bangladesh-**M. Kapil Ahmed** (Page 66)

Impact of Social Mobilization on Maternal Care and Lactation Performance
Sameena Chowdhury, AK.M. Shahabuddin, Ferdousi Islam, M. Quamrul Hasan, Aminur Rahman, Nazneen Kabir, and Fazlur Rahman (Page 67)

Expectations of Community Volunteers: Experience from two Interventions by the Government of Bangladesh and NGOs in Rural Bangladesh-**Ziaul Haque Chowdhury and Rukhsana Gazi** (Page 68)

Gender Inequality in Severe Malnutrition in a Remote Rural Area of Bangladesh
Manzoor A Hanifi and Kaneta K. Choudhury (Page 69)

Birth Attendants during Child Delivery in Rural Bangladesh.--**M. Monawar Hosain, Rehana Sultana, and Shahanaje Pervin** (Page 70)

Tetanus Toxoid Immunization among Women in Gono Shasthaya Kendra Area
G.M. Monawar Hosain, Manzur Kadir Ahmed, and Qasem Chowdhury (Page 71)

Health-seeking Behaviour of Mothers and Factors Affecting Infant and Child Mortality of Their Children: Evidence from the Bangladesh Demographic and Health Survey 1996-1997-**M. Kabir and AU Ahmed How/ader** (Page 72)

Contraceptive Use in Matlab, Bangladesh with a Special Focus on Condom: Socioeconomic Correlates and Future Implications-**Monirul I. Khan and Radheshyam Bairagi** (Page 73)

Children and HIV/AIDS in Bangladesh: A Global Review-**Shakeel A.I. Mahmood** (Page 74)

Evaluation of Field Kits Used for Arsenic Detection in Ground Water
Abul Hasnat Milton, Tony Fletcher, Gautam Samanta, Tarit Roy Chowdhury, Bhajan Kumar Biswas, Uttam Kumar Chowdhury, and Dipankar Chakroborty (Page 75)

Preventives of HIV Infections/AIDS Among Commercial Sex Workers in Bangladesh **Munira Murshed and AK.M. Ahsan Ullah** (Page 76)

Behavioural Survey of Floating Female Sex Workers-**Nazmun Nahar** (Page 77)

Perceptions of Adolescents on Physical Changes During Puberty-**Quamrun Nahar, Nafisa Lira Huq, Masud Reza, and Faiz Ahmed** (Page 78)

Knowledge, Attitudes, and Practices of Adolescents Relating to Contraceptive Use **Quamrun Nahar, Cristobal Tufi6n, Masud Reza, Nafisa Lira Huq, and Barkat-e-Khuda** (Page 79)

Exploring Women's Perception on Birth Process through Body Mapping-**Shahaduzzaman** and AM.R. Chowdhury (Page 80)

Behaviour Change Communication Needs of Rural Community Clinics: A Study of Providers' Perspectives-**Ahsan Shahriar**, Subrata Routh, MohammedAli Bhuiyan, Sukumar Sarker, andAliAshraf(Page 81)

Qualitative Exploration of Perceived Causes and Treatments of *Rokto Kom* (Anaemia) among Dhaka City Garment Workers-**Andrew Thorne-Lyman**, Sabrina Zaman, Nasima Akhter, Kanan Biswas, Shirin Afroze, Runa Rasida, and Lynnnda Kiess (Page 82)

Availability of Essential Services Package in Urban Dhaka-**Md. Jasim Uddin**, AK.M. Sirajuddin, Nirod C. Shaha, and Ziaul Haque (Page 83)

Partnership Between NGOs and Government Promotes Policies into Action
Sylvester S. Costa, Abdur Rob, and Kabir Uddin Ahmed (Page 84)

Rural Volunteers for Family Planning: the Experience of Rural Service Delivery Partnership Depot-holders-**Rukhsana Gazi**, Cristobal Tunon, Shamsuddin Alamgir, and Mohammad Alauddin (Page 85)

Government-Community Partnership in Managing Rural Community Clinics-Ziaul Islam, Sukumar Sarker, **R'umana A. Saji**, Shahela Anwar, and Subrata Routh (Page 86)

Defective Mucosal Immunity and Normal Systemic Immunity of Mongolian Gerbils, *Meriones unguiculatus* to Reinfection with *Strongyloides venezuelensis*-**A.I. Khan**, Y. Horii, and Y. Nawa (Page 87)

Antidiarrhoeal Effect of Cholestyramine in Children with Cholera-**A.M. Khan**, T. Rautanen, AN. Alam, and G.J. Fuchs (Page 88)

Why Limiters in Rural Bangladesh Do Not Use Permanent Methods of Family Planning **Mehrab Ali Khan**, M. Islam, Moamta Begum, M. Rahman, Ashish K. Dutta, andR. Bairagi (Page 89)

Intervention to Change Traditional *mura* System to New Bed System for Growing VegetablesM. Mahmud Khan, **K.M.A. Aziz**, Shakil Ahmed, Farzana Ahmed, and George J. Fuchs (Page 90)

Comparison of Effects of Herbal Extracts and Antibiotics Against Bacteria
Shamsun Nahar Khan, M.A. Samad Talukdar, and Shahabuddin Kabir Chowdhury (Page 91)

Programmatic Opportunity for Iron Supplementation-Lynnnda Kiess, Mugo Muita, Abdul Hye, Saskia dePee, **Nasreen Afroze**, Abdul Kader, and Andrew Thome-Lyman (Page 92)

Impact of the 1998 Flood on Nutrition and Health: What Can We Learn for Future Disasters?Lynnnda Kiess, Andrew Thome-Lyman, Mugo Muita, **Shahriar Reza Khan**, Abdul Q. Mondal, andNasreenHuq (Page 93)

Problems in Diagnosis and Management of Snake Bite in Chittagong, Bangladesh
M.I. Majumder, N.H. Chowdhury, S.M.B. Mamun, Q.S. Ataher, M.R. Rahman, M. Hussain, AY.R Elahi, E.B. Yunus, M.A. Hussain, and **Md. Abul Faiz** (Page 94)

Implications of WHO-set Criteria of Standard Case Management in Clinical Diagnosis of Acute Respiratory Infections: Observations from Urban and Rural Hospitals-K. *Matsumura*, **K. Selim Anwar**, *I. Arita*, *Navnun Nahar*, *Abid H. Mollah*, *AM. Zakir Hussain*, *A AU Molla*, *RK. Sengupta* and *A Brooks* (Page 95)

Drugs and Medical Supplies During and in the Aftermath of the 1998 Flood in Bangladesh **Mamunur Rahman**, *William Bill Aldis*, and *QudsiaHuda* (Page 96)

Safety of Maternal Immunization with Pneumococcal Polysaccharide Vaccine on Bangladeshi Pregnant Women-**Nigar S. Shahid**, *E. Roy*, *T. Begum*, and *M. C. Steinhoff* (Page 97)

Microscopy and Culture of Clinical Samples for Diagnosis of Tuberculosis **M.A. Samad Talukder**, *M.M. Zakaria*, *Ayesha Khatun*, and *M. Iqbal* (Page 98)

Involving Community Leaders in Local-level Planning: Lessons from the Thana Functional Improvement Pilot Project -**A.H. Nowsher Uddin** and *Rukhsana Gazi* (Page 99)

Community Mobilization and EPI Coverage: Lessons Learned from Chakaria *Manzoor A Hanifi* and **Sabrina Rasheed** (Page 100)

Ear, Nose and Throat Problems and Related Care-seeking Behaviour in a Remote Rural Area of Bangladesh-**Mohammad Iqbal** and *Nandita Nazma* (Page 101)

Challenge in Implementing the Family Planning Facilitation Programme: A Case Study *Shah Noor Mahmud*, *AM.R. Chowdhury*, and **Ahmed Ali** (Page 102)

Reliability of Gestational Age Assessment by the Ballard Simplified Scoring System **Eliza Roy**, *Nigar S. Shahid*, *T. Begum*, *F. Haque*, and *M. C. Steinhoff* (Page 103)

Relevance of Application of New National Malaria Clinical Case Definitions in a Teaching Hospital-**Emran Bin Yunus**, *M.A. Fail*, *Md. Ridwanur Rahman*, *M. Amir Hossain*, and *S.N. Bhuiyan* (Page 104)

Assessing Quality of Data in a Reproductive Health Intervention of an NGO in Rural Bangladesh-**Kaosar Afsana** and *Shah Noor Mahmood* (Page 105)

Reproductive Health in a Rural Area of Bangladesh-**G.M. Monawar Hosain**, *Md. Tariqul Islam*, and *Qasem Chowdhury* (Page 106)

Accuracy, Suitability, and Acceptability of Indicators to Monitor Community-based Nutrition Project Activities-**S.M. Ziauddin Hyder**, *Harun K.M. Yusuf*, *Chowdhury S.B. lalal*, and *AM.R. Chowdhury* (Page 107)

Characteristics of Sterilized Women in Bangladesh: Do They Regret?-**M. Mazharul Islam**, *Mehrab AU Khan*, and *R. Bairagi* (Page 108)

Costing of Integrated Management of Childhood illnesses Based on Matlab Data *M. Mahinud Khan*, *Kuntal Kumar Saha*, **Shakil Ahmed**, and *Navnul Sohel* (Page 109)

Use of Health Services by Rural Women in Bangladesh: An Indication to Women's Health Need-**Amina Mahub** and *Syed Masud Ahmed* (Page 110)

Diphtheria, Pertussis and Tetanus Coverage at Rural Sites of the Operations Research Project **A.R.M. Khorshed Alam Mozumder, Barkat-e-Khuda, and D.M. Mizanur Rahman** (Page 111)

Does Access to Mass-media Affect Knowledge and Attitudes of Men Toward Female Reproductive Health?- **Nirod C. Saha, Ali Ashraf, Sub rata Routh, and Barkat-e-Khuda** (Page 112)

Micro-credit and Emotional Well-being: Experience of Poor Rural Women from Matlab, **Bangladesh-Syed Masud Ahmed, AM.R. Chowdhury, and Abbas Bhuiya** (Page 113)

Review of Prescriptions as a Measure of Technical Competence-**Kaosar Afsana and Shah Noor Mahmood** (Page 114)

Perceptions of the Community People About Services of the BRAC's Ante Natal Care Centre and the Government's Satellite **Clinic-Amina Mahbub** (Page 115)

Food Supplementation and Nutrition Education: Lessons Learned from a Pilot Nutrition **Initiative-Rita Das Roy, S.M. Ziauddin Hyder, AM.R. Chowdhury, Zeba Mahmood** (Page 116)

Improving Ward-level Coordination among Urban Stakeholders of the Health and Population Sector-**A.K.M. Sirajuddin, Jahanara Khatun, Nirod C. Saha, and Ziaul Haque** (Page 117)

Effects of Training on Performance of Health and Family Planning Managers in Rural Bangladesh-**Md. Iasim Uddin, Mohammad Alauddin, AK.M. Sirajuddin, and Cristobal Tunon** (Page 118)

Ability of Grassroots-level Workers to Understand Indicators for Monitoring Nutrition Project **Activities-Chowdhury S.B. Ialal and S.M. Ziauddin Hyder** (Page 119)

Behaviour Change Communication Materials on Clinical Contraceptives: Impact on Knowledge of Community Influentials-**Ijfat Shams, Ahsan Shahriar, Shameem Akter Jahan, Rabeya Khatun, and Farzana Sobhan** (Page 120)

Delivery of Community-based Health Services: A Dilemma in Healthcare Reform

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Objective: Enhance the understanding of healthcare use in the catchment area of the Gono Shasthaya Kendra (GK) healthcare system, and contribute to health policy formulation by the GK team and at the national level. Also, investigate the factors that contributed to healthcare choice-making.

Methodology: The study used a mix of qualitative and quantitative techniques. Free-listing, pile-sorting and in-depth interviews of key informants on illnesses and healthcare options were conducted in six villages that subsequently contributed to the design of a longitudinal study conducted during July-December 1997 on 675 households, selected by multi-stage random sampling. The households were visited bi-weekly to collect information on socioeconomic status, self-reported morbidity, and healthcare.

Results: A preliminary analysis of the data from one of the six villages indicated that, using a mix of traditional and modern care, the top most cited and ranked options were the GK subcentre and two local healers. In contrast, the government-run secondary-level health services and home-remedies were the least-cited and ranked options. It also revealed that 55% of the healthcare contacts were confined within their homes, 31% used community-based modern healthcare options, 10% used community-based traditional options, and 4.5% used modern referral care.

Conclusion: Policy implications of the findings are that, outside home, community-based permanent and polyvalent healthcare services are widely used with many interactive factors, such as close proximity, trustworthiness, and affordability. Nevertheless, the establishment of a functional referral system to ensure the continuity of care is necessary.

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**Use of Thana and Union-level Government Facilities:
Challenge for the Health and Population Sector Programme, Bangladesh**

S.M. Asib Nasim¹ and Enamul Karim²

Objective: Examine the health facilities, and ascertain the present use, experience and user perceptions of health and family planning services to provide insights on further fine-tuning of the new five-year Health and Population Sector Programme (HPSP), 1998-2003.

Methodology: The survey instruments comprised a household questionnaire, focus-group guides, key-informant interview schedules, and schedules for institutional reviews of the Union Health and Family Welfare Centres (UHFWCs) and the Thana Health Complexes (THCs). In total, 217 rural sites and 30 sites in the four statistical metropolitan areas (SMAs) were included in the survey. The survey covered 26,207 households, 134,926 people, 25,285 married women aged 15-49 years, 15,418 children aged less than five years, 426 focus groups in communities, reviews of 43 THCs and 161 UHFWCs, 215 community key informants, 202 Union Parishad (UP) members, and 43 Thana Health and Family Planning Officers (THFPOs). Fifteen teams, each comprising six interviewers and three supervisors, collected data. Analysis of data was done using the Epi Info and SPSS specialized softwares. The study was conducted during February–March 1999.

Results: One-third (33%) of the THCs did not have a separate room in the out-patient area for consultation and examination. While most (88%) THCs had toilets in the out-patient area, only two-thirds (63%) of these included a separate toilet for women. Of the 225 UHFWC facilities visited, half had a separate consultation/examination room. A quarter (25%) of the facilities had no scales for weighing children. Of the women interviewed in households, 14% were not aware of any services from the EPI and other outreach spots; 29% were not aware of any services from the UHFWCs; and 30% were not aware of any services from the THCs. The service users reported that all the necessary medicines were available in only a third (33%) of visits to the government health facilities. One-fifth (22%) of the people made cashpayment to the worker(s) when they visited the government health facilities, and 27% paid an unofficial registration fee. Half (53%) of the recent users of the government health services rated the services they received as 'good'. Over half (55%) of the households were willing to pay for improved government health services: Tk 5 for registration and Tk 20 for consultation. Over half (54%) of the women had at least one visit for antenatal care during the first six months of pregnancy. Eighty-five percent of the children, aged 12-60 months, received two vitamin A capsules in the last 12 months. Eighty-five percent of the children, aged 12-23 months, had received measles vaccine.

Conclusion: Fine-tuning of the HPSP is required to strengthen the thana and union-level health facilities further, improve their services, and implement an effective promotional programme to appropriately make the community aware of the new service-delivery features.

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Experience of Zonal Health and Family Planning Coordination Committees in Urban Dhaka

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Objective: Study the perspectives of members and non-members on the activities of the Zonal Committees, and assess the role and contributions of these committees in coordinating with organizations delivering the Essential Services Package (ESP).

Methodology: Eighty interviews were conducted on a purposively selected sample of 53 members of the Zonal Committees and 27 non-member programme managers/officials. In-depth interviews of 10 selected EPI supervisors of the Dhaka City Corporation (DC) were also conducted. Data were collected during July 1999-September 1999. Secondary data from the minutes of meetings were collected and reviewed.

Results: Most (90%) members of the Committees mentioned that the Zonal Committees were helpful in establishing coordination with different stakeholders in providing coordinated health services. Fifty-two percent of the non-committee members thought that a coordination committee is required for improving coordination and providing coordinated ESP services. More than 80% of the routine bi-monthly meetings were held in the intervention zones with 73% attendance of the members, whereas none of the routine meetings were held in the non-intervention zones where the Operations Research Project of the ICDDR,B: Centre for Health and Population Research offers facilitation services in the activities of the Zonal Committees. Almost all the meetings took decisions to address the local health problems, e.g. NGOs were asked to reorganize the schedule of their satellite to solve the problems of duplication of services. In Ward 11 of Zone 7, an ORT corner was established to handle diarrhoea epidemics. The Committees also planned special meetings at the ward level to solve the problems of declining EPI coverage. The main reason stated for not continuing the activities of the Committees was the absence of support from the ICDDR,B. The participants mentioned that they had faced problems in organizing the Committee activities, because the zonal health personnel, who are supposed to support and coordinate these activities, were involved in other priority works, e.g. mosquito control and birth registration.

Conclusion: The Zonal Committees were found to be an effective forum for improving coordination and resolving common health issues. Since the zonal health personnel are busy with other priority works, external facilitation is required to facilitate the activities of the Committees. Duties and responsibilities of the health staff of the DCC need to be reviewed to include monitoring and coordination of the essential services package.

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**Perceptions on Effects of the Thana Functional Improvement
Pilot Project: Service Provider, Client, and Community Perspectives**

Rukhsana Gazi and A.H. Nowsher Uddin

Objective: Explore the perceptions of health providers, clients, and the community on the effects of the Thana Functional Improvement Pilot Project (TFIPP).

Methodology: The study was undertaken in eight thanas of three districts (Comilla, Nilphamari, and Rangpur) during April-May 1999. An anonymous, self-administered, open-ended questionnaire was used for interviewing 30 thana managers. In each thana, one group discussion was arranged with thana supervisors. Fifty-three in-depth interviews were held with the community representatives and volunteers. Thirty-two union-level providers and 72 clients at the Family Welfare Centres were also interviewed.

Results: Both service providers and clients observed several management and service-related positive changes during the project period. Most managers and union-level providers ((94% and 96% respectively) expressed that the training provided by the TFIPP was very useful and relevant to their jobs. In many places, the service providers reported that the implementation of an action plan was hampered due to transfer of the trained staff to areas outside the project, lack of transparency in procurement mechanisms, lack of a feedback mechanism at all levels, and delay in releasing funds. The union-level service providers and supervisors thought that their workload increased due to increased monitoring and supervision. A regular record-keeping system helped them perform better. The thana managers anticipated more assistance from the district-level officials in implementing and monitoring the annual action plan. Lack of orientation, absence of a regular follow-up mechanism, and a perceived less-important role of the community representatives resulted in low participation by the community.

Conclusion: Both service providers and clients were aware of the positive effects of the project relating to clinic/hospital management and service-delivery. However, emphasis should be given in such areas as the use of trained staff, involvement of district-level officials in programme monitoring, and better participation of the community.

Ambulance Operation in the Thana Functional Improvement Pilot Project

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Objective: Investigate the use-status of 40 newly provided ambulances over a 9-month period in the Thana Functional Improvement Pilot Project (TFIPP) areas, and also investigate the role of distance on the use of these ambulances and types of patients who used the services.

Methodology: Data were collected from the logbooks of ambulances and through structured interviews and open-ended questions to service providers, such as Thana Health and Family Planning Officers, Residential Medical Officers, Medical Officers, and ambulance drivers.

Results: Thirty-eight of the 40 ambulances were delivered to operate in 55 of the TFIPP thanas. Six ambulances were found to be grossly under-used. An ambulance, on an average, conducted only one trip every three days. Two of the 38 ambulances were not at all used due to the absence of the drivers of these vehicles. A separate revolving fund for ambulance operation was established in 13 of the 36 thanas. The average cost per trip for patient referral to the higher health facilities was Tk 456 (two-way). The patients usually had preferred the medical college hospitals rather than the district hospitals. There was no variation in use up to 45 km of distance, but the use declined sharply at greater distances. A similar relationship was observed with cost. The ambulance use declined when the cost was more than Tk 500. It was estimated that, at the current level of use, one-third of the total cost was recovered. The recovery rate increased with the increased level of use. Thirty percent of the total uses was for referral of emergency obstetric patients.

Conclusion: The study points out that distance and price per trip play an important role in the use of ambulances. Those who need more use less. So, a differential price is recommended for different distances. A further study on cost-effectiveness versus efficiency compared with distances of trips by these ambulances should be carried out.

BRAC Health Centre: An Ethnography

Shahaduzzaman

Objective: Describe the life at a BRAC health centre, and investigate its social and cultural dynamics.

Methodology: An anthropological exploration of life in a rural health centre, located in Mymensingh, was conducted. The researcher spent three weeks in the health centre. Data were collected during June 1998 mainly through participant observation. Informal conversation was made with the staff members of the health centre, and their case histories were also taken.

Results: The activities of the health centre were categorized as: therapeutic, management, and leisure activities. The characteristic features of life at the health centre were the community living of its staff members, its strong emphasis on economic viability, and individual interests pursued by the staff members. This particular life pattern of the health centre staff contributed to the quality of medical care provided by the centre.

Conclusion: Ethnographies of hospital life are relatively rare. In contrast to the frequency of anthropological studies of healing rituals of exotic cultures, few attempts have been made to explore the social and cultural aspects of biomedical settings, like hospital or healthcare centres. This ethnographic investigation reveals the dynamics of the social life at a health centre, and provides practical recommendations to improve its functioning and promote culturally sensitive health services.

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Disease Prevalence, Health-seeking Behaviour, and Scope for Preventive and Curative Treatment of Female Factory Workers

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Objective: Understand the disease prevalence, health-seeking behaviour of and health services used by female garment workers to guide the formulation of a health policy for an under-served population and planning within the factories, labour and health sectors.

Methodology: The study was conducted in two factories in Dhaka. Data on socioeconomic status, sanitation, daily activity patterns, disease prevalence, and treatment-seeking patterns, dietary intake, and nutritional status were collected, using recall, from 760 women of these factories.

Results: On an average, the women worked at the factories for 12 hours a day, 7 days a week. The majority of the remaining time was spent for preparing meals, providing child care, cleaning, and sleeping. Only approximately 1.5 hours per day were allotted to leisure activities. Little time was, thus, available for them to seek formal care for their illnesses. Based on a three-month illness recall, the women reported suffering from weakness (50%), *rokto kom* (insufficient blood) (32%), white discharge (53%), and ulcer (40%). The majority (54%) of the women did not seek any treatment. Only 3% sought treatment from the factory doctor. Other sources of treatment included pharmacies, local doctors, or traditional healers. Fifty percent who were ill did not take leave, because of the fear that their wage could be forfeited. The major illnesses that compelled them to take leave in the last month were fever, cough, chickenpox, diarrhoea, gastrointestinal problems, including ulcer and exacerbation of skin diseases.

Conclusion: Data from the study show that the prevalence of morbidity is high among the female factory workers, but a high percentage of women do not seek treatment when they are ill. Access to formal healthcare services is limited by economic and time constraints.

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Energy Intake During Pregnancy and Lactation by Rural Bangladeshi Women: Consequences on Maternal Nutrition

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Objective: Assess the degree to which energy intake during pregnancy and lactation affects the maternal body stores in marginally nourished rural Bangladeshi women.

Methodology: Two hundred fifty-two women at 5-7 months of pregnancy were followed until 6 months postpartum. Dietary energy intake was estimated. Body weight was measured at entry to the study, another 1-2 time(s) during pregnancy, and at 1, 3, and 6 month(s) postpartum. The weekly rate of pregnancy-weight gain and the postpartum-weight changes were determined. Weight and length of infants were measured at birth and at about 1, 3, and 6 months of their age.

Results: Maternal dietary energy intake during 5-7 months of gestation was 1,464±416 kcal/d (mean±SD). The women gained at a mean rate of 200 g per week or a total of 4 kg during the second half of pregnancy. An analysis of maternal weight showed no evidence of accrual of fat stores during pregnancy. The mean weight of the infants at birth was 2.55±0.38 kg, and 48% had low birth-weight (<2,500 g). The dietary energy intake during lactation exceeded the intake during pregnancy by 248-354 kcal per day. The mothers lost an estimated 1 kg of weight during 6 months of lactation. The growth of infants during the first 6 months of their age did not decline from their status at birth.

