An Annotated Bibliography

POPULATION MCH AND FAMILY PLANNING RESEARCH IN BANGLADESH

Volume -Ten

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FOREWORD

National Institute of Population Research and Training (NIPORT) of the Government of Bangladesh has come out with the tenth and enlarged edition of the "Population, MCH and Family Planning Research in Bangladesh: An Annotated Bibliography" as its regular publication. It is a very important national resourceful publication of Bangladesh in the field of health, population and nutrition. It will help to the health and family planning professionals for proper planning of manpower at national and organizational level. This would also be equally useful to the policy makers, program managers and researchers in order to get the information on the population and development, reproductive health, family planning performances etc. This compendium will fill-up the gap between available research findings and those who will be searching for facts. The main objective of the compilation is to disseminate the results of the research studies conducted during the period of 2011 to 2013 by the various organizations and institutions including individual researchers in abstract form.

A large number of studies are being published in each year in Bangladesh, but it is often not accessible or affordable. Moreover, sharing of information in a cohesive manner will also facilitate researchers to avoid duplication and reflections of research questions in a focused manner. It is hoped that this research compendium will serve the purpose of disseminating the research findings of studies to all concerned. Most of the researches conducted within the stated period have been included, and we convey our regrets if any were missed in the reporting. In this context, I would encourage the active participation of professionals to contribute and use information that would be beneficial towards further designing of new programs of population, nutrition, HIV/AIDS and reproductive health.

The compilers of this compendium, particularly Md. Rafiqul Islam Sarker, Director (Research), NIPORT, Mohammed Ahsanul Alam, Evaluation Specialist, NIPORT and Mr. Dipak Chandra Roy, Librarian, NIPORT deserve my appreciation for the tedious job of monitoring and supervising of collecting research reports, abstracting, editing and finally bringing out each of them in the compiled form as it is presented here. I express our gratitude to those who have generously helped us by providing research reports/journal articles. Last, but not the least, thanks are due to all the authors of this documents. The concerted efforts of all will be successful if the document is used by the policymakers, program managers and researchers. NIPORT will welcome any suggestions for improvement of this dissemination exercise from all concerned.

(Mohammad Wahid Hossain *ndc*)

ACKNOWLEDGEMENT

Most of the national and international professionals and organizations working in Bangladesh helped us in collecting research reports, journal articles and seminar papers (published or unpublished) for preparation of the "Population, MCH and Family Planning Research in Bangladesh: An Annotated Bibliography –Tenth Volume". They all deserve special than ks for providing documents and showing keen interest in publishing this valuable works.

We are very much grateful to Mr. Mohammad Wahid Hossain *ndc*, Director General NIPORT for facilitating us to publish this document.

We express my sincere gratitude to the concerned officials of NIPORT for compiling the annotated bibliography with full care, caution and dedication.

We welcome any suggestion for further development of the publication in the future.

(Md.Rafiqul Islam Sarker)
Director (Research)
NIPORT

CONTENTS

ABBREVIATION

ABCN	-	Area Based Community Nutrition
AIDS	-	Acquired Immune Deficiency Syndrome
ANC	-	Antenatal Care
ARI	-	Acute Respiratory Infection
APH	-	Ante-Partum Hemorrhage
API	-	Amniotic Fluid Index
ARI	-	Acute Respiratory Infection
ASA	-	Association for Social Advancement
AUFPO	-	Assistant Upazila Family Planning Officer
BAPSA	-	Bangladesh Association for Prevention of Septic Abortion
BARD	-	Bangladesh Academy for Rural Development
BBS	-	Bangladesh Bureau of Statistics
BCC	-	Behavioral Change Communication
BCS	-	Bangladesh Civil Service
BDHS	-	Bangladesh Demographic and Health Survey
BIRDEM	-	Bangladesh Institute of Research and Rehabilitation, Diabetes, Endocrine and Metabolic Disorders
BIRPERHT	-	Bangladesh Institute of Research for Promotion of Essential Reproductive Health and Technologies
BMMS	-	Bangladesh Maternal Mortality Survey
BRAC	-	Bangladesh Rural Advancement Committee
BSMMU	-	Bangabandhu Sheikh Mujib Medical University
BMI	-	Body Mass Index
CAR	-	Contraceptive Acceptance Rate
CBC	-	Complete Blood Count
CBN	-	Cost of Basic Needs
CBR	-	Crude Birth Rate
CC	-	Community Clinic
CEDAW		Committee on the Elimination of Discrimination Against Women
CHCP	-	Community Health Care Provider
CHRW	-	Community Health Research Worker
CHW	-	Community Health Workers
CSS	-	Community-Support System
CPR	-	Contraceptive Prevalence Rate

CRP	-	C-Reactive Protein
CS	-	Caesarean Section
CSBA	-	Community Skilled Birth Attendant
DCC	-	Dhaka City Corporation
DGFP	-	Directorate General of Family Planning
DGHS	-	Directorate General of Health Services
DMCH	-	Dhaka Medical College Hospital
DPT	-	Diphtheria Pertussis Tetanus
DSF	-	Demand-side Financing
DSS	-	Demographic Surveillance System
DTSC	-	Directly Treatment Short Course
EA	-	Enumeration Area
ECP	-	Emergency Contraception Pill
EFW	-	Estimated Fetal Weight
EMC	-	Emergency Contraception
EMOC	-	Emergency Obstetric Care
EOC	-	Emergency Obstetric Care
EPDS	-	Edinburgh Postnatal Depression Scale
ESD	-	Essential Service Delivery
FGD	-	Focus Group Discussion
FP	-	Family Planning
FPAB	-	Family Planning Association of Bangladesh
FWA	-	Family Welfare Assistant
FWC	-	Family Welfare Centre
FWV	-	Family Welfare Visitors
GB	-	Grameen Bank
GCS	-	Glasgow Coma Scale
GDP	-	Gross Domestic Product
GED	-	General Economic Division
GK	-	Ganoshasthya Kendra
GOB	-	Government of Bangladesh
GQL	-	Generalized Quasi Likelihood
HA	-	Health Assistant

HDRC	-	Human Development Research Center
HDSS	-	Health and Demographic Surveillance System
HFWC	-	Health and Family Welfare Centers
HIV	-	Human-immuno Virus
HKI	-	Helen Keller International
HPN	-	Health Population and Nutrition
HPNSDP	-	Health Population and Nutrition Sector Development Program
HR	-	Human Resources
HRLS	-	Human Rights and Legal Services
HVP	-	Health Voucher Program
ICDDR,B	-	International Centre for Diarrhoeal Disease Research, Bangladesh
ICMH	-	Institute of Child and Mother Health
ICPD	-	International Conference on Population and Development
ICU	-	Intensive Care Unit
IDA	-	Iron Deficiency of Anemia
IEC	-	Information Education and Communication
IMR	-	Infant Mortality Rate
IPD	-	Indoor Patient Department
IUD	-	Intra-uterine Device
IVH	-	Intra-ventricular Hemorrhage
KAP	-	Knowledge, Attitude and Practice
LBW	-	Low-Birth Weight
LIP	-	Local Initiative Program
LLP	-	Local Level Planning
LR	-	Local Register
MCH	-	Maternal and Child Health
MCHTI	-	Maternal and Child Health Training Institute
MCMC	-	Marcov Chain Motre Carb
MCWC	-	Maternal and Child Welfare Centre
MDG	-	Millennium Development Goal
MHV	-	Maternal Health Voucher
MIS	-	Management Information System
MMR	-	Maternal Mortality Rate
MNCH	-	Maternal, Newborn and Child Health

MNP	-	Micronutrient Powder
MOHFW	-	Ministry of Health and Family Welfare
MR	-	Menstrual Regulation
MVA	-	Manual Vacuum Aspirations
NGO	-	Non-Government Organization
NIPORT	-	National Institute of Population Research and Training
NIPSOM	-	National Institute of Preventive and Social Medicine
NPA	-	Non-Partnership Agreement
NNP	-	National Nutrition Program
OC	-	Oral Contraceptives
OCP	-	Oral Contraceptive Prevalence
OCP	-	Other City Corporation
OPD	-	Out-Patient Department
ORP	-	Operations Research Project
ORS	-	Oral Re-hydration Solution
ORT	-	Oral Re-hydration Therapy
PA	-	Partnership Agreement
PCOS	-	Polycystic Ovarian Syndrome
PEC	-	Post Enumeration Check
PNC	-	Postnatal Care
PP	-	Placebo Powder
PPH	-	Postpartum Hemorrhage
PSU	-	Primary Sampling Unit
PWD	-	Person With Disabilities
QOL	-	Quality of Life
RDS	-	Respiratory Distress Syndrome
RH	-	Reproductive Health
RTI	-	Reproductive Tract Infection
RTM	-	Research Training and Management
SACMO	-	Sub-Assistant Community Medical Officer
SBA	-	Skilled Birth Attendant
SC	-	Satellite Clinic

SCABU	-	Special Care Baby Unit
SMA	-	Statistical Metropolitan Area
SMPP	-	Safe Motherhood Promotion Project
SRHR	-	Sexual and Reproductive Health and Rights
SS	-	Shasthya Sebika
STD	-	Sexually Transmitted Diseases
STI	-	Sexually Transmitted Infections
SVRS	-	Sample Vital Registration System
SWA	-	Sector-Wise Approach
TB	-	Tuberculosis
TBA	-	Traditional Birth Attendant
TFR	-	Total Fertility Rate
TVC	-	Tuberculosis Verruca Cutis
UESD	-	Utilization of Essential Service Delivery
UHC	-	Upazila Health Complex
UH&FPO	-	Upazila Health & Family Planning Officer
UHFWC	-	Union Health and Family Welfare Centre
UFPO	-	Upazila Family Planning Officer
UNCRPD	-	United Nations Convention on the Rights of Person with Disabilities
UNFPA	-	United Nations Fund for Population Activities
UNICEF	-	United Nations Children Emergency Fund
UPHCP	-	Urban Primary Health Care Project
USAID	-	United States Agency for International Development
UVE	-	Unclean Vaginal Examination
VA	-	Verbal Autopsy
VAC	-	Vitamin - A Capsule
VARD	-	Voluntary Association for Rural Development
VAW	-	Violence Against Women
WHO	-	World Health Organization
YMC	-	Young Married Couples

CHAPTER- I
INTRODUCTION

The 10th volume of annotated bibliography is published by the National Institute of population Research and Training (NIPORT), Ministry of Health and Family Welfare of the Government of Bangladesh with a greater aim to document population and family planning studies for further dissemination of the findings to the decision makers, program managers, researchers and other users. This document compiles the objectives, methodologies, findings and recommendations of the research works conducted during the period of 2011-2013 by various organizations, institutions and individuals. From this 241 studies/journal articles, this annotated bibliography would provide information on health, population, and nutrition as well as maternal and child health and reproductive health activities conducted and published by different national and international organizations and individuals.

Time of preparation of this document, maximum care was provided to inclusion all the institutions, organizations, NGOs and other entities that have had studies which satisfy our needs and objectives of publishing the document. In order to getting information, 140 individual person or organizations including university/departments/institutions/NGOs were communicated using various means to collect the study reports, journal articles, dissertations, workshop reports, surveys that have been conducted from 2011 to 2013. Altogether more than 300 reports/journal articles were collected from various organizations and individuals, and from these reports and articles 241 have been selected and included in this annotated bibliography.

In the selection criteria process of reports and articles, emphasis was given on those works which capitalized primary sources of data to prepare the study reports. Considering the importance and relevance of the papers, some study reports/articles/seminar papers were prepared from secondary data sources that are also included in this bibliography.

In this publication, the findings of the studies have been prepared in abstract form by a cohesive manner. However, all the topics were reviewed separately, and classified as per area of domain of interest. Three broad chapters and twelve broad areas identified through analyzing the findings and overall situation of population and family planning studies conducted during 2011-2013. Chapter one contains introduction of the annotated bibliography. Chapter two contains the following twelve broad areas and chapter three contains indexes, e.g. author index and subject index. Broad subject areas are given here:

- Population dynamics (fertility, mortality, morbidity etc.)
- Family planning (contraception, methods, side effects, follow-up, etc.)
- Reproductive health (maternal health, adolescent health, antenatal, post natal, delivery care, etc.)
- Child health (nutrition, breastfeeding, immunization, diarrhea, etc.)
- Utilization of health service facilities (satellite clinics, FWC, THC, EPI, etc.)

- Behavioral Change Communication (BCC)
- Management Information Systems (participatory management, registration, record keeping, monitoring, supervision, etc.)
- MCH-FP Personnel Evaluation (training, human resources development, performance of the workers, etc.)
- Women in development (gender issues, domestic violence, women role in decision making, mobility, etc.)
- Cost-benefit analysis - MCH & FP Services (contraceptive prices, cost-effectiveness, sustainability, etc.)
- Nutrition
- HIV/AIDS/STDs

Out of the 241 studies, 38 cover the issue of population dynamics, 17 on family planning, 65 on reproductive health, 21 on child health, 33 on utilization of health service facilities, 3 on behavioral change communication, 3 on management information systems (MIS), 8 on MCH-FP Personnel evaluation, 8 on the related issue of women in development, 10 on cost-benefit analysis-MCH-FP services, 26 on nutrition, and 9 on HIV/AIDS/STDs.

Among these studies, there are national level surveys, intervention/operation research, innovative studies, evaluative studies, journal articles and surveys.

This bibliography contains abstracts of research findings and bibliographical citations of the reports. It is arranged in an author-alphabetic order under each broad heading, e.g. citations are arranged alphabetically by the name of the first author and then by the title of the report. All the reports cited in the bibliography include abstracts. Whenever an abstract was prepared, every effort was made to include information on the objective, methodology, findings /results and recommendations of the study. An author and subject indexes are appended at the end of the main text for easy search by co-authors' name and specific subject. The numbers cited in the co-author and the subject indexes refer to the sequential numbers of the citations.

CHAPTER-II
ABSTRACTS

1.1 POPULATOPN DYNAMICS (fertility, mortality, morbidity etc.)

001. Adams AM; Rabbani A; Ahmed S; Mahmood SS; Al-Sabir A; Rashid SF; Evans TG. Explaining equity gains in child survival in Bangladesh: scale, speed, and selectivity in health and development. *The Lancet*. 2013 (Nov): 45-55.

This analysis was done to focuses on trends in child survival (infant mortality rate, child mortality rate, and under-5 mortality) and coverage of priority interventions for maternal and child health. Analysis was framed by an approach that views equity in health in a broader sociocultural context. The framework extends beyond health care services, and takes into account the effect of social, political, and economic factors in stratifying the population in terms of socioeconomic position and opportunities for health. This report disaggregated gains in child health, revealing significant improvements in gender and socioeconomic inequities over time. Using social determinants of health approach, key features of the country's development experience were identified that helped explaining its unexpected health trajectory. The systematic equity orientation of health and socioeconomic development in Bangladesh, and the implementation attributes of scale, speed, and selectivity, had been important drivers of health achievements especially for women and the rural poor. By disaggregating gains in child health in Bangladesh over the past several decades, significant improvements in gender and socioeconomic inequities had been revealed. Despite this impressive pro-equity trajectory, there remained significant residual inequities in survival of girls and lower wealth quintiles as well as a host of new health and development challenges such as urbanization, chronic disease, and climate change. Further progress in sustaining and enhancing equity-oriented achievements or health hinders on stronger governance and longer-term systems thinking regarding how to effectively promote inclusive and equitable development within and beyond the health system.

002. Anonymous. Incidence and prevalence of abortion in Bangladesh. Dhaka: NIPORT, BAPSA & RTM International, 2011.

The study was initiated to assess the prevalence of abortion in order to provide information to develop appropriate strategy for preventing the incidence of abortion in Bangladesh. The study followed a cross-sectional design for estimating the prevalence and incidence of abortion. The study adopted both quantitative and qualitative techniques of data collection by selecting rural and urban locations on the basis of multistage stratified sample. Primary sources of information were used to collect data from service delivery acilities, program managers, service providers, women of reproductive age. Secondary sources of information included a review of recent studies. Interview of women in the study revealed that about 85% women knew about Menstrual Regulation (MR)/abortion. Correct duration of the period up to which MR/abortion could be done was known to only to half of women. Eighty-five percent women knew about the place where MR/abortion procedure could be done. Those who had heard about MR/abortion nearly 100 percent had knowledge about the providers. A quarter of the women having knowledge on MR/abortion reported that traditional abortionist existed in their locality. More than three-fifths of

women having knowledge knew the adverse effect of unsafe abortion on women's health. Both husband and wife jointly decided to undergo the procedure in case of 84 percent of women. Women had to spend an amount of Tk. 1550 for getting the MR abortion services while for treatment of abortion complication the amount was as high as Tk. 4700. Both service providers and program managers mentioned that 96 percent of the MR/abortion was done using Manual Vacuum Aspirations (MVA). In a range of multiple ways of performing abortion use of traditional method and herbal medicine was quite prominent as mentioned by more than half of all respondents. It was estimated that a total of 508,591 MR/abortion was done annually in the country while the prevalence was 108 per 1000 married women of reproductive age considering the whole span of her reproductive period. The most important recommendation is to introduce the service in many facilities as about one-third of the facilities do not provide the MR/abortion services. This means that there is no trained provider to provide the services. It is therefore very important to immediately deploy and train service providers to provide the services.

003. Anonymous. Bangladesh demographic and health survey (BDHS) 2011. Dhaka & Maryland: NIPORT, USAID, Mitra and Associates, MEASURE DHS, ICF International, 2011.

This survey was designed to provide information on basic national indicators of social progress, including fertility, childhood mortality and causes of death, fertility preferences and fertility regulation, internal and child health, nutritional status of mothers and children, awareness and attitudes towards HIV/AIDS, and prevalence of non-communicable diseases. The sample for the 2011 BDHS was nationally representative and covers the entire population residing in non-institutional dwelling units in the country. The survey used as a sampling frame the list of enumeration areas (EAs) prepared for the 2011 Population and Housing Census, provided by the Bangladesh Bureau of Statistics (BBS). The primary sampling unit (PSU) for the survey was an EA that was created to have an average of about 120 households. The survey was based on a two-stage stratified sample of households. In the first stage, 600 EAs were selected with probability proportional to the EA size, with 207 clusters in urban areas and 393 in rural areas. A complete household listing operation was then carried out in all the selected EAs to provide a sampling frame for the second stage selection of households. With this design, the survey selected 18,000 residential households, which were expected to result in completion interviews with about 18,000 ever-married women. In this subsample, a group of eligible couples were selected to participate in testing of the biomarker component like, blood pressure measurements, anemia, blood glucose testing, and height and weight measurement. In the survey, 5 types of questionnaire were used for data collection, such as- a. household questionnaire, b. woman's questionnaire , c. man's questionnaire, d. community questionnaire, and e. two verbal autopsy questionnaire to collect data on causes of death among children under age 5. The Results of the survey illustrated that the Total Fertility Rate continues to decline-three of seven divisions are at replacement level. Contrary, the Contraceptive Prevalence Rate (CPR) continues to increase, and in the last four years Sylhet division demonstrates the highest increase in CPR, followed by Chittagong. BDHS data showed continued decline in childhood mortality indicated that Bangladesh is on track to achieving MDG 4 target by 2015. There is also evidence that Bangladesh is moving ahead in achieving MDG 5. Although, improvement of the nutritional status of children is a great challenge for us -more than one in three children is still underweight. Similarly, challenges remain from the high prevalence of two major con-communicable diseases: hypertension and diabetes. One in three adult women and one in five adult men are hypertensive, while one in nine adult men and women suffer from diabetes. The findings of this report and its policy and programmatic implications are

very important for monitoring and evaluation of the Health, Population and Nutrition Sector Program (HPNSDP). According to the study findings, it is needed for further detailed analysis of BDHS data remains so that it could be get more in-depth knowledge for the future direction and effective implementation of the HPNSDP in the coming years.

004. Anonymous. Determinants of regional variation in demographic and reproductive health indications: report. Dhaka: NIPORT & ACPR, 2012.

This study was conducted to ascertain the determinants of regional variation in demographic and reproductive health indicators in Bangladesh. The specific objectives were to: investigate regional variation in the characteristics of the women of demographic and reproductive indicators (age, number of living children, age at first marriage, birth interval, family planning, delivery etc.); to investigate the reasons for variation; and to identify the determinants of demographic and reproductive health indicators of the women. This mixed-method study included both a quantitative survey and qualitative focus group discussions (FGDs). In the quantitative part, a cross-sectional survey design was used to assess factors related to regional variations in demographic and reproductive health indicators. The survey covered seven administrative divisions of the country. The target population for the survey was women (age 15-49) who had live births in the last one year preceding the survey while community leaders/knowledgeable person were key informants. The results of the study indicated that Sylhet and Chittagong regions were characterized by low use of reproductive health services. The lower use of reproductive health in Sylhet and Chittagong was likely to be associated with the two divisions' higher demand for children and reproductive health program weakness. The lower fieldworker's visit was a clear indication of program weakness. Overall, 52 percent of currently married women in Bangladesh are currently using a modern contraceptive method. The pill is by far the most widely used method (27 percent), followed by injectables (11 percent), female sterilization (5 percent), and condoms (5 percent). About eight percent of women mentioned the use of long term or permanent method. The recommendations are providers asked for regular refresher training courses to keep them inform of the latest developments in RH including FP Providers emphasized the need for training in the use of techniques for effective counseling as well as capability training to manage difficult clients Use of IEC aids should be strengthen for the benefit of motivating the clients. Efforts are need to overcome skeptical view of some workers about giving details about the disadvantages or side-effects since this would adversely affect the acceptance of FP methods. Providers may be asked to utilize the provision of antenatal and postnatal services to prepare clients for the acceptance of FP methods. Emphasis must be given towards follow-up services as well as to frequent contact through home visits to win the trust of the people.

005. Anonymous. Bangladesh maternal mortality and health care survey 2010. Dhaka: NIPORT, MEASURE Evaluation, and icddr,b. 2012.

The specific objectives of BMMS 2010 were: i) to estimate the Maternal Mortality Ratio (MMR) for the period of 2008-2010; ii) to identify specific causes of maternal deaths; iii) to assess the level of use of antenatal care, post natal care, skilled birth attendant at delivery in 2005, 2006, 2007, 2008, 2009, and changes in use rates across the five years preceding interview; iv) to collect information on birth planning ; and v) to assess the experience and care seeking for maternal complications and changes in care seeking patterns from 2005-2009. The survey was carried out in a national sample of 175,000 household. In each selected household, ever-married women aged 13 to 49 were interviewed and deaths among

women of reproductive ages, especially maternal and pregnancy-related deaths, were investigated. The BMMS 2010 collected information about adult mortality in two almost entirely independent ways, household deaths and full sibling histories. The survey employed five questionnaires (household questionnaire, women's short questionnaire, women's long questionnaire, verbal autopsy questionnaire and CSBA questionnaire) each rooted in the 2001 BMMS questionnaire design in order to ensure maximum comparability with 2001 estimates. Another Service Availability Roster questionnaire were used to collect data on the socio-economic condition of the community as well as data on the interviewer teams for the main survey for identifying the specific sources of services used by respondents. For all household deaths of women aged 13 to 49, a verbal autopsy was applied. Maternal deaths were identified on basis of review by two (or three) physicians. Field data collection of the survey was carried out during January 18 to August 6, 2010. The findings of the survey reported that Bangladesh appears to be on track to achieving MDG 5, maternal mortality declined in Bangladesh by 40 percent in the last 9 years to 194 per 100,000 live births. The main reasons for this decline in maternal mortality are: i) fertility reductions reduced the proportion of higher risk high parity births; ii) the use of facilities for deliveries increased from 9 percent to 23 percent and use of facilities for maternal complication increased from 16 percent to 29 percent between BMMS 2001 and 2010. This was a consequence of improved access to care, substantially better education among women, improved awareness, and better economic conditions. The internal consistency of the estimates from the household deaths and sibling histories was very high. Consistency does not imply accuracy, but the external consistency "gold standard" mortality estimates from a rural area of Bangladesh, also strongly supported the case for validity. The survey recommended that a future gain of maternal mortality might be achieved by ensuring effective family planning to lower fertility to replacement level and below, which would shift births away from high parity high risk births. It is also to be needed to give upgraded facilities at Upazila and union levels. Plans should be placed to expand such access, but staffing issues needed to be addressed, as well as essential logistics, including blood transfusion, being ensured. Finally, access for the poor is essential, and as relatively expensive interventions become more widely available, some kind of health insurance may be needed to overcome the fear of heavy costs of life saving obstetric procedures.

006. Anonymous. Bangladesh population and housing census 2011-National report volume-4: socio-economic and demographic report. Dhaka: BBS, 2012.