Conclusion: The findings of this study indicate that women fail to compensate for the higher energy requirements during pregnancy and lactation. The growth performance of the infants indicates adequate lactation that occurs at the cost of substantial depletion in maternal energy stores.

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Nutritional Supplementation to Malnourished Bangladeshi Pregnant Women: Impact of Supplementation Duration on Birth-weight

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Objective: Determine the optimal duration of nutritional supplementation to malnourished Bangladeshi pregnant women and its impact on birth-weights.

Methodology: Seven hundred forty malnourished (body mass index <18.5) pregnant women, who were receiving food supplementation (608 kcal/day) from the Bangladesh Integrated Nutrition Project (BINP), were followed-up. Baseline information included measurement and recording of maternal weight, height, and mid-upper arm circumference. Birth-weights were measured within 72 hours of birth using a SECA infant weight-measuring scale, while maternal weight was measured using a SECA electronic adult weight-measuring scale. Only singleton babies (n=724) were included in the analysis. Each woman was interviewed to collect information on the duration of supplementation.

Results: Of the 724 births, 46.5% had low birth-weight (LBW) (<2,500 g). The mean birth-weight was 2,532±420 g. The proportions of LBW among infants born to mothers receiving supplementation for less than 90 days, 90-119 days, 120-149 days, and >150 days were 52%, 50%, 49%, and 36% respectively. The relationship between different durations of supplementation and the proportions of LBW was statistically significant with the proportion of LBW being lower among the infants born to women receiving supplementation for >150 days compared to the other three groups (chi-square for linear trend 7.9, p=0.005). An analysis of birth-weight variance showed that the mean birth-weights of the babies born to mothers who received supplementation for more than 150 days were 181, 88, and 95 g higher than those of the infants born to mothers receiving supplementation for less than 90 days, 90-119 days, and 120-149 days respectively. These differences of the mean values between the groups were also statistically significant (p=0.001). Other important indicators of LBW, such as socioeconomic conditions, age, and parity, were similar in pattern for all the four groups. Pre-pregnancy or early pregnancy (within 90 days of gestation), information on maternal anthropometry, weight, height, and BMI were available for only 159 women, but the mean values of these variables were not statistically different between the four groups.

Conclusion: The findings of the study suggest that food supplementation to malnourished pregnant women of Bangladesh may increase the mean birth-weight significantly with concomitant reduction in the prevalence of LBW. If substantial reduction in the prevalence of LBW among infants born to malnourished women is expected, supplementation should be started during early pregnancy, and be continued for more than 150 days.

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Efficacy of Bismuth-Subsalicylate in Treatment of Acute Diarrhoea and Prevention of Persistent Diarrhoea

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Objective: Determine whether bismuth-subsalicylate would prevent the development of persistent diarrhoea, if given orally to young children with acute diarrhoea.

Methodology: A randomized, double-blind, controlled study in children, aged 4-36 months, with acute diarrhoea was conducted at the Matlab clinical research unit. Two hundred twenty-six children were given oral bismuth-subsalicylate as Pepto-Bismol, 100 mg/kg.day for 5 days, and 225 children were given an equal volume of identical appearing placebo. Rectal swabs/stool specimens from all patients were tested at baseline for *Vibrio cholerae*, *Shigella* spp., *Salmonella* spp., and rotavirus, and for *Escherichia coli* from first 101 patients. All the study subjects were kept in the hospital for 5 days. Intake and output were recorded every 8 hours. All the study children received standard diet and treatment during hospitalization. Follow-up was made at home for each child after discharge from hospital to determine if the child had developed persistent diarrhoea.

Results: The groups were comparable, both clinically and microbiologically, on admission to the study. Rotavirus was isolated from 56% of the children, and enterotoxigenic *E. coli* from 31% of the subsample studied. Children treated with bismuth-subsalicylate had a statistically significant lower stool and urine output (386±248 g/kg vs 438±272 g/kg, $p<0.05$) and less-prolonged illness (median duration 36 hours vs 42 hours, $p<0.05$) than the children treated with placebo. The development of persistent diarrhoea, however, was not significantly different between the two groups (8% vs 10%). Unexpectedly, those treated with bismuth-subsalicylate gained significantly more weight (2.3%) than those treated with placebo (0.5%; $p<0.001$) during the hospitalization period. No toxicity of bismuth-subsalicylate was detected.

Conclusion: Bismuth-subsalicylate showed a modest therapeutic effect in acute diarrhoea, as has been previously demonstrated, but no suggestion of a therapeutic effect of bismuth-subsalicylate on the prevention of persistent diarrhoea in this group of patients.

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Change in Children's Fluid Intake Between Healthy Periods and Diarrhoea Episodes in Rural Bangladesh: Some Policy Implications

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Objective: Compare the fluid intake of children during diarrhoea and during healthy periods.

Methodology: Two hundred fifteen children, aged 4–35 months, with diarrhoea starting in the last 24 hours at the time of surveillance were recruited at Matlab. Trained field workers observed the children twice in their homes for 12 hours from 6 am to 6 pm. The first observation was done on day 2 of diarrhoea and the second one on day 15 when the child recovered. The field workers simply observed and neither influenced the children nor the caretakers. The observation focused on the frequency with which fluids, including breast-feeding, were offered, the duration of feeding episode, the type and quantity of fluids consumed by the children. Breast-milk consumption was based on the child's age, frequency and duration of breast-feeding. chi-square, *t*' and Wilcoxon rank tests were done to compare the data between the diarrhoea and healthy periods.

Results: The mean (\pm SD) age of the study children was 16.4 (\pm 9.2) months, and 89% were breastfed. The mean numbers of other feedings (6.0 \pm 3.8 vs 5.0 \pm 3.5), frequency of breast-feeding (11.2 \pm 3.6 vs 8.4 \pm 3.3), duration of breast-feeding (85.8 \pm 36.3 minutes vs 49.1 \pm 22.8 minutes), and estimated breast-milk intake (346.8 \pm 117.9 mL vs 313.6 \pm 115.4 mL) were significantly higher during diarrhoea compared to the healthy periods. During 12 hours of observation, the estimated total fluid intake during diarrhoea was 653.9 (\pm 240.4) mL compared to 399.5 (\pm 133.6) mL during the healthy periods ($p < 0.000$). Breast-feeding was continued during diarrhoea in cases of both fully and partially-breastfed children. Compared to the healthy periods, 159 (74%) children had a higher fluid intake of more than 100 mL, 105 (48.8%) consumed more than 200 mL, and 29 (13.5%) consumed 500 mL or more fluid during diarrhoea.

Conclusion: The findings of the study suggest that the majority of the children with diarrhoea consumed a recommended amount of fluid. Breast-feeding, which constituted a major portion of the fluid intake in these children, should be promoted at the policy level to ensure an adequate fluid and dietary intake during diarrhoea.

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**Plan of Action for Therapeutic Efficacy Testing
of Antimalarials in Bangladesh and Results
of the First-year Activity**

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Objective: Evaluate the effectiveness of antimalarials used in some selected high-risk malaria-prone areas of Bangladesh.

Methodology: The study included patients either with fever (>37.78 °C) or with a history of fever for over last 24 hours, with a sexual *Plasmodium falciparum* parasite density of 500-150,000/cmm of blood. Children aged less than 12 years, pregnant and lactating women, and the presence of any severe manifestation were excluded. The sampling technique was a "double lot quality assurance sampling" among the cases attending the out-patient departments of the Thana Health Complexes (THCs). The sample sizes were chosen on the cut-off point for upper limit of failures for antimalarials, above which the change of the regimen will be required. The upper limits of acceptable failures determined were: for chloroquine (CQ)-40%; oral quinine for 3 days, followed by single-dose sulfadoxin/pyrimethamine (Q3+SP)-15%; and for mefloquine (M)-10%. A therapeutic failure was considered if a patient had fever and parasitaemia over day 4 through 14 after the first dose of chloroquine (Day 1).

Results: In this 3-year study, a trial in the two THCs was completed during the first year, and the drug used was chloroquine. The observed failure rate was greater than 40% in both the areas, and the rate of early treatment failures was greater than 25%. The early treatment failures are equivalent of RIII resistance, and have the potential to progress to severe disease despite treatment.

Conclusion: The first-line agent used in the current national guidelines has crossed the critical upper limit of failures in the two study sites, and it should, thus, be immediately changed to an alternative agent (possibly current second line) in slide-positive *Falciparum* cases.

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Evaluation of "New Clinical Case Definition for Uncomplicated Malaria" Applied in National Guidelines in Bangladesh

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Objective: Assess the accuracy of clinical diagnosis of uncomplicated malaria made according to the national guidelines, using parasitological confirmation as gold standard.

Methodology: The study was conducted in eight Thana Health Complexes (THCs) from five high-risk malaria-prone areas of Bangladesh (Cox's Bazar, Bandarban, Khagrachari, Rangamati, and Chittagong). Patients attending the out-patient department of these THCs, diagnosed earlier as uncomplicated malaria by the trained Medical Officers, were enrolled. Diagnosis and treatment of uncomplicated malaria were according to the national guidelines, but categorized as "very likely," "may be," and "unlikely" to be uncomplicated malaria based on the physicians' opinion. After writing the prescription, a blood film was made, preserved, and examined by a Medical Officer trained on malaria microscopy. The result was not used in the management of the cases, but was compared with the clinical diagnosis of uncomplicated malaria and the clinician's opinion.

Results: During May-October 1998, 684 cases of uncomplicated malaria were enrolled. Of them, 221 (32.3%) had positive microscopic diagnosis of malaria. The mean age (yr±SEM, median) of the patients was 18.2 (±0.43, 15), and the female to male ratio was 1:1. The categories of uncomplicated malaria were: "very likely"-422, "may be"-216, and "unlikely"-46. Taking the blood slide as standard, the physician's impression of "very likely" diagnosis of malaria had the sensitivity of 94.0% and the specificity of 11.9%, and the positive predictive value was 0.37.

Conclusion: The findings of the study showed that malaria was responsible for febrile illness in only one-third of the patients who received treatment for uncomplicated malaria. Effective antimalarials should, thus, be given after confirmed diagnosis. Introduction and improvement of facility for microscopic diagnosis, or perhaps the introduction of dipstick diagnostic tests for malaria in THCs, are recommended.

Malnutrition of Women: A Major Problem Yet to be Addressed by Policies and Programmes in Bangladesh

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Objective: Present the magnitude of malnutrition among women of Bangladesh, and create awareness about opportunities to improve their health and nutritional status.

Methodology: Data for this study came from the national vitamin A and anaemia survey conducted during 1997-1998. Data were collected from 1,089 women of reproductive age from 100 clusters throughout rural Bangladesh. These women were interviewed to collect information on household demographics, socioeconomic status, food consumption, and water and sanitation methods. Their heights and weights were taken, and venous blood samples were collected from a random subsample of the women.

Results: About 2.4 percent of the women were nightblind at the time of the interview, and 6.8 percent reported being nightblind in the most recent pregnancy. Forty-five to 50% had subclinical vitamin A deficiency (serum retinol <1.05 mmol/L). Similarly, about 50% of the pregnant women were anaemic (haemoglobin <110 g/L), and 45% of the non-pregnant women were anaemic (haemoglobin <120 g/L). About 50% of the women suffered from chronic energy deficiency (body mass index <18.5). Vitamin A intake was extremely low among the women, and intake was not higher during pregnancy or lactation when functional requirements were much higher. Women who suffered from one nutritional deficiency were approximately twice as likely to suffer from other nutritional deficiencies (OR=1.8-2.5).

Conclusion: The findings of the survey suggest that malnutrition among women of reproductive age is a major problem in rural Bangladesh. Despite the magnitude of the problem, programmes to improve their nutritional status did not receive a high priority. Only a few organizations have effective programmes that address their nutritional and health needs. In addition to expanding the coverage of the healthcare system, less-traditional avenues need to be tapped to help women improve their nutritional status immediately and in the future. The findings further suggest that a comprehensive programme to address multiple-nutrient deficiencies is needed.

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Understanding Male Perspectives in Reproductive Health Throughout the Life Cycle and Its Implication for Policy Intervention

S.M. Nurul Alam^{1,2}

Objective: Understand the male perspectives on gender relations, reproductive health, and sexuality, applying a life-cycle approach, to assist in the design of services and activities for males of various ages in a rural area of Bangladesh.

Methodology: Data for this qualitative study were collected from group discussions of two adolescent and three adult male groups, drawn from a village in the Panchdona union of Narsingdhi Sadar thana, following five guidelines. The group discussions were participated by an average of 7 respondents, drawn from two adolescent and three male adult groups. Participants for the group discussions were randomly selected from a list of 100 persons prepared by the local Family Planning Volunteers. Twenty-five in-depth interviews, drawing five from each group, were conducted. One male and two female key informants were also interviewed.

Results: The respondents had an imprecise idea about reproductive health, and most of their reproductive health problems were perceived either as sexual health problems or as sexual diseases. Semen emission, a source of *pourush* (male strength) to the respondents, was considered to be a major health problem in the village. No difference was made between a symptom and a disease, and also between sexually transmitted diseases and sexual diseases. The respondents appeared indifferent, unclear, and uninformed about the women's reproductive health concerns and problems, as well as their special needs during pregnancy, childbirth, postpartum, and the lactation period. Most mentioned *shutika* (postpartum diarrhoea) as one of the common reproductive health problems of the women.

Conclusion: The results of the study indicate that the notion that men and women are different are not inherent in the biological and social nature of sexes, but are cultural constructs reared. This ultimately affects the men's notion of sexuality and reproductive health of both sexes. The findings of the study suggest that there is a need for initiating behaviour change communication activities in rural Bangladesh designed to improve the understanding of reproductive health and family health a concern of the male too. The roles of the government, non-government organizations, and the community leaders, both formal and informal, are emphasized to make males more aware of reproductive health and gender relations.

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Involvement of Fathers in Child-rearing Activities in Rural Bangladesh

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Objectives: Study the child-rearing activities of fathers living in a rural area of Bangladesh, and identify the determinants by selected socioeconomic and demographic characteristics.

Methodology: In total, 2,271 fathers with children aged less than two years were selected for this study from a sample of 12,197 husbands in a rural area during April-June 1999. Descriptive statistics and multivariate techniques were employed to analyze the data. In this study, child-rearing has been defined as the activities for feeding, cleaning nose, dressing and bathing small children, changing nappy after urine/stool, cleaning after defaecation, washing children's clothes, and staying awake at night during the episodes of child sickness.

Results: One-fifth of the fathers did not perform any child-rearing activity during the week preceding the survey. The results of the logistic regression analysis showed that education, contraceptive use, desire for next child, exposure to radio, having ever visited any health facility, and decision taken jointly with the spouse regarding childbirth had a significant positive correlation with the involvement of fathers in the child-rearing activities. The child-rearing activities decreased significantly with the increase in the number of children. The performance of child-rearing activities was significantly lower among the fathers having a higher economic status, and also among those who were in the younger ages. Child morbidity was significantly lower in the families where the fathers had participated in the child-rearing activities.

Conclusion: Till now, most health programme activities have been targeted to mothers as carers of children. This may be based on the assumption that men are not involved in child-rearing activities. Additional studies are needed to identify the specific roles of men in child-rearing which has an important implication in family health.

Universal Salt Iodination: Does the Population in Coastal Area Benefit?

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and **Sabrina Rasheed***

Objective: Assess the level of consumption of iodized salt and its determinants in Chakaria, a rural coastal area of Bangladesh.

Methodology: Data were collected from 20,246 households in six unions of Chakaria thana of Cox's Bazar district during 1997-1998. One woman from each household was asked about the type of salt available in the household at the time of the survey, and to show it to the interviewers. The interviewers examined the salt, and classified it as either factory-produced iodized salt or unrefined/raw non-iodized salt. The raw salt available in the market and the packet (iodized) salt were both tested for iodine on a sample basis using a kit supplied by UNICEF. In-depth interviews were carried out with 20 women from the randomly selected households to know about the barriers to using iodized salt.

Results: Only 1.6% of the 278 families were found to use the iodized salt, while the rest (98.4%) used locally produced raw salt. The rate of use was 2.7% among the economically better-off households compared to 0.9% in the economically disadvantaged households. The major factors responsible for such a low rate of use included the high cost of iodized salt (Tk 10/kg vs Tk 3/kg for raw salt) and the lack of knowledge of the benefits of consuming the iodized salt. Iodine-testing revealed that some samples of the fresh raw salt had iodine. However, the raw salt stored for more than a year in the market did not contain iodine. The iodine content in the so-called iodized salt varied among brands.

Conclusion: Universal iodination of salt at the factory level does not necessarily ensure the universal use of iodized salt. In the coastal belt where salt is produced and cheap raw salt is available in the market, special measures are necessary to ensure the universal use of iodized salt.

Promotion of the Lactational Amenorrhoea Method by Community-based Peer Counsellors

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Objective: Assess the acceptability of the lactational amenorrhoea method (LAM) when promoted by community-based peer counsellors.

Methodology: An area in Dhaka was randomized into 20 intervention and 20 control clusters, where mothers were supposed to be visited at home by the family planning workers at least twice during the study period. A woman was additionally trained to become a peer counsellor in each intervention cluster. Fifteen counselling visits were scheduled for each mother from the third trimester of pregnancy until the baby was aged 5 months to promote exclusive breast-feeding and the LAM. Interviewers used semi-structured questionnaires to collect data at home of mothers during 1996-1997.

Results: Socioeconomic characteristics and knowledge of infant-feeding recommendations were similar in the two groups at enrollment (n=726), as were their opinions about the birth-spacing effect of breast-feeding (5% in the intervention group mothers, 6% in the controls). The LAM was used as an introductory contraceptive method by the majority (77%) of the intervention group mothers at the onset of the study, but by none of the controls. At the end of 5 months, 59% of the intervention group mothers reported that they were still using the LAM.

Conclusion: The intervention led to significant changes in the contraceptive practices of the mothers, with a reported increase in the use of family planning methods. The LAM should be incorporated into the family planning programmes to promote exclusive breast-feeding and to orient women to a non-hormonal contraceptive method in early postpartum.

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Women's Empowerment and Contraceptive Use in Rural Bangladesh

Ariful Islam and Shameem Ahmed

Objective: Assess whether empowerment of women was associated with their contraceptive behaviour in rural Bangladesh.

Methodology: Data for this study came from a survey of 4,967 married women of reproductive age. The survey was conducted in Mirsarai and Satkania thanas of Chittagong district. Two aspects of empowerment, viz. Freedom of movement and say in decision-making, were examined, for which two separate indices were developed.

Results: The bivariate results of the study revealed that both freedom of movement and say in decision-making use associated with the women's knowledge of contraceptive method, current use, intention to use contraceptives in the future, and also support to the use of contraception by others. Even after controlling for relevant correlates, freedom of movement and decision-making indices were found to have influenced the women's current use of contraception, probability of being in need for contraceptive services, and also meeting this need positively. The study also found that freedom of movement had more consistent effect of contraceptive use of the women.

Conclusion: The findings of the study suggest that the empowerment of women is needed at all levels to reach the goal of the national family planning programme. This study also suggests for further research on empowerment of women, including more in-depth qualitative research, to enrich and complement the survey findings.

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**Gender and Injury-related Deaths in Population
of 10-49-year Age Group in Matlab, Bangladesh:
Levels, Trends, and Circumstances**

Abdur Razzaque, Kapil Ahmed, Nurul Alam, and Kim Streatfield

Objective: Examine the gender differences in injury-related deaths (intentional and unintentional) in rural Bangladesh.

Methodology: Data for this study came from Matlab where the ICDDR,B: Centre for Health and Population Research has been maintaining a demographic surveillance system since 1966. Both quantitative (1979-1998) and qualitative (1994-1998) data were analyzed where the cause of death was assigned based on lay-reporting.

Results: During the last 20 years, the injury-related death rate (per 10,000) for all ages remained almost unchanged for both males (5.8 in 1979-1983 to 6.8 in 1994-1998) and females (4.6 to 4.5). However, in the age group of 10-49 years, the injury-related death rate increased both for males (2.2 to 4.2) and females (1.2 to 2.2). On the other hand, the percentage of injury-related deaths compared to all deaths increased significantly in all ages and in the age group of 10-49 years. In all ages, the number of injury-related deaths increased 1.9 times (4.4% to 8.2%) for the males and 2.0 times (3.2% to 6.3%) for the females. In the 10-49-year age group, the number of injury-related deaths increased 2.7 times (8.9% to 24.1%) for the males and 3.7 times (4.3% to 16.1%) for the females. The findings of the study revealed that more females than males died of suicide (50% vs 20%), but fewer females than males died of accidents (42% vs 64%), homicide (5% vs 9%), and drowning (3% vs 7%). Circumstances leading to suicide were due mainly to family conflicts, and most victims used pesticides.

Conclusion: Injury is emerging as an important cause of death which needs to be addressed to reduce mortality.

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Characteristics of Burn-related Deaths in Bangladeshi Women Aged 10-50 Years

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Objective: Characterize burn-related deaths among Bangladeshi women, aged 10-50 years, identified from a nationwide case-finding survey during 1996-1997.

Methodology: The health service providers of 4,751 health facilities were interviewed to report known deaths of women in the previous 12 months. The hospital record excerpts on these deaths during the same period were also collected.

Results: Of the 28,998 deaths, 24% were reported as obstetric cases and 23% as injury cases. Three hundred twenty-four deaths were reported to have occurred due to burn. Of these burn-related deaths, 10% (33) were suicidal, 0.6% (2) homicidal, and 36% (117) accidental cases, and 53% (172) were of unknown intent. These women had a mean age of 25.9 years, and the majority of them were Muslims (304, 94%), married (168, 81%), illiterate (86, 55%), poor (70, 45%), and residing in villages (210, 71%). Seventy-eight of the burn-related death cases were adolescent girls, and 142 (44%) were in their active reproductive age. Three acid-burn-related deaths were reported; of these, 2 were homicidal cases. Seven women pregnant at the time of death, and 10 women died within three months of delivery. The pregnancy status of the remainder was unknown. Over 63% (204) of the burn cases were taken to hospitals, while over 37% (120) were not taken to any hospital, and died at home.

Conclusion: The existing literature suggests that the cause of unnatural deaths discloses that there are numerous hidden dimensions, especially violence issues against women. However, due to the structured nature (verbal autopsy through a structured questionnaire) of data collection, this study could not identify the detailed circumstances that led to burns. Further studies are needed to identify these qualitative issues of the causes of deaths.

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Rapid Appraisal of Management of Tuberculosis in Two Thanas of Bangladesh

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Objective: Develop a methodology to identify practices relating to the DOTS programme for tuberculosis at the thana level.

Methodology: Data from the treatment cards of tuberculosis patients registered during 1998 with two selected Thana Health Complexes were analyzed using the EPI info software.

Results: Although 1,132 and 554 new cases were expected annually in the two thanas, only 134 and 140 patients were, respectively, registered in 1998, reflecting the case-detection rate of about 12% and 25% respectively. Of the 274 cases registered during 1998, 164 were new cases of pulmonary tuberculosis who were put on Category 1 treatment regimen. Of them, only 21 (12.8%) had received the complete 2-month intensive phase therapy. Another 5 (3%) completed a 2-month therapy but with an interruption of 1-4 day(s) during weekends. During the weekends, the field workers were usually not available to supply drugs to the patients. Of these 26 who completed the intensive phase, only 5 patients (3%) of the total number of 164 new cases received an uninterrupted therapy for the stipulated 6-month continuation phase, while 7 patients (4.3%) had an interruption of 1-4 day(s), and 3 (1.8%) had an interruption of 11-14 days. One patient received uninterrupted therapy for 7 months. Three patients (1.8%) did not start the continuation phase, 2 (1.2%) had stopped after 3 months, and 5 (3%) continued beyond 6 months, but with interruptions totalling 11-80 days.