The objectives of the survey were collecting information on household and housing status; providing data on household structural composition, relationship, size and the headship; obtaining data on age pattern, sex and demographic characteristics by gender issues; collecting information on public utilities such as water supply and sanitation, electricity connection etc. and generating data on household income, occupation and other socio-economic activities involved to household. Household based sample survey was a basic and suitable method of data collection for population and socio-economic and demographic statistics. A four pages long sample survey questionnaire in module form was designed and a total of 81 questions on 10 separate modules matters were incorporated. Mostly the definitions and terms used in the survey were adopted intact from the census and without any change to facilitate the tools of comparison among similar variables. It offered the opportunity to study the changes/fluctuations of variables intensively. Under the conceptual framework of the United Nations, Bangladesh Bureau of Statistics had conducted the fifth Population and Housing Census of Bangladesh in 2011 in three phases. In phase I, basic data about all households and individual members

of the households were gathered through using ICR formatted questionnaire during March 15-19, 2011. In phase II, quality and coverage of the main count were verified through a Post Enumeration Check (PEC) survey during April 10-14, 2011. For the first time in census history of Bangladesh, the PEC was conducted by an independent organization, Bangladesh Institute of Development Studies. In phase III, detailed socio-economic information was collected by adopting a long machine readable questionnaire in a sample survey to supplement the main census held during October 15-25, 2011. Along with national level aggregates, the census had generated detailed segregated data at community levels (mahallas/mauzas/villages) of the country being a full-count statistical undertaking. The initiative of publishing Zila, community and national reports had been undertaken considering the importance of community level data and information apart from national level in the process of determining policy-strategy and decision-making. The Socioeconomic and Demographic Report is an effort of the national reports publication to supplement the main census. In this report, the sample survey results for national, Zila and six city corporations' levels have been presented. It believe that the wide array of sample survey findings presented in this report would be useful to planners and policy makers in formulating, implementing and evaluating responsive development plans and programs for human resource advancement and overall development as stipulated in the Vision 2021. In addition, the sample survey data and information of this report would be helpful for researchers both at home and abroad. Under the publication plan, 135 reports of the main census had been planned to publish including Community Reports (64 reports), Zila Reports (64 reports), National Series-Analytical Report(Volume-1), Union Statistics (Volume-2), Urban Area Report (Volume-3), Administrative Report(Volume-5), Post Enumeration Check (PEC) Report, Preliminary Report and Socio-economic and Demographic Report (Volume-4). Among them Community Reports, PEC Report and Preliminary Report have already been published. The present report was the comprehensive sample survey report covering wide spectrum of demographic and socio-economic scenarios.

007. Anonymous. Report on sample vital registration system-2011. Dhaka: BBS, 2013.

The Sample Vital Registration System (SVRS) is a regular surveillance system undertaken by BBS to determine the annual population change at national and district level. The objective of the SVRS is to collect, compile and publish demographic data to meet the inter censual data needs of planners, policy makers, researchers and stakeholders especially those who are involved in the socio-demographic research & social development. Over the years, the vital registration system has improved to a great extent & its sample coverage has been increased to ensure estimation of reliable demographic indicators at the sub national level. The special methodology followed of SVRS was the collection of data under a dual record system to estimate demographic indicators using Chandrasekaran and Deming Method. Under this system vital events are collected as and when it occurs by a locally recruited female registrar termed as Local Register (LR) (System-1). On the other hand, under a second system another group of officials from Upazila Statistical Office of BBS also collect the data independently from the same area on quarterly basis (System-2). Having the filled up questionnaire from the two systems, data are matched in the headquarters by a pre-designed matching process and the demographic rates. In SVRS, ratios are calculated using Chandrasekaran and Deming Technique. In order to obtain denominations for the demographic parameters, a detailed household survey is conducted at the beginning of every year covering basic household and population attributes. The SVRS report of 2011 is based on the vital events such as births, deaths, marriages, migration etc. happening throughout the year 2011 and validated by a group of senior officers of BBS through extensive field visits as and when necessary.

The findings of the SVRS would help to reduce the population growth and mortality rate; improve nutritional attainment, reproductive and adolescent health; and control communicable diseases. The survey findings also will contribute to monitoring several important indicators of the Millennium Development Goals (MDG) for the country. It also directly will help the government as well as the policy-makers in formulation of evidence-based policies and to take necessary interventions programs towards achieving the health related targets of the MDGs within the stipulated time. At the same time these indicators will guide policy-makers and planners in preparing and implementing Post-2015 Development Agenda including Sustainable Development Goals (SDGs) that might emanate from the intergovernmental negotiation process currently being conducted under the aegis of the United Nations.

008. Ara R; Mahmood AR; Sultana R; Uddin MN; Jahan MS. Maternal mortality ratio and related factors among the women of a selected rural community of Bangladesh. *SUB Journal of Public Health. 2012; 5(1):13-17.*

The study was conducted from door to door taking the whole population as the sample frame to ensure accurate data concerning the current maternal health status at the community level in order to reveal the root causes of maternal mortality. The cross-sectional study was conducted in Telihati union of Sreepur upazila, Gazipur among 1421 pregnant women who gave-birth their baby from 1st July 2008 to 30th June 2009. Data collection was accomplished by face to face interview from the respondents with the help of a pretested interview schedule. The findings revealed that the mean age of the mothers was found to be 24.2±4.88 years and maximum (93.81%) were housewives and Muslims (98.8%). Among all, 12.6% could only write their name and 8.37% were illiterate. Mean age at marriage was 16.43 years. About 69% had monthly income equal to or below BDT 5000. Regarding antenatal care (ANC), 76.14% of the mothers received ANC and among those, 40.20% received the care from government hospital. Majority (90.42%) received tetanus toxoid prophylaxis. The Mean age of the mothers at first child birth was found to be 18.48 years. Among the respondents, most (79.94%) had their deliveries at home conducted by TBA assisted normal delivery. Around 19.63% of the mothers suffered from different intra-natal complications and the predominant complication was prolonged labor (62.72%) which was mostly treated by village doctors (22.94%). The study also revealed that 41.73% mothers had one living child. MMR was found to be 0.70 per 1000 live birth in the present study. It is less than the national survey. In the study it was found that majority of the maternal complications were prolonged labor, excessive hemorrhage, convulsions, and perineal tear. Regarding antenatal care, it was found that 40.2% mothers received antenatal care from government hospital and 18.95% mothers received at home from FWVs & NGO workers. On the other hand only 2.77% received from private chambers of MBBS doctors. Higher socioeconomic status favored increasing chances of receiving antenatal checkup. Most of the mothers (79.94%) delivered at home and the delivery was conducted by untrained dais. Though MMR was low, rate of pregnancy related complications was quite high and ANC, institutional delivery, and PNC were found to be quite low. Therefore, in order to get over the public health problem, in-depth and interventional studies were highly recommended.

009. Arefin SEI; Christon A; Richenbach L; Osman FA; Azad K; Islam KS; Ahmed F. Community-based approaches and partnerships: innovation in health service delivery in Bangladesh. *The Lancet. 2013 (Nov): 9-20.*

The objective of the study was to assess how the country experimented with community-based approaches and community health workers; partnership arrangements between the government, non-

governmental organizations (NGOs), and the private sector; and innovative policies and technologies that the country had rapidly adopted, adapted, and scaled up through community-based approaches enable the effective delivery to health-services. Data sources included the Bangladesh Demographic and Health Surveys (BDHS), and other national surveys including coverage evaluation surveys, the Bangladesh Maternal Mortality Survey, census data from the Bangladesh Bureau of Statistics, and UN estimates. The study also obtained data from surveys done previously and from reports held at icddr,b and the offices of the DGHS and the DGFP in Dhaka, Bangladesh. In Bangladesh, rapid advancements in coverage of many health interventions have coincided with impressive reductions in fertility injuries of maternal, infant, and childhood mortality. These advances, which have taken place despite such challenges as widespread poverty, political instability, and frequent natural disasters, warrant careful analysis of Bangladesh's approach to health-service delivery in the past four decades. With reference to success stories, we explored strategies in health-service delivery that have maximized reach and improved outcomes. The study identified three distinctive features that enabled Bangladesh to improve health-service coverage and health outcomes: 1. experimentation with, and widespread application of, large-scale community based approaches, especially investment in community health workers using a doorstep delivery approach; (2) experimentation with informal and contractual partnership arrangement that capitalize on the ability of non-governmental organizations to generate community trust, reach the most deprived populations, and address service gaps; and (3) rapid adoption of context-specific innovative technologies and policies that identify country-specific systems and mechanisms. Continued development of innovative, community based strategies of health-service delivery, and adaptation of new technologies, are needed to address neglected and emerging health challenges, such as increasing access to skilled birth attendance, improvement of coverage of antenatal care and of nutritional status, the effects of climate change, and chronic disease. Past experience should guide future efforts to address rising public health concerns for Bangladesh and other underdeveloped countries.

010. Begum B; Akhter N; Kamal-uddin M; Aziz MA; Nova KK. Fluid and nutritional management can significantly reduce the mortality of patients with eclampsia in resource poor settings. ***Bangladesh Journal of Obstetrics & Gynaecology. 2012; 27(1): 18-20.***

The study attempted to observe fluid and nutritional management along with specific management and close clinical monitoring without intensive care management improve the condition of unconscious eclamptic patients in the resource poor setting. Six hundred and nine eclamptic patients were admitted in Mymensingh Medical College Hospital from January to December 2008. Twenty four unconscious eclamptic patients were enrolled for this clinical trial study. These patients were managed in eclampsia ward with fluid therapy of 0.9% sodium chloride, 25% glucose, 5% amino-acids along with hydrocortisone and in some cases nasogastric feeding in addition to other regular medications. They were compared with 26 eclampsia patients treated with normal regular hospital management. A systematic guideline was followed and patients were closely monitored until the outcome. The study findings revealed that the mean age of 23 years, 18 cases were primi-gravida; 16 had intra-partum, 6 had postpartum and 2 had antepartum eclampsia. The mean number of convulsion before admission was 12. The mean Glasgow Coma Scale (GCS) of these patients during admission was 5, which improved to 10.3 in 24 hours and 14.5 in 36 hours. None of these patients had fatal outcome in compare to observation group where three patients died following complications. The findings of the study suggested that input of adequate fluidal and nutritional along with required management and close monitoring can significantly reduce the mortality of unconscious eclamptic patients in resource poor settings where intensive care facility was limited. Development and adaptation of feasible systematic

guideline for the management of unconscious eclamptic patient should be scaled up for the resource poor settings of developing and under developed countries.

011. Begum MS. Socio-demographic status of parents as a determinant of infant mortality. *Bangladesh Private Medical Practitioners Journal. 2012; 18(2): 67-73.*

The main objective of the present study was to explore the infant mortality rate along with its determinants in rural Bangladesh. This cross section descriptive study included 324 mothers/fathers of the infants born during the year 2008 and residing in two different villages (Shreerampur and Kalampur) of Dhamrai upazilla of Dhaka district of Bangladesh was undertaken in 2008. A group of researchers was visited stipulated number of households. Out of 324 respondents, 313 (96.6%) were mothers and 11 (3.4%) were fathers. Age distribution of mothers showed that most of the mothers belonged to age group 20-25 years (41.05%), followed by 26-30 years (23.77%) 15-20 years (17.28%), 31-35 years (10.80%), 36<40 years (6.17%) and 41-45 years (0.93%). Educational status of parents showed that 43 (13.27%) number of both fathers and mothers had education up to secondary level. Infant mortality rate is strongly associated with the country's economy as well as social development. It is also useful to determine the health status of people and overall development of the country. It was regarded as one of the component of physical quality of life index. In this study, sex distribution of the respondents showed that 96.6% were females which indicated that mothers were more concern about their infants. More fathers (13.27%) were illiterate compared to mothers (11.73%). More mothers (25%) than fathers (19.75%) had education up to primary level, as well as on secondary level. In the study most of the babies were born healthy, and major complication was LBW, others were asphyxia neonatorum, large for gestational age, born with congenital anomalies, birth injury and others. The reason for maximum healthy babies might be educational status and moderate income of the family. The present study showed that level of education of parents specially mothers and family income played major role in the healthcare seeking practice and its effect on infant mortality. Mortality rate was found to be very low among the respondents. Further large scale studies by involving many other villages of Bangladesh and remote areas was suggested to get a full picture on the health problems and mortality among infants.

012. Chowdhury AMR; Bhuiya A; Chowdhury ME; Rasheed S; Hussain Z; Chen LC. The Bangladesh paradox: exceptional health achievement despite economic poverty. *The Lancet. 2013 (Nov); 9-20.*

This paper was initiated to determine the Bangladesh exceptionally in the health and population sector development despite of economic poverty. Along with a comprehensive literature search, data for this paper are from a rich array of primary sources, including four Bangladesh national Demographic and Health Surveys (BDHS), 10 years national censuses, regular social and economic household surveys by Bangladesh Bureau of Statistics, and an in-depth field studies carried out by organizations such as the ICDDR,B, BRAC, relative UN estimates, and the database of the US Central Intelligence Agency, are used for comparative analysis of Bangladesh and neighboring countries, and official government statistics are cited as indicators of national health system inputs and outputs. The study used the concentration index to quantify the degree of socio-economic inequality in health-care use. It was presented evidence to show that Bangladesh has achieved substantial health advances, but the country's success cannot be captured simplistically because health in Bangladesh has the paradox of steep and sustained reductions in birth rate and mortality alongside continued burdens of morbidity. Exceptional performance might be attributed to a pluralistic

health system that has many stakeholders pursuing women-centered, gender-equity-oriented, highly focused health programs in family planning, immunization, oral rehydration therapy, maternal and child health, tuberculosis, vitamin A supplementation, and other activities, through the work of widely deployed community health workers reaching all households. Government and non-governmental organizations have pioneered many innovations that have been scaled up nationally. However, these remarkable achievements in equity and coverage are counterbalanced by the persistence of child and maternal malnutrition and the low use of maternity-related services. The Bangladesh paradox shows the net outcome of successful direct health action in both positive and negative social determinants of health—i.e. positives such as women's empowerment, widespread education, and mitigation of the effect of natural disasters; and negatives such as low gross domestic product, pervasive poverty, and the persistence of income inequality. Bangladesh offers lessons such as how gender equity can improve health outcomes, how health innovations can be scaled up, and how direct health interventions can partly overcome socioeconomic constraints.

013. Chowdhury F. Despite an overall reduction in maternal deaths in Bangladesh from 2001-2010, the proportion of jaundice-associated maternal deaths remains the same. *Health and Science Bulletin. 2013; 11(4): 15-19.*

The study was designed to repeat the analysis using data from the second Bangladesh Maternal Mortality and Health Care Survey, conducted in 2010 (BMMS 2010), and compare it to data from BMMS 2001 to determine if the burden of maternal mortality associated with jaundice had changed over time. The study analyzed population-based verbal autopsy data (901 deaths in females aged 13-49 years) using the 2010 Bangladesh Maternal Mortality and Health Care Survey to find the causes of maternal deaths in Bangladesh and to find the mother suffered from acute jaundice in the illness preceding death. This result was consistent with previously published estimates showing that 23% of maternal deaths in Bangladesh in 2001 were associated with jaundice. From 2001 to 2010, the proportionate mortality from deaths associated with jaundice in pregnant women remained the same, underscoring the fact that maternal jaundice remains an important contributor to maternal mortality. Therefore, maternal jaundice remains an important contributor to maternal mortality, though it is still unknown how many of these deaths are caused by HEV. The continued study of HEV was warranted, with a focus on more accurately measuring the incidence of HEV-related maternal and neonatal mortality and the possible role of HEV vaccine to prevent deaths in pregnant women and their newborns. In summary, 23% of maternal deaths were associated with jaundice in 2010. From 2001 to 2010, the proportionate mortality from deaths associated with jaundice in pregnant women remained the same, underscoring the fact that maternal jaundice remained an important contributor to maternal mortality. Therefore, maternal jaundice remained an important contributor to maternal mortality, though it was still unknown how many of these deaths were caused by HEV. Although the verbal autopsy analysis did not include laboratory data that would allow differential diagnoses in individual cases, clinical studies of acute liver failure in Bangladesh have shown HEV to be the main etiologic agent responsible for maternal deaths associated with jaundice. Effective HEV vaccines have been developed but robust data showed that they could not protect women from HEV infection during pregnancy were not available. Thus intervention trials to demonstrate their effectiveness in reducing maternal and neonatal mortality are urgently required.

014. Ferdous J; Ahmed A; Dasgupta SK; Jahan M; Huda FA; Ronsmans C; Koblinsky M; Chowdhury ME. Occurrence and determinants of postpartum maternal morbidities and disabilities among women in Matlab, Bangladesh. ***Journal of Health Population and Nutrition. 2012; 30(2): 143-158.***

This study aimed at identifying the consequences of pregnancy and delivery in the postpartum period, their association with acute obstetric complications, the socio-demographic characteristics of women, mode and place of delivery, nutritional status of the mother, and outcomes of birth. From among women who delivered between 2007 and 2008 in the ICDDR,B service area in Matlab, the study prospectively recruited all women identified with complicated births (n=295); a perinatal mortality (n=182); and caesarean-section delivery without any maternal indication (n=147). A random sample of 538 women with uncomplicated births, who delivered at home or in a facility, was taken as the control. Subjects were clinically examined at 6-9 weeks for postpartum morbidities and disabilities. Postpartum women who had suffered obstetric complications during birth and delivered in a hospital were more likely to suffer from hypertension [adjusted odds ratio (AOR)=3.44; 95% confidence interval (CI)=1.14-10.36], hemorrhoids (AOR=1.73; 95% CI=1.11-3.09), and moderate to severe anemia (AOR=7.11; 95% CI=2.03--L88 than women with uncomplicated normal deliveries. Yet, women who had complicated births were less likely to have perinatal tears (AOR=0.05; 95% CI=0.02-0.14) and genital prolapse (AOR=0.22; 95% Q=0.06-0.76) than those with uncomplicated normal deliveries. Genital infections were more common amongst women experiencing a perinatal death than those with uncomplicated normal births (AOR=1.92; 9S% CI=1.18-3.14). Perinatal tears were significantly higher (AOR=3.53; 95% CI=2.32-5.37) among those who had delivery at home than those giving birth in a hospital. Any woman may suffer a postpartum morbidity or disability. The increased likelihood of having hypertension, hemorrhoids, or anemia among women with obstetric complications at birth needs specific intervention. A higher quality of maternal healthcare services generally might alleviate the suffering from perineal tears and prolapse amongst those with a normal uncomplicated delivery.

015. Fuad MH; Khan SH; Jahan FA; Talukder SH; Shikder MH. Existing gap between preferred and actual birth intervals in Bangladesh: relation to fertility and child health. Chapel Hill, NC: Carolina Population Center, MEASURE Evaluation PRH & USAID, 2014.

The objective of this study was to look into the existing gap between actual and preferred birth intervals in Bangladesh within different geographical locations - namely urban and rural. For this the respondents who already had a live birth and observed the time interval to the second birth were considered. The survival probability of the preceding birth interval and different explanatory variables were examined in this process. The 2011 Bangladesh Demographic and Health Survey dataset was utilized for this paper. The study found that the overall length for actual birth intervals in urban and rural areas is 64.87 months and 57.57 months, respectively. These lengths were significantly higher than the mean lengths of the previous intervals (41.54 in urban areas and 39.53 in rural areas). Secondary analysis, the interval of the preceding birth to conception was strongly associated with neonatal mortality as well as under-five mortality, even after controlling for a host of potentially confounding factors. The highest child mortality (10% urban vs. 15% rural) was prevalent in the minimum birth interval of 6-11 months. The mortality rate had been found to be the least during first birth (3%) in both urban and rural settings. In terms of mothers' education and its relation with the intervals, it was found that more than 80% of women in urban and rural areas with secondary or higher level of education preferred up to two

children. On the other hand, 21% of urban and 29% of rural women with no degree attainment preferred having three to four children. In the case of actual birth intervals, mothers with primary or higher education had fewer children than mothers with no education. The paper also looked into the nutritional outcome of the children and found that there was little change in the under-nutrition status of children if the preferred birth interval prevails. However, birth interval might influence children's under-nutrition through its association with preterm births and low birth weight. This study recommended a new policy framework to meet the unmet needs of the family planning and reproductive health issues; hence, decreasing the difference between these two areas. New programmatic approaches could come out from this such as designing programs around couple communication towards preferred family size and optimal birth spacing to achieve a couple's fertility intentions. As it has been observed with many health outcomes, the educational level of the mother affects the preferred birth interval. Therefore, this could influence policies on minimum level of compulsory education for girls. As husbands are reported to be involved in the decision to have a desired number of children, interventional strategies should be taken on fertility issues targeted towards husbands in urban and rural areas.

016. Gipson JD; Hossain MB; Koenig MA. Measurement of and trends in unintended birth in Bangladesh, 1983-2000. ***Journal of Health Population and Nutrition. 2011; 29(4): 400-405.***

This study was initiated to assess the levels of and trends in unintended birth over nearly two decades across six different areas of Bangladesh. This paper presented 18 years of data from the Sample Vital Registration System, a demographic surveillance system operated by the Maternal and Child Health-Family Planning Extension Project in six study areas in Bangladesh. Prospective measurements of women's fertility preferences were used for classifying nearly 25,000 birth outcomes from 1983 to 2000 as intended, unintended, or up to God/Allah. Most work examining fertility preferences was derived from demographic and health survey data, which assessed fertility preferences through retrospective assessments of fertility preferences for births occurring within the past 3-5 years. The large majority (74%) of the excluded cases were women who had migrated into the study area upon marriage, for whom the SRS had registered a birth, without a prior measurement of fertility preference gathered through the periodic KAP surveys. The levels of births labeled as intended, unintended, and up to God/Allah that occurred from 1983 to 2000. Over the 18-year period, unintended pregnancy levels varied from 22% to 38%, with the lowest levels in the mid-1990s. Fatalistic responses declined significantly ($p<0.001$) over the study period from 25% in the mid-1980s to 1% in the mid-1990s. Results of the comparison of two geographic areas of Bangladesh indicate differential declines in the levels of unintended pregnancies over the study period. Prospective measurements of unintended pregnancies were 2-3 times the magnitude indicted by retrospective estimates of unwanted births from the demographic and health surveys conducted during the study period. This unique dataset provides a rare opportunity to visualize the vast changes in fertility preferences and unintended births in Bangladesh from 1983to 2000. The significant declines in fatalistic responses reflect broader social changes that occurred in Bangladesh to facilitate the fertility decline and contraceptive uptake. The drastic differences between prospective and retrospective measurements of fertility preferences highlighted the importance of considering the strengths and limitations of each method when attempting to estimate the true level of unintended pregnancies and births in a population.

017. Hamadani JD; Tofail F; Hilary A; Mehrin F; Shiraji S; Banu S; Huda SN. Association of postpartum maternal morbidities with children's mental, psychomotor and language development in rural Bangladesh. ***Journal of Health Population and Nutrition. 2012; 30(2): 193-204.***

The study aimed at documenting the relationships of such morbidities with care-giving practices by mothers, children's developmental milestones and their language, mental and psychomotor development. Maternal morbidities were identified through physical examination at 6-9 weeks postpartum (n=488). Maternal care-giving practices and postnatal depression were assessed also at 6-9 weeks postpartum. Children's milestones of development were measured at six months, and their mental (MDI) and psychomotor (PDI) development, language comprehension and expression, and quality of psychosocial stimulation at home were assessed at 12 months. Several approaches were used for identifying the relationships among different maternal morbidities, diagnosed by physicians, with children's development. The study found that moderate or severe anemia was present in 35% of the women postpartum while 17% and 11% suffered from postpartum depression at six weeks and six months post-delivery respectively. Only 4% suffered from a major morbidity as detected by a physician in the postpartum period. However, very few mothers experienced severe postpartum morbidities, resulting in too few on which to base a conclusion with regard to such morbidities. That children of mothers with normal delivery experienced lower developmental levels is perhaps due to the fact that this group included women who delivered at home; they were also from the lower socio-economic quintiles. After controlling for the potential confounders, maternal anemia diagnosed postpartum showed a small but significantly negative effect on children's language expression while the effects on language comprehension did not reach the significance level (p=0.085). Children's development at 12 months was related to psychosocial stimulation at home, nutritional status, education of parents, socioeconomic status, and care-giving practices of mothers at six weeks of age. Only a few mothers experienced each of specific morbidity, and with the exception of anemia, the sample size was insufficient to make a conclusion regarding each of specific morbidity. Further research with a sufficient sample-size of individual morbidities is required to determine the association of postpartum maternal morbidities with children's development.

018. Hashima-E-Nasreen; Kabir ZN; Forsell Y; Edhborg M. Impact of maternal depressive symptoms and infant temperament on early infant growth and motor development: results from a population based study in Bangladesh. ***Journal of Affective Disorders.*** **2013; 146: 254-261.**

This study investigated the independent effect of maternal perinatal depressive symptoms on infant's growth and motor development in rural Bangladesh. A cohort of 720 pregnant women was followed from the third trimester of pregnancy to 6-8 months were assessed. Explanatory variables comprised maternal depressive symptoms, socioeconomic status, and infant's health and temperament. Outcome measures included infant's underweight, stunting and motor development. Multiple linear regression analyses identified predictors of infant growth and development. Maternal postpartum depressive symptoms independently predicted infant's underweight and impaired motor development, and antepartum depressive symptoms predicted infant's stunting. Infant's un-adaptable temperament with height-for-age and motor development, and fussy and unpredictable temperament with height-for-age and motor development. This study provides evidence that maternal ante- and postpartum depressive symptoms predict infant's growth and motor development in rural Bangladesh. It is recommended to investigate psychological components in maternal and child health interventions in order to counsel mothers with depressive symptoms.

019. Hashima-E-Nasreen; Bhuiya A; Ahmed SM; Chowdhury M. Women-focused development intervention reduces neonatal mortality in rural Bangladesh: a study of pathways of influence. Dhaka: BRAC & ICDDR, B, 2011.

The study was initiated to know the impact of BRAC's rural development program on neonatal mortality in Matlab. A case-control study, including 117 cases (died within 28 days) and 351 controls (live children and taken from the nearest door of cases) who born during 1999-2000, was the main method employed. Twelve case studies of both cases and controls were done to complement the qualitative data. The ICDDR,B surveillance database provided the sampling frame. The risk ration was estimated to see how BRAC program participation reduces the risk of mortality. The stratified analysis was done to see the net effect of variables on neonatal death. The results revealed that neonates of BRAC non-members were at 1.9 times increased risk (CI 1.09 -3.25) of dying compared to neonates of BRAC members. This association works through two intermediate variables, including antenatal care and family planning. Age of mothers and occupation of fathers acted as confounders over this association. Mothers' physical violence and psychological stress, pre-maturity, and low birth weight had respectively 2.2, 1.7, 1.3 and 2 times increased risk of neonatal death. However, BRAC membership did not have any influence over these factors. When simultaneously accounting for all variables in a multivariate log regression, a dose-response association was maintained for antenatal care, family planning, physical violence, and pre-maturity. Suggestion may be made that for an effective reduction in the number of these deaths, program planners should think about ways to address all risk factors together rather than only antenatal care and family planning.

020. Hossain MA; Lahiry S; Faruquee MH, Yasmin N. Fertility pattern among the disaster-prone people in Bangladesh. *SUB Journal of Public Health. 2010-2011; 3(2)-4(1): 45-52.*

The cross-sectional study was conducted at Charkhali Village, one of the most disaster affected areas in Mirzaganj Upazila of Patuakhali district to assess the impact of natural disaster on fertility pattern of the disaster-affected people in Bangladesh. The study population was eligible couples who had experienced at least one major disaster like Sidr in their reproductive age span. All the eligible couples of the mentioned village were interviewed with a semi-structured questionnaire. Majority of the population (71%) were found to be very poor and earning was below BDT 5,000 per month. Knowledge of family planning methods of the study population was very high (97.8%) although below the national one (99.9%); 84.7% were in view that couples should jointly take decisions regarding family planning issues and the use of family planning methods was found to be 80.9% among the couples. The mean number of children couples planned in their lifetime was found to be 2.44; while at present the mean number of children they have amounted 2.17. The son preference was found to be high (75.4%) in the study area. Though maximum (59.6%) were not in favor of having many children out of apprehension of death owing to natural disaster, some factors were still expressed by the respondents as reasons to their plan for having more than mean children. Among these, running family in absence of wage earner, helping family during disaster and securing future of elderly (parents) were found hierarchically. On the other hand, chief reasons for not taking any more children were difficulties to rear the additional children as well as firm belief in certain superstitions. According to the subjects experienced the disaster were found to use the cyclone shelter as one night stands and, therefore, the practice of reproductive behavior and the use of contraceptive during sexual intercourse during the aforesaid disaster period did not show any significant impact on the fertility.

021. Islam MM; Karmaker SC. Rural-urban migration and urbanization in Bangladesh. *South Asian Journal of Population and Health.* 2011; 4(1&2): 99-108.

This study focused on the levels and patterns of urbanization-in Bangladesh and examines the interrelationship between rural-urban migration and urbanization. The data was collected from different secondary sources including the Bangladesh Population Census, Bangladesh Demographic and Health Survey (BDHS), and the published and unpublished documents and papers. In this study, it was identified various migration streams such as those who had moved from rural to rural areas, urban to urban, rural to urban and urban to rural. The data indicated that most of the third world countries like Bangladesh main characteristics of urbanization were the growth of urban areas, centering primarily to the five Statistical Metropolitan Areas (SMAs), viz. Dhaka, Chittagong, Khulna, Rajshahi and Sylhet. Among the urban centers of Bangladesh, Dhaka had already been emerged as the mega city, which contains about 35 percent of the total urban population. Thus Dhaka city showed the characteristic structure of economic, social and political affairs in the urban system of the country. In Bangladesh, as in some other developing countries, the rate of urbanization is extremely high, (more than two to three times that of the national population growth rate), being consistent over 5% since 1974. In this situation, the role of all the above mentioned three components was important, but at times and in the city specific cases, the role of migration was very dominant. Data indicated that natural increase of population plays a relatively less dominant role in the growth of urban population and urbanization. Because fertility levels are usually lower in urban areas than in rural areas. Natural increase also trends to be lower in relative terms in urban areas, implying that rural-urban migration and reclassification are responsible for the rapid growth of the urban population. The study also showed that urban population was growing at a rate of nearly 5% in most of die major cities. If this trend in urban population is continued the urban population in Bangladesh will exceed 50% by the year 2040. The urbanization in Bangladesh was occurring mostly centering the major cities and Statistical Metropolitan Areas. The study showed that country's six Statistical Metropolitan Areas contained more than half of the total urban population among the urban centers of Bangladesh. Dhaka had about 38% of the total urban population. The study found that natural increase of population played a relatively less dominant role in the growth of urban population and urbanization. Because fertility levels were lower in urban areas than in rural areas, natural increase also tends to be lower in relative terms in urban areas, implying that rural-urban migration and reclassification were responsible for the rapid growth of the urban population relative to that of the rural population.

022. Kabir A; Kabir M; Shahjahan M; Giasuddin MS. Correlates of community factors with mortality of under-five children in rural Bangladesh using log-linear model. *SUB Journal of Public Health.* 2010-2011; 3(2)-4(1):15-22.

The study was conducted to explore the influence of community factors on under-five mortality in rural Bangladesh. The data for the study were derived from the Bangladesh Demographic and Health Survey (BDHS) 2004.The 2004 BDHS sample was a stratified multistage cluster sample consisting of 361 PSUs and interviewed the total number of births and deaths of the children aged under-five years were 33830 and 6304 respectively. The birth and death history data of the individual survey were linked with the community survey to identify the association between community factors and under-five mortality. The analysis showed that distance of health center, distance to pharmacy, availability of MBBS doctors and membership status with income generation organization had strong influence on under-five mortality. Log-linear model was fitted to identify the interaction effects on under-five mortality. Studies identified that, receiving of health

care services during antenatal and post-natal period had a positive impact on child survival. Moreover, the interaction effects between individual and community characteristics showed, mothers' education level, availability of health facilities, and access to mass media would play a significant role in the reduction of under-five mortality The results showed that, there was an indirect relationship between the community factors and under-five mortality. However, log-linear model analysis showed that, interaction effects were statistically significant implying that availability of health facilities and good communication link with the facility which would play a crucial role in the reduction of under-five mortality. The analysis of community factors and its associations with under-five mortality through the reduction of mortality of under-five children would be an important strategy to achieve MDG 4.

023. Kabir A; Kabir M. Log-linear model for determining correlates of community factors on infant mortality in rural Bangladesh. *South Asian Journal of Population and Health.* 2011; 4(1&2): 1-10.

The study was undertaken to investigate the influence of community characteristics on infant mortality in rural Bangladesh. It also attempted to assess the interaction among the community, individual and demographic characteristics. Data used for this paper from the Bangladesh Demographic and Health Survey (BDHS) 2004. The birth and death history data of the individual survey were linked with the community survey to identify the association between community characteristics and infant mortality. The community characteristics used in the analysis was categorical. There was no straight forward relationship between community characteristics and infant and child mortality. Log linear model, which seems appropriate to identify the important correlates of infant and child mortality and the community characteristics were applied. The adjusted mortality rate for the interaction between mothers' education and distance to MBBS doctor revealed that interaction has strong influence on infant mortality rates. This study found that mother's socio-economic status as well as her households and the community where she lives affected on her child death. The results of log-linear model showed that availability of qualified doctor close to the residence of children mothers and modern transport such as car/bus/tempo/CNG to the Thana Headquarters could play a significant role in reduction of infant mortality. These two community characteristics emerged as the important determinants of child survival because their existence in the community helped mothers to receive treatment for their sick children. Among community characteristics, the information suggested that better communication were equally significant and associated with under-five mortality. Immunization coverage by satellite clinic were also significantly ($p<0.05$) associated with infant mortality. At the community awareness about child health through mass media will be equally important for the reduction of infant mortality. The analysis of community characteristics and its association with infant mortality will be an important strategy to achieve MDG 4.

024. Kama SMM; Hassan CH; Kamruzzaman M; Islam MA; Rahman MA. The effect of education in women's fertility in Bangladesh. *Journal of the Institute of Bangladesh Studies.* 2012; 35: 113-124.

This article was examined the effect of education on fertility among women in Bangladesh using the nationally representative 2007 BDHS data. Both bivariate and multivariate statistical analyses were employed in the study. The mean number of children ever born to per ever married women was found to be 2.8. Findings revealed that educational attainment among women has increased substantially over the first decades. The multivariate poison regression analysis yielded quantitatively important

and reliable estimates of the effects of women's education on cumulative fertility. The findings showed strongly significant (p<0.001) negative association between women's education and cumulative fertility for both the young and elder women as a whole. More investment in females' education may foster economic growth, help keep smaller family size as well as contribute to fertility reduction that need to be reached at replacement level of fertility in Bangladesh.

025. Kamruzzaman M. Child mortality and its impact on reproductive pattern in Bangladesh. University of Rajshahi, Institute of Bangladesh Studies, 2011.

This study aimed to investigate the level and trends of infant and child mortality followed by differentials with respect to some socio-economic, demographic and maternal health care service utilization characteristics, the bivariate analysis was used to examine significant association of socio-economic, environmental and demographic factors as the determinants of infant and child mortality. All these investigations have been based on nationally representative data from Bangladesh Demographic and Health Survey (BDHS) 2007. Association between independent and dependent variables exist or not are examined by Chi-square test. Percentage distribution approach used to observe the overall picture of child mortality and reproductive pattern based on the different determinants in each age group. Brass indirect technique was used to assess child mortality level. Multiple logistic regressions applied to find out those variables which are truly related to child mortality differentials. The findings revealed that differentials in infant and child mortality regarding residence in rural areas, parents illiteracy, fathers low level of working status, household without electricity, household with open or hanging latrines, without tube-well based sources of drinking water, poor housing conditions, early marriage, teenage motherhood, mothers with higher birth order and with short birth interval, mothers without mass media facilities, more than six members family, mothers whose birth giving place at home are responsible for infant and child mortality. Level of education may effectively reduce reproductive performance of the women in Bangladesh. With the increasing in age there is a decreasing tendency in sterilization for child losing mother. Early child losing mothers are highest in number of taking tetanus injections during pregnancy. Number of household member and current pregnancy is important to lowering fertility for those women who lost baby before. Encourage all women for rising contraceptive prevalence rate, mother age at first birth and women age at first marriage in order to reduce fertility.

026. Khan AKMZU. Policy dialogue on transition to demographic dividend: deciding future development strategies in Bangladesh. *In: National policy dialogue on population dynamics, demographic dividend ageing population & building of GED*. Dhaka: Planning Commission, General Economic Division (GED), 2013.

The overall objective of the policy dialogue was to exchange knowledge and views among various stakeholders in Bangladesh in integrating agreed population issues into development plans of Bangladesh Government. Bangladesh has passing through a critical phase of fertility transition, and is on target towards reaching replacement level fertility by the year 2015. Even if the population attains replacement level fertility by 2015, the population will at a fast pace until the population size is stabilized. This process is known as population momentum. As fertility rates fall during the demographic transition, so countries act wisely before and during the transition, a special window opens up for faster economic growth and human development, which is generally known as "demographic dividend. Demographic dividend helps a country through three growth instruments. Demographic transition passes through a phase when it adds to the labor force in two ways. One, the number of people in the working-age gets bigger, and two, women are more likely to enter the labor market as fertility level declines. There is an age-

structure impact on total economic growth due to increasing proportion of working-age group in total population, at the household level, increasing life expectancy makes parents invest more in their children's human capital. Incomes go toward prolonged education for children to improve life prospects. In the process of population momentum, the number of women in reproductive age will continue to increase and as a result the number of births will be higher than expected after attaining the replacement level fertility. Female population of reproductive age (41 million) will add another 12 million by 2040, suggesting a growing number of births in future. It is noteworthy that the growth of females in reproductive age is relatively very high during 2011-2031. Policymakers have to pay serious attention to the policies related to family planning. Bangladesh is predominantly a rural country, urbanization in Bangladesh has occurred at a high speed since 1951. As the proportion of urban population increased from 4 percent in 1951 to 28 percent in 2010 by the year 2050, half of the country's population is expected to live in urban areas. The working-age population of Bangladesh will increase rapidly as compared to the young and elderly populations in the next three-four decades, offering a window of economic benefits through changes in the age structure of population. It is necessary to devise plans for the healthcare and quality education of the children as an investment and the future health care and pension income needs of the bulging elderly population as a security. Greater attention is required to protect women's reproductive health and to reduce unwanted pregnancies. Absence of long-term planning and political instability are the key challenges to reap demographic dividend in Bangladesh.

027. Khan AR; Khan M. Population programs in Bangladesh: problems, prospects and policy issues. ***In: Population trends and policy options in selected developing countries: population policy series/edited by Joe Thomas.*** **Dhaka: PPD, 2012. pp. 29-59.**

The title of the paper, and a clear focused on selective approach in fertility regulation, were deliberately chosen. Even though the seriousness of population problems in Bangladesh deserve an overriding consideration to focus on fertility regulation in its population policies, the authors carefully considered the needs of population policies within the broader principles of human rights and the ICPD commitments. Given the convincing evidences indicating that achievement of replacement level fertility, and eventual stabilization of population, is possible by meeting unmet need and demands, the paper focused on program efforts in the fertility regulation sector. The authors however did not de-emphasize the policy needs on other sectors such as social, economic and legal sectors. Study found Sector-wide policies and programs might benefit from a structure of community organization that would generate community consensus in favor of policies and program. Opportunities existed to improve program performance by expanding access, improving quality of care and creating awareness of benefits of newer generation of methods, through communication support and making special efforts in low performing areas. For such purposes, community facilities should be in place to hold meetings, promote exposure to media through provision of newspapers, books, radios and television and cultural events. Once instituted, communities could be involved in vetting policies and program, including those on population. Such organized community efforts could be a powerful legitimizing force for raising literacy and education, girl's education, women's role in society, addressing maternal health needs, access to adolescent knowledge and services, awareness about health and social implications of early marriage and early child bearing. As noted earlier, even after fertility declines to replacement level, the population will continue to grow due to effects of "population momentum" - which is an inevitable consequence of the young age structure caused by high fertility in the past- until the age structure of population stabilizes. On a longer term perspective, it is therefore critically important to seek policy options that would minimize the impact of "population momentum" and reduce the lag period between achievement of replacement level and stabilization of population growth.

028. Khanam MA; Streadfield PKK; Kabir ZN; Qiu C; Cornelious C; Wahlin A. Prevalence and patterns of multi-morbidity among elderly people in Bangladesh: a cross sectional study. *Journal of Health Population and Nutrition.* 2011; 29(4): 406-414.

The study was designed to determine the prevalence and pattern of multi-morbidity in terms of distribution by demographics and socio-economic status among the elderly people in rural Bangladesh. This cross-sectional study was conducted among persons aged ≥60 years in Matlab, Bangladesh. The Health and Demographic Surveillance System (HDSS) covers a population of approximately 220,000 across 142 villages where regular update of all vital events was maintained. Of 850 elderly individuals randomly selected from the two blocks, 63 died before data-collection, 38 refused to participate, 11 migrated, 93 could not be reached, 18 was registered twice in the surveillance database. Thus, 625 persons were interviewed in their homes, of whom 473 (75.7%) participated in clinical examinations. Clinical examinations were performed at the local health centre of ICDDR'B by physicians, and peripheral blood samples were taken for further laboratory analyses. The findings showed that the mean age of the participants was 69.5 (SD 6.8) years, the range being 60-92 years. Fifty-five percent of the participants were women, 60% were illiterate, and 17, 5% belonged to the poorest quintile. The majority (53.7%) had multiple medical conditions and more than 84% had at least one condition. The overall prevalence of multi-morbidity among the study population was 53.8%, and it was significantly higher among women, illiterates, persons who were single, and persons in the non-poorest quintile. In multivariable logistic regression analyses, female sex and belonging to the non-poorest quintile were independently associated with an increased odds ratio of multi-morbidity. On an average, women had more medical conditions than men. Hypertension was significantly more common in the older age-group than in the younger group. The persons who were relatively better-off suffered from more chronic conditions, e.g. arthritis and hypertension. The results suggested that the prevalence of multi-morbidity is high among the elderly people in rural Bangladesh. Women and the non-poorest group of the elderly people are more likely than men and the poorest people to be affected by multi-morbidity. Given the high prevalence and increased ageing of the population, clinicians and researchers should pay special attention to the diagnosis of multi-morbidity among the elderly people. Furthermore, new healthcare models should be developed and evaluated to better meet the healthcare needs of elderly people with multi-morbidity.

029. Khondker BH. Policy dialogue on ageing population in Bangladesh-old age well-being: options for Bangladesh. *In: National policy dialogue on population dynamics, demographic dividend ageing population & capacity building of GED.* Dhaka: Planning Commission, General Economic Division (GED), 2013.

The aim of this paper was to assess the situation of old age people in Bangladesh due to rising rapid socio-economic and demographic transitions, mass poverty, changing social and religious values, influence of western culture and other factors, have broken down the traditional extended family and community care system. People live longer due to improved nutrition, sanitation, medical advances, health care, education and economic well-being. In 2010, 6.8<£ of the population was aged over 60 years and Bangladesh will reach the 10% threshold - when countries are considered as ageing - in around 2026. By 2050, the over-60s group will comprise a massive 23% of the population. The process of ageing in Bangladesh is taking place at a time when the pattern of life is changing, kinship bonds are weakening and family composition is undergoing a rapid transformation. As one of the longest running and largest scale social protection programs in Bangladesh, the existing OAA program demonstrates a

public commitment to support an ageing society. However, it suffers from a number of widely reported limitations; under-coverage. Inadequate benefit levels and administrative capacity constraints. From the findings of the assessment, it appears that older people may have benefited less from development gains in recent years, which raises concerns for sustaining achievements in development in the context of ageing population. For people living in older headed household, extreme poverty has fallen by less than a third of the overall fall in extreme poverty (2.7 percentage points, compared to 7.5 for the total population). A comprehensive database for old age population must be developed to strengthen the supply side. The data base should include information on: i) demographic and household characteristics; ii) education, occupation and experience; iii) income and asset profile; and iv) access to health and care services. Around a third of the population lives with a person aged 60 or over and is thus directly impacted by the experience of ageing, which is characterized by-increased incidence of disability, reduced capacity for income generating and greater complexity of health issues. The recommendation are transfer amount of 600 BDT per month for all less well-off person aged 60 and above may be considered. Government may encourage public and private transportation services to introduce lower fair (i.e. at least 25% less than that of a working adult person) for senior citizens.

030. Mahsin M; Hossain SS. Population forecasts for Bangladesh using a Bayesian methodology. *Journal of Health Population and Nutrition.* 2012; 30(4): 456-463.

The present study was initiated to investigate the usefulness of cohort component method in making the population projection for Bangladesh, using Bayesian approach. The term 'fertility' refers to the ability of an individual to give a live birth (or births). This is equally applicable to a group or an entire population. Age-specific fertility rates are required to project the number of births in future fertility projections, which are made by projecting the course of TFR over time and translating this total fertility rate into age-specific fertility rates. In general, the projection of TFR was divided into assumptions regarding a level at which fertility eventually becomes constant in a country or a region and the path taken from current to eventual levels. In this paper, time-series tradition in developing a method to forecast TFR was showed and then converted it to the age-specific fertility rates on the basis of base-year age-specific fertility rates. Multiplying these forecasts by the size of the age-specific female population would then yield fertility forecasts derived from both time-series and demographic cohort component traditions. In this way, the advantages of the demographic tradition in taking account of the predictability of the size and age composition of the female imputation can be combined with the more statistically-rigorous time-series techniques of modeling the short-term variability of the age-specific fertility rates. During these updates, none of the diagnostics indicated any symptom of non-convergence of the chains. The present study was an attempt to show the application and suitability by using of Markov Chain Monte Carlo (MCMC) technique for Bayesian methodology available with the software Win BUGS to analyze the data for fitting population and making projection of the future population. The use of Bayesian approach in fitting the components of growth models allowed for further extensions over classical estimation methods, leading to a more realistic forecasts and associated uncertainty measures. The cohort component population projection method followed the process of demographic change and viewed as a more reliable projection method than those primarily rely on census data or information that was reflected population change. In this paper, they have applied non-informative priors to fertility and mortality models and thus, a large level of uncertainty in the forecasted population was resulted. This level of uncertainty could be reduced through the inclusion of informative priors. Moreover, informative priors based purely on expert opinions regarding the future of population growth rates could have been included.

031. Neaz AAN. Population dynamics and development challenges in Bangladesh. *In: National policy dialogue on population dynamics, demographic dividend ageing population & capacity building of GED.* Dhaka: Planning Commission, General Economic Division (GED), 2013.

The objective of this paper was to identify how, in Bangladesh, the current population dynamics were affecting human development particularly in light of the post Millennium Development Goals (MDGs) and the Government of Bangladesh's Sixth Five Year Plan. This dialog would be able to understand the current situation critically, identify the gaps in the existing policies and the problems in the implementation of the program. The theoretical foundations of main stream research on the determinants of population dynamics have been developed by two different schools of thoughts. One stream known of the "Demand School'- the proponents of this school believe that there is a lack of demand for fertility reduction and very little could be done in the creation of demand for fertility reduction without changes in the socio-economic structure of a society. The eight goals of MDGs, with eighteen targets and forty-eight indicators, are to be achieved by 2015 or earlier, outlining the progress from 1990. The stipulated timeframe of ICPD and MDGs are going to be over by the year 2014 and 2015 respectively. The National Maternal Health Strategy was finalized in 2001. The Directorate General of Family Planning (DGFP) established one stop grassroots level service delivery mechanism in order to provide services accessible to all at static point. In Bangladesh, use of contraceptive has a significant effect on fertility reduction and the target of HPNSDP is to reach Contraceptive Prevalence Rate (CPR) of 72 percent by 2016 in order to reduce unmet need for family planning and unwanted pregnancy and child birth. Bangladesh has witnessed marked improvements in the socio-economic indicators over the last decade, several challenges still remain unmet. Despite the enormous efforts devoted to poverty alleviation, poverty is widespread in Bangladesh. Violence against women (VAW) takes different forms in terms of the family, community, society, and the state. Wife beating, battering, dowry-related violence, causing miscarriage, slavery, sexual harassment, physical torture, rape, trafficking, acid throwing, abduction, murder, even verbal harassment-are globally accepted as violence against women. But the most common phenomenon in all kinds of violence is gender discrimination. Due to misconception about 'gender' and 'sex' VAW is made acceptable by the culture of the country. In Bangladesh Maternal Mortality Ratio (MMR) is quite high, but still lower than India and Nepal and close to Pakistan. Despite the fact, it is one of the most important challenges to reduce from the present level of 320 per 100,000 live births to achieve 143 within 2015. Human beings require more than just food in order to be happy. They have other basic needs like clothing, shelter, healthcare, education, basic necessities and above all hopes and aspirations. Both 'Demand' and 'Supply' variables play a vital role in the process of fertility reduction. It is evident that food availability cannot ensure food security unless people have the accessibility. Population growth is also contributing to poverty and as such poverty equity and GDP triangle must be synergistically designed with population, education and environment. High population density, unplanned urbanization, deforestation, excessive use of chemical fertilizer and pesticide, over cultivation of land, over catching of fish, carbon dioxide emission from brick field and other industries have created environmental degradation in Bangladesh. The paper recommended management development, appropriate information and service delivery mechanism to ensure RH/FP services and information universally accessible. Segmentation of clients for different types of service delivery with built-in bias in favor of target groups with informs choices. Blend demand and supply factors by understanding sociology of demand and supply as well and formulate policies, programs and allocating resources.

032. Quddus MA. Morbidity and related factors among elderly people in disadvantaged rural Bangladesh. *South Asian Journal of Population and Health.* 2011; 4(1&2): 51-64.

The aim of this study was undertaken to assess the socio-demographic characteristics, overall health status, prevalence and factors affecting morbidity of elderly people in the three ecologically contrasting disadvantaged rural people in Bangladesh. Data were collected from fifteen villages in three vulnerable regions (river flooded, hilly and coastal) through self-completed questionnaire. In this study, 282 elderly people studied whose average age was 69.9 years. It was said that male were more in numbers 159 (56.4%) with mean age 70.5 years than female 123 (43.6%) with mean age 69.1 years. The majority of the subjects 195 (69.1%) were aged 60-74 years; while 87 (30.9%) were belonged to aged 75 years and over. This study revealed that 169 (59.9%) elderly people were illiterate, while only 42 (14.9%) had formal education. It was seen that majority of the elders in the study area had below average household income 198 (70.2%) and landless or marginal farm holdings 235 (83.3). About 66% of the total family comprises with more than 5 family members. The results also interpret that they had a bigger family size (average 6.3) but very low level of family income and river-flooded area was more vulnerable compared to others. They spent major portion of their income for food .In order to assess the health status of the elderly, they were asked about self-assessed health related questions. Self-assessed health status is not a good indicator but it may be a good indicator of potential service use than of actual health condition and it has been shown to be a remarkably accurate predictor of subsequent ill-health and mortality. It was also found that joint pains, asthma, gastritis/gastric ulcer, hypertension, heart disease and diabetics were commonly reported morbidities among both the age group 60-74 years and over 74 years. A high prevalence of arthritis/joint pain (17.4%) in the current study, especially among oldest elders (22.9%) possibly reflecting the hard life faced by them. Most of the elderly people in the disadvantaged rural area suffered from physical illness and chronic diseases but treatment facilities were very poor. Joint pains and hypertension were the most affected morbidities of the elderly population in the study area. Therefore, it might be concluded that these types of chronic diseases should be diagnosed before the age of 60 years. So, elderly allowance should be increased and assistance through VGF cards and food subsidy for elderly people in regular basis. A successful attempt at reducing morbidity and health disparity might require a comprehensive approach in awareness at an earlier age, access to higher education and reduction in income disparities.