Conclusion: The DOTS programme will benefit from similar rapid situation analyses to assess whether this is a common feature throughout the country. Identifying new cases, dispensing drugs through the field workers, and tracing the drop-outs appear to affect the achievement of the programme at the thana level.

Validity of IVACG-simplified Dietary Assessment in Identifying Pregnant and Lactating Women at Risk for Vitamin A Deficiency in Rural Bangladesh

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Objective: Assess the validity of vitamin A-focused dietary assessment to identify pregnant and lactating women at risk for vitamin A deficiency in rural Bangladesh.

Methodology: The IVACG-modified simplified dietary assessment (SDA) questionnaire was administered, and plasma retinol concentration was measured during 5-7 months of pregnancy (n=296), and at 1 month (n=221), 3 months (n=143), and 6 months (n=242) postpartum. Vitamin A intake was estimated as Consumption Index (CI) from dietary intake in the last 24 hours and as Usual Pattern of Food (UPF) consumption from the frequency of consumption in preceding one month. Women were grouped, based on CI/UPF scores, into high (CI <5/UPF <120), moderate (CI 5-7/UPF 120-210), or low (CI >7/UPF >210) risk categories. Low-plasma retinol concentration was defined as a value <0.70 mmol/L. Screening tests were performed to identify women at risk for vitamin A deficiency.

Results: The mean \pm SD values of both CI (3.4 \pm 5.6 to 6.2 \pm 6.7) and UPF (171 \pm 97 to 205 \pm 131) scores were at high or moderate risk for vitamin A deficiency, except at 6 months postpartum when the UPF score (234 \pm 137) was at low risk level. The mean plasma retinol concentrations ranged between 0.82 \pm 0.32 (mean \pm SD) and 0.90 \pm 0.37 mmol/L, and the prevalence of low plasma retinol concentrations ranged between 29% and 40% at various stages of the study. The sensitivity of SDA ranged between 57% and 66%, while the specificity ranged from 31% to 52%. The false-positive rate was 60% or higher.

Conclusion: The results indicate a high possibility for misclassification of individuals by SDA and limited use of dietary assessment methodology to identify women at risk for vitamin A deficiency.

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Managing Acute Respiratory Infections in Children by Community Health Volunteers: The BRAC Experience

Abdullahel Hadi

Objective: Assess the competency of the community health volunteers of the ARI control programme of BRAC in diagnosing acute respiratory infections (ARIs) in children.

Methodology: In total, 120 community health volunteers were randomly selected from villages in 10 thanas where BRAC has been maintaining an ARI control programme since mid-1992. These community health workers were interviewed to collect information on training and support provided to them by BRAC. Each volunteer examined 10 children, aged 3-60 months, from her cluster of 150 households to identify ARI cases. Their performance was observed, validated, and recorded by 6 research physicians at the same time. Data were collected during January-February 1999.

Results: The sensitivity and specificity in identifying the ARI cases by the volunteers were found to be 67.7% and 95.2% respectively when the performances of both volunteers and physicians in relation to diagnosis made were compared. The volunteers had difficulties in correctly identifying the severe and the very severe ARI cases. It was revealed from the findings that intensive training and frequent supervision would further improve the performance of the programme.

Conclusion: The community-based approach not only increases access to health services among the poor, but also demonstrates that less-educated health volunteers can produce desired outcome in managing ARI in children at the households if intensive training and close monitoring of service providers could be ensured.

Involving the Community in Developing an Effective Healthcare System: Recent Experiences from the Chakaria Community Health Project

**Abbas Bhuiya, Mohammad Iqbal, Nandita Nazma, Ariful Moula, Didarul Alam,
Shahidul Islam, M. Mobashara, Manzoor A. Hanifi, Sujaul Islam, A.K.M. Nurul Islam,
and Hosne Ara Rina**

Objective: Identify the ways to involve the community members in health-related activities, and ascertain the possible levels of their participation.

Methodology: The project worked in partnership with the village-based indigenous self-help organizations. People's participatory planning (PPP) workshops were used for assessing needs, planning actions, monitoring activities, and evaluating impacts. Findings generated through the project activities were regularly shared with the self-help organizations.

Results: Health-awareness activities could be carried out through the representatives of the self-help organizations. Women's participation, thought to be impossible at the beginning, has been achieved. Since 1994, 1,084 female community representatives had received education that they disseminate to the community through the informal cluster groups that have evolved in the process. Various preventive and curative health initiatives were taken by the self-help organizations. Of significance has been the establishment of a two-tier village health posts system at the ward and union level, where the project physicians provide curative services on payment. A family health card system has been introduced. Drugs have also been made available at the health posts on payment. The self-help organizations provide accommodation and management services, and considered the facilities as their own. Income generated from the proceeds of the family health card, consultation fees, and drugs is being accumulated in bank accounts maintained by the self-help organizations. Attempts to link the health initiatives with the government services have been underway. Some health posts have also been designated as the ORS depots for oral rehydration solutions by the local health authority.

Conclusion: It is possible to activate the community to meaningfully participate and take healthcare initiatives. The community members are also capable of managing these healthcare initiatives. Once these community initiatives are linked with the government services, an effective healthcare system is expected to be in place.

Managing Reproductive Tract Infections/Sexually Transmitted Infections in Bangladesh: A Review of Recent Findings

Jozef Bogaerts, Motiur Rahman, and Tasnim Azim

Objective: Highlight the recent findings on the management of reproductive tract infections/sexually transmitted infections (RTIs/STIs) in Bangladesh.

Methodology: Numerous working papers, brochures, and articles on the prevalence and aetiology of RTIs/STIs in Bangladesh have recently been generated. Most of these papers are of poor quality, and cannot be considered reliable sources of information. Relevant papers and documents on the aetiology, prevalence, and management of RTIs/STIs were reviewed and analyzed, and the highlights of the findings are presented here.

Results: The findings of the review and analysis showed that more reliable data were published in peer-reviewed journals. A major finding was that HIV infection is still very low among people with high-risk behaviour and, a fortiori, among the general population. The results of the 1998 national surveillance of human immunodeficiency virus (HIV) showed the following. Four (0.4%) of the 1,059 female sex workers, 2 (0.1%) of the 1,606 male STI patients, none of the 403 truck drivers, 1 (0.2%) of the 401 men having sex with men, and 10 (2.5%) of the 402 injecting drug users were infected with HIV. The prevalence of syphilis in these groups was 52%, 12%, 7%, 12%, and 13% respectively. This is a unique phenomenon. Second, symptoms and signs of vaginal discharge are common among married women in the general population. At least two studies have shown that gonorrhoea (prevalence, 0.5%), *Chlamydia trachomatis* (2%), and *Trichomonas vaginalis* (3%) infections, as well as syphilis (2-3%), are relatively rare, whereas bacterial vaginosis (30%) and vaginal candidiasis (20%) are common. Third, during 1997, 12% of *Neisseria gonorrhoeae* isolates, recovered from female sex workers, were resistant to ciprofloxacin versus 35% in 1999. Finally, chancroid is by far the most frequent cause of genital ulceration, followed by syphilis and genital herpes. Mixed infections are common, whereas genital scabies is relatively rare. Clinical aetiological diagnosis of genital ulcers is unreliable.

Conclusion: Targeted interventions should be able to prevent further spread of the HIV epidemic among people with high-risk behaviour, as well as among the general population. Because of the low prevalence of gonococcal/chlamydial infections among women in the general population, the syndromic management of vaginal discharge should focus on vaginal infections and not on cervicitis. As a consequence of the high prevalence of fluoroquinolone resistance among *N. gonorrhoeae*, these products can no longer be used as the first-line treatment for gonorrhoea. Affordable and feasible alternative treatments should be recommended for the syndromic approach of urethral discharge among men and cervicitis among female sex workers. Periodic monitoring of the in-vitro susceptibility of *N. gonorrhoeae* is mandatory to document further trends of antimicrobial resistance. Finally, the syndromic management of genital ulcers should consider simultaneous treatment for chancroid and syphilis, irrespective of the clinical presentation of the ulcer. Risk assessment of ulcer patients to distinguish between "sexually"-acquired ulcers and "pyogenic" or "traumatic" ulcers, which is now a common practice, should be abandoned.

**Sexuality, Reproductive Health Problems,
and Healthcare-seeking Patterns of Adolescents
in Rural and Urban Areas of Bangladesh**

Rukhsana Gazi, Quamrun Nahar, Cristóbal Tuñón, and Meghla Islam

Objective: Understand the sexual activities of adolescents and the extent of their reproductive health problems and healthcare-seeking patterns to design interventions to improve their reproductive health.

Methodology: This community-based, cross-sectional study was carried out during December 1998-August 1999. A survey was done among 1,964 boys and 1,997 girls using a structured questionnaire. The samples were drawn by a multi-stage cluster-sampling design based on a longitudinal surveillance system maintained by the Operations Research Project of the ICDDR,B: Centre for Health and Population Research in urban and rural areas. The participatory learning and action (PLA) techniques were also used for collecting qualitative information, which included 47 group activities, 57 in-depth and 40 key-informant interviews.

Results: Analysis of the qualitative data revealed that there was a general disapproval of pre-marital sex. However, some male respondents had experienced it. Both boys and girls identified consequences of pre-marital sex, such as sex-related diseases, unwanted pregnancy, induced abortion, infanticide, suicide, or murder, and were aware of commercial sex workers. Some male respondents had sex with prostitutes without using a condom. In general, the boys had misconceptions about masturbation. The boys thought that night emission, masturbation, and urethral discharge were reproductive illnesses for which they would seek treatments. The survey data revealed that less than 20% of the adolescents perceived that they had suffered from diseases of reproductive organs. Of the urban girls, a higher proportion (17%) of the respondents from the slum areas believed that they suffered from such diseases than those of the non-slum areas (7%). Similarly, a higher proportion of the boys from the slum areas (6%) reported experiencing such an illness compared to the non-slum urban areas (3%). Again, 19% of the rural boys and rural girls believed that they had suffered from diseases of the reproductive organs. The adolescents felt uncomfortable in seeking treatments from the health providers because they experienced lack of confidentiality and information, and they found clinic hours to be unsuitable for their purpose.

Conclusion: Since the adolescents are at risk of the adverse consequences of pre-marital sex, interventions that provide adequate information and proper counselling on the transmission of sexually transmitted diseases and on safe sex are needed. The existing healthcare facilities should be more adolescents friendly, and staff needs to be sensitized about their specific healthcare needs.

Reproductive and Sexual Health Promotion in a Sensitive Sociocultural Environment: Developing a Module for the Grassroots

Hashima-e-Nasreen¹, Abbas Bhuiya², A.M.R. Chowdhury¹, and Syed Masud Ahmed¹

Objective: Focus on developing a module for the effective promotion of reproductive and sexual health in the sensitive sociocultural environment of rural Bangladesh.

Methodology: Following an extensive review of different programmes/studies on reproductive tract infections (RTIs)/sexually transmitted diseases (STDs)/acquired immunodeficiency syndrome (AIDS), and reproductive health in Bangladesh, a baseline survey on the social context of risk and vulnerability and the existing and potential means of social legitimacy was conducted at Matlab under the BRAC-ICDDR,B Joint Research Project. Based on the themes of the survey, five flipcharts on reproductive and sexual health were developed. Besides, local human resources, such as traditional healers, pharmacists, village doctors, and BRAC's community health workers (CHWs) identified as providers, mobilizers, and communicators, were trained for providing relevant information, education, and motivation, including partner notification and management to both married men and women, and never-married adolescents. Finally, a qualitative evaluation assessed the impact of the intervention. Various positive and negative experiences encountered during field activities were dealt with appropriate strategies.

Results: The results of the baseline survey showed that the knowledge of the people regarding RTIs/STDs/AIDS was very low, and some range of risky sexual behaviour was identified. Following the intervention, some positive changes were observed in terms of knowledge and practices of the healthcare providers in the community. The findings also reflected some unexpected outcomes, such as condom-selling and referring patients to doctors by *Kabiraj* (local healer); daughters of BRAC's CHWs and *Kabiraj* playing the role of peer educators; and village doctors and BRAC's CHWs conducting face-to-face advocacy with the community and religious leaders.

Conclusion: The study demonstrates that this type of culture-sensitive reproductive and sexual health-education programmes can be implemented without any undue negative reaction. And for the sustainability and large-scale implementation of this type of programme, the project staff and the community leaders, such as *matbars* (village leaders), teachers, imams, etc, should undertake advocacy activity.

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Knowledge and Attitudes of Adolescents Toward STDs/AIDS

Quamrun Nahar, Cristóbal Tuñón, and Barkat-e-Khuda

Objective: Assess the knowledge and attitudes of adolescents toward sexually transmitted diseases (STDs), including acquired immunodeficiency syndrome.

Methodology: Data were drawn from a study conducted in two urban and three rural areas of Bangladesh. Both survey and qualitative data-collection methods, using the participatory learning and action (PLA) techniques, were followed. In total, 4,000 adolescents, aged 10-19 years, were included in the survey. Forty-seven group activities and 57 in-depth interviews with the adolescents were also conducted.

Results: Irrespective of urban or rural residency, the adolescents had limited knowledge of STDs/reproductive tract infections (RTIs). Only 29% of the rural boys and 21% of the rural girls had heard of such diseases. The urban adolescents were more aware of the diseases than their rural counterparts. Of the adolescents who heard of STDs/RTIs, they could identify gonorrhoea and syphilis only as such diseases, and could correctly point out that these diseases are transmitted through sexual contacts. A significantly higher proportion (80%) of the urban adolescents heard of AIDS compared to their rural counterparts (40%). However, when asked about the specifics of the diseases, such as routes of transmission or prevention, most adolescents were found to be ignorant. More than 90% of both urban and rural adolescents mentioned television as a prime source for information on AIDS.

Conclusion: The study-findings clearly indicate that adolescents need to have correct and detailed information about STDs, including HIV/AIDS. Programmes directed to adolescents should incorporate messages on the details of these diseases.

Lessons Learned from a Sexual and Reproductive Health Project in Rural Bangladesh

Sharful Islam Khan¹, Hashima-e-Nasreen², Abbas Bhuiya¹, A.M.R. Chowdhury²,
Sadia Chowdhury³, Sayed Masud Ahmed², and Kathy Cash⁴

Objective: Find an effective way of developing an integrated sexual and reproductive health-education programme.

Methodology: The project began with qualitative formative research on issues relating to: sexual and reproductive health, risk-taking behavioural context, sexual networking and communication, societal factors for the vulnerability of reproductive tract infections (RTIs)/sexually transmitted diseases (STDs), and gender violence and its consequences on social and family life. Stories of real-life situations were drawn on the relevant issues. Five different hand-drawn flipcharts were developed based on these factual data and stories. Training was then conducted with the existing indigenous healthcare providers and some community members, using an interactive participatory approach.

Results: The targeted population responded favourably to flipcharts as the stories mirrored their real-life situations, context of risk, and vulnerability. The healthcare providers adapted the materials to their abilities. Their self-esteem, confidence, and communication skills in dealing with patients with sexual and reproductive health problems were increased. The community members appreciated and offered their sincere cooperation. They amenablely participated in discussions, which are generally labelled as "sensitive" from etic perspectives and are, thus, theoretically considered barriers to launching this kind of programme.

Conclusion: The findings of the study suggest that qualitative formative research in a participatory approach can help design any intervention research project dealing with sensitive issues. Advocacy should be designed as an integral part of the programme component. Incorporation of sexual and reproductive health programmes into the indigenous healthcare system and development initiatives of the rural community will enable providers to address sexual and reproductive health-related issues outside the disease spectrum more holistically and in the real-life context.

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Can Medicine-sellers in Pharmacies Meet the Needs of STD Clients?

Saifur Rahman, Mohsin U. Ahmed, and Barkat-e-Khuda

Objective: Assess the profiles of medicine-sellers of an urban area of Bangladesh and their knowledge on sexually transmitted diseases/human immunodeficiency virus/acquired immunodeficiency syndrome (STDs/HIV/AIDS). Also assess their services in managing STD cases.

Methodology: This is a descriptive and cross-sectional study. In total, 201 medicine-sellers from 157 pharmacies of Tongi municipality area were surveyed. A self-administered questionnaire was used for collecting data to explore the profiles and reported STD case-management practices of the medicine-sellers and mystery-shopping events to observe their practices. All 201 medicine-sellers completed the questionnaire. Mystery-shopping events were conducted in 33 randomly selected pharmacies. In the mystery-shopping events, trained persons pretended to be STD clients, and sought services from selected pharmacies.

Results: Ninety-three percent of the medicine-sellers completed at least 10 years of schooling. They defined STDs as gonorrhoea or syphilis only. Forty-three percent could describe AIDS, and 65% could mention at least one preventive measure of AIDS. Ninety-six percent of the medicine-sellers reported that they had received STD clients. Of them, 72% percent reported that they referred the STD clients to a physician, and 43% reported that they provided treatments. It was observed during mystery shopping that only 4 (12.1%) medicine-sellers, in fact, referred the mystery-shoppers, and 27 (81.8%) provided treatments and counselling. The medicine-sellers maintained privacy, but provided inadequate treatments to the mystery-shoppers.

Conclusion: Medicine-sellers in pharmacies provide services to STD clients as a source of medicine, advice, and referral, but their services with respect to providing appropriate information and treatment are inadequate. To prevent STDs/AIDS effectively, pharmacies as an infrastructure can be potentially involved, but will require substantial strengthening.

Sexual Health Needs Assessment for HIV Intervention: A Participatory Approach with Hotel and Restaurant Workers in Sylhet

A.B.M. Kamrul Ahsan

Objective: Assess the knowledge, attitudes, and practices of the target population relating to sexual health and sexuality, and identify risk-generating factors for human immunodeficiency virus (HIV) and sexually transmitted diseases (STDs) in the sociocultural context.

Methodology: This study, carried out from January to March 1999 in 26 hotel and restaurants of Sylhet town, included 240 participants (male and female workers, hotel boarders, and the management) in 46 groups of different categories of workers and related populations. Ten different participatory rural appraisal tools and techniques were practised with the participants both in a focus group and one-to-one discussion. The groups were facilitated to discuss any related issues, express their opinions, and develop an understanding of sexual health and sexuality from their work and sociocultural environment. The facilitating team made the rapport first, then sequentially practised tools, triangulated information, and lastly cross-verified tabulated information with different categories of stakeholders.

Results: Twenty percent of the participants knew of acquired immunodeficiency syndrome, but they had inadequate knowledge about HIV and its transmission routes and consequences. Only 5% had a little understanding of how the HIV and other STDs could be prevented. There was a considerable misunderstanding among them that it was only with sex workers who were prone for HIV infections. Most participants knew of condom as a birth control method, instead of a barrier device for preventing STDs. It was revealed from the study that multi-partner sexual relations were in existence, and men had sex with men through anal penetration. Fear of stigmatization was the major cause for the target population to avoid clinical treatment for STDs for most participants.

Conclusion: Single marital status, work-related estrangement from the family, and an additional income through sexual entertainment of the hotel boarders significantly exposed hotel workers to risk-generating sexual behaviour. The low level of knowledge and inappropriate sexual behaviour in terms of preventing HIV infections and STDs are influenced by poverty, education, and immediate power structure. An integrated approach is, therefore, required to ensure decision-making ability and empowerment.

Anthropological Perspectives on Refusal for Emergency Obstetric Care in Rural Bangladesh

Lazeena Muna¹, James L. Ross², Sandra L. Laston², and Abbas Bhuiya¹

Objective: Explore why some women were able to overcome barriers and reach the referral point, while some women neither felt the need for clinical care nor were able to overcome these barriers in Matlab.

Methodology: During July-August 1996, a qualitative study was conducted in Matlab mother and child health service areas. Data were collected from (a) the women, who refused referral for clinical care for delivery, chosen randomly from a retrospective list of medical records of the MCH-FP clinic of the ICDDR,B: Centre for Health and Population Research, and (b) the women, who accepted referral, chosen from both past medical records and those attending the Matlab clinic and thana-level government services during the data-collection period. The community health workers and the traditional birth attendants were interviewed in their homes, at the subcentre clinics, in the Matlab hospital, and in the government hospitals.

Results: The three major factors that determined the decision were cultural practices and perceptions concerning childbirth, pregnancy-related healthcare alternatives, and cost (financial, social, and psychological) considerations. Treatment alternatives—home remedies, spiritual healers, village doctors, and Matlab Clinics—were being pursued simultaneously. Risk perception played an important role in overcoming the barriers to accept referrals. An ethnographic decision-tree model was drawn from the results.

Conclusion: A favourable environment that includes information, education, and communication initiatives for decision-makers and mothers, a financial support project for delivery, and a culturally appropriate service-delivery needs to be provided. Labelling a woman, with biomedical advice, as a "compliant" if she is present at a clinic or "non-compliant" if she does not is neither logical nor respectful—this needs to be reconsidered.

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Practices and Prejudices of Traditional Birth Attendants in Rural Bangladesh

Rezina Razzaq, A. Khanum, Ariful Islam, and M.A. Quaiyum

Objective: Assess the strengths and weaknesses of traditional birth attendants (TBAs) in their practices relating to pregnancy and delivery care, and make recommendations to upgrade their skills through appropriate training.

Methodology: An exploratory study was designed to know the delivery practices of TBAs in rural areas. In total, 379 TBAs were selected from Mirsarai thana of Chittagong district and Abhoynagar thana of Jessore district, the field sites of the Operations Research Project of the ICDDR,B: Centre for Health and Population Research. The interviews were conducted in July 1999. The TBAs were selected based on age and experience in attending deliveries. Their knowledge about obstetric complications and their management, preparation for conducting labour, and referral was assessed. The SPSS software was used for analyzing data.

Results: Different practices of the TBAs in conduction of deliveries were assessed, some of which were unhygienic and unsafe. More than 90% of the TBAs reported to wash hands with soap before attending any delivery, and used boiled blade for cutting umbilical cord. Knowledge regarding the danger signs of obstetric complication was found to be poor. More than a quarter of the TBAs also reported some misconception about management of complications. Almost all of them reported to refer their clients to THCs, and a one-quarter of them reported to accompany clients with complications at hospital. A few percentage of the TBAs also reported to non-compliance of referral made by them.

Conclusion: There is a potential workforce functioning for attending deliveries who are accessible and available to the community. More than 90% of the deliveries are attended by them. Proper training in recognition of obstetric complications and referral of clients to an appropriate facility can reduce maternal morbidity and mortality. It should, however, not be an alternative to a healthcare-delivery system.

Hospital-based Surveillance of Invasive *Streptococcus pneumoniae* and *Haemophilus influenzae*-associated Diseases in Bangladeshi Children and their Antimicrobial Resistance: A Preliminary Report

Shahadat Hossain¹, Mahbubur Rahman¹, A.H. Baqui¹, Nazmun Nahar², Fahmida Tofail¹, V.I. Mathan¹, and George J. Fuchs¹

Objective: Study the prevalence of *Streptococcus pneumoniae* and *Haemophilus influenzae* in Bangladeshi children with clinical pneumonia and meningitis, and monitor their drug resistance patterns.

Methodology: All children, aged less than five years, admitted during the day time to the Dhaka hospital of the ICDDR,B: Centre for Health and Population Research and to the paediatric ward of the Dhaka Medical College Hospital, with a clinical diagnosis of pneumonia or meningitis, were eligible for enrollment. One to two mL of venous blood from all cases and one to two mL of cerebrospinal fluid from meningitis cases were collected before initiation of any treatment. The specimens were cultured in the ICDDR,B's Dhaka laboratory following standard methods.

Results: In total, 272 pneumonia and 49 meningitis cases were enrolled in the study. The overall yield of cultures from blood was 15.8%, *S. pneumoniae* and *H. influenzae* type b were 2% and 2.5% respectively. The overall yield of cultures from cerebrospinal fluid was 32.6%, of which *S. pneumoniae* and *H. influenzae* type b were 10% and 16.3% respectively. About 75% (9/12) of *S. pneumoniae* and 81% (13/16) of *H. influenzae* type b were resistant to trimethoprim-sulfamethoxazole; about 8% (1/12) of *S. pneumoniae* and 50% (8/16) of *H. influenzae* type b were resistant to penicillin and ampicillin respectively. Thirty-seven percent (6/16) of *H. influenzae* type b was resistant to chloramphenicol.