033. Rahman MM; Alam MN; Razzaque A; Streatfield PK. Health and demographic surveillance system-Matlab: volume -forty-four: registration of health and demographic events 2010. Dhaka: ICDDR,B, 2012. (Scientific report; no.117).

This surveillance system was initiated to present the vital registration and maternal and child health data to the health professionals and planners. The information (data) of this surveillance gathered from Matlab, Bangladesh in 2010. The data were collected by the Health and Demographic Surveillance System of ICDDR,B. The surveillance area was divided into an ICDDR,B service area and a Government service area which received usual government health and family planning services. The ICDDR,B service area was sub-divided into four blocks, where family planning, immunization and limited curative services were provided to under-five children and women of reproductive age. The surveillance report indicated that in the surveillance area as a whole, fertility slightly increased in 2010 compared to 2009. The crude birth rate (CBR) was 21.7 per 1,000 populations and total fertility rate (TFR) was 2.6 per woman in 2010, whereas in 2009 the rates were 21.1 and 2.5 respectively. In the ICDDR,B service area, CBR was 22.0 and TFR was 2.6 and in the Government

service area, CBR and TFR were 21.4 and 2.5 respectively. The crude death rate was 6.7 per 1,000 population in the ICDDR,B service area, and in the Government service area in 2010. The infant mortality rate was 25.1 per 1,000 live births in the ICDDR,B service area, and in the Government service area it was 35.4. The neonatal mortality increased to 18.5 from 16.1 in the ICDDR,B service area and decreased to 27.3 from 33.5 in the Government service area respectively in 2010 from 2009; post-neonatal mortality increased in the ICDDR,B service area (5.7 to 6.7) and in the Government service area (4.9 to 8.1). The mortality rate among children aged less than 5 years has increased from 28.6 in 2009 in the ICDDR,B service area to 33.4 in 2010, and in the Government service area, the reduction was from 46.4 in 2009 to 45.0 in 2010. The overall rate of natural increase in population size was 15.1 per 1,000 in 2010. The rate of in-migration decreased to 48.5 per 1,000 populations in 2010 from 54.1 in 2009, and the rate of out-migration increased to 59.5 in 2010 from 58.0 in 2009. The overall annual population growth rate was 0.4%. The marriage rate was 14.6 per 1,000 populations, and the divorce rate was 119.5 per 1,000 marriages.

034. Rahman SM. Causes and consequences of early marriage of girls among three untouchable communities of South-west Bangladesh: a sociological study. *The Journal of Rural Development.* 2012; 38 (1): 81-112.

The broad objective of the study was to find out the general information on their socio-economic condition, understand the reality about early marriage from the native's perspective and also provide some recommendations to improve their prevailing status of early marriage. In this study, three techniques of data collection were followed to collect information and these are: i) household sample survey; ii) focus group discussion; and iii) case study. A household sample survey was carried out on selected respondents to collect certain demographic and socio-economic information. The study covered two villages that were of Tala Upazila of Satkhira District and another village was located in Dumuria Upazila under Khulna District. Three untouchable communities were selected and they were: a. Rishi, Behera and Nikari from the said location. The study findings revealed that the age at which individuals of either sex and expected to marry is subject to great variation from one culture to another. For men marriage is usually no appropriate until they are self-supporting. On the other hand, marriage for women is more closely related to the biological function of childbearing. The socio economic condition of untouchable people was very much miserable. They were not allowed to build up any social or matrimonial relation with the mainstream people. They were exploited and deprived by the mainstream people in various ways. As a day laborer most of their parents were busy and when their children reached at the puberty stage they became very worried to their child's safety and was busy to arrange their daughter marriage at very tender age. Because they thought that if any unexpected situation occurred with the people of mainstream people it would very difficult to arrange their daughter's marriage. It was also a matter of burden to rear their daughter as they were poor. But after marriage many of them faced separation or divorced. Dowry was another mal practice in their community. Besides frequently they faced diverse social discriminations from the mainstream community. Minimizing the social discrimination of untouchable communities through diverse social activities could be possible to eliminate the curse of early marriage. It is hoped that it will provide an incentive for a campaign to prevent early marriage and end the silent misery of millions of girls in many countries around the world to open up new horizons for them and contribute to the development of policies, programs and advocacy to bring this about. Therefore, it has to be primarily fought on a cultural level and one of the two most important factors are education and public awareness of the ill effects of child marriage on society including the health and life of female married children.

035. Rob U; Talukder MN. Urbanization prospects in Asia: a six country comparison. *International Quarterly of Community Health Education.* 2012-2013; 33 (1): 23-37.

The purpose of the study was to examine the processes and prospects of urbanization in selected countries in Asia where major urbanization would take place over the next decades. This article attempted a comparison on urbanization of six largest Asian countries: Bangladesh, China, India, Indonesia, Pakistan, and the Philippines which are based on the review of relevant documents available on urbanization of developing countries. Study found among these countries, urban transition was underway in China, Indonesia, and the Philippines, which were also on track to mature as middle-income countries. India and Pakistan will soon graduate from low-income to lower-middle income countries, reaching the platform for faster urbanization with consequent economic growth. In India, urbanization has become more concentrated in more developed areas, with large city growth. In addition, expansion in the municipal boundaries of secondary cities (with a population of at least 100,000) resulted in higher urban growth while small cities and towns have stuck in the impasse of underdevelopment. Urbanization in Indonesia indicated relatively low primacy rates and a balanced spatial growth where metropolitan areas, medium-sized cities, and small cities (with population less than 100,000) constituted most of the urban population. The Philippines has experienced a balanced distribution of cities, where along with controlled growth of large cities, secondary cities with a population of 100,000 to 500,000 2 were growing rapidly. Unbalanced growth, with high concentration of population in major cities, was observed in Pakistan and Bangladesh. Regardless of the level of urbanization across countries, cities generate four-fifths of national income and the prominence of cities in generating country's national income was escalating. Still, urbanization primarily took place through the development of large cities with surrounding industrial zones. Large cities would continue to play a significant role in absorbing future anticipated growth, but a decrease of growth rates in large cities was expected. Most of future city growth will occur in medium- and small-sized cities where existing coverage of basic public services is grossly inadequate, that entails greater concentration of power, investment, and services. To maximize the benefits of urbanization, countries need to judiciously plan the course of future urbanization—whether it should be a concentrated growth, a balanced growth, or a distributed growth.

036. Talukder MN; Rob U; Rahman L; Hena IA; Khan AKMZU. A P4P model for increased utilization of maternal, newborn and child health services in Bangladesh: policy brief. Dhaka: Population Council, 2011.

The study described briefly the implementation of P4P operations research study and its consequent implications for policymakers. P4P project was implemented in three districts. As the study was nested within existing MNCH/MNH projects, three districts were purposively selected for intervention. From three districts, 12 government health facilities were the intervention sites while four facilities in another district comprised of the control site. P4P project tested the feasibility of performance-based invectives, that is, paying an incentive to the institution based on certain performance targets achieved by the facility as a whole, provided that the minimum required facility infrastructure including human resources is in place. Assessment of the performance indicated that in 93 percent of cases, facilities received incentives based on achieving both the quantity and quality targets. However, there was a variation in increase, which was primarily due to the number of beds at the facilities and physical accessibility. Prior to the P4P interventions, all facilities except one used to conduct 30 deliveries or less in a quarter. There had been a progressive increase in the institutional delivery over the quarters. It was worth noting that the improvement in the performance was much greater in the last two quarters

compared to the first three quarters, suggestive of the further escalation in the performance if the P4P interventions continued. Study findings demonstrated that incentive has the potential to entice the service providers to perform to reach the target within the stipulated time. Despite shortage of human resources, all facilities improved the performance on institutional delivery. Facilities responded to the performance targets in terms of increasing quantity and quality of MNCH services. Evidently, performance-based incentives motivated additional efforts. Performance-based incentive mechanism was an effective strategy to tackle issues related to service use and provider performance. P4P study has shown promises in rapidly increasing institutional delivery. In Bangladesh, the need for implementing performance-based financing programs to meet MDGs and other health indicators is beyond argument. Specifically, such encouragement is required until certain level of institutional deliveries and improvement in maternal and child health are reached.

037. Talukder MN; Rob U. Equity in access to maternal and child health services in five developing countries what works? *International Quarterly of Community Health Education.* 2010-2011; 31 (2): 119-131.

The study investigated selected health service delivery models that improved access to maternal and child health services in Bangladesh, Pakistan, Cambodia, Ghana and Tanzania and identified the lessons learned that used for designing effective programs. This paper was written based on the review of background papers on Bangladesh, Pakistan, Cambodia, Ghana, and Tanzania, prepared as part of a multi-country study on health systems and maternal and child health. The study findings suggested that equity in access to health services largely depends on a system that ensures a combination of facility-based service delivery and outreach services with a functioning referral network. A key factor was the availability of health workforce at the community level. Community-based deployment of service providers or recruitment and training of community health workers is critical in enhancing service coverage and linking local populations to a health facility. Incentive is necessary to keep community health workers' interest in providing services. However health workforce alone can't ensure good health outcomes. They must be embedded in a functioning service delivery network to transform structural inputs into outcomes. Moreover, local level health systems should have the ability to allocate resources in strategic ways addressing the pressing health needs of the people. It also requires that activities of the system be designed to deliver health services according to the needs of local populations.

038. Yousuf NA; Yousuf IA; Talukder NU; Kutubi A; Nahar PAS; Hena SB. Maternal risk factors for perinatal mortality. *Bangladesh Journal of Obstetrics & Gynaecology.* 2011; 26(2): 86-91.

The purpose of the clinical study was designed to assess the maternal risk factors responsible for perinatal mortality and to assess other associated factors for it in order to formulate the measures for prevention. The cross sectional study conducted in the Department of Obstetrics & Gynecology and Department of Pediatrics Sylhet MAG Osmani Medical College Hospital, Sylhet during the period from July 2008-June 2009. Study populations (100) were all fresh and macerated stillborn and early neonatal death cases during the study period. Findings of the study revealed that during this period 8398 deliveries were done and there were 715 perinatal deaths. In Sylhet region, neonatal mortality rate is higher (53/1000 total birth) than our national neonatal mortality rate (37/1000 total birth, BDHS-2007). It was found also that most of the perinatal deaths were associated with lack of education and

poor socioeconomic condition (32%). Thirty two percent of mother was below 18 years, 58% were primigravida, only 11% cases had regular antenatal visit and 23% cases had a history of perinatal deaths. In the present study, 41% cases had vaginal delivery and 27% had LUCS. Increasing maternal age is associated with increasing risks for infant mortality. From this study, it was found that most important maternal risk factor for perinatal mortality was pre-eclampsia, eclampsia and obstructed labor. Perinatal mortality is a sensitive indicator of the quality of health care provided to pregnant women and the new born. In order to improve the situation, the targeted population should be given health education, encourage taking advantage of the available health services, which are being underutilized.

2.2 FAMILY PLANNING (Contraception, methods, side effects, follow-up etc.)

039. Akter S; Nahar N; Khatun H. Ruptured ectopic pregnancy 3 years after bilateral tubal sterilization. *Bangladesh Private Medical Practitioners Journal.* 2012; 18(2): 93-95.

The study aimed was an estimate of ruptured ectopic pregnancy within 3 years after bilateral tubal sterilization. In this study, a 29 years-old woman, gravida 4, para 3 was admitted in medicine department with the complaint of lower abdominal pain for 4 days. She had no history of fever, vomiting, and burning sensation during maturations. Admission ultrasonography showed small adrenal cyst about 4.4X 4.5 cm, no collection in pouch of Douglas. She had no history of missed period. Urine routine examination showed normal findings. She was treated with intravenous fluid and broad spectrum antibiotics. She was previously undergone tubal sterilization at the end of puerperium after her late child birth hymenia 3 years back. On second day of admission she was referred from medicine to gynecology department as she was not relieved from dull pain and urine injuries examination revealed normal findings. Tubal ligation with resultant tubal damage carries a common odds ratio of 9.3 for ectopic pregnancy when compared with pregnant controls in a large multicenter study, the risk of ectopic pregnancy in women. The study found that likelihood of an ectopic pregnancy in women who had undergone the common types of tubal sterilization was found 7.3 per 1000 procedures. The study also found that the likelihood of an ectopic pregnancy varied according to the method of sterilization and the age at which the women underwent the sterilization procedure. Women who were under age 30 at the time of that procedure were twice as likely to have a subsequent ectopic pregnancy as older women. Further, it was found that ectopic pregnancy might occur many years after tubal sterilization. Women sterilized before the age of 30 years had a probability of ectopic pregnancy due to high fecund ability. The annual rate of ectopic pregnancy for all methods combined in the 4th through 10th years after sterilization was no lower than that in the first 3 years. A history of tubal sterilization does not rule out the possibility of ectopic pregnancy even many years after the procedure and prophylactic bilateral salpingectomy might be considered in such cases that there was no obvious tubal lesion. While ectopic pregnancy is a known but rare risk of failed tubal sterilization, pregnancy involving the fallopian tube is usually reported many years after tubal ligation.

040. Anonymous. Identify appropriate IEC interventions in low health and family planning performing areas for reproduction of regional variation. Dhaka: NIPORT, 2011.

The main objective of the study was to identify appropriate IEC interventions in low health and family planning performing areas for reduction of regional variation. This study used cross-sectional statistical design to obtain information from the primary and secondary sources. An integrated approach combining qualitative and quantitative methods had been adopted to conduct the study. The study collected data from different selected regions in short time, a combination of sample survey and Focus Group Discussion (FGD) had been adopted. Study results found 70.25 percent members of the sample households had been maintaining good health, while 27.37 percent members had been maintaining moderate health and only 2.38 percent members had been maintaining ill health. More than 96.03 percent eligible married couples practice family planning. In the FGD, Family Welfare Assistants (FWA) told regarding behaviors of the eligible couples that the new couples were somewhat reluctant

regarding family planning. Many of them did not extend necessary cooperation to them. Moreover, the couples are less interested in permanent device than temporary devices. Three factors like information, education and communication are in one term 'IEC' played important role in the family planning sector which should reach the eligible couples in the country are the utmost importance. Lots of messages have been there in the 'Information' message. The eligible couples should be educated about these messages, along with their importance in their day-to-day life and in their life plan. To reach them the information adequately, properly, in time and with importance needs some media on which the concerned authority can effectively rely. Upon field survey and discussion with different stakeholders, it was observed that 'EC' tasks have been done at the field level, but in a normal process. Substantial achievement had been observed in regard to family planning practice among eligible couples, but it was yet to achieve further success. During the course of survey, it was found that (according to stakeholders' opinion also), family planning activities were confined to some limitation, which needs to be overcome. All these amount to raising fear among eligible couples regarding their application. It might be suggested that field level manpower like FWAs, FPIs and other support staff post should be increased and vacant post should be recruited. Moreover, it should be taken necessary steps for solving the following existing problems like- lack of extensive training and promotion of the staffs, lack of modern office equipment, lack of awareness building approach, lack of enhancing media service, lack of providing sufficient incentives for couples who would like to go for taking permanent method of contraception, lack of providing adequate transport facilities for the staffs and supplying modern family planning devices.

041. Anonymous. Reasons for reduction of acceptance of permanent methods and long-term methods of family planning. Dhaka: NIPORT and ACPR, 2011.

The broad objective of the study was to identify the reasons for reduction of use of permanent and long-term methods of family planning in order to identify the appropriate strategies to increase use of long-term and permanent family planning methods. This is a cross-sectional study. Integrated approaches combining both qualitative and quantitative methods were adopted to conduct the study. Available secondary data were analyzed for the purposes. Multi-stage sampling procedure was considered in deciding sample size and information were obtained from the service facilities and communities. Conducting in-depth interviews with policy makers, managers, service providers, clients and focus group discussion were initiated to obtain study information. It also carried out customer's perceptions of Permanent and Lon-Term Method (PLTM) and visited training organizations. The study built upon the findings of different literates, observations and assessments of PLTM service delivery points. The study showed evidence of unmet demand of PLTM is probable that many couples would opt for PLTMs if services were better known and more accessible and available. Couples do not receive adequate information to make them aware of services or to support their contraceptive decision making. Also, sterilization has an image of being the contraceptive method of the poor. Modern IUDs, such copper T 380A and hormonal IUDs, are greatly more effective and safer as compared to the older generations such as Lippi's loop. Regarding low use of IUDs, it has been concluded "misperceptions about safety of the IUD help explain low rates of use in many countries" including Bangladesh. This misperception has clearly originated from old popular IUDs in the 1960s and 1970s and their delivery under poor and inadequate service conditions. Introduction of Implanon which have only one rod as compared to six in Norplant would likely make implantable devices more popular. The high method discontinuation is known to be at least partly due to inadequate or irregular supplies and temporary stock-outs. The existing method acceptance pattern is inconsistent with expressed demand structure

implying insufficient understanding of the methods and their implication. Improvement of quality of care is essential to reduce method of discontinuation, frequently switching methods, promote acceptance and thereby promote effective use. Communication efforts in support of family planning programs and services have been grossly inadequate of unfocused in recent years. Wide regional variation in program performance calls for special attention to diverse regional issues. The study recommended that a technically competent support system should be needed to monitor quality of care on a regular basis, including clinical procedures, aseptic precautions, counseling practices, follow-up arrangements, and availability of equipment and supplies. Watching on if and how clinical staff manages emerging problems on side effects and rumors was important to ensure continuity and client satisfaction.

042. Anonymous. Perception and practice of using FP & RH services among slum population. Dhaka: NIPORT & GUS, 2011.

The main objectives of the study were to study the knowledge, perception and practices of slum people about the existing FP-RH services with a view to improve the health status of women in reproductive age group and children below five years of age. The study followed a cross sectional statistical designed and obtained information from the primary and secondary sources which comprises all relevant categories of respondents. Study population was consider for the selected slum, slum owner (if any), NGO worker (if any), FP method users (long term and short term), mother, pregnant women, eligible couple, adolescent girls and other community people. The study followed a cross-sectional statistical design. A total of 1568 samples (32 slum owners, 64 long term FP method users, 64 short time FP method users, 320 mothers, 256 pregnant women, 64 NGO workers, 128 eligible couple, 320 adolescent girls and 320 other slum communities) were considered for interview. Data collection was carried out on May, 2011. Study found overwhelming majority (80%-90%) of the respondents were aware about the health system and health care facilities in their locality. Most (80 percent and above) of the respondents mentioned that maternal, child and family planning service were available in the health center. Among the slum people 41 percent mentioned that they had the maternal death in their slums last one year preceding the survey. About two-third (66%) slum owners mentioned that slum's women receive antenatal, delivery and post-natal care service during their pregnancy. Whereas 61% slum community people reported that slum's women received antenatal, delivery and post-natal care service during their pregnancy. Knowledge of FP methods among respondent was satisfactory. The users who heard the method from a specific source about 58% heard FP methods from television and field worker (60%). Two-third (67.2 %) of long-term users responded that they received ANC during their pregnancy. More than 70% long term users received delivery care and 47% of received postnatal care following their birth. Overall, one in three women (34%) age 15-49 who had a birth in preceding the survey received one postnatal care service following their live birth. Overwhelming (92%) users protected themselves against neonatal tetanus. According to information from long term and short term users' reports, overwhelming (95%) of their children was vaccinated. One in five children received vaccine from EPI center, 23.3% from government health workers. More than half (53%) long term users were using IUD and 47% were using Norplant/implant. Almost 72% women had decided discussing with their husband. Among the short-term users more than 63% were using injectable, 31.3% pill and only 6.1% was using condom. Analysis of knowledge, awareness and availability to health and family planning services by the respondents revealed that it was satisfactory but not desire level. Majority (80% and above) of the respondents mentioned that maternal, child and family planning service were available in the health center. The results of the study, however expressed that mechanisms are needed to promote effective and timely management of

FP methods supplies and their side effects, particularly through focused counseling and improved referral mechanism. Satellite clinic and volunteer service should be launch in the slum areas in this regard.

043. Anonymous. Impact of local level planning in FP program. Dhaka: NIPORT, 2011.

The general objective of the study was to assess the impact of local level planning in FP program for strengthening local level family planning program. To conduct the impact study, both qualitative and quantitative methods were applied. In case of qualitative investigations, intensive interviews with the Upazila Program Mangers, service providers, field workers and community volunteers were conducted in 31 Upazilas with 539 persons/key informants, 31 FGDs were conducted with Community influential or members of Local Level Planning Committee. It was found in the intensive interviews that Local Level Planning Program was initiated in 2008. The implementation process encompass training, filling up draft tool kit, submission to the district and feedback. Subsequently, it was however observed that none of the Upazilas received any resources to implement the LLP activities and thus the implementation had been since then put to abeyance (postponed) till now. As many as 31 Focus Group Discussions (FGDs) were conducted with community influential and members of LIP committees at the union level. FGDs were an attempt to assess the awareness of the participants about the LLP programs and its present status. At household level, total 2684 interviews were conducted in which 27% from urban areas and 73% from rural areas. In intervention and control areas, 89% and 74% respondents opined that FWA visits their home routinely. Only 8% respondents both in Intervention (LIP) and Control (Non LIP) area opined that the NGO health workers visited home on an average 9 times in a year and advised for accepting family planning methods. One fourth of the respondents (25%) in Intervention area (LIP area) opined that local volunteers visited home. It was found that because of LIP implementation, volunteers were extensively used in household visit which was reflected in findings showing higher household visitation. The Contraceptive Prevalence Rate observed in the current study is 74% in intervention area and 73% in control area. The study findings suggested that Local Level Planning (LLP) in FP Program was initiated in 2008 and it is still at the beginning of the activities. Actually LLP was initiated as a result of the previously implemented Local Initiatives Program (LIP). It was expected that the Upazila Officials would receive required resources to implement the plan but they did not receive any fund to implement the plan. Upazila officials were found very enthusiastic in the LLP process. They very quickly learnt the process of preparing local level plan, budget and ensure the participation of community people. The financial power of the District Officer should be enhanced in order to facilitate prompt decision; and skilled manpower should be increased. Emphasis should be given on supervision and monitoring.

044. Anonymous. Social, economic and cultural factors that influences FP acceptance in low performance areas. Dhaka: NIPORT & HDRC, 2012.

The purpose of the study was to find out social, economic and cultural factors that influence family planning acceptance in low performance areas in Bangladesh and to investigate the characteristics that are influencing low performance to increase acceptance of FP in that areas. Both quantitative and qualitative methods have been used for collecting data. In this survey, a total of 976 couples with 530 couples in two lowest performance districts (Habigonj and Brahmanbaria), 192 couples in one of the highest performance district (Thakurgaon) and 254 couples in selected slums of Dhaka and Chittagong cities were conducted. In-depth interviews were taken with married women of reproductive age. Focus group discussions with

Family Welfare Assistants, and key informant interviews with Upazila Family Planning Officers were also conducted. The results showed that over 99% respondents across the study areas were aware of family planning, regarding specific contraceptive methods like- pills, condoms and injectables were known to most of the respondents (over 90%) in low and high performance areas as well as in urban slums. Knowledge about permanent and longer acting methods was low compared to temporary methods and it substantially varies in low and high performing areas as well as in slums. Proximate determinants of fertility-mean age at first marriage and the mean age at birth of first child in low performance areas are 17.8 years and 18.1 years respectively. CPR in low performing areas constituted 43.6% (rural Habigonj 42.7% and rural Brahmanbaria 44.4%; while CPR in high performing area was 75.2% (rural Thakurgaon). A 73% of contraceptive users in low and 79% in high performance areas discontinued use of family planning at one point of time mainly due to desire of more children, followed by 26% and 33% respectively due to health problem in low and high performance areas. The major sources of contraceptives in low and high performance areas follow a similar pattern. The most popular source of contraceptive is pharmacy (53%), followed by NGO clinics (45%). The results of logistic model revealed that there were demographic and socio-cultural factors like- female education, number of living children, husband's supportive attitude towards FP, religiosity, frontline workers visitation, etc. influenced the usage of FP modern methods. It was recommended that campaign on FP methods are not harmful to female should be strengthened and launch effective behavioral change communication (BCC) campaign with greater focus on low-performing areas (including urban slums establish a chain of quality FP services); follow-up care to counter fears of side effects and misconceptions; create a social movement to stop marriage of girls below the age of 19 years; increase number of service-providers (FWAs, FWVs) and other field-level staff; FWC/CC should be set up nearby in common place; ensure uninterrupted availability of FP methods near the community family; involve local government institutions and NGOs; enhance rates of compensation package to the acceptors of FP terminal methods; undertake special programs to increase rate of secondary education among girls; and finally hold a workshop with all concerned stakeholders to develop an implementable action-plan to meet the study objectives.