Conclusion: *S. pneumoniae* was highly resistant to trimethoprim-sulfamethoxazole. High resistance of *H. influenzae* type b to trimethoprim-sulfamethoxazole, ampicillin, and chloramphenicol was also observed among Bangladeshi children admitted for pneumonia and meningitis at these two study centres.

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Prevalence of Childhood Anaemia and Its Determinants from the Bangladesh National Micronutrient Survey 1997-1998

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Objective: Assess the prevalence of childhood anaemia in rural Bangladesh, and identify the factors that are associated with anaemia.

Methodology: Data were collected during the national micronutrient survey 1997-1998 of rural Bangladesh. The trained nurse drew 3-5 mL of venous blood from a random sample of 1,199 children aged 6-59 months and their mothers. Blood was absorbed on a Hemocue[®] micro-cuvette to assess the haemoglobin levels immediately. In addition to collecting blood samples, the survey teams interviewed households to obtain information on child health, food consumption, household socioeconomic status, homestead food-production activities, and weight and height of children and their mothers were measured.

Results: About 53% (95% CI 48.6-56.7) of the children aged 6-59 months had the haemoglobin values below 110 g/L. The prevalence and severity of anaemia was considerably higher among the children aged less than 24 months (67%, 95% CI 57.6-75.2). Controlling for other factors, including age, children who consumed lower levels of animal foods were 1.34 times (95% CI 1.02-1.76) more likely to have the haemoglobin levels below 110 g/L. The children whose mothers purchased special foods for their families were less likely to be anaemic (OR=0.75, 95% CI 0.50-0.90). An interesting pattern between maternal anaemia and childhood anaemia was observed; the association was strongest among the children aged 6-11 months (OR=6.40, 95% CI 1.20-35.4).

Conclusion: The findings of the national micronutrient survey provide important information for planning effective interventions on the prevention of childhood anaemia. The ideal long-term approach is to increase the availability of foods rich in iron and other micronutrients, particularly animal foods, food fortification, and high-quality complementary infant foods. The findings of the study suggest iron supplementation for children. Given the low animal food intake and the likely high risk of deficiencies in zinc and other micronutrients in this population, multi-micronutrient supplementation should be encouraged.

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Using Routine Surveillance to Improve the National Vitamin A Week Campaign

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B. Alam², Lynnda Kiess¹, and M.W. Bloem¹

Objective: Examine the use of surveillance to identify ways to improve the national Vitamin A Week and other 'campaign'-based programmes in Bangladesh.

Methodology: Following the 1999 national Vitamin A Week, the Nutritional Surveillance Project (NSP) collected detailed information from 6,802 children aged 12-59 months, using a sampling framework representative, at the divisional and national level. This information was used for estimating the programme coverage and for comparing the programme characteristics with the previous Vitamin A Week and National Immunization Day (NID) campaigns.

Results: The 1999 Vitamin A Week achieved a higher coverage (85.9%) than the NSP coverage estimates from the 1998 Vitamin A Week (75.2%) or the 1998 NID (80.0%). Traditionally, Chittagong division has a low coverage; however, the coverage rose from 64% in the 1998 Vitamin A Week to 87% in 1999. Relatively high proportions of the households had capsules brought to their houses in Chittagong (53%) and Barisal (42.5%) divisions, although the programme, at the national level, typically usually adopted a centre-based service-delivery approach. Communication with the health workers and interpersonal communication were the main sources of information for the households living in the rural areas. 'Miking' from mosques or other loudspeakers was also a good communication channel, reaching about 20% of the households nationally during the 1999 Vitamin A Week.

Conclusion: Through a simple addition to the NSP round immediately following the Vitamin A Week, the divisional and national coverage of the latter programme could be cost-effectively determined, and reasons for the increased coverage could be explored. By immediately following the campaign, recall bias was minimized. Additionally, the immediate data turnaround allowed the findings from a campaign to be incorporated into programmes for the next campaign. The use of 1998 NSP data at the divisional and subdivisional meetings may have enabled the workers to employ new strategies to build awareness in some areas leading to a higher coverage. The use of campaign-based supplementation approach since 1995 has led to the increased coverage of vitamin A capsules. However, in certain areas of the country where factors limit the ability of household members to bring children to the centres, provision for home delivery may be necessary.

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Implications of Healthcare Provision on Mortality Due to Acute Lower Respiratory Infection in Bangladeshi Children

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Objective: Evaluate the effects of healthcare provision on mortality due to acute lower respiratory infection (ALRI) in very young children in rural Bangladesh, using a geographic information system.

Methodology: The study was conducted in the Matlab study area of the ICDDR,B: Centre for Health and Population Research. Since 1988, a community-based ALRI control programme has been operating in one half of the area to decrease morbidity and mortality among children suffering from ALRI. Besides western medicine, indigenous and naturalized medical traditions exist in the area. Data on ALRI-specific mortality for children, aged less than two years, from 1988 to 1993 were analyzed. A special study was conducted to obtain spatial allocation of the health service providers. All data were aggregated by clusters of households, called *baris*, referenced spatially. To avoid bias in the population size of *baris*, spatial moving averages of the ALRI-specific death rates were calculated. Data on the socioenvironment were scaled for spatially smoothed observation, and access to health service density was calculated for each *bari*. A regression analysis was done to measure the relationships between the ALRI death rates and the several environmental and health service-provision variables.

Results: The results showed that the ALRI mortality rate was 54% lower in the ALRI control programme area than that in the comparison area where there was no intervention. A higher density of the allopathic practitioners within the reach was associated with the lower ALRI mortality rates, while that of the indigenous practitioners was related to higher mortality.

Conclusion: The benefit of the community-based ALRI control programme, using a simple case-management strategy and improved access to allopathic practitioners, should be replicated in other rural areas of Bangladesh aiming at reducing ALRI-related child mortality.

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Impact of Disability on a Rural Community: Survey Experience from Bangladesh

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Objective: Assess the impact of disability on a rural community.

Methodology: A qualified primary healthcare specialist conducted a house-to-house survey in two villages of Jessore district. One hundred sixty-two disabled people and their caregivers were interviewed. A structured questionnaire and a semi-structured questionnaire were used for collecting qualitative and quantitative information on disability and how it had affected their lives.

Results: The study revealed that disability affected the employment and marriage or marriage prospects of the family members of 55 (34%) and 40 (25%) of the 162 disabled people respectively, and created problems relating to school attendance for 41 (25%) of the respondents. Disability posed significant problems either in terms of time spent caring for them or additional expense on just over half (53%) of the disabled. One hundred three (80%) disabled persons reported a variety of emotional problems. Forty-nine respondents felt that they were treated differently from the non-disabled people. The study also found that the disabled women and girls suffered more from negative attitude. More than half (58.3%) of the respondents stated that they were viewed negatively by the community people, and gave a wide range of reasons for their limitations in participating different social activities.

Conclusion: Disability is responsible devastating effects on marriage, educational attainment, employment, and emotional state, and jeopardizes the personal, family and social life of the disabled. Community-based rehabilitation programmes and increased social interactions between disabled and non-disabled need to be developed to bridge the gap.

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Costing of Activities of the Bangladesh Integrated Nutrition Project at the Community Level: An Analysis Based on Community Nutrition Centres in Five Thanas of Bangladesh

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Objective: Estimate the cost of activities of the Bangladesh Integrated Nutrition Project (BINP) at the community level from the perspective of the project, aiming at defining the resource requirements of nutrition intervention more concretely.

Methodology: All the Community Nutrition Centres (CNCs) in each of the five thanas were listed, and seven of them were randomly selected. To estimate the cost of activities, a modified production-function analysis was used. The production-function analysis in costing observes outputs being produced and then tries to identify inputs needed to produce specific outputs. The Health Economics Programme of the ICDDR,B: Centre for Health and Population Research conducted a survey during 1998-June 1999 among 289 users of nutrition services to obtain information on the household's willingness to pay for nutrition services.

Results: The results of the study showed that the average cost of running the community-based nutrition activities, including food supplementation, was about Tk 71,865 per centre per year. Food cost was the important component, explaining 77% of the total cost. The community-donated resources and the time were also important. The community contributed about 9% of the total project cost. The actual participation rate of the eligible and enrolled individuals in the food supplementation project ranged from 60% to 78%. The results of the interviews of the beneficiaries showed that, although the households were satisfied with the quality of nutrition services, they were unwilling to pay any user charges for the intervention.

Conclusion: To enable the programme to expand at the national level, the food costs have to be controlled. The BINP programme should explore the means to reduce the food costs, and improve compliance to the supplementation programme. The reasons for the low willingness to pay should also be explored.

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Willingness to Sharing of Costs by Patients Attending a Specialized Hospital in Sylhet

*M. Manirul Islam*¹ and S.M. Faridul Islam Latif²

Objective: Assess the present cost-sharing status, and also assess the perceptions, attitudes, and opinions of patients regarding cost-sharing in a specialized hospital.

Methodology: A cross-sectional study was conducted among the indoor and outdoor patients of the Sylhet District Sadar Hospital from March to June 1999. One hundred and twenty-four respondents of both sexes, having different educational levels, age groups, economic status, and occupations were randomly selected and interviewed. A pre-structured interview schedule was followed.

Results: Of the respondents, 64% were adult males, and 36% were adult females. Their mean age was 36.10 years with SD±13.24 years. Their educational levels were as follows: 34.7% illiterate, 18.5% with secondary level, and 10.5% graduates. Of the respondents, 31.5% were housewives, and 24.2% were businessmen. The mean distance travelled by the patients to attend the hospital was 21.22 km with SD±35.15 km. The mean travelling cost was Tk 27.11. Fifty-four percent of the respondents had income above Tk 1,000 per month. The study also revealed that 59% of the respondents were not satisfied with the current quality of services provided in the hospital. Eighty-one percent favoured cost-sharing; 63% of them wanted to share partially, and hoped that their cost-sharing will improve the quality of services. Willingness to share the costs in the government facilities was significantly related to the monthly household income ($\chi^2=6.537$, $p=0.038$), age ($\chi^2=12.908$, $p=0.045$), and the education level.

Conclusion: To reduce donor-dependence and for internal mobilization of local resources in healthcare services, costs can be shared with the community. There exists willingness to pay only if an improved quality of services can be assured.

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Charging Fees for EPI Services: Who are Unwilling to Pay?

Atia Hossain and Subrata Routh

Objective: Assess the extent of unwillingness to pay user-fees for EPI services, and understand the socioeconomic determinants of unwillingness to pay.

Methodology: The Operations Research Project of the ICDDR,B: Centre for Health and Population Research conducted a family planning and healthcare demand survey in 1997 in Abhoynagar thana of Jessore district and Mirsarai thana of Chittagong district. Respondents for the survey were drawn on a systematic random-sampling basis from the rural surveillance system of the project. Bivariate and multivariate analyses were done to understand the factors that were associated with unwillingness to pay for EPI services, which are generally perceived by the populations as 'high-impact services with remarkable utilities'.

Results: Of the total 2,210 currently married women of reproductive age, 1,892 (86%) expressed willingness to pay for the EPI services, and 312 (14%) were unwilling to pay for child immunization. The major reason for the unwillingness to pay was the perceived notion that the government should provide child immunization free of charge. An analysis of the socioeconomic variables reflected that the majority (58%) of the unwilling-to-pay respondents had an average monthly household expenditure of Tk 2,000-4,000, nominal household assets, and arable land. Poor socioeconomic conditions seemed to play an important role in the unwillingness to pay.

Conclusion: In the face of ever-rising immunization costs, a moderate charging system may be introduced for EPI services to recover the cost partially, and to reduce the wastage of antigens. The findings of the study show that a vast majority of the clients do have the willingness to pay for the EPI services. However, a 'means test' system needs to be developed in the light of the study findings to provide waiver to the poor clients who are unable to pay, thereby, ensuring their access to the EPI services.

Role of Private Providers in Healthcare: Lessons from Bangladesh on Public-Private Mix

*M. Mahmud Khan*¹ and **Zahidul Quayyum**²

Objective: Describe the current public-private mix in the health sector of Bangladesh, and examine the impacts of the increasing role of private providers on horizontal and vertical equity, market competitiveness, resource supply, and efficiency in resource use. Also examine whether increasing the number of providers in the market will lead to more efficient use of healthcare resources, and improve the quality of service.

Methodology: Data on payment mechanism, prices, and regulatory framework were collected from the medical care providers and from published and other secondary sources for the study. The importance of an effective regulatory framework has also been discussed and analyzed.

Results: The reimbursement to the healthcare providers and the inherent incentive structure are not conducive to improving efficiency. The private clinics and hospitals have remained mostly open-staff hospitals, and depend on public sector physicians for providing services and obtaining patients. Hence, the relationship between the public sector and the private sector is basically a collaborative one rather than being competitive. The financial inter-linkages developed by the providers among the physicians, diagnostic laboratories, and hospitals or clinics have further eroded the market competitiveness. Therefore, despite the rapid growth of the private sector, prices of medical care services increased at a much higher rate than the overall inflation rate. Relatively high variability of medical care prices indicates the presence of widespread market segmentation. The market-driven private sector is not contributing to equity in the delivery of primary care. The regulations relating to registration and control of private medical care providers are also not enforced effectively leading to the uneven quality of service, inappropriate physical facilities, and personnel mix.

Conclusion: An appropriate public-private mix requires the adoption and enforcement of regulations, establishment of closed staff hospitals, and development of competitiveness. However, the government facilities should continue a system of cross subsidization to protect the poor.

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**Evaluating Economic Impact of the Health and Population
Sector Programme and Essential Services Package:
A Suggested Framework**

Tim Ensor and James Killingsworth

Objective: Present a framework for analyzing the economic impact of the Health and Population Sector Programme (HPSP), show the extent to which the current data sources can be used for evaluating the impact, and suggest a strategy for further data collection.

Methodology: The HPSP and support for an essential services package (ESP) will have a substantial economic impact. These include: financial—recurrent cost impact and sustainability; household—individual access to services, and wider economic impact on health status; community—improvement of the overall health status and impact on national incomes. It is impossible to measure everything, and is, therefore, necessary to identify key indicators that reflect the overall impact. Two approaches are suggested. (1) Measure general impact on key financial and economic criteria, including sustainability, cost-effectiveness, affordability, accessibility, and impact on priority groups (equity). General targets may be insensitive to the difference between essential and less-important services. (2) Develop some specific indicators based on tracer services for the main ESP components, e.g. emergency obstetric care, malaria. These should summarize the effect on economic and financial criteria relating to the ESP.

Results: The framework offers a practical approach for measuring the key-economic impacts of the HPSP, and suggests a strategy for measurement. Much of the data to measure the effects for both the types of indicators are already being collected, although there will be a need to supplement the information with further surveys.

Conclusion: There are good prospects for demonstrating the wide economic impact of both HPSP and ESP, using the suggested framework, if the required data on the proposed indicators are collected now.

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User Participation: A Way to Establishing Community-managed Healthcare System

Shehlina Ahmed and Md. Khairul Islam

Objective: Prototype the community-managed healthcare model in a rural community clinic.

Methodology: Multi-method qualitative study methodologies (community learning through immersion in the rural society, focus-group discussion (FGD), in-depth interview), based on participatory rural appraisal, were adopted at the intervention site at Bolaibazar in Nasratpur union of Chirirbandar thana of Dinajpur district, with focus on process documentation.

Results: The rural community of Bolaibazar sought PLAN's support to set up a primary health facility. The community donated land and contributed labour, while PLAN funded construction with community supervision. PLAN facilitated separately group meetings of children, adolescent boys and girls, women and men to identify the prevailing health problems and the services required. The women and adolescent girls listed health needs that were mostly ignored by men. Interestingly, the adolescents and the children came up with health needs that had implications to attrition of family income. Large group meetings were subsequently organized to prioritize and validate the findings. During these meetings, after facilitation, the children and adolescents were quick to recognize that the prevailing diseases (being heavy on maternal and child health issues) did not essentially require the costly services of a graduate doctor. Placement of a paramedic or a trained community health worker would suffice the purpose. The community formed their management committee, including women representatives, and conducted periodic consultations with children. PLAN enhanced community capacity through continuous facilitation and organizing formal training courses on management, accounts, book-keeping, leadership, etc. for the clinic committee based on their needs. It took about a year to begin the services.

Conclusion: Although PLAN currently supports most operational costs, it is the committee that makes decisions and manages the operation of the clinic. A positive trend in service use, cost-recovery, and community involvement indicates the appropriateness of programme design. Developing programmes with meaningful participation of its users can significantly contribute to optimum service use and sustainability. Appropriate, valued services and facilitation by NGOs are, thus, a key to the successful community-managed health programmes.

Urinary Lactose Level of Mothers as an Index of Lactation Performance

*Shah Md. Keramat Ali*¹ and Raghib Ahsan²

Objective: Identify the factors influencing the lactation performance and the feasibility of using the urinary lactose level as an indicator of lactation performance in rural Bangladesh.

Methodology: During August 1997-March 1998, a cross-sectional study was conducted at Mougachhi union of Mohonpur thana, Rajshahi district, with 129 lactating mothers having infants aged 2 weeks to 8 months, and 112 age-matched non-lactating, non-pregnant mothers as controls. Maternal and infant data on personal history, lactation history, infant-feeding history, and maternal and infant nutritional status were collected. The amount of milk consumed by the infants was measured by test-weighing (weighing the infants before and after each milk feeding) them for 8 day-time hours each day for 3 consecutive days. For urinary lactose and creatinine measurement of each mother, two urine samples—one first morning sample (FMS) and another random sample (RS)—were collected. Haemoglobin and serum albumin levels of the mothers were also measured. This urinary lactose level was matched with the corresponding urinary creatinine level, and was expressed as lactose:creatinine molar ratio (L:C molar ratio). The lactose level and the L:C molar ratio of the lactating mothers were compared with those of the non-lactating, non-pregnant mothers and also with the corresponding milk-output values.

Results: Comparison of the urinary lactose level and the L:C molar ratio between the lactating and the non-lactating mothers and also comparison of the urinary lactose level with the milk-intake values (correlation-coefficient with FMS $r=0.63$, $p<0.001$, with RS $r=0.51$, $p<0.001$) among the lactating mothers showed that the urinary lactose level in the lactating mothers was a good indicator of their lactation performance. The lactose values in urine most significantly correlated with the frequency and duration of breast-feeding. A positive correlation of the maternal age and the maternal serum albumin level with lactation performance was also observed. A significant correlation was also observed between the urinary lactose and the L:C molar ratio both in FMS ($r=0.57$, $p<0.001$) and RS ($r=0.46$, $p<0.001$).

Conclusion: The findings of the study suggest that a urinary lactose excretion is a good indicator of lactation performance. Lactose excretion in the first morning urine sample indicates better performance than the random sample does.

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Strengthening RTI/STI Services: Experiences from Two Family Welfare Centres

Ismat Bhuiya and Ubaidur Rob

Objective: Examine the feasibility of strengthening comprehensive service-delivery for reproductive tract infections/sexually transmitted infections (RTIs/STIs) at the Family Welfare Centres (FWCs).

Methodology: The study included needs assessment, intervention and evaluation phases. During the needs assessment phase, feasibility of the proposed interventions was assessed through discussions with the service providers at the district, thana and FWC levels. A baseline survey on knowledge, attitudes, and practices of the Family Welfare Visitors, Sub-Assistant Community Medical Officers, Family Planning Inspectors, and Family Welfare Assistants and an inventory of essential supplies needed for RTI/STI services were made. Components of the interventions were then identified, designed, and implemented. Resources from the maternal child health-family planning (MCH-FP) service-delivery system were mobilized. Training of the service providers was given on total service-delivery which included greetings to the clients, taking history, prevention of infections, physical examination, RTI/STI syndromic management flow-chart, and counselling. The interventions started in August 1997, and were tested in two FWCs at Elenga and Narandia in Tangail district for 6 months. Mystery clients carried out an evaluation of the interventions repeating the pre-intervention survey, collecting information through observations and visits.

Results: The pre-intervention survey revealed that the service providers were aware of the importance of the RTI/STI problems, and were willing to provide RTI/STI services. During the intervention period, 176 clients reported to the FWCs with RTI/STI symptoms. A complete history was collected for more than 70% of the cases. Speculum examination revealed that 98% of the patients had abnormal discharge. Of them, 83% had vaginal discharge, and 15% had cervical discharge. In case of vaginal discharge, 88% were given appropriate treatments, while half of the 13 cases (15%) received full course of drugs required for the treatment of either gonorrhoea or chlamydia. None of the cervical cases received treatments for both gonorrhoea and chlamydia. Regarding counselling, issues relating to personal hygiene were discussed more than the need for partner treatment. Nearly half (49.4%) of the clients received counselling on condom use. Adoption of the aseptic technique was satisfactory during service-delivery. All these were done with the existing resources available in the system.

Conclusion: The RTI/STI service component of the existing MCH-FP service-delivery system can be strengthened without any major additional resources.

Perspectives of Stakeholders in Establishment of Rural Community Clinics in Bangladesh

Sukumar Sarker¹, Ziaul Islam¹, Subrata Routh¹, Barkat-e-Khuda¹, S.M. Asib Nasim², and Md. Mesbahuddin³

Objective: Identify appropriate approaches for establishing rural community clinics through evolving partnerships with the local communities and the public sector service providers, in line with the guidelines of the national Health and Population Sector Programme.

Methodology: Operations research included orientation meetings for the programme managers, service providers, and the community leaders; participatory planning workshops with the grassroots-level supervisors, service providers, and the community representatives on optimal planning of community clinics, e.g. site selection and identification of catchment population, etc. The community was motivated to donate land at the specified locations, and form Community Groups to facilitate community supervision and management of community clinics. The study was conducted during October 1998-June 1999 in Abhoynagar thana of Jessore district, and Mirsarai and Patiya thanas of Chittagong district.

Results: The local community generously donated lands for the 54 community clinics in the study sites and formed Community Groups to oversee the operationalization of the planned community Clinics. The practical problems identified during the study included: lack of clear concept of the managers and the service providers about the new service-delivery system; external influence/pressure in the selection of sites; incompleteness in some guidelines on constitutional and functional aspects of the proposed Community Groups. Solutions to the above issues have been suggested within the context of the relevant government guidelines to the managers, providers, and the community representatives.

Conclusion: Appropriate orientation of the concerned managers, supervisors, service providers, and the community leaders on the purpose of Community Clinics is of critical importance to implementing the new concept. It is imperative to involve all the relevant stakeholders and activate them in the process of implementing the reorganized service-delivery strategy.

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Health Systems Research on Management Support Systems for Effective Delivery of the Essential Services Package

S.M. Tariq Azim¹, Cristóbal Tuñón¹, and Nural Anowar²

Objective: Operationalize a Unified Management Information System (UMIS) for the effective delivery of the Essential Services Package (ESP) under the Health and Population Sector Programme (HPSP) of the Government of Bangladesh.

Methodology: Steps to develop the UMIS tools were: (a) Situation analysis through review of the existing MIS tools and discussions with the programme managers at different levels; (b) Participatory UMIS design through the formation of a Task Force; (c) Pilot-testing of the UMIS tools in three intervention thanas (Abhoynagar, Mirsarai, and Patiya) of the Operations Research Project of the ICDDR,B: Centre for Health and Population Research; (d) Finalization of UMIS tools based on the pilot-test findings and through review workshops with the managers and the staff involved in pilot-testing.

Results: Situation analysis showed that the Health Assistants (HAs) used about 20 different forms making 153 different entries with duplications among different forms. The Family Welfare Assistant (FWA) register has 10 sections, and the Family Welfare Visitor (FWV) maintained about 20 different formats. The reports generated by the field workers represented 100% of the couples/households, although they did not visit all the households routinely. During the pilot-testing, the field staff providing domiciliary services or services from the static sites could use similar UMIS tools. In both the cases, the HA and the FWA jointly completed the monthly performance report. House-to-house enumeration could be done jointly by the HA and the FWA, generating a single report. The finalized tools included a family health card, service registers, and a follow-up register.