045. Anonymous. Identify the ways to increase access of FP services in hard to reach areas and urban slums. Dhaka: NIPORT & Eminence, 2012.

The objectives of the study were to identify the fertility preferences; awareness level, use of family planning methods, availability of the services, constraints what the people faces, and suggesting probable solution to trounce the hurdle in hard to reach areas and urban slums in Bangladesh. The study population was included women of reproductive age from selected hard to reach areas and urban slums, health and family planning services recipients, service providers, program managers of delivery points, local leaders etc. of the selected areas. The study followed five methods for data collection, like: a) document review; b) structured questionnaire; c) focus group discussions; d) key informant interview; and e) community workshop. Fifteen hundred married women of reproductive aged 15-49 years from seven divisions were used as sample size. Among the samples, hard to reach (rural) areas were 700 and urban slums for city corporations were 800. The findings showed that in hard to reach area access and communication tend to be difficult, as sometimes, only one-fourth of the land is easily accessible, with the rest being either marshy land or with rivers and canals. Previous studies also found that high performance areas were usually densely populated and easily accessible, with high family planning workers visitations, compared to difficult areas, where there are low visitations by family planning workers. There have

some villages of Satkhira, Bandarban and Rangpur District distance of even 10 to 12km from each other which take about 12 hours by foot, and about 4 hours by boat to go. The service providers mentioned that they could rarely visit the field because of the lack of transportation. They further observed women experienced difficulties in moving around a large field area, especially when unaccompanied and without transportation facilities. In adequate or irregular supplies of contraceptives are also identified as constraint of this program in hard to reach areas. Religious leaders gave contradictory views on this subject; some suggesting that it was un-Islamic behavior to use contraceptives. A common gap revealed in the interviews was the lack of adequate support and information from health workers about the methods. The current study found that the most common reason for which people do not prefer long term and permanent methods is fear of using these methods. These results suggest that in order to attain the goal of lowering population growth in Bangladesh, both programmatic and non-programmatic factors need to be taken into account. An expansion of family planning practices is needed, with both horizontal (spatial) and vertical expansion. Therefore, informed counseling, training, client's availability, screening and sensitization, human resource, information dissemination and health education, meeting unmet need and male involvement should be addressed.

046. Anonymous. Family planning commodity projection for 2014-2021. Dhaka: NIPORT & CDS, 2013.

The Purpose of the study was to assess the future needs for contraceptive commodities through projecting family planning commodity projection for 2014-2021 in Bangladesh under different assumptions. The projection for strategic planning was derived by using the microcomputer-based FamPlan system of medel. A total of four sets of projections and associated contraceptive commodity requirements were made using the FamPlan medel. The FamPlan system of models is designed to help development planners to transform their population policies into implementation and operational plans. Three types of data can be used for projecting the consumption of contraceptive supplies: consumption data, services data, and demographic data. Census data of 2011 has used for projecting target people and national survey. The data collector used the different types of data to prepare separate forecasts of the estimated consumption for each product. Then compared the results of the different forecasts and reconciled them to determine the final estimate of consumption for each product, which they then used as the starting point for projecting quantity. Data collected from various sources like NIPORT, DGFP, DGHS, UNFPA and Department of Statistics University of Dhaka, Bangladesh Bureau of Statistics, Ministry of Health & Family Welfare and NGOs working in this sector. The immediate vision of Bangladesh Family Planning Program is to achieve replacement level of fertility. To assess this, several scenarios were drawn up and contraceptive requirements are projected for 2014 to 2021. The baseline and input data including proximate determinants are discussed in terms of their contributions in fertility reductions. Converting unmet need for limiters and spacers into users had significant impact on the achievement of demographic goal because of the fact that if they can be converted into users, the contraceptive use rate will be about 74%. If this can be achieved, Bangladesh will be able to achieve replacement fertility immediately. If we put this CPR in the regression line TFR = 7.15-0.0688 CPR, then TFR will be 2.0 children per women and corresponding population growth will be zero percent. Converting intenders have more demographic impact than reducing unmet need for contraception. Intending field worker visits to intenders can accelerate the process of transforming intenders into effective users. Study results also showed that shifting of traditional method into modern methods, achieving of TFR=1.7 per women, formulating of quality strategy and policy implications should think seriously. The findings

indicated that first scenario provides projected contraceptive commodities that are very close to actual figures from MIS data. This also fulfills the expected demographic goal. The study suggested that reduce the cumulative pressure of contraceptive commodity of sort acting methods, the country need to shift contraceptive use patterns towards more effective longer- acting and permanent methods. Multi-sectoral efforts for rising female age at marriage and delaying age at first birth through promoting female education and creating employment opportunities, and more effective enforcement of the legal age of marriage could help achieve the demographic goal. Intensifying public information and motivation campaigns to bring about overall changes in attitude and awareness creation among all stakeholders on: longer acting and permanent methods, delayed marriage, popularizing two child family norm, minimizing drop-out and unwanted pregnancy, male involvement in NSV, availability of FP services, female education etc. will produce definable results on a longer term. To achieve replacement fertility by 2016 and population stabilization, several factors should be taken into considerations. These are: high population momentum effects; low age at marriage, high adolescent fertility, shifting of child bearing towards younger ages; decline in birth interval from marriage to first birth interval; continuous decline in permanent methods and long acting methods such as sterilization and IUD; and decline in the visit of households by family planning workers.

047. Anonymous. Assess the constraints to promote long–acting and permanent contraceptive methods (LAPMs). Dhaka: NIPORT & HDRC, 2013.

The purpose of this study was to assess the reasons for not accepting long acting and permanent methods in order to provide appropriate recommendations to promote long acting and permanent contraceptive methods. The study has conducted by using both quantitative and qualitative techniques. Quantitative study has been conducted with interview of sample of eligible women or men aged 15-49 with at least one child. The sample women and men have been selected from BDHS 2011 Enumeration area (EA). Out of 600 EAs of BDHS 2011, 140 EAs has been randomly selected proportionately from seven divisions covering both the urban and rural areas. From each of the EAs, a statistically valid sample of 30 respondents has been interviewed. Information has also been collected from program managers and service providers through personal interview. In each division 6 MO-MCH, 6 UFPOs, 6 FWVs, 6 FPIs and 6 FWAs have been selected randomly for interview. Findings of the study revealed that the problem lying with increasing acceptance of LAPMs is both from the demand and supply side. The programmed has failed to create demand due to socio-cultural problems and lack of proper BCC approach through use of media communication, counseling, and involvement of community and religious leaders. Although most of the LAPMs are for women, their husbands in most of the cases were not counseled properly, especially about its advantages and some probable side effects. The husbands were also not informed of the advantages of vasectomy, which was the safest among all the LAPMs. The complications due to lack of a quality approach has also increased. Complications have negative impact on their families causing discontinuation, and discourage others to use that method. The complications thus prevent their friends, relatives and neighbors to accept it. Shortage of manpower and supply of IUD and implants, and shortage of MSR for LAPMs also are great obstructions towards quality service provision. The recommendations are broadly as follows: establish quality LAPM services provided with more empathy, ensuring privacy of the clients during and after operation with scope of follow-up care to counter fears of side-effects and misconceptions. It has to be resolved the leadership problem with special attention to the recruitment and scope of promotion of service providers in DGFP, increase number of service-providers (doctors and

FWVs) and field-level staff (FWAs) with greater focus ‘on LAPMs low-performing areas. Counsel of women on LAPMs during the household/hospital/clinic visit, post-natal care, MR and post-abortion care, popularize IUD at all levels through provision of uninterrupted supply, quality provision, and proper management.

048. Anonymous. Study on unmet need for family planning in Bangladesh. Dhaka & Malaysia: FPAB & ICOMP, 2010.

The specific objective of the study was to estimate the unmet need for family planning in Bangladesh; and to explore significant determinants of unmet need for family planning. The study estimated unmet need for family planning uses both conventional and unconventional definitions. The health-risk unmet need refers to women who were not using family planning method, but already had more than 3 live births, or short birth interval (last birth less than 15 months before the survey), or too young (under 18 years of age) or too old. The study used data from Bangladesh Demographic and Health Survey (BDHS) 2004. The survey followed two-stage sample design based on the 2001 census. Since the study wants to examine the unmet need for family planning and its determinants, the unit of analysis of this study was the currently married women age 10-49, therefore the number of cases includes in this analysis is 10, 582. The multivariate analysis for this study was done through multinomial logistic regression because unmet need for family planning was a categorical variable and no unmet need is considered as reference category for this analysis. The current estimates of the study showed that one-third (33%) of the currently married women have unmet need for family planning in Bangladesh and a larger proportion of them has unconventional unmet need (22%). The proportion of conventional unmet need was 11% which included 6% limiting and remaining 5% spacing unmet needs.The study result supported concerns regarding the quality and effectiveness of contraception because a significant proportion of condom and periodic abstinence users have unmet need for poor contraception. Bangladeshi women ideally prefer 2.5 children on an average, thus it was quite natural that they mostly fulfilled their fertility desire when they have 2-3 surviving children. This segment of women required permanent or longer-acting method to fulfill their limiting unmet need. The study observed that doorstep access to fieldworker can significantly reduce spacing and health-risk unmet need, which is almost half of total unmet need. However, they should target the under-served groups specially addressing spacing and health-risk unmet needs of younger women (age<20). Very high prevalence of health-risk unmet need in both Sylhet and Chittagong division along with rural areas in Bangladesh may also be explained by socio-cultural hindrance belongs to the society. Unmet need also related to sex composition of living children. Women who have only girl are significantly more likely to have spacing unmet need, whole limiting unmet need is more among women who have both boy and girl. The study result revealed that communication and motivation was very important for significant reduction of conventional limiting and spacing unmet needs. Husband-wife communication about family planning could also help to reduce health-risk unmet need. The study suggested that proper method choice should be taken into consideration while fulfilling the demand for conventional unmet need for family planning. Therefore, the program should give proper emphasis not only on choice of method, but also the effective use of contraception.

049. Anonymous. Reaching young married couples (YMC): an underserved population for long acting methods of contraception: end-line evaluation report. Dhaka: DGFP, Mayer Hashi Project/Engender Health, 2103.

The main objectives of the targeted intervention were to increase access for young married couples (YMCs) to FP information and services and assist them in achieving their reproductive intentions. The key project interventions implemented during the i8-month period included: capacity building of service providers and fieldworkers on how to effectively communicate about FP in a youth-friendly manner, capacity building of peers on FP communication to YMCs, increasing community awareness on FP, and implementing community-based BCC activities through interpersonal communication and group sessions with YMCs, street drama and video shows on local cable network, and provision of printed BCC materials. The primary audiences for the peer interventions were YMW (20 years or younger) with one child and their husbands; all YMC in the five Upazilas were provided with BCC, information and services. The intervention was implemented in five Upazilas of Patuakhali district covering about 50,000 YMCs. A structured pre-tested questionnaire was used in the baseline survey as well as the end-line survey. The surveys used mostly standardized, validated questions from the Bangladesh Demographic and Health Survey (BDHS). The background characteristics of the baseline and end line survey respondents were similar in terms of age, residence, median age at marriage, and educational attainment. In both surveys, the distribution of husbands' occupations was dominated by agricultural work. In the three months preceding the survey, 29% of the YMW and 24% of their husbands heard about the YMC program and 24% of the YMW and 18% of their husbands were visited by peers. Among the 161 YMW who were aware of the YMC program, about 78% knew about courtyard meetings (Uthan Boithak) organized by peers. Among the YMCs who visited a health facility for FP services, 70% of the YMW and 93% of husbands reported a good overall facility environment for FP clients. Furthermore, 69% of the YMW and 96% of husbands reported good interactions with service providers, and 70% of the YMW and 95% of husbands were satisfied with the FP services they received. Among the current FP users, 19% of the YMCs heard about their current method from peers. More than half of the current FP users reported that they were influenced to use the current method by family members/relatives. FWAs/other service providers influenced about 31% of the YMW. Nearly all of the YMCs (96% YMW and 99% YMM) were satisfied with their current method. It is recommended that the government system be fully involved in supervision and monitoring of the activities implemented by the peers.

050. Anonymous. Study on effective involvement of community and public representatives in family planning program. Dhaka: NIPORT & ACLAB, 2012.

The study was conducted to identify the ways for effective involvement of community and public representatives in family planning program in Bangladesh by involving community in promoting the family planning program, and to identify potential areas and means of contribution of the community people and public representative towards achieving the FP target. The methodology of the study was ultimate intention to make all out efforts to identify the ways and means to effectively involve the local community and public representatives in Family planning program. A meeting was organized with NIPORT and representatives from Family Planning Department to brainstorm and identify the potential community members and public representative groups and location of the study. The study was conducted in seven geographical Divisions. The sites were selected purposively comprising all service centers of family planning city or urban level district level, Upazila level and Community level .The majority of the respondents including the key informants of the study i.e. the community

leaders and public representatives were very keen about sharing their perceptions and opinions about family planning program. In Bangladesh, since for the long time the issue is considered as number one problem in the country and got huge political commitment and supports from all governments. The present government is committed to achieve the millennium development goals and declared its vision 2021, which clearly outlines the target for population growth rate and sustainable developments. The community leaders and the public representatives perceive that still the over population is a number one problem in the country, which hinders the sustainable development. They also perceive that although there is a good policy, good program for population control from the central level, still the family planning services are not properly reached to the community as per need; the family planning program is not well managed at the community level. The findings reveal that the mean age of the all categories of the respondents was 37 years. The mean age is the highest (45 years) among the Community Leaders and lowest (30 years) among the Union Parishad Member -Female category of the respondents. A majority (57%) of the respondents had educational degrees of BA/MA and above, which was the highest among the School Teachers Male (82%) followed by Civil Society Members (75%), and respectively Religious Leaders (66%) and Professional Groups (57%) category of the respondents. The Union Parishads can be made the center of all the activities of maternal and child health and family planning. The elected representatives, (Chairman and members) should be given specific responsibilities and they should be accountable for the enhancement of these activities in their respective localities. The linkage among volunteers/workers, government officials, elected representatives. Community leaders and users of health and family planning services need to be redefined in the light of existing problems. The supervision and monitoring, holding of satellite clinics and extended program on immunization sessions, discussions, identification of major diseases at an early stage and referral for adequate treatments, etc. require specific modifications in the sharing of responsibilities by stakeholders. The successful leaders should be honored and their contributions are to be recognized by the government.

051. Kafil-Uddin M; Haider SJ; Islam MS; Rahman MH; Momtaz-uddin M; Alam K; Parveen S; Awal MA. Commodity audit-2013. Dhaka: DGFP & READ, 2013.

The overall purpose of the audit was to verify if contraceptives, drugs and MSRs are received, stored and distributed adequately and as per applicable guidelines of DGFP; determine the level of accuracy of the reporting system both manual and electronic; identify and quantify system lossess; determine the extent of stock out situations in the periphery; and assess appropriateness of current management practice and required enhancements to achieve best practice. Two-stage sampling design was followed for selecting the respondents. In the first stage, upazila was selected randomly but taking into consideration warehouse. Then required numbers of respondents were selected from the sample upazilas. The target facilities audited included Central warehouse-1, Regional warehouse-20, MCWCs-6, UH&FWC-42, FWA-42, FWV-42, NGO-42, Private pharmacy-126 and clients-420. The consultants developed 10 types of structured and semi-structured data collection instruments to conduct the audit. Study found majority of the storekeepers mentioned that the received (94-100%) and stored (93-98%) the contraceptives and MSRs as per guidelines specified in the Supply Manual. About four-fifths (79%) if the respondents mentioned that they distributed contraceptives and MSRs by issue voucher/invoice/ as per guidelines of supply manual. The district committees in both the surveyed districts were less active although both the committees were formed. The members in both the districts predominantly remained engaged in observing national days (66%) and also participating in awareness raising programs (61%). Half of the respondents

(50% Committee Members) were aware that Bangladesh was signatory of the United Nations Convention on the Rights of Person with Disability (UNCRPD).The study data showed that like the general population, the family structures of the PWDs were mostly Nuclear (71%) and the joint family being only 29%.The current survey findings revealed that some of the respondents (PWDs) were found with multiple disabilities. The most predominant form of disability was the physical disability, followed by intellectual (including mental disability); speech, hearing and visual impairments. It was important to ensure mobility of the disabled people so that they have access to all sorts of public services. In this respect attention must be given to access to transport vehicles, infrastructure, water and sanitation etc. Building ramps in public buildings and in large housing facilities and in cinema halls and other entertainment facilities should be made mandatory. Special toilet facilities should be built in buses, waterways, rail stations, schools, banks, and in all public space. All transport facilities must be reserved seats for the disabled. Majority of the PWDs already participated in the national and local elections and about a half of them expressed their intent to actively participate in the elections. This certainly is a positive indicator of equitable development of the PWDs. The foremost barrier to secure equity and access to livelihood at par with the citizens was the severe awareness gap at all levels of the society. Particularly, building commitment among the members of the District Committee (Local Authority) to pursue planning, implementation and monitoring interventions assisting the Persons with Disabilities (PWDs) is vital. As per results of the audit, steps to be taken in avoiding the interruption of commodity supply that would be: i) recruit manpower as per need; ii) ensure availability or proper management of transports; iii) impart training to the concerned manpower identifying the areas of weakness in terms of skill.

052. Mamun-Al-Rowshon M; Yasmin N; Lahiri S;Faruquee MH; Karim N. Status of permanent family planning method among eligible couples in two selected Upazilas of Bangladesh. *SUB Journal of Public Health*. 2011; 4(2): 14-17.

The study was intended to gather information regarding the status of permanent family planning methods, reasons and to explore any association with the background of eligible married couples in Bangladesh. All the eligible couples (married couples having minimum two children) of the two selected upazilas (Koyra and Paikgacha) as enlisted by the field workers of Upazila Health Complex (UHCs), family welfare clinics (FWCs) and Community Clinics (CC) were approached and a total of 298 subjects were tracked from January to March 2011 and interviewed with a Bengali semi-structured questionnaire. Out of total 298 respondents, 56% were found to be within in the age of 26-30 years, 25.2% were within 31-35 years, and 9.7% within 25 years and rest (9%) were above 35 years of age. The findings included background of the respondents, status of family planning among the respondents, and association between the status of permanent family planning socio-demographic and socio-economic background of the respondents are presented. Among the respondents, 57% were illiterate, 39.5% had primary level of education and rest 3.3% had secondary level of education. Within the respondents two-third (66.4%) had four members in their family while one-third (33.6%) had more than four members. Among the respondents, about two-third were adopted permanent method (tubal ligation) for family planning. Among those who did not adopt permanent method, about one-fourth were found to be using oral pill, less than one-fifth injection and only a few were found to be using condom. Among those who adopted permanent method, prior to acceptance of permanent method majority, i.e. one-fifth injection. Though the association between age and status of acceptance was found to be statistically insignificant ($p>0.05$), the education level, income level and number of children were strongly associated with level of acceptance ($p<0.05$). Population of higher level of education adopted permanent method more.

Adoption was more among higher income groups. The adoption of permanent method was found to be associated with more number of children. On the basis of findings, it was seen that though most got sterilized at their optimum age. They were taking it after having 3 children or more. The family planning workers must give preference for motivating the male partner from the very beginning of marriage and should target the newly married couples for counseling.

053. Nahar L; Akhtar S. Identify ways and measures for reducing discontinuation of Contraceptives. Dhaka: NIPORT and BIRPERHT, 2011.

The study objectives were to identify the major factors for discontinuation of contraceptive use and suggestions based on the findings which will hopefully decrease discontinuation of different contraceptives methods. The study was a community based cross sectional survey, which was carried out in 14 unions of 7 divisions of Bangladesh. The eligible respondents were selected by multistage sampling technique and interviewed through structured questionnaires. The selected Upazilla was considered as rural area and the corresponding sadar Upazilla was taken as urban area. In addition to the sample survey, community elite/stakeholders such as Union Parishad chairman, member, imam, school teacher were also interviewed purposively from selected areas. The study findings revealed, among the study population nearly 77% women currently using contraceptive methods, while 46% male currently use methods. Before using contraceptive methods three-fourth of the women received advice and among male, half of them sought advice. Before abandoning the contraceptive method nearly 60% women sought advice whereas it was only 26% for male. Most of the respondents believe that increase awareness on the use of contraceptive method was needed for reducing contraceptive discontinuation. Community leaders also suggested that contraceptive dropout rate could be reduced by making awareness on contraceptive use. Unavailability of all sorts of contraceptive methods and lack of instrument identified as a service delivery factor for discontinuation of contraceptive methods by 38% and 33% service provider respectively. Nearly 57% service provider opined that contraceptive discontinuation rate could be prevented by giving motivation to the client and by giving proper counseling about side-effects of contraceptives. In the light of current research findings, married couples should be educated about the side effects of family planning methods which played most important predictors of contraceptive discontinuation. Government should pay more attention to make available all sorts of contraceptive methods at family planning service outlets regularly. Service providers need special training on client motivation and for the management of side effects to cut down the contraceptive discontinuation rate. Family planning monitoring system should be strengthening to ensure health workers visit at home regularly to prevent contraceptive discontinuation rates.

054. Saha UR; Soest AV. Contraceptive use, birth spacing, and child survival in Matlab, Bangladesh. *Studies in Family Planning*. 2013; 44(1): 45-66.

The objective of the study was to analyze the causal effects of birth spacing on subsequent infant mortality and of infant mortality on the use of contraceptives and the length of the next birth interval. Using dynamic panel-data models of infant deaths, birth intervals, and contraceptive use, this study analyzed data which were drawn from the Health and Demographic Surveillance System in Matlab, Bangladesh, where almost 32,000 births had been observed from 1982 to 2005. Studies main finding was that complete contraceptive use could reduce infant mortality of birth order two and higher by 7.9 percent. The net effect of complete contraceptive use on the total infant mortality rate was small (2.9

percent), however, because the favorable effect on higher order births was partly offset by the rise in the proportion of high-risk first births. To reduce infant mortality through improved family planning, a better understanding of the factors driving contraceptive use and how this decision affects infant survival is needed.

055. Sultana GS; Haque SA; Sultana T; Rahman Q; Ahmed ANN. Role of red cell distribution width (RDW) in the detection of iron deficiency anemia in pregnancy within the first 20 weeks of gestation. *Bangladesh Medical Research Council Bulletin.* 2011; 37(3): 102-105.

The aim of this study was to determine the role of red cell distribution width (RDW) in diagnosing early iron deficiency anemia (IDA) in pregnancy. This cross-sectional study was enrolled in Dept. of Clinical Pathology and Obstetrics and Gynae outdoor, Bangabandhu Sheikh Mujib Medical University (BSMMU) from August 2008 to 2009 where 190 pregnant women were included in this study. Iron deficiency anemia is common problem during pregnancy. Red cell size variation (anisocytosis) is the earliest morphologic changes in iron deficiency anemia. This study identified red cell distribution width is a quantitative measure of red cell size variation and it could give the idea of early iron deficiency before other test to become positive. Red cell distribution width was compared between iron deficient and non-iron deficient-pregnant women. Red cell distribution width also compared with Hb level, mean corpuscular volume, mean corpuscular hemoglobin, and mean corpuscular hemoglobin concentration and peripheral blood film in pre-latent iron deficiency, latent iron deficiency, and mild and moderate iron deficiency anemia. This study revealed that red cell distribution width had sensitivity 82.3% and specificity 97.4%. Whereas Hb level, mean corpuscular volume, mean corpuscular hemoglobin, mean corpuscular hemoglobin concentration and peripheral blood film all had 56.6%, 29.2%, 68.1%, 15% and 38.9% sensitivity but specificity was 90.9%, 98.7%, 83.1%, 96.1% and 98.7% in the detection of iron deficiency. Red cell distribution width appears to be a reliable and useful parameter for detection of iron deficiency during pregnancy. For prevention of iron deficiency early diagnosis is essential. Iron deficiency and IDA without other complicating disease could be screened out early by increased RDW when Hb, RBC indices and PBF were normal. RDW can give the idea of iron deficiency but for final diagnosis serum ferritin should be done.

2.3 REPRODUCTIVE HEALTH (maternal health, adolescent health, antenatal and postnatal care, delivery care, gender issue, gynae and obs. etc.)

056. Afrose L; Banu B; Ahmed KR; Khanam K. Factors associated with knowledge about breastfeeding among female garment workers in Dhaka city. *WHO South-East Asia Journal of Public Health*. 2012; 1(3): 249-255.