Conclusion: The formation of a special task force with representatives from different stakeholders at various levels proved to be an effective way of introducing changes in the support systems at the national level. This task force provided strong technical guidance in translating research on support systems to assist policy formulation.

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Quality of Birthing Care from Women's Perspective

Kaosar Afsana and Sabina Rashid

Objective: Assess the quality of care offered to rural women during childbirth at the BRAC's Health Centre.

Methodology: The study was conducted in a BRAC Health Centre (BHC) located in Bogra Sadar town, 300 km north of Dhaka. The BHC was selected considering its high-use rate for childbirth, location, and closeness to the district hospital. Data were collected during November 1998-January 1999. Women who had delivered at the BHC and at home were selected from the villages located 2-10 km from the BHC. The BRAC's health providers and the TBAs were also interviewed. A qualitative approach was used for collecting data that included in-depth interviews, focus-group discussions, informal group discussions, and participant observations.

Results: The findings revealed that the women preferred to have home birthing, because they considered childbirth a normal and natural phenomenon. On the contrary, the women sought care from the BHC when they perceived childbirth to be complicated, and related it to illness. Fear of outside birth, notions of '*lajja*' (shame), fear of surgical instruments, issues of privacy and dignity, skills of health providers, economic constraints, distance, and power relations within home and at the centre were mentioned by the women for their preference to use the BHC services vs home birthing care.

Conclusion: The findings of the study suggest that the BHC was not sufficiently sensitive to the women's needs and expectations during childbirth. Thus, issues relating to the understanding of childbirth, quality of BHC services, power dynamics should accordingly be addressed.

Tapping Missed Opportunities: An Innovative Approach Based on Screening Algorithms

Rasheda Khanam, S.U. Alamgir, and Subrata Routh

Objective: Assess the preliminary effects of an algorithm-based client-screening approach as a means of tapping missed opportunities.

Methodology: A baseline assessment of the client-screening practices of the providers for preventive child and maternal healthcare at the Sher-e-Bangla Nagar Government Out-door Dispensary (a primary healthcare clinic) in Dhaka city was made in July 1999. The extent of missed opportunities was determined through exit interviews of clients, using a structured questionnaire. Based on the findings of the exit interviews, simple algorithms were developed and furnished to the providers to help them determine if their clients needed additional services (missed opportunities). Training of staff in the use of the algorithms was conducted in August 1999. Efficacies of the algorithms were analyzed based on the documents/records of the providers, client-provider encounters, and exit interviews with clients.

Results: The baseline data revealed that the clients tended to attend clinics with a single complaint and, consequently, sought one service at a time. The conventional approach to respond to the specific complaints of clients led to a large number of 'missed opportunities' for the providers and the service outlets, and the 'unmet needs' for the clients. After the use of the algorithms by the clinic providers, identification of the need for additional services increased considerably. In October, the need of additional services was detected for 9% of the clients. Of them, 33% were given family planning services, 7% antenatal care services, 4% RTI/STD services, and the rest had needs for a range of other services, e.g. child and maternal immunization and other general health problems. In November, 13% of the reported clients registered to seek additional services. Of them, 56% had 'unmet needs' for family planning, 21% had needs for RTIs/STDs, 7% had for acute respiratory infections of children aged less than five years, and the rest had needs for a range of other primary healthcare services.

Conclusion: The extent of 'missed opportunities' can be minimized if the healthcare providers use simple algorithms. In addition to addressing the 'unmet needs' of clients for essential health and family planning services, the approach will improve the use of the existing services.

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POSTERS

Harm-reduction Intervention among Injecting Drug Users: Assessment of Process Impact

A.H. Towfique Ahmed

Objective: Evaluate the impact of the harm-reduction process through a needle and syringe-exchange programme on injecting drug users (IDUs) in Rajshahi city.

Methodology: One hundred of the 242 IDUs, who were the direct beneficiaries of the intervention since 1997, were considered for this cross-sectional study through purposive sampling. A pre-tested structured questionnaire was used for interviewing the IDUs. The questionnaire included the following variables: injecting drug use, sexual behavioural patterns, and sociopsychological factors associated with risk-generating behaviour among the IDUs. In addition, opinions of the community people and of the family members of IDUs about the intervention process were collected in a categorized form. On completing the statistical analysis of collected data, the results were compared with the findings of a needs assessment study carried out during August-November 1996. The logistic regression technique was used for finding out the variables contributing significantly to changing the risk behaviours of the study population during the harm-reduction process.

Results: Ninety-five percent of the IDUs had obvious knowledge of human immunodeficiency virus/acquired immunodeficiency syndrome and its mode of transmission and the method of its prevention. Despite having knowledge of the risks of needle and syringe-sharing, 92% of the respondents continued the practice. The attitude of the majority (77%) of the community people toward the IDUs changed from negligence to sympathy. The drug-withdrawal syndrome, physical and mental conditions, group-shooting prevalence, and access to new needle and syringe significantly contributed to the practice of sharing of needles and syringes.

Conclusion: The study revealed a definite gap in knowledge, attitudes, and practices in the programme. This reflects certain weaknesses in the intervention process which requires revision.

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Role of Political Commitment in Policy and Planning Under Health Systems Research

Julia Ahmed

Objective: Evaluate the immediate relevance of political commitment to ensure service provision for marginalized population.

Methodology: The Bangladesh Women's Health Coalition (BWHC) conducted, in 1995, a baseline survey of sociodemographic characteristics of 346 sex workers and their clinical history, treatment-seeking behaviours, and knowledge of infections and risk reduction at the Tan Bazar brothel, Narayanganj. The study has highlighted a high level of unmet needs, including health and other basic needs. Given this background, the BWHC established a clinic, in 1995, with integrated service components, catering the needs of the sex workers and their children adjacent to the Tan Bazar brothel.

Results: The project, over the years, has gained both experience and influence in the operation of this highly vulnerable and risky intervention area. But the recent brothel eviction under the name of rehabilitation programme slammed down the ease possibilities which this project could contribute effectively to policy, planning, and implementation of a user-friendly sexual health project under health systems research.

Conclusion: This type of project is essential because of the great significance of interventions it has for the present and for the future. But the glaring reality this project pinpointed clearly is that whatever successful projects come through health systems research, it is bound to fail unless and until political commitment is there.

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Consequences of Induced Abortion in Rural Bangladesh

M. Kapil Ahmed

Objective: Examine the consequences of induced abortion with an emphasis on repeat abortion, health complications, and mortality, and also examine the effects of induced abortion on subsequent pregnancy outcomes.

Methodology: Two data sets—Health and Demographic Surveillance System of the treatment and comparison areas and Abortion Dynamics Survey of the ICDDR,B: Centre for Health and Population Research—were used for this study. Both bivariate and multivariate techniques were used for data analysis.

Results: The results of the study showed that the proportion of repeat abortion increased with the increase in women's age and education. The women of the comparison area were more likely to have a repeat abortion than the women of the treatment area of Matlab. The results also indicated that a woman, who had an abortion once, was more prone to have subsequent induced abortion(s). The choice of abortion methods and services by the women was found to be a major determinant of abortion-related complications. A higher relative risk of death due to abortion was also found among the women who had abortion with higher gestation, who used traditional methods, and who received services from the untrained practitioners.

Conclusion: Induced abortion under certain conditions and circumstances could be fatal. Therefore, strengthening of maternal and child health and family planning services and by ensuring readily accessible modern abortion procedures, mortality/morbidity risk of induced abortion may be reduced.

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Impact of Social Mobilization on Maternal Care and Lactation Performance

Sameena Chowdhury, A.K.M. Shahabuddin, Ferdousi Islam, M. Quamrul Hasan, Aminur Rahman, Nazneen Kabir, and Fazlur Rahman

Objective: Determine the impact of social mobilization on change in attitudes of the community people toward maternal and lactation performance.

Methodology: An experimental (intervention) study was carried out in a selected group of pregnant women. In total, 158 eligible mothers were selected from the intervention area and 151 such mothers from the control area. Information on the sociodemographic characteristics and the use of healthcare service during antenatal and delivery periods was collected. After social mobilization, the mothers were followed up to 6 months after delivery in the intervention and control areas. Subsequently, the community volunteers and the healthcare providers launched a social mobilization programme regarding maternal care and breast-feeding in the study area only. The programme included advocacy meetings, rallies, posterings, mikings, wall writings, performance of folk songs, video shows, and group discussions with women of reproductive age and other stakeholders. The outcome variables on maternal care and lactation performance in both the areas were compared.

Results: The lactation performances in both intervention and control areas were found almost similar. After only six months of the intervention, the scenario of maternity management and the lactation performance positively changed in the intervention area than that in the control area. Attitudes of the mothers toward the use of antenatal care services were found to be 21% higher, and the actual use of antenatal care services and the lactation performance were significantly higher in the intervention area than those in the control area. But there were little or no changes in other parameters of maternity management, such as institutional delivery, delivery-related complications, and duration of exclusive breast-feeding.

Conclusion: Although the study period is too short to evaluate the impact of social mobilization on the maternity care and lactation performance, the impressive change in some key areas suggests its widespread implication at the policy level. However, a long-term in-depth evaluation in a larger setting is recommended.

**Expectations of Community Volunteers: Experience from
two Interventions by the Government of Bangladesh
and NGOs in Rural Bangladesh**

Ziaul Haque Chowdhury and Rukhsana Gazi

Objective: Identify the factors affecting the motivation of community women to do voluntary work within the health and population sector.

Methodology: In-depth interviews were conducted between April and July 1999 with 40 volunteers working as depot-holders and with 12 Village Health Volunteers (VHVs). The depot-holders were selected from five thanas, namely Alphadanga, Kalihati, Chagalnaiya, Shreemongal, and Rajarhat, receiving inputs from the Rural Service Delivery Partnership of the National Integrated Population and Health Programme during June-July 1999. The VHVs were selected from 4 thanas, namely Dimla, Jaldhaka, Mithapukur, and Pirgach supported by the Thana Functional Improvement Pilot Project.

Results: There were important differences in the tasks performed by both the groups of volunteers. While the VHVs were promoting community awareness and served as a linkage between the community and the service providers, the depot-holders held stocks of oral contraceptives, condoms, and oral rehydration salts, and were sometimes delivering these commodities to the homes of married women. Nevertheless, there were common expectations in terms of logistic support, training, and transport allowances. All volunteers acknowledged that the training had increased their knowledge and skills, and had enabled them to improve health awareness in the community. The depot-holders appreciated the formal supervisory system. The VHVs reported that the number of patients at the government clinics had risen, since they had started work in their communities. Both the groups of volunteers felt that their status had improved.

Conclusion: Training, community appreciation, and linkages to formal institutions seem to act as incentives. Schemes, involving the recruitment of volunteers, should also ensure appropriate logistics and other support.

Gender Inequality in Severe Malnutrition in a Remote Rural Area of Bangladesh

Manzoor A. Hanifi and Kaneta K. Choudhury

Objective: Examine the extent of gender inequality in nutritional status of children, and also examine whether education of mothers alters the situation.

Methodology: Data were collected from six unions of Chakaria thana of Cox's Bazar district. Mid-upper arm circumference (MUAC) measurements were taken from 2,016 children aged less than five years (51% males, 49% females). The children were categorized as severely malnourished, if MUAC was <125 mm. Both univariate and multivariate analyses were carried out. The independent variables included various characteristics of children, households, and mothers.

Results: The average MUAC for all children was 130 mm, and 33% of them were severely malnourished. Thirty-seven percent of the female and 30% of the male children were severely malnourished. The gender gap persisted even in the multivariate situation. Odds of severe malnutrition were 41% higher for the females than the males. The other variables with a statistically significant relationship included the education of mothers ($p=.058$), age of children ($p=.000$), and acceptance of the first dose of DPT vaccine ($p=.000$). With the increase in the mother's education, the gender gap in severe malnutrition showed a diminishing trend, but the effect was not statistically significant.

Conclusion: Gender gap in severe malnutrition exists, and education of mothers may reduce the gap.

Birth Attendants during Child Delivery in Rural Bangladesh

G.M. Monawar Hosain, Rehana Sultana, and Shahanaje Pervin

Objective: Identify different categories of birth attendants and the place of child delivery of pregnant women in rural Bangladesh.

Methodology: Twelve villages in the Gono Shasthaya Kendra (GK) area were randomly selected to follow-up 693 pregnant women of these villages during 1998-1999. The GK-trained health workers paid house-to-house visits at least once a month in the early stage and twice a month in the later stage of pregnancy.

Results: Complete data were available for 674 women. Of them, 47% were poor, 48% were middle class, and the remaining 5% belonged to the richer group. Fifty-nine percent of the pregnant women were identified as risky mothers. Six hundred fifty-eight pregnant women gave birth to live-child, whereas 18 mothers experienced still-birth. Most deliveries (98%) at home were attended by the traditional birth attendants (TBAs), and the rest (2%) were attended either by the GK health workers, nurses, or qualified doctors. The majority (62.8%) of the deliveries took place in the husbands' home, 24.8% took place in the parents' home (mostly primae), and the rest (12.4%) took place in different health facilities, including the GK hospital. Only 4% of the home deliveries received Syntocinon injection before delivery, which was prescribed mainly by the village doctors. There was one maternal death in this period.

Conclusion: Although most TBAs in the GK area are trained, they are still reluctant to refer pregnant mothers to a hospital and prefer to handle the cases at the village level. There is a strong need to increase the institutional referral to reduce the infant and maternal mortality rates.

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Tetanus Toxoid Immunization among Women in Gono Shasthaya Kendra Area

G.M. Monawar Hosain, Manzur Kadir Ahmed, and Qasem Chowdhury

Objective: Estimate the tetanus toxoid (TT) vaccination status among pregnant women.

Methodology: Trained health workers collected data from 12 randomly selected villages of Savar and Joydebpur thanas. Complete data were available for 658 women who became pregnant during 1998-1999.

Results: Eighty-eight percent of the pregnant women received the complete schedule of TT, 53% received two shots, and another 35% received one booster dose of TT. The interval between two shots was not maintained strictly in all cases. During the study period, 5% of the pregnant women received no shot, and another 7% received only one shot of TT. Negative attitude of the family members, particularly of the mothers-in-law, toward vaccination was the main cause of refusal to take any shots of TT. The cause of dropout after one shot was mainly due to the shifting of pregnant women to their parents' home where the services were not as available as that of the GK area. There was no history of neonatal and maternal tetanus in this area in the study period.

Conclusion: Although the 88% coverage is much higher than the national-level coverage (70%), it is still below the target of 100% of the pregnant women. Attempts should continue to vaccinate all women aged 15-49 years, irrespective of pregnancy.

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Health-seeking Behaviour of Mothers and Factors Affecting Infant and Child Mortality of their Children: Evidence from the Bangladesh Demographic and Health Survey 1996-1997

M. Kabir and Ali Ahmed Howlader

Objective: Investigate the level of health-seeking behaviour of mothers, and assess how their health-seeking behaviour affects infant and child mortality in Bangladesh. Also, identify important factors that affect health-seeking behaviour of mothers and mortality of their children.

Methodology: The birth-history data from the Bangladesh demographic and health survey (BDHS) 1996-1997 were used for this study. In total, 9,127 ever-married women were interviewed to collect complete birth-history data. The unit of analysis of this study was children born 1-15 years prior to the survey. Children who had experienced at least one year of exposure to the risk of dying were taken as the unit of analysis. Direct estimates of the probabilities of infant and child mortality were calculated for each category of the independent variables. A logistic regression analysis was done to identify the significant factors that influenced the health-seeking behaviour of mothers.

Results: Ninety-five percent of the births were delivered at home, and 57% of these births were attended by the untrained traditional birth attendants, followed by relatives/others (25%). Professional doctors attended only 5% of the births. Less than half of the children were fully immunized. The bivariate analysis confirmed that the mortality rate among the children, born to uneducated mothers, was almost 58% higher than that of the children born to educated mothers. The child mortality rate was about 83% higher among the children of uneducated mothers than the children of mothers with a secondary or higher level of education. The mortality rate among the female children was 17% lower than that of the male children. Child mortality was higher among the female children than the male children. Survivorship was higher among the children born in the proper health facilities and attended by doctors than those born at home attended by untrained *dais*. The impact of mother's age at the time of child's birth was stronger on neonatal deaths than on infant deaths. The second and third-order births experienced higher neonatal and infant mortality than the first-order births. Mortality among the children aged less than five years was 57% higher with a preceding interval of four years or more. The logistic regression analysis showed the importance of mother's education, age at birth of the mother, survival status of the preceding child, and birth interval were all strongly correlated with neonatal and infant mortality.

Conclusion: The findings of the study justify the approach of integrating maternal and child health and family planning. Considerable proportions of mothers whose last child died in early childhood constitute a high-risk group. They need information, motivation, and contraception both for spacing and limiting births. A well-organized contraceptive-delivery approach should focus on couples whose last child died to combat excess fertility and infant mortality, as well as to improve maternal reproductive health.

**Contraceptive Use in Matlab, Bangladesh with a Special
Focus on Condom: Socioeconomic Correlates
and Future Implications**

Monirul I. Khan and Radheshyam Bairagi

Objective: Investigate the socioeconomic and demographic determinants of the use of different contraceptives with an emphasis on condoms compared to other methods.

Methodology: Data for this study came from the Record-Keeping System (RKS) and the Socio-Economic Status (SES)-surveys conducted among the married women in the MCH-FP area of Matlab. In the RKS, data on family planning and reproductive status of married women of childbearing age are collected monthly. For this study, the RKS data of October 1998 were used. The use of contraceptives and the method-mix were considered to be the dependent variables in this study. Bivariate and multivariate techniques were used for the analysis of data.

Results: The results confirmed the importance of demographic variables, such as age or number of living children and the socioeconomic variables, such as education and living standard in determining the overall contraceptive use. While the effect of education on the overall use of contraceptives appeared to be weak, the effect of level of education seemed to be strong on the types of methods. Although condom use was not very high, it increased with the enhancement of education and living standard of the married couples.

Conclusion: Modernization programmes, such as promotion of higher education and improvement of standard of living, are expected to increase the use of condoms which, in turn, will have positive implications for preventing sexually transmitted diseases and human immunodeficiency virus-associated infections. Replication of the MCH-FP of Matlab in other places will be able to overcome conventional contraceptive obstacles, such as non-literacy.

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Children and HIV/AIDS in Bangladesh: A Global Review

Shakeel A.I. Mahmood

Objective: Explore the susceptibility of Bangladeshi children to human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), and, based on the findings, recommend measures to prevent HIV infection among them. Also explore some factors that may make them extremely vulnerable to HIV/AIDS.

Methodology: An Internet and literature survey was conducted to know the global and regional prevalence of HIV/AIDS. The existing situation in Bangladesh was also analyzed, and discussions with national experts were held to know their views.

Results: Although an epidemic of HIV/AIDS has already started in Bangladesh, the country still continues to be a low-prevalence area. Almost all the elements for an explosive outbreak of an HIV/AIDS epidemic exist in the country. There is a very high prevalence of sexually transmitted diseases/reproductive tract infections, indicating the country's increased susceptibility to HIV/AIDS. Factors, such as ignorance, illiteracy, superstition, poverty, joblessness, malnutrition, etc., have been shown to be responsible for this vulnerability. According to the data provided by the Department of Virology, Bangabandhu Sheikh Mujib Medical University, the number of detected children, aged less than 15 years, living with HIV/AIDS in Bangladesh, so far identified is 6; of them, 3 got infected from their mothers, and others were commercial sex workers.

Conclusion: The paper warns against the danger of 'denial' and complacency. It recommends actions almost on a war footing. Importance of an appropriate education at all levels, including household, school and out-of-school education, and counselling has been emphasized. Education on safe sex has to be imparted in conformity with the sociocultural background of the people. Children, in particular, urgently need special care and support.

Evaluation of Field Kits Used for Arsenic Detection in Ground Water

Abul Hasnat Milton¹, Tony Fletcher², Gautam Samanta³, Tarit Roy Chowdhury³,
Bhajan Kumar Biswas³, Uttam Kumar Chowdhury³, and Dipankar Chakroborty³

Objective: Evaluate the currently used different arsenic-detecting field kits in terms of sensitivity, specificity, and predictive values.

Methodology: Water samples from randomly selected 200 shallow tubewells of 17 villages of 3 unions of Sonargaon thana were tested at the field by NIPSOM kit, GPL kit, Merck kit, and Arsenator. The results of these measurements were then compared with more precise analyses undertaken in the laboratory, using the Atomic Absorption Spectrometry–Flow Injection Hydride Generation (AAS-FIHG) method.

Results: The arsenic content of the water samples, according to the AAS-FIHG method, ranged from beyond the detectable limit (less than 0.003 mg/L) to 1.04 mg/L (1,040 ppb) with a mean arsenic content of 195.8 ppb (0.19 mg/L) and standard deviation of 215.08. At different cut-off levels of <0.01 mg/L, 0.01 mg/L, 0.05 mg/L, 0.1 mg/L, and 0.5 mg/L, the sensitivity of the NIPSOM kit was 97.7%, 93.9%, 86.3%, 80%, and 52.6% respectively, and the sensitivity of the GPL kit was 95.45%, 85.49%, 90.59%, 89.09%, and 52.63% respectively. At the same cut-off levels, the specificity of the NIPSOM kit was 85.3%, 98.6%, 95.2%, 100%, and 84.5% respectively, and the specificity of the GPL kit was 89.7%, 98.55%, 97.59%, 95.55%, and 84.53% respectively. At the cut-off level of 0.05 mg/L, 0.1 mg/L, and 0.5 mg/L, the sensitivity of the Merck kit was 93.16%, 79.09%, and 73.68% respectively, and the specificity was 96.38%, 97.77%, and 92.26% respectively. In case of Arsenator, a positive correlation ($r=0.89$) was found between the Arsenator and the AAS-FIHG method.

Conclusion: Arsenic-detecting field kits perform well when the arsenic content in drinking water is very low (less than 0.01 mg/L) or very high (0.3 mg/L). At the crucial level of arsenic ranging from 0.05 mg/L to 0.1 mg/L, the result is not reliable. The Gutzeit method can be accepted to obtain qualitative information for arsenic in water at >0.2 mg/L level. It is the national-level policy-making issue whether the use of the field kit method should be continued or not. If the field kits are at all to be used, it can be used as 'Yes/No' kits at the nominal value of 0.05 mg/L. Grading of water according to the different levels of arsenic by the field kit does not work effectively. The AAS-FIHG method is the method of choice, and can measure arsenic in the level of 0.005 mg/L (with 95% confidence).

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Preventives of HIV Infections/AIDS Among Commercial Sex Workers in Bangladesh

*Munira Murshed*¹ and A.K.M. Ahsan Ullah²

Objective: Explore how different categories of commercial sex workers in Bangladesh intend to prevent acquired immunodeficiency syndrome/human immunodeficiency virus (AIDS/HIV) infections and what measures they take to prevent it.

Methodology: Information from 203 commercial sex workers (CSWs) was gathered during November 1997-April 1999. Of them, 46 were floating, 63 were brothel, and 94 were hotel sex workers. Three types of questionnaires were used for these three categories of CSWs. The hotel sex workers from Magh Bazar, Purana Paltan, and Nawabpur areas of Dhaka city were selected for interviews. The floating sex workers were selected from Ramna Park and Agargaon Park where they operate sexual activities. The brothel sex workers were selected from Gangina brothel of Mymensingh, Marua Mandir brothel of Jessore, and Tan Bazar brothel of Narayanganj.

Results: Eleven percent of the 203 sex workers had knowledge of spreading AIDS/HIV by unsafe sex, while 68% had not heard of AIDS. Nearly 13% of the total respondents told that contaminated needles spread it, while 5% did not state any thing about it. Of the 46 floating sex workers, 11% intended to prevent HIV infections/AIDS using condoms, while 16% of the brothel sex workers used condoms to prevent HIV infections/AIDS. About 34% of the hotel sex workers intended to prevent this pandemic using condoms, but 4% thought that using antiseptic cream during copulation might help prevent it.