The present study aimed at investigates the existing knowledge and associated factors influencing breastfeeding among female garment workers in Dhaka city. This was a cross-sectional analytical study conducted during a six-monthly period in the selected garment factory, Mond Apparel Ltd., Kallyanpur, Dhaka city. The study covered 600 female garment workers in the reproductive age group of (15-49 years) in the factory. Purposive sampling technique was applied and 200 respondents were selected who agreed to participate in the study. Data were collected through a pre-tested questionnaire using the face-to-face interview method. Bivariate and multivariate analysis was done to determine the association between socio-demographic variables and knowledge on breastfeeding. The study found that the overall the level of knowledge regarding breastfeeding among female garment workers is very poor (88%) among the study subjects. Majority of the respondents have good knowledge regarding advantages of exclusive breastfeeding (89%) and breastfeeding (100%). But most of the respondents have very poor knowledge regarding advantages of colostrum feeding (87%). Majority of the respondents have good knowledge regarding duration of exclusive breastfeeding (74%) and breastfeeding (66%). In this study, 88% female garment workers have very poor knowledge on proper breastfeeding. But in another study conducted among women attending a hospital, the mean knowledge score obtained by the mothers was 58.9%, which was also poor like that study. The study revealed that knowledge on initial and colostrum feeding (89% and 77% respectively) were very high. Breastfeeding is a unique source of nutrition that plays an important role in the growth, development and survival of infants. Women with secondary level of education had a significantly higher level of total knowledge score than other categories (illiterate, primary and higher secondary) of education. Although a large number of female garment workers had inadequate knowledge regarding breastfeeding. The results from this study indicated that the level of total knowledge score regarding breastfeeding was poor among female garment workers. Major concerns were inadequate knowledge on advantages of breastfeeding, frequency of breastfeeding, and storage of breast milk. It is also important that health education on breastfeeding is urgently provided to the female garment workers of Bangladesh.

057. Akhtar R; Ferdous A; Bhuiyan SN. Maternal and fetal outcome of eclamptic patient in a tertiary hospital. *Bangladesh Journal of Obstetrics & Gynaecology.* 2011; 26(2): 77-80.

The study intended was to examine the clinical profile and maternal – fetal outcome of eclamptic patients. It was a cross sectional study, done in the Department of Obstetrics & Gynecology in Chittagong Medical College and Hospital from January to December 2010. All patients (416) with eclampsia were included in the study. Patients came with convulsion other than eclampsia e.g. epilepsy, malaria, septicemia, meningitis, encephalitis, cerebral hemorrhage, high fever, hepatic coma were excluded. The findings of the study showed that total number of deliveries during this period was 13,635. The

incidence of eclampsia in this study was 3.05%. Among 416 patients with eclampsia most of the patients were between 20-25 years (77%), a large number were primipara (72.5%), and comes from rural area (76%) and belongs to poor socio-economic condition (72%), 49% patients were illiterate, 60% patients were no antenatal check-up, 52% patients came after 6 hours of beginning of convulsion, 18 patients (4%) were unconscious. Most of the patients had antepartum eclampsia (64%), number of convulsion was between 5-9 in about 58% case, 63% were delivered by LSCS, 23% mother showed complications of eclampsia, of them pulmonary edema (7.45%) and renal failure (6.49%) were common, 35 (8%) mothers died. Among perinatal mortality 18% baby were stillbirth and 9% were early neonatal death. The study had come to a conclusion that eclampsia is still a major killer disease in Bangladesh, which could be preventive by giving quality antenatal care with mass awareness regarding the importance of antenatal care and emergency obstetric service in the Upazila health complex. Female education, employment, empowerment is urgently needed to reduce the incidence of this killer diseases.

058. Akther R; Hossain T; Rashid M. Complications and immediate outcome of pregnant diabetic women. *Journal of Bangladesh College of Physicians and Surgeons*. 2012; 30(1): 10-16.

The study was designed to find out the complications and immediate outcome of pregnant diabetic women in the third trimester and to compare the results between gestational (GDM) and pre-gestational (PDM) diabetic women in labor ward of Dhaka Medical College hospital (DMCH), Dhaka. This observational retrospective study included sixty-nine pregnant women with diabetes (both pre-gestational and gestational diabetes) those who got admitted and treated at Dhaka Medical College Hospital (DMCH), Dhaka Bangladesh from the 1st August 2007 to the 31st August 2008. Detailed analysis of their obstetric history, ante-partum and intra-partum complications and mode of delivery were performed. The study results showed that majority of the women (76.92) were admitted through labor emergency. During this period total 15283 women were admitted in the labor emergency. Among them, sixty-two (62.31%) percent of women had gestational diabetes whereas 37.68% had pre-gestational diabetes. All women were followed up both by obstetrician and diabetic specialist. Twenty-five percent women developed pre-eclampsia and pregnancy induced hypertension, 13% women developed premature rupture of fetal membrane, thirty-three percent (23.25%) women had fetal distress, three (2.88%) percent women present with ante-partum haemorrhage (APH) and one percent (1.44%) women develop acute poly-hydromnios. Average gestational age was 36.83 (41-28) weeks. Fifty-nine percent (59.42%) women progressed to term pregnancy where in 40.58% ended before 37 weeks of gestation. Ante-partum and intra-partum complications were more common among pregnant diabetic women. Diabetes is a common medical complication of pregnancy: it is no longer a barrier to conception. The presence of diabetes (gestational and pre-gestational) in pregnancy had been associated with adverse effects on maternal and neonatal outcomes. Pregnancy in women with diabetes is a high risk one and care must be taken with an aim that both expectant mother and baby must be safe as in a non-diabetic person. The abnormal fetal outcome can be changed to a normal acceptable one by pre-pregnancy counseling optimum antenatal care, adequate screening of risk factors followed by proper and timely use of obstetric interventions. Knowledge of the importance of surveillance techniques to prevent complications resulted in a decline in fetal and neonatal mortality.

059. Akhter S; Yasmin N; Harun-Ar-Rashid; Faruquee MH; Lahiri S. Caesarean section delivery: a comparison between public and private hospitals in Dhaka city. *SUB Journal of Public Health*. 2011; 4(2): 18-25.

The purpose of the study was to reveal factors affection caesarean section and its cost in the tertiary hospitals in Dhaka city. The study was conducted in two hospitals in Dhaka city: one major teaching tertiary care public hospital and one specialist private hospital were selected purposively on the basis of matching criteria. The public hospital was Dhaka Medical College Hospital and the private hospital was Add-din Medical College Hospital. Among all the mothers undergone C/S in these two selected tertiary care hospitals, 70 were selected from public and 70 from private hospital and interviewed from May to August 2011 along with the patients' records kept in the hospital. The socio-demographic distribution of respondents attended in public hospital showed that highest frequency (31.4%) were in the age group of 21 - 25 years, while it was 38.6 % with the age group of 26 -30 years in case of the private hospital. By the education level of respondent's husband, the percentage in under-graduate (degree) level were 11.4% and 21.4% in public and private hospital consecutively and rest (40.0%) had masters level of education in private hospital as the highest. Among the respondents, the mean monthly income of the public hospital respondents was BDT 1473±8.10382 and that of private hospital was BDT26286±1.12174. By pregnancy complications, it was found that among the respondents of public hospital, 44.3% suffered from Ante Partum Hemorrhage, and 40.0% from loss of amniotic fluid; while in private hospital, 15.7% had been found to be suffering from Ante Partum Hemorrhage, and 48.6% from loss of amniotic fluid. Among the public hospital respondents, 25.7% opted caesarean section and private hospital, it was 47.1%. It was also found that, in 85.7% cases doctor took the decision for caesarean section in case of public hospital, while in private, it was 77.1%. The direct cost of the patients for caesarean section at the public hospital was found to be BDT 840±895 and at private, it was BDT 14126±2547. Among all respondents, one-third requested their doctor for C/S delivery. In more than eighty percent cases, doctor was the decision maker regarding C/S and in most of cases doctor explained the respondents about the C/S. On the basis of key findings, informing all the expecting mothers regarding the merits and demerits regarding Caesarean section through appropriate dissemination of information for the sake of informed choice is highly recommended.

060. Alam A; Bracken H; Johnson HB; Raghavan S; Islam N; Winikoff B; Reichenbach L. Acceptability and feasibility of mifepristone-misoprostol for menstrual regulation in Bangladesh. *International Perspectives on Sexual and Reproductive Health*. 2013; 39(2):79-87.

The study objective was to determine women's experience and satisfaction with the procedure, menstrual regulation outcome, and the human and physical resources required for providing the method. At 10 facilities in Bangladesh, 657 consenting women who were seeking menstrual regulation services and who were 63 days or less past their last menstrual period received 200 mg of mifepristone followed 24 hours later by 800 mcg of buccal misoprostol, administered either at home or in the clinic. Focus group discussions were conducted with a purposively sampled group of service providers at each site to understand their attitudes about the introduction of menstrual regulation with medication. The study found that majority of women (93%) with known menstrual regulation outcomes evacuated the uterus without surgical intervention. Overall, most women (92%) were satisfied with use of pills for their menstrual regulation. Providers faced initial challenges and concerns, particularly related to the additional counseling requirements and lack of

control over the final outcome, but became more confident after successful use of the medication regimen. In a recent study, Bangladeshi women described a range of socioeconomic barriers that affected their access to menstrual regulation services and contributed to delays in obtaining these services. In that study, cost, social stigma and fear of the procedure were identified as the main obstacles to obtaining safe menstrual regulation services. The cost barrier is pervasive. One study found that among menstrual regulation clients, only 11% of women reported receiving free services, even though services obtained in the public sector are supposed to be free of cost. Mifepristone- misoprostol can be safely offered within existing menstrual regulation services in urban and peri-urban areas in Bangladesh and is highly acceptable to women. Providers initial concerns diminish with increased experience with the method. The qualitative data from this study suggest, however, that women managing their menstrual regulation procedure at home initially increased provider anxiety. The study findings also suggested that acceptability among providers might increase over time as providers become more comfortable with providing menstrual regulation using medication.

061. Al-Mamun MM; Billah M; Mistry SK; Nicholls P; Dineen B; Hashima-E-Nasreen. Maternal, neonatal and child health in northern Districts of rural Bangladesh: profiling the changes during 2008-2010. Dhaka: BRAC, Research and Evaluation Division, 2012.

The specific objectives of the impact evaluation were to identify the level of women's knowledge and types of practices regarding maternal health, the health status and health related issues; assess the prevalence of maternal complications as well as that for the major illnesses in neonates and under-5 children; identify the profile of abortion (induced/spontaneous), its management and potential complications; identify the profile of MR, potential complications and its management. This quasi-experimental study was carried out in 13 rural districts of Bangladesh, where BRAC operated its core development initiatives i.e. microfinance, education, community empowerment, human rights and legal services (HRLS), water, sanitation and hygiene and health. A multi-stage cluster random sampling procedure was employed, involving random selection at four levels. More than 98% of the households were headed by men and the average household size was 5 in all study areas. Less than 1% respondent collected water from any source other than tube-well for both drinking and cooking purposes. The distribution of wealth index in all the six study districts was analyzed separately. Very little changes observed over the two year period. Respondent's median age of marriage was 15 years and first conception was 17 years in all intervention areas, and the median age of first marriage was 16 years and first conception was 17 years in control districts. In Nilphamari, 9% of the respondents experienced abortion in their lifetime compared to 14% in other three intervention and 16% in the control districts. Receiving at least four antenatal cares from trained providers was found to be increased significantly across all the three study areas during 2008 and 2010, with the highest achievement in Nilphamari increasing from 76% to 92%. Delivery with assistance of trained providers increased everywhere during 2008-2010 (52% to 74% in Nilphamari, 33% to 54% in other three intervention districts and 43% to 55% in control districts). Receiving PNC from trained provider increased significantly in intervention areas (72% to 92% in Nilphamari and 17% to 65% in other three intervention districts). The reported maternal complications during antenatal, delivery and postnatal period were found to be higher in control districts compared to intervention districts. Almost universal level of achievement was observed in Nilphamari and other intervention districts in the case of wiping practice, whereas in control areas it was 88%. The percentage of neonates faced breathing difficulties (birth asphyxia) remained similar in Nilphamari (9.8% in 2008 and 9.4% in 2010) and in other three districts (10.4% in 2008 and 10.6% in 2010) over the two year period. The

prevalence of pneumonia of children aged 2-59 months decreased significantly to 1.6% from 9.4% in Nilphamari, 6.0% from 12.9% in Rangpur, Gaibandha and Mymensingh, and 10.0% from 17.0% in the control setting. Prevalence of diarrhoea was found to be unchanged over two years in Nilphamari, although decreased (12% from 15%) in other three intervention districts, and the highest prevalence in control districts (15%).Though a positive trend was observed regarding delivery by medically trained provider, mothers receiving PNC from medically trained providers and management of birth asphyxia by trained providers in Rangpur, Gaibandha and Mymensingh districts, these percentages were lower than that of the control districts. Program need to pay more attention on these issues.

062. Amin S; Rahman L; Hossain MI. Growing up safe and healthy: baseline survey report on sexual and reproductive health and rights and violence against women and girls in Dhaka slums-: marriage and dowry. Dhaka: ICDDR,B and Population Council, 2012.

The objective of the SAFE project was to identify strategies of women's empowerment to promote their ability to exercise choice in multiple dimensions of their lives. This chapter explored the data on covariates and associations between marriage outcomes and respondent's background characteristics using multivariate analysis. A total of 4,458 respondents were successfully interviewed in the survey with a 64 percent response rate. Women in urban slums had a high probability of marrying early. As recent migrants, some appeared to follow the patterns observed in their district of origin; for example, migrant girls from Rangpur were more likely to get married early and that from Chittagong more likely to be exposed to dowry demanded. Women who lived in slums and had born in Dhaka had marriage experiences that reflected a combination of traditional and modern traits. While they were also more likely to report having a love marriage and more likely to report that no dowry was demanded, they are also more likely to be married early relative to women who are migrants. Correlates of marriage present the following picture: Consent and choice in marriage were strongly associated with marriage timing. Women who married early were more likely to report they were married against their wishes and that their consent was not sought at the time of marriage. Women who married later were more likely to have a love marriage, and to have their marriages registered. They are considerably less likely to be married more than once, as opposed to women first married at a young age who are at much higher risk of being married more than once. Education of respondent and her husband were generally associated with more positive marriage outcomes in terms of later marriage, less coercion and greater likelihood of love marriage.

063. Anonymous. Readiness of reproductive health facilities in providing services to the people living in poverty. Dhaka: NIPORT and Eusuf & Associates, 2011.

The study was conducted to measure the reproductive health situation in the community; to determine the readiness of reproductive health facilities for people living in the poverty; to assess the factors related to acceptance of reproductive health services and to suggest appropriate ways and means of providing reproductive health services to the people living in poverty. For ensuring of representation, the study covered all administrative divisions of the country, and two districts were selected from each division. Personal interview approach (face-to-face) was followed for data collection from individual respondent and household members. For qualitative part, FGD methods were applied. The study results indicated that 1050 household with 4488 people, having family size of 4.27. Adolescent of the respondents constitute (10.9%) of which 9.8% and 12% are male female respectively. More than 48%

were between 20 and 49 years, of them females in reproductive age group were 49.6%. About 18% of the family had a currently pregnant woman, where about 13.9% of them were in their first trimester, 47.6% were in second trimester and 38% were in third trimester. About 3% of these pregnant were below 18 years and the rest 97% were above 18 years of age. Respondents opinion of health problem during pregnancy were bleeding 31.7%, severe headache 69%, blurred vision 44.1%, convulsions 40.8%, swollen hands/face 36.2%, high fever 19%, loss of consciousness 5.3%, difficulty in breathing 9.8%, severe weakness 39.8%, severe abdominal pain 15.9%, accelerated/reduced fetal movement 10.9%, water breaks without labor 5%, vomiting 69.6%, others 3.5%, none 0.0%, don't know 0.1%. About 84.2% respondents planned to be delivered their babies in home and only 8.5% intended to deliver in a government hospital and 7.2% decided to deliver at a private clinic. Lack of awareness (46.4%), health center far away (7.9%), costly transportation (3.1%), transport not available (1%), not quality service (22.4%) and others (12.7%) were the main reasons for not choosing to go to the government hospital for delivery care. It was recommended that priority for awareness building towards utilization of reproductive health service at government facilities should be developed. Arrange meeting, seminar at the local level to popularize the importance of reproductive health services to achieve health at high standard have might have taken steps to solve this problems and to overcome all the hazards public and private awareness building is needed to be strengthened.

064. Anonymous. The level of reproductive health care provided to the patients attending Gynae and Obs OPD of major hospitals. Dhaka: NIPORT and PSSMRTD, 2011.

The main objective of the study was to assess the quality of the reproductive health care provided to the patients attending Gynae and Obstetric Out-patient Department (OPD) in major hospitals of Bangladesh to improve the reproductive health care services in future. About 3,000 women patients, who attended the OPD of the Gynae and Obs department of 12 major hospitals (7 medical college hospitals and 5 districts hospitals) in Bangladesh was interviewed in order to assess their perception of the quality of the services provided in these OPDs. From each of the hospitals, exit interviews of 250 patients were conducted for their perception on the quality f the services received and barriers in the Gyane and Obs OPD to quality services and the socio-economic characteristics of the respondents. Data collection of the study was carried out from 22 May, 2011 to 7 June, 2011. The observation data showed that on average a patient was given around 5 minutes for consultation, while there was a little variation across the divisions and hospitals. Regarding consultation time, overall, 90 percent of the patients reported that they were given enough time during consultation. Consultation included physical check-up also. The consultation time of 5 minutes was moderate in the context of the situation where there was shortage of human resources and in light of fact that most of the patients come in the morning. Confidentiality was maintained during service provision by the service providers. The answers of the respondents were divided into three categories - fully maintained, fairly maintained and not maintained. About 72 percent of the respondents informed that their confidentiality was fully maintained and 14 percent reported it as fairly maintained. Only 14 percent of the respondents thought that confidentiality was not maintained during service provision. The rate varied across the divisions considerably; women in Chittagong and Dhaka were more likely to report that confidentiality was maintained than women in other hospitals. The results suggested that the service providers in Dhaka and Chittagong were more aware about the patients' rights of maintaining confidentiality. Although only one percent of the patients reported the quality of services as "Not fair', the percentage of patients rating the behavior of the service providers as 'Very good' was only 19**,** leaving a large scope for improvement of behavior of the service providers

towards the patients. The result suggested that the quality for services in the government medical college and district hospitals were fairly good enough for the patients for attracting them to come to the hospitals for reproductive health care services.

065. Anonymous. Perception and experiences of women regarding menopause. Dhaka: NIPORT & Siam Health Care, 2011.

The objectives of the study were to assess the attitude and perception of women, problems and experiences of women, consequences and health care needs and suggest appropriate ways and strategies for the benefit of women under menopause. The study was cross-sectional and descriptive across selected geographical areas in five divisions of Bangladesh. A total number of 384 women particularly of menopausal stage (age group 50-59) with a comparing peri-menopausal (age group 45-49) stage were interviewed during data collection period. The study followed both qualitative and quantitative methods and data collection tools were: surveys, in-depth interviews, focus group discussions and case studies. Study found among the menopausal women almost 40 percent were illiterate and 22.5 percent only could sign and among the peri-menopausal women 38% were illiterate, 21% could sign. Among the respondents there were 196 women who had already in menopause state and the rest of the other 188 who were been in peri-menopause state. The mean ages of the respondents were 52 years and they had average 4 children. Forty-two percent respondents said that they heard menopause firstly from their mother of mother-in-law, 27% heard from their sister or nanad or bhabi. Most of the respondents heard about menopause at the age between thirty 30 to 39 and among the peri-menopausal women 31% heard it at the aged between 20 to 29. Most of the menopausal women (66%) perceived that because of the stop of reproduction menopausal state starts. Other 18% said they did not know the reason of menopause. Through the FGDs perception and experiences regarding menopause of the respondents were explored. Most of the menopausal women said that they noticed some mental impact the reason they perceived for that was because of menopause. Most of the women said they did not notice any changes but a few women said that they observed some changes in their conjugal life that was for menopause. Through the in-depth interviews, issues of perception on the reason of menopause, symptoms, personal experiences, problem they faced and their suggestions were explored. It was perceived that use of contraceptive pill or injection for longer duration might results in irregular menstruation which ultimately lead to permanent stoppage of menstruation that is menopause. According to the respondent's perception educated husbands were more caring to their wife and gave support in their menopausal stage. Recently, some measures were taken globally to float the issue of menopause in the discussions; the social and psychological ramifications of the menopause transition were frequently ignored or underestimated. Fifty two percent women suggested that there should be facilities where they could ask for help or suggestion regarding menopause. Other 22% suggested for availability of treatment and 18% recommended media coverage regarding menopause issues.

066. Anonymous. Reproductive health seeking breaking behavior of young married women. Dhaka: NIPORT & GUS, 2011.

The study was conducted to investigate the constraints in health seeking behavior of the adolescents and also to assess the attitudes of the parents and the community about health seeking behavior of the married adolescents. The study followed a cross sectional statistical design to obtain information from the primary and secondary sources of data which comprised of all relevant categories of

respondents. Systematic random sampling procedure was used to select samples [14 UFPO, 14 MO (MCH-FP), 14 Sr. FWVs, 28 Family Planning inspectors (FPIs), 28 Family Welfare Visitors (FWV), 28 SACMOs, and 84 Family Welfare Assistant (FWAs), 1680 married adolescents & newlywed couple from Upazilla, Union and village levels. Almost 50 percent women are under age of 17 years and 37 percent of them are exactly 18 years. The mediate age of the respondents and their husband are 18 years and 24 years respectively. Approximately 36 percent of women have primary (up to 5 class) level education while 53 percent of women have completed secondary level education. Eighty seven percent of respondents are Muslim. Nearly two-third (62.5 percent) of manager mentioned that the health seeking behavior of women in their areas was average. Half of the managers perceived that married women sought delivery and childcare; about 38 percent perceived women sought RH care. Overwhelming majority (94 percent) managers stated women sought treatment from FWA/ FWV/SACMO. More than 87 percent providers agreed on the clients were getting proper services as per their need. The services given by the providers were FP methods, RH services, care for pregnant women, mother and child care and FP services. The findings of the study revealed that maternal and child health and family planning services were available in the health center. Ninety percent of the adolescent received antenatal care during their pregnancy. Public sector was the leading source for antenatal care. Another findings of the study showed that every three in four visited to service centre for their regular health checkup. Findings expressed that overall half of the adolescent women used contraception. The pill was the most popular method among married women in all regions. Negligible amount of respondents were using permanent method. The results also indicated that very few young women had faced obstacles from both families and community. Religiosity, cooperation of husband, lack of transport, lack of health awareness of family and lack of skilled workers were the main obstacles of receiving health service. The study recommended that effective BCC campaign should launch to increase coverage of RH-FP (ANC, Delivery, PNC and FP) services among adolescents; adequate and efficient training program should arrange to increase knowledge and skills of the field personnel; community awareness should be build up to increase knowledge about RH-FP services so that young women could seek institutional and skill hand services; ensure supply of FP methods in due time so that clients could get contraceptives in due time as their demand was vital issue to raise CPR.

067. Anonymous. Assess the situation and treatment of the infertile couples in Bangladesh. Dhaka: NIPORT & BIRPERHT, 2012.

The study was conducted in in all divisions of Bangladesh to know the magnitude of the problem of infertility, treatment seeking behavior of infertile couple and provision of treatment prevalent at government health facility and to assess the situation and treatment of the infertile couples. The study used cross sectional design. Area for study was selected from seven administration division of the country following multistage simple random sampling. From each division 2 districts were selected by simple random sampling and thereafter from each district one Upazilla was taken again by simple random sampling. All the married couples within reproductive age (15-49) having following inclusion criteria were enrolled as study respondents. Childless couples trying for child for the fast one year having regular sex without any contraceptives, may or may not have history of previous conception/ abortion/ miscarriage/ dead fetus. A total of 1423 wives and 1302 husbands were possible to enroll in the study for data collection. The investigators team also interviewed 85 health service providers and 57 traditional healers to know their views about infertility. The findings of the study revealed that

the average age of the women was 27 years and that of the man was 34 years. The mean partnership duration was 8 years and on average the couples had wanted a child for 5 years. A high proportion of women (61 percent) and 63 percent a men among the sample had secondary and above level of education. Among the childless couples about 61 percent had primary infertility and rest other suffered from secondary infertility, pregnancy wastage was more prevalent among 63 percent women who had ever pregnant. Menstrual problem and inability of the men to produce sperm were reported as prime causal factors of infertility. About two-third women and more than half of the men had idea about the infertility treatment. Almost similar proportion both wives and husband (about 41 and 49 percent) were reported medical college hospital as the place of getting treatment for infertility. Infertility also had negative impact on conjugal life. Nearly half of the couples reported familial disharmony as the consequence of infertility. Moreover separation in spouse happens as a result of infertility. Most of the couples had taken measure to solve their infertility problem. Similar trend was observed regarding treatment seeking among the couples. Majority of them (76 percent wives and 79 percent husbands) took medicine for solving the problem. Forty one percent female respondents and only 18 percent male respondents had currently suffering reproductive health problem and majority of them care received about the problem. In response to the proper treatment of infertile couples, nearly 41% couples told getting better treatment at Upazila level. About 25 percent of the couples opined to get infertility treatment at lower cost. Findings from health facility reveal that 40% health care center had provision of D&C and 27 percent had hormone assay. As per findings of the study it was recommended that people should be educated about the prevalence and impact of infertility through mass media; awareness should be built up in the family as well as in the society about the causal factors of infertility establish infertility unit at government health facility especially at tertiary and district hospital; and laboratory facility should be upgraded. Finally, reproductive health programs and clinics may also encourage the women and their partners to seek diagnoses and treatment for the infertility. Infertility treatment should be made available for all at low cost and also built proper referral system for getting infertility treatment. The provider at health facility, traditional healer as well as spiritual healer should be trained up about the referral system.