Conclusion: Raising awareness of HIV/AIDS among sex workers is important. AIDS awareness campaign should, thus, regularly be carried out with specific emphasis on promoting condom use.

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Behavioural Survey of Floating Female Sex Workers

Nazmun Nahar

Objective: Assess the knowledge, information, and practices of floating female sex workers (FFSWs) about sexually transmitted diseases/human immunodeficiency virus/acquired immunodeficiency syndrome ((STDs/HIV/AIDS) in Dhaka city.

Methodology: In-depth interviews were conducted with a sample of 400 FFSWs, covering 46 different locations under 6 Drop In Centres. Five external interviewers, including one supervisor, conducted the interviews in October 1999.

Results: During the period of the survey, a number of sex workers with STD symptoms was identified. The knowledge of these sex workers on the mode of transmission of HIV was as follows: male-female sex (60%), used needles (22.1%), blood transfusion (19.4%), mother to child (26%), and male-male sex (1.2%). The sex workers suffered from various types of STDs (table).

Symptom	Earlier (%)	Now (%)	Earlier and now (%)
Heavy discharge	14.7	4.7	25.0
Itchy discharge	7.5	1.2	2.2
Smelly discharge	8.7	2.0	12.0
Sores on vulva	13.2	0.5	3.2
Itchy genitals	22.0	3.7	15.7
Pain when urinating	11.2	2.0	11.7
Pus, pain at menstruation	4.7	0.0	1.7
Pain in lower abdomen	18.2	6.5	29.1

About 18% of the sex workers reported that they had been suffering from STDs during the survey period for the first time in their life with an average of 1.63 and a maximum of 5 symptoms. The sex workers stated that they received treatment from the following sources: CARE (73.9%), private doctors (15.2%), don't know (11.2%), and the government hospitals (9.7%).

Conclusion: The findings of the study suggest that there is a strong need to find the means of effectively disseminating information on STDs/HIV/AIDS, and to increase awareness of these diseases among sex workers.

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Perceptions of Adolescents on Physical Changes During Puberty

Quamrun Nahar¹, Nafisa Lira Huq², Masud Reza¹, and Faiz Ahmed¹

Objective: Understand the perceptions of adolescents on physical changes during puberty

Methodology: Data for this paper came from a study conducted in two urban and three rural areas. Both survey and qualitative data-collection methods, using the participatory learning and action (PLA) techniques, were followed. In total, 4,000 respondents (2,000 girls, 2,000 boys), aged 10-19 years, were included in the survey. Forty-seven group activities and 57 in-depth interviews with adolescents were also conducted.

Results: The findings of the study showed that 68% of the adolescent girls and 50% of the adolescent boys knew of important physical changes that happen during adolescence. However, when the girls (n=232) were specifically asked about menstruation, only 34% knew of it before experiencing it. As a result, they experienced menarche with mental trauma. After menarche, the girls communicated with their elder sisters, sisters-in-law, or grand mothers, and they, in turn, gave them information on the management of menstruation as well as the norms and rituals to be followed during this period. In most cases, information was found to be incomplete. A large number of beliefs and taboos relating to menstruation also existed. These included restricted movements, restriction to certain foods, avoidance from certain day-to-day rituals, etc. Similarly, the adolescent boys did not know of wet dreams before they experienced it. Of the study adolescents who had already experienced it, 42% in the rural and 29% in the urban areas knew of wet dreams prior to their own experience. In most cases, they heard of it from their friends. Thus, in most cases, they got incomplete and incorrect information, and were confused having wet dreams with sickness.

Conclusion: The findings of the study suggest that adolescents need more adequate and correct information on the transitional changes. Any programmes directed to adolescents should incorporate messages regarding the transitional changes.

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Knowledge, Attitudes, and Practices of Adolescents Relating to Contraceptive Use

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Objective: Assess the knowledge, attitudes, and practices of adolescents relating to contraceptive use.

Methodology: The study was conducted in two urban and three rural areas of Bangladesh. Both survey and qualitative data-collection methods, using the participatory learning and action techniques, were followed. In total, 4,000 respondents, aged 10-19 years, were included in the survey. Forty-seven group activities and 57 in-depth interviews with adolescents were also conducted.

Results: Although 63% of the adolescents knew of contraceptives, primarily oral pills, they had limited knowledge of other methods. There was no remarkable difference between knowledge of the urban and rural adolescents regarding contraceptives. The knowledge of the adolescents regarding contraceptives increased with age and education ($p < .005$). Although 67% of the adolescents held a positive view about the contraceptive use, 18% believed that if an adolescent female uses pills, she would become infertile. The survey data showed that about half 45% of the married adolescents used contraceptives. The pill was the most commonly used method, followed by condom, injectables, and safe period. For both urban and rural areas, pharmacies were a prime source of supply of contraceptives. 'Newly married' or 'in postpartum amenorrhoea' was mentioned as the main reasons for not using contraception. Discussions with the unmarried but sexually-active adolescent boys revealed that they did not feel comfortable going to the healthcare providers or to the local health centres to obtain contraceptives, especially condoms.

Conclusion: The findings of the study suggest that there are gaps in the knowledge, attitudes, and practices of adolescents regarding contraception. Negative perceptions about the use of pills also need to be studied further. A number of married adolescents were not using contraceptives, since they were in postpartum amenorrhoea, suggesting that promoting postpartum contraception among the adolescents should be a programme priority. The potential role of the healthcare providers in providing contraceptive services to unmarried adolescents needs to be explored.

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Exploring Women's Perception on Birth Process through Body Mapping

Shahaduzzaman and A.M.R. Chowdhury

Objective: Explore women's perception on birth process through 'body mapping', and assess its potential use as a research technique.

Methodology: A body-mapping exercise was conducted with three different categories of rural women: (a) trained traditional birth attendants (TBAs), (b) untrained TBAs, and (c) women who never attended any delivery. There were 20 women in each category. Each one was given a paper with the outline of a woman's body, and was asked to draw what she imagined about the inside view of a pregnant woman. After the completion of the drawing, each woman was asked to label and explain her drawings. Exercises were conducted during May 1997.

Results: 'Body mapping' helped reveal the diversity of women's perception of the birth process, which would have been difficult to obtain otherwise. The drawings highlighted the differences and similarities between the biomedical and the indigenous concepts. By comparing the body maps done by the three categories of women, it appeared that the perception of the trained TBAs was more consistent with the biomedical model. However, some common patterns of perception and differences in scientific and indigenous vocabulary were found in all categories of the women.

Conclusion: It appears from the study that body maps have a range of potential usage as a research technique to explore lay-perceptions on different health issues and also as a tool for training, needs assessment, and evaluation of different health programmes.

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Behaviour Change Communication Needs of Rural Community Clinics: A Study of Providers' Perspectives

Ahsan Shahriar, Subrata Routh, Mohammed Ali Bhuiyan,
Sukumar Sarker, and Ali Ashraf

Objective: Assess the behaviour change communication (BCC) needs for the Community Clinics-based service-delivery of essential health and family planning services (ESP).

Methodology: The BCC activities of the rural and urban NGOs that have shifted from the conventional strategies of domiciliary distribution of services by the field workers to static clinic-based service-delivery were reviewed. In assessing the changed communication and promotion needs emerging from the replacement of interpersonal communication carried out by the field workers, two brain-storming sessions were conducted with the district and thana-level health and family planning programme managers of Jessore and Chittagong districts. Three workshops were also held with 33 health and family planning field workers and 32 supervisors at the three rural field sites at Abhoynagar thana of Jessore, and Patiya and Mirsarai thanas of Chittagong district.

Results: The BCC activities need to facilitate the attainment of the following objectives: (a) identifying the target audiences and the desired changes in their behaviour for the increased access to, and use of, services in the Community Clinics, and (b) identifying appropriate BCC activities and messages for operationalization of the Community Clinics. The workshops identified four key target audiences for the BCC activities: (i) service recipients, (ii) service providers, (iii) community leaders, and (iv) special sub-populations, e.g. newly-weds, pregnant women, family planning method drop-outs, low-parity couples, adolescents, etc. As fostered in the workshops, the desired changes in behaviour of the target audience include: (i) motivating the community people to donate lands for the Community Clinics, (ii) forging community ownership over the Community Clinics, (iii) using the existing community networks to sensitize formal and informal leaders to support the Community Clinics, (iv) creating commitment among the providers in the appropriate delivery of ESP, and (v) informing the people about the changes in the service-delivery strategies and encouraging them to receive services from the Community Clinics. The workshops proposed 16 types of BCC activities to influence the required behaviour change process. These activities include print, demonstration and electronic media, selective interpersonal communications, and advocacy workshops.

Conclusion: Development of an appropriate BCC programme, incorporating interpersonal communication, print demonstration, and electronic media, as well as advocacy workshops, is essential for the effective implementation of community clinics.

**Qualitative Exploration of Perceived Causes
and Treatments of *Rokto Kom* (Anaemia)
among Dhaka City Garment Workers**

Andrew Thorne-Lyman, Sabrina Zaman, Nasima Akhter,
Kanon Biswas, Shirin Afroze, Runa Rasida, and Lynnda Kiess

Objective: Create awareness about the perceptions and concerns of female garment workers about nutrition-related illnesses, notably *rokto kom* (anaemia). *Rokto kom* is an illness of perceived blood deficiency that is very common among garment workers.

Methodology: The study developed ethnographic models for the causes and treatments of *rokto kom* on multiple ethnographic methods. Sixty-five in-depth informant and key-informant interviews were held with female garment workers of two factories in Dhaka city. The topics of the interviews included dietary habits, illness beliefs, the impact of illness on the workers' lives, and treatment-seeking behaviour for illness. The methodology also included observations of home and working life of women and free-listing exercises to identify perceived symptoms, causes, and treatments of *rokto kom*.

Results: The majority of the informants who reported suffering from *rokto kom* attributed their illness to consumption of insufficient vitamins, because they were unable to consume *bhalo khabar* (good foods), a domain that was elucidated in the interviews. Other perceived causes originated in the worries and tension about factory work, financial concerns, and family situations. Constant exposure to electricity while working in the factory was also perceived as a cause. The female garment workers were well aware of the vitamin-rich foods and the ability to prevent and to treat *rokto kom* with food. Despite having steady employment, most workers expressed an inability to afford such foods. *Rokto kom* was an illness that the majority of workers had at one time or another. It was severe enough for which most sought treatment from the factory doctor, from local MBBS doctors, and/or from a *Kabiraj*. Much of their knowledge about *rokto kom* appeared to originate from these consultations. The garment workers reported that they could only sometimes afford to purchase tablets and syrups that were prescribed to them when they were sick.

Conclusion: The urban young females of Bangladesh have received relatively little attention. Many workers already understand the nutritional origins of their illness, and have illness-domains to explain nutritional deficiency. Interventions should, therefore, focus on enabling women to have vitamin and mineral-rich foods and treatment for illnesses, and to improve their working conditions to allow them to be healthier, better nourished, and better workers. Such programmes can incorporate the findings of qualitative research with this population to improve acceptance.

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Availability of the Essential Services Package in Urban Dhaka

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Objective: Analyze the appropriateness of current distribution of services and facilities of the Essential Services Package (ESP) in relation to the needs of the population of Dhaka city.

Methodology: Data for this study were drawn from the inventory of the providers of ESP services carried out by the Operations Research Project of the ICDDR,B: Centre for Health and Population Research from December 1998 to March 1999 in the Dhaka City Corporation (DCC) area. Trained interviewers collected information from the facilities, excluding private clinics, in all 10 zones of the DCC. Secondary data from working papers and statistical bulletins were also analyzed.

Results: About 68% of the 797 government and NGO facilities delivering ESP services in the DCC area were managed by the NGOs, and 30% were managed by the government agencies. More than 50% of these facilities were satellite clinics providing selected ESP services in community settings; 12% were EPI centres specially established to provide only vaccines; about 23% were permanent static clinics to provide ESP services; 6% were dispensaries to provide curative out-patient services for relatively minor ailments; and only 5% were hospitals to provide curative care, including in-patient and out-patient services. The slum-dwellers were mainly the target population of about 58% of the total facilities. Almost all the NGO facilities were dedicated to provide the ESP services to women and children at the primary healthcare level. The findings revealed that the facilities in the DCC area were not uniformly distributed, resulting in an uneven coverage of the ESP services. In some areas, the NGOs were operating in a higher proportion, whereas the government agencies were managing a few centres only. The geographic distribution of the facilities in Dhaka city reflected a lack of systematic planning to match the provision of essential services with the growth of the city.

Conclusion: The study revealed an unplanned distribution of the facilities contributing to the uneven coverage of the ESP services and to the inefficient use of resources. The findings of the study suggest that there is a need to improve the physical distribution of the facilities to enhance the geographical access of the urban poor to essential services.

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Partnership Between NGOs and Government Promotes Policies into Action

Sylvester S. Costa¹, Abdur Rob², and Kabir Uddin Ahmed³

Objective: Strengthen the partnership between NGOs and the government counterpart for the smooth and prompt implementation of policies into action.

Methodology: The Local Initiative Programme has been providing training, technical assistance, and a small grant to the Ministry of Health and Family Welfare staff, thana administrator of Debidwar, and the community leaders in developing an action plan for decentralized, sustainable and quality services. The Vitamin A Project, as an add-on component of the Local Initiative Programme in Debidwar, has been strengthening the integration and implementation process of the health and family planning sectors.

Results: Involvement of various sectors and community partners helped materialize policies into action quickly. The contraceptive prevalence rate rose from 27% to 62%, and the annual birth rate reduced significantly. Similarly, administration of vitamin A to the lactating mothers within first 14 days of delivery achieved the coverage up to 60% from 31% within two years of the intervention. The community partners are now pro-active in receiving healthcare services from the satellite, outreach, and fixed clinics/hospitals. The policy and integration of health and family planning sectors made easier and quicker.

Conclusion: The Local Initiative Programme and the Vitamin A Project worked together with the government service providers, identified drawbacks, and limitations, and strengthened management and technical support through organizing training, feedback and dissemination sessions, monitoring visits, and appreciating good work. A good partnership between NGOs and the government is recommended for the smooth implementation of policies into action.

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Rural Volunteers for Family Planning: the Experience of Rural Service Delivery Partnership Depot-holders

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and Mohammad Alauddin²

Objective: Explore the current functioning of the depot-holders in their localities. Also explore the community's perception and expectations from the depot-holders.

Methodology: The study employed a rapid appraisal technique that included free-listing, ranking, social mapping, and daily time used. Women listed sources of family planning commodities according to their preferences, and the depot-holders drew maps showing their working areas, including the location of clients. A detailed diary of a full-working day of each depot-holder was made. The depot-holders were observed at their work, and group discussions with their supervisors were conducted. Data were collected during June-July 1999 from five different districts, through 40 in-depth interviews with depot-holders and through 10 group discussions with local women. Five of the 10 group discussions were conducted with users and 5 with non-users of contraceptives. In each group, 6-8 women participated in the discussion. The depot-holders were observed at their work, and the group discussions with the supervisors of the depot-holders were conducted.

Results: The depot-holders covered 100-500 households. Most users reported that the depot-holders and the NGO satellite clinics were their sources of contraceptive commodities. The non-users tended to have less frequent contacts with the depot-holders. Almost all the respondents preferred the depot-holders as a source of family planning supplies due to easy accessibility, privacy, credit options, provision of advice, caring attitude, and friendly behaviour. However, some women preferred to collect the family planning commodities from the government health staff, because these were free of charge. The women stated that it would be helpful if the depot-holders could also stock drugs for common ailments.

Conclusion: The depot-holders are a good complement to the existing government services. They should be adequately trained, and be given tools to facilitate more systematic contacts with non-users of contraceptives. The catchment areas of the depot-holders need to be standardized according to the guidelines for better distribution of workloads. Relevant training and pilot-testing would be necessary, if additional services and responsibilities are assigned to them.

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Government-Community Partnership in Managing Rural Community Clinics

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Shahela Anwar, and Subrata Routh*

Objective: Identify the appropriate approaches of community involvement in the planning and management of Community Clinics in rural Bangladesh.

Methodology: The study followed a qualitative approach based on participatory workshops with the Community Group members. Six such sessions, held in 6 unions of 4 thanas (Abhoynagar, Keshobpur, Mirsarai, and Sitakunda), were attended by the members of 18 Community Groups and the concerned union-level supervisors. These workshops, organized by the local Union Parishad, were presided over by the respective Union Parishad Chairman. The participants were first explained about the newly reorganized service-delivery system and their expected roles and responsibilities as envisaged in the corresponding government guidelines. Subsequently, brain-storming sessions were conducted to gather ideas of the participants on specific activities relating to the operation, maintenance, and security of Community Clinics. Information so collected was recorded, transcribed, and analyzed to formulate workable modus operandi on the government-community partnership in managing the rural Community Clinics.

Results: The community representatives were found to be quite enthusiastic in sharing the responsibilities of planning and management of the Community Clinics jointly with the government. They suggested concrete approaches with regard to the tenure of work of the Community Groups, resource mobilization, security, cleanliness, and maintenance of the clinics, accountability of the Community Groups, and relationships between the government and the Community Groups.

Conclusion: The participation of the community in the establishment and management of Community Clinics creates a better opportunity for the delivery of sustainable healthcare. The community opinions on joint planning and management of Community Clinics are critical in designing the modus operandi of the government-community partnership.

**Defective Mucosal Immunity and Normal Systemic
Immunity of Mongolian Gerbils, *Meriones unguiculatus*,
to Reinfection with *Strongyloides venezuelensis***

A.I. Khan¹, Y. Horii², and Y. Nawa²

Objective: Understand the selective effector mechanisms for the expulsion of intestinal helminths and immune responsiveness to parasite antigen.

Methodology: Mongolian gerbils, *Meriones unguiculatus*, were unable to expel *Strongyloides venezuelensis* adult worms from the intestine for over 10 weeks after a primary infection. Immune animals were prepared by treating with mebendazole for four weeks after a primary infection. They were then challenged by different maturation stages of the parasite. These included subcutaneous inoculation with the infective larvae (L3) obtained by faecal culture; oral administration of L3 obtained from the lungs of rats three days after a primary infection; or oral implantation of adult worms obtained from the intestines of rats seven days after a primary infection.

Results: The immune animals were highly resistant against challenge infection by subcutaneous inoculation with cultured L3; they were unable to expel orally administered lung-recovered L3 or orally implanted adult worms. Although potentiated mastocytosis was induced by challenge infections with the lung-recovered L3 and adult worms, all mast cells were formalin-resistant, heparin-containing cells, and were never seen in the epithelial layer. In spite of the defective protective capacity at the intestinal mucosa, circulating antibody production, specific to *S. venezuelensis* adult as well as L3 antigen, was positive. The inability of Mongolian gerbils to expel *S. venezuelensis* adult worms from the intestine seemed to be due to the defects of the effector/regulator cells, presumably mast cells, but not due to immune unresponsiveness to parasite antigen.

Conclusion: The results of the study suggest a unique characteristic of mast cells in the jejunal mucosa. A further study is needed to understand the phenotypic expression of mast cells and their role in mucosal defence.

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Antidiarrhoeal Effect of Cholestyramine in Children with Cholera

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Objective: Assess the antidiarrhoeal effect of cholestyramine in children with cholera.

Methodology: A double-blind, randomized, placebo-controlled study was carried out in 111 children with cholera aged 6 months to 10 years. They were enrolled in the study with clinical diagnosis of cholera initially based on Dark-field microscopy and finally confirmed by stool culture. For dehydration they received intravenous fluid on admission. They were then given either 2 g of cholestyramine suspension 4 times daily for 3 days or an equivalent placebo, in addition to oral rehydration solution (ORS), tetracycline 12.5 mg/kg 4 times daily (2 hours before cholestyramine) for 2 days, and normal feedings (diet) appropriate for age. Measurements of stool output and ORS intake of 6 hours were done accurately.

Results: The volume of watery stools in all patients of the cholestyramine group was reduced by 20% in the first 6-24 hours post-admission and by 34% during 25-48 hours; the reduction was 25% and 75% in the younger children aged 2 years or less in the two periods respectively. The reduced stool volume was reflected in a concomitant decrease in the consumption of ORS. Three children in the cholestyramine group vs 10 children in the placebo group required an additional intravenous therapy. No side-effects attributable to cholestyramine were detected.

Conclusion: The findings of the study indicate that cholestyramine has a substantial antidiarrhoeal effect in children with cholera.

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Why Limiters in Rural Bangladesh Do Not Use Permanent Methods of Family Planning

Mehrab Ali Khan, M. Islam, Moarrita Begum, M. Rahman,
Ashish K. Dutta, and R. Bairagi

Objective: Compare the sociodemographic characteristics of two groups of limiters who did not want any more children, and investigate reasons for not using any permanent methods by the limiters.

Methodology: Data for this case-control study came from Matlab thana of Chandpur district and Kalkini thana of Madaripur district. Three hundred females, who used reversible family planning methods, and another 300 females, who used permanent methods, from each thana were included in the study. A control was matched for age, parity, and sex composition of the living children. Some qualitative data, both in-depth interviews and focus-group discussions, were also obtained from each thana. Bivariate and multivariate techniques were used for analyzing the data.

Results: The permanent method users were socioeconomically worse-off than the reversible method users. The main reasons for not accepting a permanent method in Matlab were disliking (35%) of husbands and their wives, followed by fear of its side-effects (17%). In Kalkini, disliking (35%) was followed by fear for an operation (24%) for not accepting a permanent method. The availability of a reversible method at the doorstep was also a reason for not using a permanent method. The results of the multivariate analysis (logistic regression) showed that the uneducated and socioeconomically disadvantaged women more used the permanent method. The results based on the qualitative data are in agreement with the quantitative data.

Conclusion: The findings suggest that the women of both the areas have not been motivated properly to use a permanent method. They do not fully realize that the permanent method is cost-effective than a reversible method. Both programme managers and policy-makers need to address these issues for implementation of more cost-effective programmes.

Intervention to Change Traditional *mura* System to New Bed System for Growing Vegetables

*M. Mahmud Khan*¹, **K.M.A. Aziz**², Shakil Ahmed³,
Farzana Ahmed³, and George J. Fuchs³

Objective: Evaluate the acceptability of change from the traditional *mura* system (small enclosure of land for growing creepers and vegetables) to the Helen Keller International (HKI)-introduced new system of bed for growing vegetables.

Methodology: Information was obtained through a survey from 7 intervention and 6 comparison thanas located in several districts of Bangladesh. The survey was undertaken during 1998 by the ICDDR,B field staff trained and experienced in field interviews and having an educational level of masters degree in social sciences. The acceptability of change from the traditional *mura* system to the HKI-introduced system of bed was evaluated by measuring the differential between the study areas and the control areas at the time of evaluation of the HKI intervention.

Results: The data revealed that the proportion of the households practising the bed system was substantially lower in both intervention (37.8) and comparison (20.6) areas than the households practising the *mura* system (study: 75.1 and comparison: 58.3).

Conclusion: The HKI intervention had a substantial success in increasing vegetable production in the intervention areas compared to the comparison areas where there was substantially less production of vegetables. No notable change in the system measured by traditional *mura* and newly-promoted bed occurred.

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Comparison of Effects of Herbal Extracts and Antibiotics Against Bacteria

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and Shahabuddin Kabir Chowdhury¹

Objective: Compare the effects of herbal extracts and commonly-used antibacterial agents against American Type Culture Collection (ATCC) standard and on some clinical bacterial isolates.

Methodology: The water extract of the seeds of the plant *Vernonia anthelmintica* Willd. was used. Five g of the powdered dried seeds with 150 mL of water was heated slowly, and was reduced to 40 mL and filtered; the filtrate was collection 1. The residue was again heated slowly with 150 mL of water and filtered; the filtrate was collection 2. The two filtrates were then added and reduced to 20 mL; this was the active agent. Bacteria used were 2 types: control strains—*Escherichia coli* ATCC 25922 and *Staphylococcus aureus* ATCC 25923, and clinically isolated bacteria. Mueller-Hinton agar media were used, and the bacteria were incubated at 37 °C for 24 hours for sensitivity tests.

Results: The study was carried out on 10 *S. aureus* and 7 *E. coli* isolates. All *S. aureus* strains, including the ATCC 25923, were sensitive to *V. anthelmintica* Willd. Some *S. aureus* strains showed different sensitivities to nitrofurantoin, cloxacillin, cephalexin, gentamicin, ciprofloxacin, rifampicin, and vancomycin, and were resistant to others. All 7 *E. coli* strains, including the ATCC 25922, and clinical isolates were sensitive to *V. anthelmintica* Willd., and showed different sensitivities to gentamicin, nitrofurantoin, and cephalexin, but were resistant to others.

Conclusion: The findings of the study show that the seeds of *V. anthelmintica* Willd. have a very potent antibacterial property compared to the modern antibacterial agents, such as penicillin G, cloxacillin, cephalexin, erythromycin, gentamicin, cotrimoxazole, ciprofloxacin, and nalidixic acid.

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Programmatic Opportunity for Iron Supplementation

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Abdul Kader, and Andrew Thorne-Lyman*

Objective: Examine the prevalence and distribution of anaemia and other characteristics of a sample of extremely vulnerable women, and suggest possible programmes to improve the iron status of these women.

Methodology: A sample of 1,007 extremely vulnerable rural non-pregnant women was included in the study. Data came from an evaluation of women participating in the Vulnerable Group Development (VGD) programme and in the Rural Maintenance Programme (RMP), and women with similar background characteristics but who were not participating in any programme. Data were collected during 4 rounds in 1998-1999; this study includes data from the September round. The haemoglobin values were assessed using the Hemocue® machine.

Results: Women were extremely vulnerable from a socioeconomic perspective. About 85% of the women were either divorced, widowed, or living with their husbands who did not contribute to family income. About 78% of the households of these women were landless. The mean household monthly food expenditure was extremely low (Tk 469) compared to the national estimate (Tk 1,126) during the same time period. Regular consumption of nutritious foods (>4 days in the past week) of high-quality foods, such as eggs and fish, was quite low among this population. Anaemia was highly prevalent among the extremely vulnerable non-pregnant women (51.2%) using a cut-off of Hb<12 g/dl. In addition to having a high prevalence, the haemoglobin distribution of women in the vulnerable group shifted to the left (lower) compared to the distribution of anaemia among non-pregnant women from the national survey data.

Conclusion: The findings of the study suggest that a large proportion of women participating in the VGD and RMP programmes are anaemic. These women have regular contacts with the programme workers, suggesting a programmatic avenue for improving the iron status through distribution of iron supplements, nutrition education, or fortification of VGD wheat. Many development programmes in Bangladesh that target women of low-socioeconomic status could take the advantage of contacts with the programme participants to improve the micronutrient status of women.

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Impact of the 1998 Flood on Nutrition and Health: What Can We Learn for Future Disasters?

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Abdul Q. Mondal, and Nasreen Huq*

Objective: Assess the impacts of the 1998 flood on child nutrition and health, and identify the possible solutions to prevent and stabilize malnutrition and poor health after such disasters.

Methodology: A special study was conducted as part of the Nutrition Surveillance Project (NSP) to follow the nutrition and health status of children in areas where the 1998 flood had been severe. A random sample of approximately 600 households in each of the seven severely flood-affected areas was interviewed during October and December 1998 and in February 1999. Anthropometric measurements and health information on preschool children and their mothers were collected. Nationally representative data from the NSP and previous data from four of the flood-affected thanas were used for comparing the health and nutrition situation immediately after the flood and up to six months after the flood.

Results: Acute child malnutrition was 15.8% in October 1998 in the seven severely flood-affected areas. The peak in October 1998 was unusual when compared to the national patterns of wasting in rural Bangladesh. The prevalence of wasting was significantly higher (16.3%) in October 1998 than in October 1996 (11.4%), and the prevalence in the flood-affected areas remained high in December 1998 (12.7%) and February 1999 (10.5%) than during the corresponding months in 1996-1997 (6.6% and 7.0% respectively). The rate of the incidence of diarrhoea was significantly higher in the severely affected areas (17.6%) than the national estimate immediately following the flood (9.9%), and was also higher than that of 1996-1997 (7.7%). As of late September 1998, only approximately 6% of the households in the severely affected areas surveyed by the NSP had received any type of relief assistance. Even in mid-November 1998, approximately 50% of the flood-affected households failed to receive any relief. The households who received assistance were most likely to have received rice or wheat, but the quantities received were less than adequate.

Conclusion: Aside from small-scale efforts, since relief generally came too late for many households, and rehabilitation efforts were minimal, the majority of the households re-established their livelihood themselves through loans or other means. As a result, the increase in childhood malnutrition that resulted immediately after the flood has not been ameliorated more than six months later. These findings suggest that better planning and coordination is needed to manage disaster relief efforts in Bangladesh. If relief had reached households more rapidly and had been better targeted, children might have been prevented from becoming ill and malnourished. Better immediate relief and rehabilitation might have made prolonged food assistance less necessary, eventually translating into savings for both government and aid agencies.

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Problems in Diagnosis and Management of Snake Bite in Chittagong, Bangladesh

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Objective: Describe the problems encountered in the diagnosis and management of snake bites.

Methodology: In total, 617 patients of snake bites treated in the Chittagong Medical College Hospital, Bangladesh between September 1993 and April 1999 were studied. A questionnaire, containing information on bite, physical examination, and identification of snakes brought, was used in diagnosis of snake bites. Immunodiagnostic facilities were not available. A syndromic approach was also used for diagnosis which included neurotoxicity with local swelling (cobra), neurotoxicity with minimal/no local swelling (krait), and swelling alone with or without bleeding (green snake). Absence of any of these symptoms was labelled as a non-venomous bite. The syndromic approach was adopted empirically in this study after consultation with experts in this field.

Results: Only 122 (19.8%) cases had clinical evidence of envenoming. Others might have either non-envenoming bite by venomous snakes or bites by non-venomous snakes. Few (<10%) brought the dead snakes. Most victims had not seen the offending snakes, and those who had could not identify them. Most victims had received pre-admission traditional treatments, such as tourniquets, often too tight and multiple, local application of extracts and indigenous remedies, multiple incisions, and recitation from verses (chants, mantra, etc.). Pre-hospital treatments complicated the diagnosis and treatment. Polyvalent anti-venom and neostigmine reversed the neurotoxic features in presumed cobra bites, but could not prevent local tissue necrosis. Anti-venom against green snake venom was not available in Bangladesh. Neurotoxic snake-bite victims developing respiratory failure were managed successfully by manual artificial ventilation and with anti-venom. Anaphylactic and pyrogenic reactions were common reactions to anti-venom.

Conclusion: The results of the study suggest that the majority of the snake bites are non-venomous, and specific clinical diagnosis of venomous bite is impossible. Thus, identification of snakes, immunodiagnosis, and adrenaline prophylaxis for anti-venom reactions may be helpful for the diagnosis and management of snake bite.

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**Implications of WHO-set Criteria of Standard Case
Management in Clinical Diagnosis of Acute Respiratory
Infections: Observations from Urban and Rural Hospitals**

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A.M. Zakir Hussain⁵, A. Ali Molla⁶, P.K. Sengupta⁷, and A. Brooks⁸

Objective: Study the implications of WHO-set criteria of standard case management (SCM) in diagnosing all four clinical forms (no pneumonia, pneumonia, severe pneumonia, and very severe disease) of acute respiratory infections (ARIs) by the government physicians.

Methodology: Data on the history of present illness from 342 children (156 urban, 186 rural), aged less than five years, with complaints of cough and/or difficult breathing were collected. These children were randomly selected from urban and rural health centres. Clinical diagnosis was made employing WHO's criteria of SCM applicable for ARI. Bacteriological culture and drug-sensitivity testing of nasopharyngeal swabs from the children were also performed. Data were analyzed using the SPSS (Win 7.5) software.

Results: Age was significantly associated with all 4 clinical forms of ARI in both urban and rural health centres ($p < 0.00$). Pneumonic and non-pneumonic cases were more prevalent in the rural areas, while very severe disease and severe pneumonic cases were common among the urban children ($p < 0.00$). In both urban and rural areas, cough was prevalent commonly among all clinical forms of ARI, while 'runny nose' was observed more among the pneumonic and non-pneumonic cases ($p < 0.02$). Of the danger signs, 'high temperature' and 'stop feeding well' though observed more in the very severe disease and severe pneumonic cases, these also prevailed in few pneumonic and non-pneumonic cases ($p < 0.01$) from the urban and rural areas. While abnormally sleepy, severe malnutrition, and convulsion predominated among the very severe disease and severe pneumonia cases compared to non-pneumonic and pneumonic cases, misclassification (more false positivity) in 'not able to drink' was observed more among the pneumonic and non-pneumonic cases compared to severe pneumonic and very severe diseases. No significant difference existed between the urban and rural areas for abnormally sleepy and convulsion, but it existed in cases of severe malnutrition ($p = 0.00$). Chest indrawing, stridor, or wheeze were observed among the severe pneumonic and very severe disease cases only from both urban and rural areas. The age-specific respiration rates were observed to be consistent with those of WHO's criteria of SCM applicable for ARI, but the respiration rates did not correlate with the WHO's SCM criteria of ARI in 8 children.

Conclusion: Although the clinical diagnosis of severe pneumonic and pneumonic cases correlates with that of WHO's criteria of SCM applicable for ARI, misdiagnosis of very severe disease and non-pneumonic cases, which still persists, should be corrected through appropriate training and monitoring. A better-designed study is being planned to confirm these findings.

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Drugs and Medical Supplies During and in the Aftermath of the 1998 Flood in Bangladesh

Mamunur Rahman¹, William Bill Aldis², and Qudsia Huda³

Objective: Assess the quantity, quality, and appropriateness of drugs and medical supplies donated by different foreign governments and UN agencies during and in the aftermath of the 1998 flood in Bangladesh.

Methodology: The quality, composition, usefulness, tracking, and registration of all humanitarian health supplies and drugs received by Bangladesh during 15 September-31 December 1998 were analyzed, using a supply management software (SUMA). The software was also used for describing the gaps between drugs required and what was actually donated for humanitarian aid as projected in the UN Consolidated Appeal. The Bangladesh health officials, involved in the management and distribution of these drugs and medical supplies, were interviewed to support a quantitative and qualitative appraisal of the donated drugs and medical supplies during and after the 1998 flood.

Results: The total pledged commitment received (up to 31 December 1998) for humanitarian medical aid was US\$ 8,993,760, which was about 2.6% above the US\$ 8.7 million UN International Appeal for emergency health programme in Bangladesh for the 1998 flood. Most (98%) donated drugs arrived in Bangladesh between 15 September and 31 December. Ten percent of the drugs received until the end of December 1998 were inappropriate. Although the UN Consolidated Appeal for emergency health programme for the flood victims in Bangladesh was fully funded, by the end of December 1998, there were still supply gaps between the quantities donated and the projected requirement for 7 (21.88%) of the 32 drugs listed in the UN Consolidated Appeal. Only 34% of the drugs arrived in Bangladesh within the flood period, i.e. within the month of September and early October, and the rest 66% arrived during mid-October-31 December 1998, i.e. after the recession of floodwater.

Conclusion: The present study has shown that an effective coordination can prevent unnecessary donations. An effective communication between donors and the recipient country can also better assist to meet the need of the disaster-affected country. The study has further shown that better structuring of the emergency health needs of disaster-affected population had a very positive effect on the overall donor response for Bangladesh in 1998. As a long-term measure and to avoid possible "drug dumping," regulations, especially addressing drug donations for humanitarian purposes, should be devised by the Government of Bangladesh based on the WHO's revised Inter-Agency Guideline for Drug Donation, the Basel Convention, and the Disposal of Wastes Guideline to determine the criteria that might enable a medical donation as "acceptable for humanitarian assistance."

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Safety of Maternal Immunization with Pneumococcal Polysaccharide Vaccine on Bangladeshi Pregnant Women

Nigar S. Shahid¹, Eliza Roy¹, T. Begum¹, and M.C. Steinhoff²

Objective: Assess the safety of maternal immunization with 23-valent pneumococcal polysaccharide vaccine on mother-infant pairs.

Methodology: A randomized, double-blind safety trial was conducted on 102 healthy pregnant women recruited during June-September 1998 from private practices of obstetricians in Dhaka city. A single dose of the FDA-licensed polysaccharide 23-valent pneumococcal vaccine (case, n=57) or the meningococcal vaccine (control, n=53) was given at 32±2 weeks of gestation after informed written consent was obtained. All women were monitored for immediate and late side-effects of the vaccines, and information was recorded in the pre-structured forms.

Results: Both the vaccines were well tolerated in both the groups with no immediate and/or systemic side-effects. At 24 hours, 10% and 8% of the women reported of local tenderness, and 0% and 0.9% had rash in the study and control groups respectively. Local reactions resolved within 72 hours of vaccination. No foetal wastage occurred in either of the vaccine groups. Although a higher rate of foetal distress was reported in the infants born to mothers who received the pneumococcal vaccine (9.5%), this rate was not significantly different compared to the infants born to mothers receiving the control vaccine (p<0.06). All infants had good Apgar scores, and no infants had congenital malformation at birth.

Conclusion: In this study, maternal immunization with the 23-valent pneumococcal polysaccharide vaccine was found to be safe. Current vaccines against *Streptococcal pneumoniae* are not effective in preventing deaths and disease when administered to neonatal and young infants. The findings of this study and global experience with this vaccine till date indicate that the 23-valent pneumococcal polysaccharide vaccine may have the potential to be a cost-effective strategy to reduce infant morbidity and mortality due to the invasive pneumococcal disease.

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Microscopy and Culture of Clinical Samples for Diagnosis of Tuberculosis

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Objective: Examine clinical specimens by microscopy and culture for diagnosing tuberculosis.

Methodology: In total, 517 clinical samples (sputum, pleural fluid, cerebrospinal fluid, etc.) were examined by Ziehl-Neelsen stained film under microscope. The sputum specimens were treated with 4.0% NaOH and 3.0% HCl to make ready for inoculation on Lowenstein-Jensen medium for 6 weeks at 37 °C. Direct inoculation was done for other samples in the same medium. The work was carried out at the Gono Shasthaya Vaccine Research and Diagnostic Laboratory from January 1998 to November 1999.

Results: Of the 517 specimens tested, 81 (15.7%) were positive by both microscopy and/or culture methods. Of the positive samples tested, 63 (12.2%) were detected by Ziehl-Neelsen stain and 81 (15.7%) by the culture method. Of the total positive cases, 58 (71.5%) were males, and 23 (28.5%) were females. Of the total suspects (517), 345 (67%) were males, and 172 (33%) were females. The result showed that tuberculosis was prevalent in 37% of the cases in the age group of 26-35 years, 24.7% in 16-25 years, 12.3% in 36-45 years, and 12.3% in 46-55 years. The sputum samples represented the maximum positive cases of 78 (96%), followed by 2 (2.5%) for pleural fluid, and 1 (1.23%) for cerebrospinal fluid.

Conclusion: Sixty-three of the 81 positive samples were detected by Ziehl-Neelsen stain and 81 by the culture method. When a patient is clinically diagnosed/suspected as a case of tuberculosis, appropriate specimens should be submitted for laboratory diagnosis, and the result should be sent back to the physician for his/her proper treatment.

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**Involving Community Leaders in Local-level Planning:
Lessons from the Thana Functional
Improvement Pilot Project**

A.H. Nowsher Uddin and Rukhsana Gazi

Objective: Describe the involvement of community leaders in the implementation and monitoring of action plans to improve performance at the thana level.

Methodology: The study was conducted during March-April 1999 in eight thanas of three districts, namely Nilphamari, Rangpur, and Comilla, receiving inputs from the Thana Functional Improvement Pilot Project, which was implemented during 1995-1999. Two of the districts were in Rajshahi division and the other district was in Chittagong division. In-depth interviews were conducted with the managers of health and family planning services at the thana level and with the community leaders. Minutes of meetings and action plans were also analyzed.

Results: The Thana Functional Improvement Pilot Project formed the Thana Project Committee in all the thanas to endorse the Functional Improvement Action Plan, monitor its implementation, and mobilize the community and local resources. Seven of the 25 members of the Thana Project Committee were community representatives, such as local Member of Parliament, Union Parishad Chairman, and other prominent members of the community. The committee members received a one-day orientation. Although there was a target of six meetings, on an average, per year, the average number of meetings held ranged from 1.5 in the Chittagong division to 2.3 in the Rajshahi Division. The Member of Parliament presided over 50% of the meetings. On an average, two of three Union Parishad Chairmen attended the meetings. The meeting agenda focused more on the issues relating to the improvement of facilities and logistics than the review of programme performance. The community leaders actively participated in the preparation of the Functional Improvement Action Plan for unions, and there was a demand from them for the quick implementation of the plans. Sixty-four percent of all the community leaders attended the meetings. The healthcare managers felt that it was difficult for them to ensure the continuous participation of the community leaders. The community leaders felt that they were often ignored by the managers and that their role as the community representatives was not clearly articulated. They also expressed the need for training on health issues, and expected regular contacts from the health services centres.

Conclusion: Efforts to ensure more effective community involvement may require clearer terms of reference for the committees and more comprehensive orientation for the community representatives. The healthcare managers should also be oriented on the importance of community participation for sustainable improvements in the programme activities.

Community Mobilization and EPI Coverage: Lessons Learned from Chakaria

Manzoor A. Hanifi and Sabrina Rasheed

Objective: Assess whether greater community participation could help increase the coverage of Expanded Programme on Immunization (EPI).

Methodology: Three periodic cross-sectional surveys were carried out in six unions of Chakaria thana of Cox's Bazar district to monitor the immunization status of children, aged less than 5 years, during 1994, 1997, and 1998 respectively. Members of the Self-Help Organizations (SHOs) were activated to ensure the universal immunization of children by bringing health into agenda, using participatory research methods. The SHO members updated the list of eligible children, announced the dates of EPI sessions, motivated the mothers of the targeted children to attend EPI sessions, and liaise with the government workers. In their monthly meetings, the SHO members reviewed the progress and took effective measures to increase the coverage of EPI.

Results: Since 1997, improvements in the EPI coverage have been greater in the intervention area than in the comparison area. In the intervention area, the BCG vaccine coverage increased from 55.8% to 74.4%, the coverage of DPT1, DPT2, and DPT3 improved from 65% to 79.7%, 52.1% to 63.2%, and 44.8% to 47.9% respectively. The measles vaccine coverage also increased from 43.4% to 59.2%. For the same period in the comparison area, the coverage of EPI decreased for all vaccines. Various supply-related factors were identified as barriers to attaining the full potential of community mobilization.

Conclusion: Active community participation with a responsive-delivery system can help improve the coverage of EPI substantially.

Ear, Nose and Throat Problems and Related Care-seeking Behaviour in a Remote Rural Area of Bangladesh

Mohammad Iqbal and Nandita Nazma

Objective: Assess the magnitude of ear, nose and throat (ENT) problems and the patterns of related care-seeking behaviour of patients.

Methodology: Data were collected, during 1997-1999, from patients attending the ENT camps organized by the village-based self-help organizations and the Society for Assistance of Hearing Impaired Children in six unions of Chakaria thana of Cox's Bazar district, covering a population of 125,000. The community health workers of the Chakaria Community Health Project of the ICDDR,B: Centre for Health and Population Research collected information on socioeconomic status, healthcare-seeking behaviour, and severity of problems at the time of screening. Specially trained physicians made final examinations of the patients.

Results: Nearly 1% of the population registered in the ENT camp each year in response to the campaign. Of the total patients, 74% had ear, 22% had throat, and 19% had nose problems. Sixty-seven percent of the patients had visited a healthcare provider, and 28% had used home-remedial measures. The village doctors (61%) dominated the first contact, followed by MBBS doctors (30%) and ENT specialists (9%). Eighty-four percent of the population had been suffering for more than a year.

Conclusion: The magnitude of ENT-related problems in rural areas is large enough to justify public-health interventions.

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Challenge in Implementing the Family Planning Facilitation Programme: A Case Study

Shah Noor Mahmud, A.M.R. Chowdhury, and Ahmed Ali

Objective: Investigate the problems experienced in implementing a government-NGO collaborative programme in family planning.

Methodology: The study was conducted during December 1996-February 1997 in three thanas of Sylhet division. A participatory rural appraisal method was used for collecting data from both government and non-government family planning personnel at the district, thana and union levels along with the Union Parishad members and the local elite.

Results: The field-level family planning staff of the government felt that their involvement with an NGO might increase their workload, job insecurity, and work harassment. In addition, sudden initiation of programme implementation without prior clearance from the government resulted in disinclination to work with the NGO. The local Thana Family Planning Officers also expressed negative feelings toward NGO collaboration.

Conclusion: The findings of the study suggest that effective interactions, transparency of work nature and the extent of staff involvement, and a prior government clearance are necessary to initiate any programme or intervention.

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Reliability of Gestational Age Assessment by the Ballard Simplified Scoring System

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Objective: Compare the modified Ballard simplified scoring system (BSS) with the last date of menstruation (LMP) method for assessing the gestational age of newborns.

Methodology: Babies born to mothers who had been enrolled in a vaccine study were subjected to assessment of gestational age using the BSS by the trained field workers. The observer was not aware of the LMP. Birth-weights were taken in all hospital deliveries.

Results: Ninety-one babies were assessed for foetal maturity by the BSS. Of the babies with birth-weights <2.5 kg, 33% were grouped as premature babies and 66% as small for gestational age (SGA) by both BSS and LMP. None (0%) of the babies with a birth-weight of >2.5 kg was assessed as premature category by the BSS, however, 4 (4.3%) babies were assessed as premature by the LMP ($p < 0.06$). The correlation-coefficient of the total score for gestational age was 0.90. The error of prediction of the total score by the BSS was 0.14 (± 0.27) and by the LMP was 0.23 (± 0.46) weeks. The results, obtained by the two independent systems, were comparable ($p < 0.7$).

Conclusion: The Ballard simplified scoring system is reliable for the assessment of both gestational age and prematurity by field staff. It may help in easy identification and appropriate management of premature and SGA infants in field situations, particularly when the LMP dates are not available.

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Relevance of Application of New National Malaria Clinical Case Definitions in a Teaching Hospital

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Objective: Assess the relevance of application of the new national malaria clinical case definition (NMCD) with that of parasitological confirmation.

Methodology: Six hundred four adult patients (mean age 30.9 ± 14.2 years, male:female 2.3) were included and followed-up till discharge or otherwise in all Medicine Units of the Chittagong Medical College Hospital from April 1998 through January 1999. The inclusion criteria were: either sex aged over 12 years, having fever or history of fever over last 48 hours, and patients who were receiving antimalarials for a diagnosis of malaria. The exclusion criteria were refusals to give informed consent to take part in the study, and refusals to allow required relevant procedures. The NMCDs are uncomplicated malaria (UM), treatment failure malaria (TFM), and severe malaria (SM). For the study purpose, each group was divided into three categories with hypothetical definitions, which were true, possible, and uncertain. On admission, each case was diagnosed as per the NMCD, finally categorized to hypothetical definitions, and compared with parasitological confirmation to find out the relevance.

Results: There were 125 UM (20.7%), 19 TFM (03.1%), and 449 (76.2%) SM cases. True UM cases were 76 (60.8%), possible UM 22 (17.6%), and uncertain UM 27 (21.6%); true TFM cases were 10 (52.6%), possible TFM 3 (15.8%), and uncertain TFM 6 (31.6%); and true SM cases were 316 (70.4%), possible SM 62 (13.8%), and uncertain SM 71 (15.8%). The relevance of the NMCD was found more for the SM cases, and UM and TFM followed the suit, along with lacunae of non-relevance.

Conclusion: In all instances, the NMCD was not relevant to clinically-diagnosed malaria cases by different categories to parasitological confirmation.