068. Anonymous. Reproductive behavior of eligible women in the coastal areas. Dhaka: NIPORT, 2013.

The aim of this study was to explore reproductive behavior of eligible women in coastal area. Though assessing the socio-demographic characteristics; receipt of reproductive health (RH) services the barriers in receiving RH services; to assess providers' perception in delivering RH services and identify problems in delivering RH services and suggest ways and means to meet the reproductive needs of the women in the coastal areas. The study obtained information from a sample survey of eligible women of age 15-49 of 10 coastal districts of the country to provide representative results this area. A multistage random sampling was used to select respondents for interview. From 10 districts 20 Upazilas, 40 unions and 120 villages were selected randomly. Finally, 4000 household level (beneficiaries) interpersonal interviews with ever married women and 180 (90%) intensive interviews (out of 200) of program managers, service providers and field workers (MO/MCH, UFPO, FWV, FPI and FWA) were completed. The study was implemented in the three operational phases: preparatory phase, data collection phase and data consolidation, analysis and dissemination phase. Data collection instruments were designed and development by experienced and expert professional of READ. The results of the study indicated that on average the FWAs were serving in the current position for 21 years, followed by the FWVs for 16 years, FPIs for

12 years, MO-MCH for 10 years and the UFPOs for 7 years. One third of the UFPOs claimed that they have not received any repeat training. Similarly, 18% of MO-MCH and 17% of the FWVs also did not receive repeat training. About one tenth of the FPIs (13%) and an equal proportion of the FWAs also did not receive any repeat training. Most of the program personnel received their training during 2001 to 2013 (78-84%). Most of the eligible respondents are aware of the FWCs (82%); little over half of them know about UHCs (57%); 19% know about the satellite clinics; 27% know about the community clinics; 14% were aware of the district hospitals; 2% know about the MCWCs; about a quarter of the respondents know about the pharmacies and private clinics and only 7% are aware of NGO clinics. Nearly two thirds of respondents (65%) received ANC during their current/ last pregnancy. The mean visit of ANC was 3. Of the respondents, 35% received ANC from FWCs, 21% from the UHCs, 30% at home, 12% from the private clinics, 10% from community clinics, 4% from satellite clinics, 2% from NGPO clinics and 2% from MCWC. The findings also showed that 7% of the respondents faced complications after their last delivery. One fourth of the respondents (25%) have experienced complications/side effects following contraceptive use. Less than half of the respondents (41%) were visited by field workers at their residence with last 3 months prior to the survey. The study suggested that number of field workers might be increased or more NGOs might be encouraged to work in the coastal remote areas; field supervision need to be intensified to ensure presence of service providers at the work site; national action plan for training of coastal area service providers may be developed and SBA training programs for the coastal areas should be strengthened. Accessibility to clinics and service delivery centers for the coastal areas might be increased. Home visits by the FWAs need to emphasized on users' counseling on side effects and motivations for one child family might also be intensified.

069. Anonymous. Reasons for best reproductive health performance in Meherpur District. Dhaka: NIPORT & Siam Health Care, 2013.

This study attempted to identify the factors related to the best performance of reproductive health in Meherpur district in order to provide direction to improve performance in the low performing district. The study conducted a comparative analysis among the key health indicators using district level health indicators of Bangladesh Maternal and Mortality Survey (BMMS) 2010 through desk review. A set of indicators had been selected from BMMS 2010 to compare between Meherpur and a low performing district. For quantitative part, a cross-sectional survey had been carried out with the married women of reproductive age. Analysis revealed that Satkhira district was the second highest performing district and Narail was the lowest performing district in Khulna division. For conducting interviews with the currently married women of reproductive age15-49 years using a structured questionnaire, multi-stage sampling procedure was applied. Initially, two unions were selected randomly from each upazila. At the second stage, two villages were selected purposively from each of the six unions. In-depth interviews were conducted among the service providers and program managers in Meherpur district and focus group discussions were conducted among the community key influential. The study findings revealed that socio-economic condition of Narail district is comparatively better than Meherpur except electricity facility where 72% of household owns electricity in Meherpur but this proportion was only 49 in Narail. The average age of the respondents and their spouse was 30 and 38 years respectively. In terms of their educational status, about one-third of women and 47% of their spouse were illiterate. It was observed that educational status was fur better among the women than their spouse in the study areas. Ensuring availability of electricity facility and electronic media

campaign as well as good communication infrastructure might help to achieve better- performance on low performing areas**.** Therefore, attitude of service providers needed to be changed positively to motivate clients of low performing districts for better performance. The major reported reasons for best performance on FPM by women were: i) women are aware about family planning methods (81%), ii) fieldworkers distribute FPM at household level (81%), iii) government field workers work hard (62%), and iv) family members are also aware about FPM (50%). Majority FGD participants stated that people are more educated and aware about family planning method. Findings also showed that majority women told that good road communication (39%), better knowledge on danger sign (44%), adequate providers (24%) and frequent communication by the TBA (17%). The findings had provided several potential reasons for best performance on core health indictors in Meherpur district which will contribute to improve performance in the low performing district, such as ensuring availability of electricity facility so that it can help to media campaign as well as communication infrastructure, attitude of service providers, extensive awareness raising campaign in the low performing districts, improve referral services and extensive awareness campaign for the adolescents and their parents on different health issues and availability of adolescents care at health facility.

070. Anonymous. Bangladesh: RMNH workforce assessment. Dhaka: MOH&FW, HRM Unit, 2014.

The objectives of this report was to investigate essential interventions for RMNH and their utilization, the maternal and newborn health workforce, the work environment, management and policies and findings. The assessment framework considered five domains of investigation: essential interventions for RMNH and their utilization, the maternal and newborn health workforce, the work environment, management and policies, and financing. The study was conducted form March 2012 to October 2013. Analysis of the RMNH essential interventions found that those either not practiced or practiced only to a limited extent included corticosteroids for respiratory distress in newborns, magnesium sulphate for eclampsia, and Active Management of the Third Stage of Labour for prevention of postpartum haemorrhage. An estimated 107,000 health workers (cadre and non-cadre) provide RMNH care, but a substantial number of sanctioned posts were vacant, especially in poor rural divisions; absenteeism was pervasive among full-time public-sector healthcare personnel; and all cadres perform other duties besides RMNH care. The majority (91%) of the 110 healthcare providers interviewed for this assessment said their training prepared them adequately to give maternal and newborn care; nearly four fifths (79%) said that they could perform all tasks for which they were trained, but 20% expressed disappointment that they were not permitted to carry out all of these tasks. Per capita national health expenditure in Bangladesh is among the world lowest, at US$ 27 in 2011, or about 3.8% of gross domestic product. While the amount that the public sector actually spends on RMNH cannot be determined, a rough estimate puts the figure at US$ 480 million per year. As this falls far short of the amount needed to reach the three health-related Millennium Development Goals (MDGs) 4, 5 and 6, the GOB has set the following 2016 targets at 50%: deliveries attended by a skilled birth attendant; antenatal coverage (at least four visits); and postnatal care within 48 hours (at least one visit). Since sector-wide approaches (SWA) provide some flexibility for re-allocating funds in line with government priorities, annual and mid-term SWA assessments should provide the GOB with regular opportunities to adjust its policies and programmes, including funding allocations, in response to changing needs.

071. Anwary SA; Chowdhury S; Fatima P; Alfazzaman M; Begum N; Banu J. A Study on sub-fertile women suffering from polycystic ovarian syndrome with hyperprolactinaemia and hypothyroidism as associated factors. *Journal of Bangladesh College of Physicians and Surgeons*. 2013; 31(3): 140-143.

This study carried out to evaluate association of other factors of sub-fertility in women suffering from polycystic ovarian syndrome (PCOS).The study population included both primary and secondary sub fertile women where fifty sub-fertile women suffering from PCOS attending infertility unit of the Department of Obstetrics and Gynaecology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, during July 2010 and June 2011, were evaluated. In this study, age, BMI and duration of marriage range was found at 20-38 years, 17.70 33.20 kg/m^2 and 116 years respectively. Serum FSH was normal (1.0 10.0 mIU/ml) in all 50 (100%) women. Hyperprolactinaemia (serum prolactin >25 ng/ml) was seen in 60%. Hypothyroidism (serum TSH >4 iIU/ml) was seen in 74% women. Serum LH (>10 mIU/ml) was raised in 74%. USG finding of lower abdomen was abnormal in 75% cases. Reproductive failure also precedes thyroid dysfunction which was concordant with the present study. These findings were also consistent with the study by Hollowell et al. (2002), who found women with both clinical and sub-clinical hypothyroidism in early pregnancy and found miscarriage rate was higher in both groups and treatment with hormones could reduce the miscarriage risk and adverse pregnancy outcome. Present study is also similar to a case control study by Joshi *et al.* (1993), who found 34% subclinical thyroids was associated with infertility and pregnancy wastage. Elder (2007) in his cohort study found 20.5% infertile women had associated subclinical hypothyroidism. This study concluded that hyperprolactinaemi and subclinical hypothyroidism were associated causes of sub fertility other than PCOS. In the light of findings, it was recommended to undertake further large scale study to find out whether therapy with thyroxin and drugs for decreasing levels of prolactin increase the fertility rate in women suffering from PCOS.

072. Ara F. Gender mainstreaming in Bangladesh civil service. *Social Science Journal.* 2013; 18: 91-104.

This study attempted to explore whether the Government of Bangladesh was capable to ensure gender in the mainstream of Bangladesh Civil service (BCS) along with to find out the problems that affect the performance of women civil servants in Bangladesh. In addition, a modest attempt had been made to prescribe some suggestions which might be beneficial for these working women in carrying out their designated responsibilities and thus ensure gender mainstreaming in the civil service. This paper is based on secondary information including recent publications, journals, books, research reports and other documents. In addition, data were also collected through the Internet browsing. At the same time, the findings from this study was expected to provide policy inputs to the decision makers of the country to appropriately working out the strategies to ensure gender parity in mainstream of civil service. Article 29 of the Constitution provides for equal rights for all citizens and prohibits discrimination. However, despite several efforts like introduction of quota in politics and civil service and some other initiatives over the last four decades, women in Bangladesh continued to be disadvantaged in comparison with men in every aspects of life including public service. The capabilities and potentials of female civil servants were rarely acknowledged here. The present status of women in civil service indicated that they were far away from achieving gender parity in the mainstream of civil service. Both in the policy making and implementation level they were poorly represented without a massive influx of women in

the decision making ranks of the civil service, women were most likely to be side tracked in the male dominated bureaucracy. Relevant policies and programs needed to be implemented soon to redress this issue. It is also essential to ensure that, the overall working environment and facilities provided to the female officers are sufficient and congenial for continuing the services and for attracting others to be employed in various cadres of the civil Service.

073. Banu M; Nahar S; Hashima-E-Nasreen. Oral administration of misoprostol reduces postpartum haemorrhage in urban slums of Bangladesh. Dhaka: BRAC, RED, 2013. (RED working paper; no. 37)

The study investigated whether supervised use of oral misoprostol would reduce primary postpartum haemorrhage in urban slums of Bangladesh. It also explored the community acceptability and feasibility of oral misoprostol. A non-randomized control trial was undertaken among 3,900 women in urban slums of Dhaka and Gazipur City Corporation during January-August 2011. Oral misoprostol was prophyiactically given to the treatment group following childbirth, while the control group did not receive it. The misoprostol significantly reduced incidence of primary PPH in the intervention group (4.5%) compared to the control group (7.5%). The medium blood loss of PPH cases was 868 ml in the treatment and 928 ml in control group. It reduced the rate of bleeding-related emergency transfer, additional medical interventions compared to control group. However, no significant difference was found in blood transfusion between the two groups. The study found one-third of the women were aware about misoprostol in intervention while none were aware in the control. The median risk for developing PPH was lesser in the intervention and prolonged third stage of labor found significantly higher in the control group. Misoprostol was found to be widely accepted in the community and feasible to offer parturient by CHWs within 5 minutes following childbirth in intervention group. Prophylactic use of misoprostol administered by CHWs is feasible and effective in reducing the incidence of primary PPH in the parturient of slums of Bangladesh. Besides, community-based education on misoprostol and iron intake throughout pregnancy to reduce the need for blood transfusion should be ensured.

074. Begum J; Begum SN; Ara R; Nargis SF. A Case of cervical ectopic pregnancy. *Bangladesh Journal of Obstetrics & Gynecology.* 2012; 27(1): 31-35.

This study was illustrated a case study of occurring cervical ectopic pregnancy. Cervical ectopic pregnancy is the implantation of a pregnancy in the endocervix. Such pregnancy typically aborts within the first trimester but if it is implanted closer to the uterine cavity called cervico isthmic pregnancy it may continue longer. Cervical pregnancy accounts for less than 1% of all ectopic pregnancies, with an estimated incidence of one in 2500 to one in 18000. Though the pregnancy in this area is uncommon but possibly life threatening due to risk of severe hemorrhage and may need hystectomy. Early detection and conservative approach of treatment limit the morbidity and preserve fertility. A 26 years lady diagnosed as a case of cervical ectopic pregnancy and managed conservatively successfully with adjunctive techniques like cervical artery ligation and cervical temponade to control hemorrhage. Outcome of conservative treatment of cervical ectopic is promising. A review of English literature from 1911 to 1994 found 37 pregnancies in 29 women after conservative treatment of cervical pregnancy. Of them 34 pregnancy were intrauterine, 2 were tubal ectopic and 1 was a repeated cervical pregnancy. Early ultrasound examination in a subsequent pregnancy may be advised to detect a recurrent ectopic pregnancy because USG can identify more than 80% of cervical pregnancies when it is suitable for

medical or minimally invasive therapy. Outcome of most of pregnancies after a cervical ectopic will lead to term deliveries but there is possibility of preterm labor in such cases. It was inferred that as cervialecal ectopic could easily be misdiagnosed as threatened stone abortion, the distinction in extremely important, as the treatment methods differ significantly. Simple speculum examination was found to be more informative and less likely to Renault in bleeding than bi-manual examination, while making treatment decision, it is important to assess both the patient and the services available. Gynecologist should be highly aware of these types of cases and should be skilled enough in the diagnosis and management of this life threatening condition.

075. Begum S; Ali O; Bhuyan HR. Integration of population and gender concerns into the national and sectoral policies and programmes: current status and constraints. Dhaka: BIDS, 2012.

The main focus of the study was to examine the current status and the extent of integration of population and gender concerns into the country's development policies, plans, process and strategies. For realizing the objectives, the study has depended upon both primary and secondary information; in understanding the current status of integration of population and gender concerns at the policy/program and strategy level, the national and sect oral policies/plans/strategies were reviewed. Such primary information was collected from the policy-makers, planners, local level government officials responsible for implementing the sectoral activities/ programmes/ projects, and different stakeholders of development activities such as lawyer, journalist, women activist, civil society members, NGO members, local elite, local elected representatives, etc. both at the centre and at the local level. A unique part of primary information for this study had been the feedback received from the policy-makers, planners, programme personnel, professional bodies/groups, NGO representatives, legal experts, women's groups/activists, civil society members, etc. on the draft report of the study prepared using both secondary and primary information. The field level information for the study was collected from two district headquarters, namely, Sylhet and Cox's Bazaar. The major observations arrived at in this study by reviewing the secondary information namely, the national and sectoral policies, plan documents, strategies, reviewing the sectoral activities and using primary information as gathered from the policy-makers, planners, government officials at local level, and other stakeholders of development activities both at the centre and at the local level were summarized and presented. The observations were presented in two parts: the first part dealt with the current status of integration of population and gender concerns into the national and sectoral policies, programmes and activities, and the other part highlighted the gaps and barriers that were restricting an effective and desired integration of them into the sectoral policies/programmes/activities. In view of the current status of the integration of population and gender/women concerns into the sectoral development processes and the gaps, lapses and weaknesses that are found persistent in the process of doing so, few remedial measures were suggested by the policy-makers, planners, local level officials and different stakeholders. It has to be ensured that all the sector ministries have policies, program and strategies in place in adequate language for integrating the population and gender concerns into the sectoral activities.

076. Begum S; Ali AS; Ali MO; Bhuyan MHR. The CEDAW implementation in Bangladesh: legal perspectives and constraints. Dhaka: BIDS, 2011.

This paper intended to examine the nature and extent of CEDAW implementation in the country from a legal perspective and aimed at identifying the gaps and barriers that hindered adoption and implementation of policies and programmes in general and in line with CEDAW in particular which embodied the rights

of women. The paper utilized both secondary and primary information. For fulfilling the objective of understanding the progress of CEDAW implementation the secondary information such as the periodic reports on CEDAW, policy documents, concept papers. The study found the difference between sexes in school enrolment had disappeared by now in the primary and secondary levels, women's participation in labor markets had increased considerably reducing the gender gap in economic spheres, women's life expectancy had become equal to or even exceeded that of the men (BBS 2009), 'and women's mobility/visibility in public life had increased substantially both in rural and urban areas. In short, women's participation in all spheres of life had gone up over the years and their poverty was addressed through various "safety-net" programmes. Also, the social attitude of looking positively towards income earning by the women had become near universal in the country. The above mentioned positive changes for women, in most part, were achieved as a result of conscious efforts made by the government including NGOs to bring improvement in the lives of women and mainstream them into the country's development process. The government had endorsed so far almost all the international treaties and conventions such as CEDAW, QIC, ICPD, MDGs, etc., that sought to achieve qualitative change in the lives of women. In order to ensure equal rights for women and their parity with men, integration of women's concerns into the country's development activities is urgent. Then state legislative measures should be enacted so that women can effectively claim and enjoy, without difficulties, whatever property right they have under personal laws. In the given socio-cultural situations, this will prove a great step forward.

077. Camellia S; Khan NN; Naved RT. Growing up safe and healthy: baseline survey report on sexual and reproductive health and rights and violence against women and girls in Dhaka slums- violence against unmarried adolescent girls. Dhaka: ICDDR,B & Population Council, 2012.

This páper was an attempt to bridge the gaps in the existing literatuře by exploring experience of violence of the unmarried adolescent girls from Dhaka slums in different tiers of the society and in different relationships. The data indicated that violence was a common way for parents and elders to disciplině children and adolescents in the slums. The informants believed that the inherent insecurity and extréme poverty in a slum increases the vulnerability of the young girls to sexual abuse and violence. For enhancing and deepening the understanding of violence that the unmarried adolescent girls in urban slums experience at multiple levels. The findings of the study hád been organised under three subsections: violence at home; violence ín prem (romantic relationship); and violence in the community. This páper sought to explore violence against unmarried adolescent girls within home, in the community and in romantic relationships, taking into account the factors that helped to sustain such violence. In the community sexual harassment, extortion and unfair arbitration were the major types of violence against unmarried adolescent girls. In relationships, girls were emotionally abused, forced to do into sex, and were abandoned. The study findings suggested that compared to rural areas life circumstances hád radically changed in the slums through changes ín the gender roles. The girls who were traditionally financial burden of parents hád become important contributors to family income. They hád become more mobile and independent. They get involved in relationship. But the changing role and its outcomes challenge the patriarchal ideology, which was lag behind the advances in life. However, violence condoning attitude ofthe slum dwellers; heightened desire for maintaining the conventional order of things through increased imposition of restrictions and perpetration of violence; lack of recourse mechanisms did not often allow them to overcome the violence.

078. Edhborg M; Hogg B; Hashima-E-Nasreen; Kabir ZN. Impact of postnatal maternal depressive symptoms and infant's sex on mother-infant interaction among Bangladeshi women. *Science Research.* 2013; 5(2): 237-244.

The study was initiated to investigate the impact of postnatal depressive symptoms and infant sex on perceived and observed mother-infant interaction among rural Bangladeshi women. Fifty women with depressive symptoms and their infants at 2-3 months were compared with 50 women without depressed symptoms and their infants, matched on geographic areas, parity and infant sex. The Edinburg Postnatal Depression Scale assessed depressive symptoms, the Postpartum Bonding Questionnaire assessed the mother's perception of bonding with the infant and mother-infant interactions were videotaped and analyzed with the Global Rating Scale. Results of the study showed that mothers with depressive symptoms were poorer, were less educated and rated lower infant bonding than mothers without depressive symptoms (p=0.03), yet objective observation revealed no difference between the two groups regarding maternal interactive behavior (p=0.57). However, infants, particularly boys (p = 0.002), of mothers with depressive symptoms fretted more in mother-infant interaction than infants of mothers without depressive symptoms (p = 0.009). Results indicated that infants, particularly boys, of mothers with depressive symptoms may be negatively influenced by depressive symptoms.

079. Ferdousi MA; Sharif MM; Mohiuddin AS; Shegufta F. Normal value of pulsatility index of umbilical artery in second and third trimester of pregnancy. *Bangladesh Medical Research Council Bulletin.* 2013; 39(1): 18-21.

The purpose of this cross sectional study was carried out on 60 pregnant Bangladeshi women in the department of Radiology and Imaging, BIRDEM for measurement of Pulsatility Index (PI) of umbilical artery of their fetuses by duplex color Doppler sonography during 2nd and 3rd trimester of pregnancies. Considering total 2nd and 3rd trimester the mean PI value of umbilical artery was 1.24 (SD±0.27). While considering the gestational in separate trimester, the study showed that the value of PI in 2nd trimester was 1.33 (SD±0.29) and in 3rd trimester PI was 1.18 (SD±0.25). Paired t test showed there was a highly significant (t=35.79, df =59, Level of significance=0.001) difference between mean values with increase of gestational age (r= -0.207) but this decrease of PI was not statistically significant (p=0.113). Regression analysis between dependent PI value and independent gestational age showed linear negative relationship existed between value of PI and gestational age but this was not statistically significant (p=0.11). This finding was also consistent with the study carried out by Bewley et al, Schulman et al, Owen et al, and Akiyama et al. Like PI value RI value was also reduced from 0.75±0.06 to 0.69±0.7 while pregnancy was running from 2nd to 3rd trimester. The gradual decrease of PI value with increase of gestational age was due to a negative relationship between PI value and gestational age but this this relationship was not statistically significant. It could be concluded that the Pulsatility index of umbilical artery was decreased with increase of gestational age from 2nd and 3rd trimester. Like Pulsatility index resistance index was also decreased with increase of gestational age. But Peak Systolic Velocities and End-Diastolic Velocities were increased with advance of gestational age.

080. Gausia K; Ryder D; Ali M; Fisher C; Moran A; Koblinsky M. Obstetric complications psychological well-being: experiences of Bangladeshi women during pregnancy and child birth. *Journal of Health Population and Nutrition.* 2012; 30(2): 172-180.

The study aimed at describing the pregnancy and childbirth experiences among women in Bangladesh during normal childbirth or obstetric complications and examines the relationship between these experiences and their psychological well-being during the postpartum period. Two groups of women—one group with obstetric complications (n=173) and the other with no obstetric complications (n=373)—were selected from a sample of women enrolled in a community-based study in Matlab, Bangladesh. The experiences during pregnancy and childbirth were assessed in terms of a five-point rating scale from severely uncomfortable to not uncomfortable at all=5. The psychological status of the women was assessed using a validated local version of the Edinburgh Postnatal Depression Scale (EPDS) at six weeks postpartum. Categorical data were analyzed using the chi-square test and continuous data by analysis of variance. Women with obstetric complications reported significantly more negative experiences during their recent childbirth (95% confidence interval (CI) 1.36-1.61, $p<0.001$) compared to those with normal childbirth. There was a significant main effect on emotional well-being due to experiences of pregnancy ($F(4,536) = 4.96$, $p=0.001$) and experiences of childbirth ($F(4,536) = 3.29$, $p=0.01$). The EPDS mean scores for women reporting severe uncomfortable pregnancy and childbirth experiences were significantly higher than those reporting no such problems. After controlling for the background characteristics, postpartum depression was significantly associated with women reporting a negative childbirth experience. Childbirth experiences of women could provide important information on possible cases of postnatal depression. Women in developing countries experience postnatal depression at rates that are comparable with or higher than those in developed countries. However, their personal experiences during pregnancy and childbirth have received little attention in relation to postnatal depression. In particular, the contribution of obstetric complications to their emotional well-being during the postpartum period is still not clearly understood.

081. Hashima-E-Nasreen; Nahar S; Mamun MA; Afsan K; Byass P. Oral misoprostol for preventing postpartum hemorrhage in home births in rural Bangladesh: how effective is it? *Global Health Action*. 2011; 4:10.3402/gha.v4io.7017

This study aimed at investigating whether a single dose (400 μg) of oral misoprostol could prevent PPH in a community home-birth setting and to assess its acceptability and feasibility among rural Bangladeshi women. This quasi-experimental trial was conducted among 2,017 rural women who had home deliveries between November 2009 and February 2010 in two rural districts of northern Bangladesh. In the intervention district 1,009 women received 400 μg of misoprostol immediately after giving birth by the lay CHWs, and in the control district 1,008 women were followed after giving birth with no specific intervention against PPH. Analysis revealed that women in the intervention group were less educated and less likely to be poor than women in the control group. They also had lower mean age of conception and higher average number of pregnancies. In the intervention group, 9/10 of the women received antenatal consultation from a trained health providers compared to 1/4 in the control area. However, delivery by skilled birth attendants and use of oxytocin sometimes before and after delivery were found to be higher in the control area than in the intervention area. The median risk count of primary PPH was found to be lower in the intervention group than in the control group. The incidence of primary PPH was found to be lower in the intervention group (1.6%) than the control

group (6.2%) (P <0.001). Misoprostol provided 81% protection (RR: 0.19; 95% CI: 0.08–0.48) against developing primary PPH. The proportion of retained and manually removed placenta was found to be higher in the control group compared to the intervention group. Women in the control group were more likely to need an emergency referral to a higher level facility and blood transfusion than the intervention group. Unexpectedly few women experienced transient side effects of misoprostol. Eighty-seven percent of the women were willing to use the drug in future pregnancy and would recommend to other pregnant women. Study findings showed that providing community-based education and distribution of misoprostol by CHWs was safe, acceptable, and effective strategy for prevention of PPH in a rural area of Bangladesh where women do not have access to skilled birth attendants. In this study, irrespective of the use of misoprostol, 9 in 10 women showed a positive attitude towards the use of the drug, demonstrating high acceptability of misoprostol in the community. It might be speculated that the MNCH program involving family members and husbands in the health education session in the monthly EDD meetings reinforced the use of misoprostol. This population-based study in rural Bangladesh suggested that community-based education and administration of supervised 400 µg misoprostol reduces the incidence of PPH and was safe, acceptable, and feasible. In order to achieve the MDG 5 by 2015, it is recommend that misoprostol is an essential intervention that can be scaled up in rural communities in Bangladesh with a high rate of unskilled birth attendance for the prevention and treatment of PPH.