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Assessing Quality of Data in a Reproductive Health Intervention of an NGO in Rural Bangladesh

Kaosar Afsana and Shah Noor Mahmud

Objective: Validate the quality of data of a reproductive health intervention of BRAC, the largest non-government organization in Bangladesh.

Methodology: A survey was undertaken during March-April 1998 among the rural poor women having membership with the BRAC's grassroots-level village organizations. Selected process indicators on the issues of reproductive health, such as use of antenatal care, use of trained personnel during childbirth, contraceptive prevalence, and discontinuity of methods, were chosen. To estimate the use of antenatal care and trained personnel, a sample of 210 women who had given birth during January-December 1996 was drawn from the members of the BRAC's village organizations. For contraception, 450 currently married women were randomly selected from the same village organizations.

Results: The validated data of the programme were in close agreement with the survey data. The overall agreement on the use of antenatal care, trained personnel during childbirth, and contraceptives was very high as opposed to that of the discontinuity of methods.

Conclusion: Programme data on the process indicators of selected reproductive health issues can be used as a reliable source of information. However, validation of the programme data should occasionally be done to maintain the quality.

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Reproductive Health in a Rural Area of Bangladesh

G.M. Monawar Hosain, Md. Tariqul Islam, and Qasem Chowdhury

Objective: Assess the reproductive health status in the Gono Shasthaya Kendra (GK) Project area.

Methodology: Data from the project area were used for assessing the reproductive health status in the Gono Shasthaya Kendra, Savar Project area. Trained health workers and physicians collected the data in 1999. The WHO-agreed 15 indicators were used for measuring the level of reproductive health status.

Results: The GK Savar project, working in 164 villages covering about 0.2 million people, has given important emphasis on reproductive health since its inception in 1972. As of September 1999, the contraceptive prevalence rate was 55.9%. The maternal mortality rate was 203/100,000 live-births. The commonest cause of maternal mortality was postpartum haemorrhage. Three or more visits of antenatal care service were offered to 91% of the pregnant women. Anaemia was present in more than 95% of the pregnant women. The general fertility rate was 96/1,000 women. Perinatal mortality was 62.9/1,000 births, and 15% had low birth-weights. Institutional delivery took place in 12% of the cases, and admission owing to abortion was 8% of all admitted gynaecology and obstetrics patients. A 70-bed hospital is equipped with general anesthesia and blood transfusion facilities to serve this population for basic essential obstetric care.

Conclusion: Some events are too rare to use as an indicator at this community level. For few indicators the gap is not as wide as was expected than the national level. There seems to be a critical need for improvement of few indicators in the coming days through concerted efforts.

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Accuracy, Suitability, and Acceptability of Indicators to Monitor Community-based Nutrition Project Activities

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and A.M.R. Chowdhury¹

Objective: Evaluate the accuracy, suitability, and acceptability of indicators used in monitoring community-based nutrition component activities of the Bangladesh Integrated Nutrition Project.

Methodology: A cross-sectional study was conducted in Mohammadpur thana of Magura district in 1998. In total, 1,050 children aged less than two years, 260 pregnant and 254 lactating mothers from 52 Community Nutrition Centres were randomly selected. Accuracy was tested comparing measurements taken by a grassroots-level staff (Community Nutrition Promoter) with those taken by a research staff. In-depth interviews and observations assessed the suitability and acceptability of the indicators.

Result: The results of the study showed that the accuracy, suitability, and acceptability of height, mid-upper arm circumference, age (children only), last menstruation period, compliance to iron tablet intake, and birth-order were high. The suitability and acceptability of weight and birth-weight measurements were found to be high, but were found to be low for length measurement of the children. However, the accuracy of weight measurement both for children and adults was found to be low. Under-weighting was common and ranged from 0.5 to 5.0 kg in case of adults and from 0.1 to 2.0 kg in case of children. The commonest reasons of under-weighting included the use of faulty weighing scales and the lack of calibration with a known weight.

Conclusion: Data collected on most major monitoring indicators were found to be suitable and acceptable. Increased accuracy of weight measurements through regular calibration and replacement of the faulty scales on time are suggested.

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Characteristics of Sterilized Women in Bangladesh: Do They Regret?

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Objective: Examine the socioeconomic and demographic characteristics of sterilized women, as well as the patterns and determinants of sterilization regret in Bangladesh.

Methodology: Data for the study were extracted from the Bangladesh demographic and health survey 1996-1997, covering a nationally representative sample of 9,127 ever-married women aged 10-49 years. Frequency distribution, cross tabulation, logistic regression, chi-square test, and 't' test were used for data analysis.

Results: The majority (68%) of the sterilized women accepted the method when they were aged less than 30 years (the average age at sterilization was 26 years). Most of them had three or fewer living children, and had sterilization operation before they had used any other modern methods. Those women who were from rural areas, illiterate, or non-working, and women with poor economic conditions were more likely to be sterilized. In most cases, the women were sterilized, because they did not want any more children. About one-third of the sterilized women complained that they had faced difficulties after the sterilization operation, and only 10 percent regretted having been sterilized. Significantly higher sterilization regret was observed among the urban women, women aged less than 30 years at the time of sterilization, had fewer than 3 living children, and who had faced physical problems after the sterilization operation.

Conclusion: The family planning programme should have provision for a balanced choice of methods, as well as better counselling, education, and access to high-quality services, so that women can make a free and informed decision about sterilization.

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Costing of Integrated Management of Childhood Illnesses Based on Matlab Data

*M. Mahmud Khan*¹, Kuntal Kumar Saha², **Shakil Ahmed**², and Nazmul Sohel²

Objective: Estimate the recurrent cost of implementing the newly-proposed Integrated Management of Childhood Illnesses (IMCI) in the first-level health facilities (FLHFs) in rural Bangladesh.

Methodology: The study was conducted at Matlab. Data on illness cases (children aged 2 months to 5 years), who came to seek treatments from the Community Health Workers (CHWs) at their residence and also who visited the child healthcare subcentres, were collected. Illnesses of all the sample cases were categorized according to the IMCI illness classification based on the reported symptoms and clinical evaluation by the CHWs and the paramedics. Estimates were made incorporating additional recurrent cost, including additional personnel cost and additional drug cost.

Results: Implementation of IMCI requires a much higher allocation of time of the health workers to child health activities. Using parameters derived from Matlab, projection to whole Bangladesh implies the appointment of about 5,500 new health workers, i.e. additional 1.22 health workers per union. The total additional recurrent cost of implementing IMCI where the health workers are already providing primary care services will be US\$ 3.24 million per year. Implementation of IMCI will reduce the drug cost at the community level by about 15%.

Conclusion: The training of health workers needs to be upgraded to run the proposed Community Clinics efficiently. The drug composition will have to be adjusted, if IMCI is implemented. Development and implementation of the IMCI strategy at the community level will reduce the number of referrals significantly.

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**Use of Health Services by Rural Women in Bangladesh:
An Indication to Women's Health Need**

Amina Mahbub and Syed Masud Ahmed

Objective: Understand the use of health services by rural women and the underlying socioeconomic and cultural factors.

Methodology: This qualitative exploratory study tried to address the cognitive symbolic aspects from the perspectives of users. Being a part of the BRAC-ICDDR,B Joint Research Project, the study was carried out purposively in a village of Matlab thana. The study population included 50 married women aged 18-50 years. It included both BRAC and non-BRAC women (BRAC, n=25, non-BRAC, n=25) separately. Data were collected through narratives of illness episodes, matrix ranking, group discussions, and key-informant interviews.

Results: The use of health services by the rural women was largely dependent on beliefs about the causes and explanation of illnesses, availability of health services, socioeconomic conditions, and the previous experience relating to the efficacy of treatments. 'Illness-specific' health-seeking behaviour was apparent among the women, particularly the illnesses caused by evil spirit and certain reproductive health problems, such as dysmenorrhoea, *shutika*. Due to certain sociocultural factors, fear, and embarrassment, the rural women eluded clinical treatment for reproductive health problems, and relied on traditional healers who were trustworthy, accessible, and affordable.

Conclusion: The use of health services by women depends on a number of sociocultural factors and health-belief systems. Communication between users and providers is important. The findings of the study indicate that the existing health services should develop strategies that are sensitive to health needs and expectations of rural women.

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Diphtheria, Pertussis and Tetanus Coverage at Rural Sites of the Operations Research Project

A.B.M. Khorshed Alam Mozumder, Barkat-e-Khuda, and D.M. Mizanur Rahman

Objective: Present the sociodemographic and programmatic differentials of diphtheria, pertussis, and tetanus (DPT) coverage of children.

Methodology: Data for this study came from the surveillance system of the Operations Research Project (ORP) of the ICDDR,B: Centre for Health and Population Research. Data collection on the immunization coverage began to be phased-in in 1997. In the first phase in 1998, information on DPT was collected from the four rural sites (Abhoynagar, Mirsarai, Keshobpur, and Satkania thanas), followed by measles, BCG, and polio. The percentage of the 1,323 children, aged 12-23 months, who had received DPT by the number of doses and their sources at the ORP rural sites in 1998, was tabulated against the sociodemographic and programmatic variables. The ORP interventions included the increase in the number of Satellite Clinics and their merger with the 24 Expanded Programme on Immunization (EPI) spots. This has led to the increased use of health services.

Results: Overall, four-fifths (83%) of the children (n=857) received 3 doses of DPT in all the ORP rural intervention project sites. The Bangladesh demographic health survey 1996-1997 reported a 69% coverage of three doses of DPT for the country as a whole. About 82% of the 526 children in Mirsarai received the third dose of DPT. By contrast, in the comparison area, only two-thirds (71%) of the children received three doses of DPT. Both Mirsarai and Abhoynagar intervention areas covered more children for DPT immunization than the respective comparison areas. The Satellite Clinics combined with EPI spots were the major sources from where children received DPT immunization. Ninety-four children from the comparison areas of Satkania in Chittagong district and Keshobpur in Jessore district received DPT at their own homes.

Conclusion: The coverage for the third dose of DPT among the children aged 12-23 months was higher in the intervention areas compared to that of the respective areas at the ORP field sites. Merging of the Satellite Clinics with the EPI spots has contributed to the higher immunization coverage at the ORP sites.

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Does Access to Mass-media Affect Knowledge and Attitudes of Men Toward Female Reproductive Health?

Nirod C. Saha, Ali Ashraf, Subrata Routh, and Barkat-e-Khuda

Objective: Examine the effects of access to mass-media vis-à-vis knowledge and attitudes of men toward female reproductive health.

Methodology: Information relating to access to mass-media, such as newspapers, radio, and television, and knowledge about and attitudes toward women's reproductive healthcare, e.g. obstetric complications and care, safe motherhood, etc., were collected from 12,197 rural and 2,619 urban men by trained male interviewers from selected rural and urban sites of the Operations Research Project of the ICDDR,B: Centre for Health and Population Research, namely Abhoynagar, Mirsarai, and Patiya rural thanas, and the Sher-e-Bangla Nagar and Lalbagh areas in Dhaka city. Both descriptive and multivariate analyses were employed to analyze the data.

Results: Thirty-four percent of the respondents were found to have daily access to all the three types of mass-media in both rural and urban areas. Men who had daily access to mass-media had better knowledge of and attitudes toward obstetric care and safe motherhood than those who had occasional access. Fifty percent of the respondents with daily access to the three types of mass-media and 32% having occasional access to those had knowledge of complications relating to pregnancy, which was, however, found to be better among the urban men in general, irrespective of the difference in mass-media access. Spouses of the men with daily access to the mass-media undertook three or more antenatal care visits during their recent pregnancy. Sixty-six percent of the rural and 70% of the urban men with daily access to mass-media opted for delivery of their wives at the health facilities. The vast majority (75%) of the men with daily access to all the three types of mass-media were accompanied by their wives to the providers for medical consultation during recent sickness.

Conclusion: Access of men to mass-media has positive effects on the proper understanding of the female reproductive healthcare needs.

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Micro-credit and Emotional Well-being: Experience of Poor Rural Women from Matlab, Bangladesh

Syed Masud Ahmed¹, A.M.R. Chowdhury', and Abbas Bhuiya²

Objective: Explore the experience of emotional stress by rural Bangladeshi women and the coping mechanisms adopted.

Methodology: Data originated from a survey done in 1995 in 14 villages of Matlab under the BRAC-ICDDR,B Joint Research Project. Besides demographic and socioeconomic characteristics, information on women's emotional stress and coping mechanisms were collected from ever-married women aged 15-55 years, using a structured questionnaire. To elicit 'emotional stress,' women were asked about disruption of mental peace during the preceding four months. Data were analyzed comparing the BRAC households with the non-member households, and multivariate analysis was done to identify predictors of emotional stress. The SPSS statistical package (version 7.5) was used for data analysis.

Results: Of the 3,624 respondents, 42% of the BRAC households reported that they had been suffering from emotional stress in the last four months compared to 44% and 29% of the poor and non-poor non-member households respectively. Poverty (43%) was the major reason for emotional stress. Multivariate analysis identified the women's current marital status, health status, contribution to family income, household's land-holding status, and disputes with neighbours as important predictors for better mental health. Selling household assets, poor health, and having children contributed to greater emotional stress. BRAC membership failed to show any discernable effect on the prevalence of emotional stress among the study women. About 44% of the women manifested symptoms of depression while coping with such situations.

Conclusion: To optimize the beneficial effects of micro-credit on the lives of the poor women, creation of an enabling environment free of anxiety, tension, and violence, needs serious rethinking.

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Review of Prescriptions as a Measure of Technical Competence

Kaosar Afsana and Shah Noor Mahmood

Objective: Assess the technical competence of the primary therapists of the BRAC Health Centres (BHCs).

Methodology: During April-May 1998, 6 of the 21 BHCs were purposively selected based on the duration of their establishment and their level of performance. In total, 131 patients, either with cough or abdominal pain, were chosen who attended the BHCs during the period of data collection. Data were abstracted by reviewing the prescriptions given to the patients.

Results: In the prescriptions, the duration of illness was mentioned for 35%, complaints relating to systemic examination for 20%, and specific diagnosis for 41% of the patients. Three percent of the cases were treated following the BHC guidelines. Drugs were prescribed from the drug lists of the enlisted pharmaceutical companies for 38% of the patients. Moreover, 50% of the patients were prescribed vitamins. More than three-fourths (78%) of the clients received three to four medications for the treatment of their diseases. Only 13% of the patients received specific advice, and 7% received specific treatment.

Conclusion: The findings of the study suggest that the primary therapists of the BHCs lacked adequate technical competence in giving treatments to their clients. Their technical competence needs to be improved, and an emphasis should be given to develop their prescription-writing skills.

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**Perceptions of the Community People About Services
of the BRAC's Ante Natal Care Centre and
the Government's Satellite Clinic**

Amina Mahbub

Objective: Understand the perceptions of the community people about the services of the Ante Natal Care Centre (ANCC) of BRAC and the government's Satellite Clinics (SCs).

Methodology: This exploratory qualitative study was carried out to gain insights into the research issue by investigating the views of the people and their interpretations. The methodological design was qualitative, and focused on the issue mainly through a participatory rapid appraisal. It was carried out in two villages in Bogra Sadar thana—one ANCC and one SC. The study population consisted of both male and female villagers in general. Key-informant interviews, in-depth interviews, group discussions, importance rating, and impact flowchart were used for data collection.

Results: The findings of the study revealed that the community was familiar with the types of services provided by both ANCC and SCs, but they did not have any specific idea about the significance of most services. In assessing the services, children's immunization was of prime concern to them. They pointed out several positive and negative impacts of the ANCC and the SCs, such as less child mortality, better health condition of pregnant women, less complications during childbirth, no cost on transport, and strain on the conjugal life. Focusing on behaviour and attitude, the villagers made a clear distinction between the health providers of the ANCC and the SCs. The villagers placed several recommendations to improve the health services in the ANCC and the SCs.

Conclusion: The findings of the study suggest that the need of maternal and child health services should be clearly addressed to the community people for the sustainability of the ANCC and the SCs. The recommendations of the community people can be considered to increase their participation in the ANCC and the SCs.

Food Supplementation and Nutrition Education: Lessons Learned from a Pilot Nutrition Initiative

*Rita Das Roy*¹, S.M. Ziauddin Hyder¹, A.M.R. Chowdhury¹, and Zeba Mahmood²

Objective: Assess and compare the impact of the Muktagacha Pilot Nutrition Initiative for adolescent girls on long-term changes in knowledge and practices with respect to health and nutrition.

Methodology: The study included three groups of population: 161 mothers who received nutrition education and food supplementation under the Pilot Nutrition Initiative of BRAC from 1993 to 1995 in Muktagacha; 151 mothers who received only nutrition education through BRAC non-formal primary education from 1993 to 1995 in Samvuganj; and comparable 93 mothers who did not receive any of these interventions in Dapunia. Data were collected through house-to-house interviews.

Results: The results of the study indicate that, for the majority of the indicators, no significant difference with respect to knowledge on basic nutrition, e.g. carbohydrate, protein, and vitamin-rich foods, was apparent between the two intervention groups ($p>0.05$). But it was lower among the comparison group compared to both the intervention groups. Both the intervention groups did not significantly differ for practices with respect to attendance in the antenatal centre and growth-monitoring session, colostrum feeding, introduction of supplementary food at the right age, composition of supplementary food, latrine use, hand-washing practices after defaecation, garbage disposal, and maintaining clean courtyard ($p>0.05$). However, the comparison group showed significantly poorer practices with respect to the above indicators compared to the intervention groups.

Conclusion: The nutrition-education programme of BRAC had an enormous impact on long-term changes in nutrition knowledge and practices of adolescent girls. However, food supplementation as an additional intervention to nutrition education was not found useful.

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Improving Ward-level Coordination among Urban Stakeholders of the Health and Population Sector

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Objective: Identify the obstacles to involving community representation in the Ward Health and Family Planning Coordination Committees of the Dhaka City Corporation, and assess the role of these committees in the delivery of the essential services package (ESP).

Methodology: Sixty-two members from about half (16) of the 35 Ward Health and Family Planning Coordination Committees (four persons from each Committee: Chairman, Member-Secretary, and two Members) were purposively selected and interviewed by the trained interviewers. Data were collected during July-September 1999. The minutes of the Zonal and Ward Coordination Committee meetings were also used as secondary data.

Results: Eighty-eight percent of the committee members mentioned that the ward-level committees were very useful to coordinate the health and family planning services at the ward level, and should be continued for providing coordinated services. Twenty-five percent of the respondents felt that the committees helped reduce duplication in service provision by defining the working area of each organization and also helped improve the referral system. More than 50% of them reported that they had faced problems in organizing the Ward Committee meetings, because the Ward Commissioners were involved in other priority works. It was also found that most NGOs, especially the National Integrated Population and Health Programme, could not be made responsible for forming the Ward Committees due to lack of manpower. Forty-seven percent suggested that the committees could monitor and supervise the activities of NGOs.

Conclusion: The committees were formed to involve the local leaders and the service organizations for providing better services at the ward level. It was difficult to mobilize all the stakeholders. Nevertheless, most perceived that the activities/plans of the committees need to be strengthened to improve the delivery of the ESP at the ward level, because the ESP services are focused on activities at the ward level. The role of Ward Commissioners should be well defined, and they need to be well oriented on the terms of reference of the ward-level committees.

Effects of Training on Performance of Health and Family Planning Managers in Rural Bangladesh

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and Cristóbal Tuñón¹

Objective: Assess the effects of a training conducted for the government and NGO thana managers, designed to improve the management and performance of health and family planning services in rural areas of Bangladesh.

Methodology: Data were collected from five purposively selected rural thanas during monthly visits by an independent researcher from February to June 1999. The methods used were: in-depth interviews, structured observations of field activities and staff meetings organized by trained managers, and focus-group discussions with field staff. Data from the monthly performance reports, clinic records, and minutes of the meetings were also collected and analyzed.

Results: After the training, the performance reports indicated an increase in the contraceptive acceptance rate in three of the five study areas and in the immunization coverage in all the areas. The numbers of clinical method users and clients with side-effects managed at the clinics increased (1-2% increase in case of injectable in all the thanas) after the training (before training 396 and after training 669) in all the areas. All the trained managers introduced the practice of adding immunization services to the satellite clinics for family planning. The practice of setting agenda for meetings, reviewing the minutes of the previous meetings, using reports, conducting monthly reviews of performance, and holding joint meetings was increasingly visible after the training. Sixty-nine percent of the respondents reported that the performance-evaluation system introduced as part of the training encouraged the field staff to work as they could compare their performance with that of other areas. Administrative problems, such as transfers of trained staff, affected the continuity and limited the ability of the trained managers to establish effective teams. The trained managers claimed that lack of funds and insufficient support and encouragement from their respective supervisors affected their capacity to implement the action plans prepared as part of the training.

Conclusion: The results of the study suggest that the training course alone is not sufficient to ensure the complete implementation of training inputs at the operational level. Follow-up interventions are, thus, needed to ensure continued attention from the higher administrative levels and to support the trained managers in the process of implementation of the action plan.

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Ability of Grassroots-level Workers to Understand Indicators for Monitoring Nutrition Project Activities

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Objective: Assess the ability of the Community Nutrition Promoters (CNPs) of the Bangladesh Integrated Nutrition Project (BINP) to understand the monitoring indicators of community-based nutrition activities.

Methodology: The study was conducted in Mohammadpur thana of Magura district during August-September 1998. Thirty CNPs were randomly selected. Data were collected through a questionnaire survey, observations, and informal discussions.

Results: The CNPs could mention at least one important reason of collecting data on each of the indicators. Among all the indicators, date of birth, birth-weight, weight (children and mothers), colostrum feeding, and exclusive breast-feeding were perceived as the most important ones to record. Some common problems in data collection included the visit of mothers to natal home during delivery, excessive movement of children during weight-taking, and resistance from *Fakir* or elderly family members in weight-taking for both mothers and children. Many CNPs had to visit houses mainly for measuring weight of those children and mothers who failed to attend the growth-monitoring sessions. Since the data-collection process was found to be difficult, a high proportion of the CNPs opined to collect moderate or poor-quality data for weight-for-age (54%), mother's weight (64%), last menstruation period (90%), mother's height (47%), and weight gain during pregnancy (70%). The CNPs had fair understanding on the use of the monitoring indicators.

Conclusion: Although the CNPs had fair understanding of the meaning and use of the monitoring indicators, more discussions on the collection and interpretation of weight-based indicators during their monthly refresher's training are, however, suggested.

Behaviour Change Communication Materials on Clinical Contraceptives: Impact on Knowledge of Community Influentials

Iffat Shams, Ahsan Shahriar, Shameem Akter Jahan,
Rabeya Khatun, and Farzana Sobhan

Objective: Describe the process of reviewing and modifying behaviour change communication (BCC) materials on clinical contraceptives to present necessary messages, and assess the change in knowledge of community influentials after orientation using the unified materials.

Methodology: BCC materials on clinical contraceptives were unified by processes, such as an inventory, theme-based selection, gap identification, development of new materials to fill-up gaps, and finalization after field-testing. In total, 54 Union Parishad members, 52 teachers, 93 village practitioners, and 152 social group leaders of Abhoynagar thana of Jessore district and Mirsarai thana of Chittagong district were identified and orientated on clinical contraception, using the unified materials. Information on the knowledge of influentials on different clinical contraceptive methods was collected through pre- and post-tests.

Results: Many materials on clinical contraception were already available from varied sources. Review of these materials identified several issues that remained to be addressed. These are: female family planning providers being available for intra-uterine devices; religious barriers, advantages of semi-permanent or permanent methods, misconceptions about male sterilization, and the important role of husbands in contraception. Knowledge on clinical contraceptives increased among all the participants, following orientation with the unified BCC materials.

Conclusion: Conducting the inventory and review of the BCC materials allowed the policy-makers and programmers to identify gaps and issues that needed to be modified to make information on clinical contraception comprehensive. The use of the unified BCC materials improved the knowledge of the community leaders. This suggests that the influential people in Abhoynagar and Mirsarai thanas can contribute to the promotion and increased use of clinical contraceptives in their communities.