082. **Hashima-E-Nasreen; Kabir ZN; Forcell Y; Edhborg M. Prevalence and associated factors of depressive and anxiety symptoms during pregnancy: a population based study in rural Bangladesh. *BMC Women's Health.* 2011; 11:22.**

This study aimed to estimate the prevalence of depressive and anxiety symptoms and explore the associated factors in a cross-section of rural Bangladeshi pregnant women. The study used cross-sectional data originating from a rural community-based prospective cohort study of 720 randomly selected women in their third trimester of pregnancy from a district of Bangladesh. The validated Bangla version of the Edinburgh Postnatal Depression Scale was used to measure ADS, and a trait anxiety inventory to assess general anxiety symptoms. Background information was collected using a structured questionnaire at the respondent's homes. Prevalence of ADS was 18% and AAS 29%. Women's literacy (OR 0.59, 95% CI 0.37-0.95), poor partner relationship (OR 2.23, 95% CI 3.37-3.62), forced sex (OR1.95, 95% CI 1.01-3.75), physical violence by spouse (OR 1.69, 95% CI 1.02-2.80), and previous depression (OR 4.62 95% CI 2.72-7.85) were found to be associated with ADS. The associated factors of AAS were illiteracy, poor household economy, lack of practical support, physical partner violence, violence during pregnancy, and interaction between poor household economy and poor partner relationship. Depressive and anxiety symptoms are found to occur commonly during pregnancy in Bangladesh, drawing attention to a need to screen for depression and anxiety during antenatal care. Policies aimed at encouraging practical support during pregnancy, reducing gender based violence, supporting women with poor partner relationships, and identifying previous depression may ameliorate the potentially harmful consequences of antepartum depression and anxiety for the women and their family, particularly children.

083. Hena IA; Sultana N; Yasmin R; Salehin M; Rob U. Introducing medical menstrual regulation in Bangladesh: research update. Dhaka: Population Council, 2013.

The objective of the operations research study was to examine the feasibility and financial implications of introducing menstrual regulation with medication (MRM) through government and NGO service providers in Bangladesh. A descriptive study was employed to examine the feasibility of introducing medical MR in Bangladesh. Twelve government and two MSB health facilities from eight districts of Dhaka division were selected as the intervention sites. In the public sector, four Mother and Child Welfare Centers (MCWCs) and eight UH&FWCs were included in the study. In this study planning and development discussed about central level advocacy meeting, local level sensitization meetings, formation of technical committee, development of research instruments & behavioral change communication (BCC) materials, building capacity of service providers, development of MRM service guidelines manual, FWA orientation workshop, recruitment and training of research assistants. Findings suggested that although most providers knew about manual vacuum aspiration (MVA), only half of them were currently offering MVA services. The main reasons for not providing MVA services were lack of personal interest, religious beliefs and lack of training. It was observed that approximately one-third of the providers were aware of MRM services and half of them were prescribing only Misoprostol as the drug for medical MR. Currently, Mifepristone was not available in Bangladesh. As the evaluation of this study was not designed to conduct a pre-post comparison, instead information were routinely collected during the intervention period, through client exit interview, observation of client provider interaction, and service statistics. The key areas that observed include: service provision procedures; provider offering choice between MVA and MRM; screening of the client for MRM service; counseling on MRM correct dose, time, mode of administration, duration, complications and its management; screening for completeness of procedure; post-MRM contraceptive adoption; referral; and privacy and confidentiality of services. Informed consent was obtained from both provider and client to observe the service.

084. Hossain MM; Mallick TS; Bari W. Generalized quasi-likelihood approach for analyzing antenatal care seeking behavior in Bangladesh. *South Asian Journal of Population and Health*. 2012; 5 (1&2): 9-18.

The study was undertaken to identify the potential determinants of antenatal care seeking behavior in Bangladesh. In this study the longitudinal data on maternal morbidity collected by Bangladesh Institute of Research for Promotion of Essential and Reproductive Health and Technology (BIRPERHT) to identify the potential determinants for ANC seeking behavior. This paper analyzes a longitudinal data on maternal morbidity of Bangladesh collected by BIRPERHT during the period of November 1992 to December 1993. The study showed that the ANC seeking behavior has increased. It is still low among the developing countries. Multistage random sampling was used to select 1020 pregnant women (pregnant for months) and they were followed-up in each month on regular intervals from November 1992 to December, 1993. To identify the potential determinants of ANC seeking behavior were used. Multistage random sampling first we conduct bivariate analysis and then multivariate analysis using the generalized quasi likelihood (GQL) approach. The results of bivariate analysis of explanatory variables on the ANC seeking behavior based on the baseline information. About 29.78% of younger women (age<20) sought ANC compared to 18.18% of older women (age≥ 35). Age at marriage was found to be negatively associated with the outcome variable. The tendency of receiving ANC decreased as number

of previous pregnancy increased. Respondent with secondary or higher education were more likely to receive ANC than respondent who had primary or no education. This study showed that women whose husbands worked as day labor were less concerned about health care during the pregnancy period. It was well established that economic status of respondents plays a positive role on ANC seeking behavior. In longitudinal studies, it was of main interest to examine the regression effects considering the correlation among the repeated responses. Here the correlation parameters were considered as nuisance parameters. Working correlation based GEE approach is commonly used to analyze repeated data, which might not yield efficient regression estimates as compared to the independent 'working' correlation based GEE approach.

085. Huda FA; Ahmed A; Dasgupta SK; Jahan M; Ferdous J; Koblinsky M; Ronsmans C; Chowdhury ME. Profile of maternal and foetal complications during labor and delivery among women giving birth in hospitals in Matlab and Chandpur, Bangladesh. *Journal of Health Population and Nutrition.* 2012; 30(2): 131-142.

The aim of the present study was to document the types and severity of acute maternal and foetal complications among women admitted to different hospitals around the time of childbirth and postpartum. This paper documents the types and severity of maternal and foetal complications among women who gave birth in hospitals in Matlab and Chandpur, Bangladesh, during 2007-2008. The Community Health Research Workers (CHRWs) of the ICDDR,B service area in Matlab prospectively collected data for the study from 4,817 women on their places of delivery and pregnancy outcomes. Of them, 3,010 (62.5%) gave birth in different hospitals in Matlab and/or Chandpur and beyond. Review of hospital-records was attempted for 2,102 women who gave birth only in the Matlab Hospital of ICDDR,B and in other public and private hospitals in the Matlab and Chandpur area. Among those, 1.927 (91.7%) records were found and reviewed by a physician. By reviewing the hospital-records, 7.3% of the women (n=l,927) who gave birth in the local hospitals were diagnosed with a severe maternal complication, and 16.1% with a less-severe maternal complication. Abortion cases—either spontaneous or induced—were excluded from the analysis. Over 12% of all births were delivered by caesarean section (CS). For a substantial proportion (12.5%) of CS, no clear medical indication was recorded in the hospital-register. Twelve maternal deaths occurred during the study period; most (83%) of them had been in contact with a hospital before death. Recommendations were made for standardization of the hospital record-keeping system, proper monitoring of indications of CS, and introduction of maternal death audit for further improvement of the quality of care in public and private hospitals in rural Bangladesh.

086. Huda FA; Ahmed A; Dasgupta SK; Jahan M; Ferdous J; Koblinsky M; Ronsmans C. Chowdhury ME. Complications during labor and delivery in health facilities in rural Bangladesh. Dhaka: ICDDR,B, Centre for Reproductive Health, Knowledge Transformation Brief, no. 1, 2011.

The study objective was to determine the levels and types of acute maternal morbidities in the Matlab ICDDR,B service area, a rural area of Bangladesh. The study conducted to address the knowledge gap between January 2007 and December 2008. Facility records of all women admitted during labour or up to 42 days postpartum to any public or private hospital in Matlab Upazilla and the district town Chandpur were reviewed by a physician to identify acute maternal complications. Maternal complications were categorized into four groups based on the severity of the complication type (very severe, less severe,

caesarean section (CS) with no complication, and vaginal delivery with no maternal complication). Study found by literature review that in Bangladesh an estimated 6,000 women died from pregnancy-related complications every year while another 194,000 women reportedly suffered injuries or disabilities caused by complications during pregnancy and childbirth. Research found among the women who delivered in local hospitals, 7% were identified with very severe and 15% with less severe maternal complications. 7% had a caesarean section with no maternal complication and 63% had a vaginal delivery without any reported maternal complication. Among women with very severe or less severe maternal complications, the majority (69%) had C/S followed by hypertensive disorders of pregnancy (13%), hemorrhage (8%), anemia (6%) and infections (4%). The majority (75%) of the women with very severe maternal complications and C/S with no maternal indications were treated in private hospitals in Chandpur. The private hospitals performed nine times as many cesarean sections compared to public hospitals of Matlab and Chandpur. The study concluded that most women with pregnancy complications sought care from private facilities and the public facilities remain underutilized. Only one-quarter of all C/S deliveries currently conducted were actually needed for saving lives of mothers and another one-quarter was needed for saving babies. A system to monitor the indications for caesarean sections in private facilities to avoid unnecessary surgical interference is required to improve recording indications.

087. Jahan K; Parvin M; Mafiz A. Studies on haemoglobin, serum calcium ascorbic acid level in normal pregnant, pre-eclamptic and eclamptic patients. *Bangladesh Journal of Nutrition*. 2011-2012; 24-25: 7**-14.**

The aim of this study was to investigate the relationship between pre-eclampsia and eclampsia in respect of nutritional factors, socio-economic factors and obstetric factors in selected population of Bangladesh. A cross sectional sample survey was carried out among the normal pregnant women, pre-eclamptic and eclamptic patients aged between 15-16 years and admitted in Dhaka Medical College Hospital and Sir Solimullah Medical College Hospital. The study population comprised woman with pre-eclampsia (n=26), eclampsia (n=26) and nor pregnancy (n=52). The total sample size was 104. Anthropometric data on body weight, height and foetus weight and simultaneously blood pressure and socio-economic information were collected. The survey findings found among the prc-eclamptic patients, 19.2% were in the age group above 30 years. About 42.3% were in age group 25 to 29 years, 34.6% were 20-24 years and only 3.8% were below 20 years of age group. In case of eclamptic patients 15.4% were in the age group above 30 years. About 42.3% were in age group 25 to 29 years, 42.3% were20-24 and there was none in age group below 20 years. About 57.7% pre-eclamptic patients were nulliparous and 42.3 % were multiparous but for eclamptic patients the values were 46.1% and 53.8% respectively. The mean Hb level of the normal pregnant woman was 10.19 g/dl, while that of pre-eclamptic patients was 9.49 g/dl and that of eclamptic patients was 8.88 g/dl. The pre-eclamptic and eclamptic patient was found to have lower mean Hb levels compared to that of the normal pregnant woman. There was found highly significant difference when comparison was made between normal pregnant woman and pre-eclamptic patients, normal pregnant woman and eclamptic patients and pre-eclamptic patients and eclamplic patients. Overall statistical analysis revealed that lower serum calcium (<8 mg/dl) level, serum ascorbic acid (<0.5 mg/dl) and blood Hb (<11 g/dl) level are the first most important determinant of pre-eclampsia and eclampsia. There might be other factors which are responsible for pre-eclampsia and eclampsia. These unknown factors need to be explored in order to address the agony of pre-eclampsia and eclampsia in Bangladesh.

088. Kabir N; Hasan MQ; Afroza S; Rahman A. Knowledge, attitude, practice of the mothers on breast-feeding activities in selected rural areas of Bangladesh. *ICMH Journal*. 2011; 2(1): 21-25.

This study was undertaken to look into the knowledge, attitude and practice of the mothers on breast-feeding activities in a rural area of Bangladesh. The study was conducted by structured pretested survey questionnaire administered to interview the mothers having 0-6 months old babies. Mothers were randomly selected from villages of 6 (out of 11) unions of Hjigang thana of Chandpur district during 1999. The number of mothers having babies of less than six months of age were 652 analyzed in this study considering different variables of breast milk secretion, pre-lacteal feeding, exclusive breast feeding at 5 completed months (at the time of study recommendation for exclusive breastfeeding was five months). The results showed that most of the mothers were in the age group of 21-30 years 62.4%). Mothers' knowledge on breast milk secretion and practice of prelacteal feeding carbohydrate with their practice, where 31.9% mothers thought that babies can get breast milk as the first food. As a result, 32.8% of them had been given breast milk within half an hour of birth and 67.6% babies got prelacteal feeding. Forty-two percent mothers knew about the concept and duration of exclusive breastfeeding, on the other hand, practice of exclusive breast feeding at 5 completed months was 27.7%. But surprisingly, predominant BF rate was very satisfactory in the area which was 75.4%. Mothers were unaware about key points of position and attachment that was reflected in table 4. Practice of attachment was very poor as because only 23-24% mothers used to practice inserting most of the areola inside the baby's mouth along with chain touching the breast. However, a significant higher proportion (32.8%) of mothers started breastfeeding within half an hour after delivery. The knowledge, attitude and practice on breastfeeding were poor on exclusive as well as early initiation of breastfeeding along with correct position and attachment. There was lack of knowledge about the availability of breast milk on the first day of delivery. For full protection, promotion and support of breastfeeding extensive involvement from all categories of health care providers is the demand of time.

089. Kabir SMS; Mahtab N. Gender, poverty and governance nexus: challenges and strategies in Bangladesh. *Empowerment-A Journal of Women for Women*. 2013; 20: 1-12.

The overall goal of the research was to promote and facilitate linkage between gender, poverty reduction and good governance at the local level. The research focused on analysis by combining feminist research techniques such as participant field observation; key informant interviews; focus group discussions; and case studies of women's life history. Primary data were collected through intensive interviews with the elected women members, using structured and unstructured questionnaire to assess their knowledge and perception about governance issues, women's issues and concerns. Participatory discussions were held to obtain their opinion on several issues relating to their roles and responsibilities, their expectations as women members, Intensive interviews were also held with male Chairpersons and male members to assess the attitudes. The number of Unions under study was included from the six divisions of the country, Dhaka, Barisal, Chiltagong, Khulna, Rajshahi and Sylhet. From each of the division, at least six Upazilas were selected on a random basis. Analysis of socio-economic background of female UP members from different regions of the country gave a multidimensional picture about their background. They were from different age groups of different social, educational, religious and occupational backgrounds. Most of the respondents were between the ages of 30-35 years. They have different range of educational qualifications from class eight to graduate level. Most of the UP members belonged to single family and the family size consisted of

4-5 members. It was also found some respondent's family members were previously attached with local government or have political background. During taking the interviews, three types of members were identified: (i) some were elected for first term in 2002; (ii) some are serving 2nd term as members; (iii) while few are continuing for the third term as members. Although previously they were selected or nominated members in UP. The presence and the participation of women in governance is a new phenomenon contextually and it has gained significance as they are new to the job and they function as the representatives of the people against the backdrop of patriarchy. Thus the newly elected women in the local government level have come to the institutions with different barriers and obstacles. Women's voices in governance were not so far heard due to their under-representation and non-participation in institutional structures for decision making. Some women have already begun to make their mark by their performance at the local level. The political space provided for women can be considered as an opportunity for expressing their opinion and raising voices on the issues of development. It has become well established that women's empowerment is fundamental to achieving poverty elimination.

090. Kamal SMM. Decline in child marriage and changes in its effects on reproductive outcomes in Bangladesh. *Journal of Health Population and Nutrition.* 2012; 30(3): 317-330.

This study aimed at examining the decline in child marriage in Bangladesh and investigating the effect of child marriage on various reproductive behaviors. The study used data from the 2007 BDHS—the nationally-representative survey that gathered information from 10,996 ever-married women aged 15-49 years and 3,771 men aged 15-54 years from 10,400 households. The survey used a multistage cluster sample based on the 2001 Bangladesh Census. Chi-square tests, negative binomial poisson regression and binary logistic regression were performed in analyzing the data. Overall, 82% of women aged 20-49 years were married-off before 18 years of age, and 63% of the marriages took place before 16 years of age. The study found that the incidence of child marriage was significantly less among the young women aged 20-24 years compared to their older counterparts. Among others, women's education appeared as the most significant single determinant of child marriage as well as decline in child marriage. Findings revealed that, after being adjusted for socio-demographic factors, child marriage compared to adult marriage appeared to be significantly associated with lower age at first birth (OR=0.81, 95% CL=76-0.86), higher fertility (IRR=1.45, 95% WCL=1.35-1.55), increased risk of child mortality (IRR=1.64, 95% WCL=1.44-1.87), decreased risk of contraceptive-use before any childbirths, higher risk of giving three or more childbirth, elevated risk of unplanned pregnancies. Current age of women, after being adjusted for other covariates, did not show any apparent pattern of decline in marriage at very young age and child marriage. For instance, compared to women aged 20-24 years, the women aged 43-49 years were two times likely to be married-off at very young age. However, the difference in the likelihood of being married at very young age between women aged 20-24 to 40-44 years was not found to be significant. Women aged 45-49 years compared to the young women aged 20-24 years were almost two times likely and those aged 25-29 years were also likely to be married-off as child by the factor 1.64. The difference in the likelihood of being married-off as child between women aged 20-24 years and 30-3J to 40-44 years was not found to be significant. The findings of the study also revealed that the practice of child marriage was very common in Bangladesh. The pervasiveness of child marriage and its association with higher fertility and poor control of fertility—factors linked to numerous poor maternal and child health outcomes—urged the crucial need for maintaining proper marriage registration and increased family-planning interventions tailored to married adolescents. The

statistics said that most female marriages still took place before the legal age at first marriage. The study also found that current age, women's education, place of residence, socio-economic status and regions were important determinants of child marriage in Bangladesh. As per results of the study, it might be drawn suggestions that to reduce child marriage and teenage motherhood, the marriage act might be reviewed, and the legal age at marriage might be set at 19 years for females as the country had been passing through a transition period in its economic development. Finally, the healthcare facilities should be made available among the poor and in remote areas for better health of both mother and child in Bangladesh.

091. Khan, AKMZU. Assessment report on capacity building of General Economic Division (GED) to integrate population issues and gender concern into development plans and policies. ***In: National policy dialogue on population dynamics, demographic dividend ageing population & capacity building of GED.*** **Dhaka: Planning Commission, General Economic Division (GED), 2013.**

The overall objective of the work was to explore a systematic assessment on the capacity of GED with regard to integrating, positioning and mainstreaming population and development linkages and gender concerns into national plans/policies while formulating national development plans. Methodology of the assessment consist mainly two types of study design, descriptive and systematic review. Situation analysis and structural analysis of GED has based on systematic review of previous reports, organogram of GED, job descriptions of GED officials, web-site browsing of Planning Commission and Planning Division and so on. Bangladesh is a land of huge potentials because of its population size and age structure. It has a bulk of young population of working age that will continue to increase in next few decades, which can be turned into an asset if appropriate and effective policies and programs are adopted. At present about 5 percent of total population are at the age of 65 years or more which will be increasing in the future and will affect the dependency ratio. This increased number of elderly population will not only create enhanced demand for health care but also affect the country's economy as the expenditure of providing health and other services will increase. Being the planning authority of the Government Planning Commission is formulating national development plans since independence. Among the six division of Planning Commission, General Economics Division (GED) has a leading role to formulate macro level development plans and to coordinate other divisions of Planning Commission. In the context of country's demography, The General Economics Division of Planning Commission itself subdivided by five working wings namely i) Multi-sectoral issues wings-which is responsible for coordination among the other wings of the planning Commission or Planning Division, ii) International trade and Economics wings-responsible for monetary management, external debt and international trade, iii) Fiscal and monetary Policy wings-deals with monetary management and banking, iv) Poverty analysis and monitoring wings- responsible for poverty related planning, implementation and monitoring, and v) Macro and Perspective planning wings -deals with Economics policies, national income, employment and labor market and perspective plans. The assessment, aiming to find out the gaps of GED, identifies some major challenges and requirements which needs to fulfill immediately. Dialogue recommendations as emerged after through discussion that are population data should be improved; more focused should be on creation employment and education; women participation in development should be ensured; good governance should be ensured; direct focus on utilization of area age population; produce skilled labor force and quality human resources; and need to develop area based economic zone to expedite economic activities.

092. Khan F; Rahman MM; Alam KS; Das SR. Impairment of renal function in eclampsia. *Bangladesh Journal of Obstetrics & Gynaecology.* 2011; 26(1): 31-36.

The purpose of the study was to identify changes that occur in renal function in eclamptic patients and to determine the effect of impaired renal function on pregnancy outcome. This cross sectional study on the impairment of renal function in eclamptic patients was carried out in the eclampsia ward of Dhaka Medical College Hospital from July 2009 to December 2009. Study group comprised of 50 diagnosed cases of eclampsia and 50 patients with uncomplicated pregnancy was taken as control. In this study 30% of the eclamptic patients were found to have impairment of renal function. Incidence of impaired renal function was significantly increased among the patients of age above 25 years. Multigravida eclamptic patients were found to be more prone to develop impaired renal function compared to primigravida patients. Blood pressure was significantly increased and platelet count was significantly low in the impaired renal function group of eclamptic patients compared to the normal renal function group. Incidence of foetal complications was significantly higher among the patients with impaired renal function. The eclamptic patients who had proteinuria of >1 gm/day had more foetal complications than those who had proteinuria of <1gm/day. It was observed that, impairment of renal function was common among the patients with eclampsia. Therefore, special attention should be given to assess renal function in this group of patients with giving more emphasis manner.

093. Khan R; Blum LS; Sultana M; Bilkis S; Koblinsky M. An Examination of women experiencing obstetric complications requiring emergency care: perceptions and sociocultural consequences of caesarian sections in Bangladesh. *Journal of Health Population and Nutrition.* 2012; 30(2): 159-171.

The objective of this study was to examine women who did and didn't have a caesarean section for their birthing preparation, delivery-related experiences, and subsequent physical, social and economic consequences for the women and her family members up to 10 weeks after delivery. Twenty women who delivered at a hospital and were identified by physicians as having severe obstetric complications during delivery or immediately thereafter were selected to participate in this qualitative study. Purposive sampling was used for selecting the women. The study was carried out in Matlab, Bangladesh, during March 2008-August 2009. Data collection methods included in-depth interviews with women and, whenever possible, their family members. The results showed that the women were poorly informed before delivery about pregnancy-related complications and medical indications for emergency care. Barriers to care-seeking at emergency obstetric facilities and acceptance of lifesaving care were related to apprehensions about the physical consequences and social stigma, resulting from hospital procedures and financial concerns. The respondents held many misconceptions about caesarean sections and distrust regarding the reason for recommending the procedure by the healthcare providers. Women who had caesarean sections incurred high costs that led to economic burdens on family members, and the blame was attributed to the woman. The postpartum health consequences reported by the women were generally left untreated. The data underscore the importance of educating women and their families about pregnancy-related complications and preparing families for the possibility of caesarean section. At the same time, the health systems need to be strengthened to ensure that all women in clinical need of lifesaving obstetric surgery access quality EmOC services rapidly and, once in a facility, can obtain a caesarean section promptly, if needed. While greater access to surgical interventions may be lifesaving, policy-makers need to institute mechanisms to discourage the over-medicalization of childbirth in a context where the use of caesarean section is rapidly rising.

094. Mahmood HR; Harun-Ar-Rashid; Faruquee MH; Yasmin N; Lahiri S. Anemia among urban slum adolescents in a selected area of Dhaka city. *SUB Journal of Public Health*. 2011; 4(2): 1-4.

The aim of the study was to find out the status of anemia among slum adolescents. The present cross-sectional study included randomly selected 352 patients visited a health camp organized by State University of Bangladesh (SUB) in June 2012 in a randomly selected slum of Dhaka City named "Kalyanpur Pora Bosti. Data were collected by interviewing with a semi-structured questionnaire. Anemia was diagnosed according to the WHO guideline and clinical examination (by pale coloration of skin, mucous membrane, sclera, tongue, nail bed, palm of hand and sole) as well. Haemoglobin estimation was done using semi-automated machinery system in the laboratory on the blood sample obtained by the finger prick. Study findings revealed that among the majority (66.5%) were of<12 years of age followed by 23.3% of 13-16 years of age and 10.2% of >I7 years of age respectively. Among the respondents 64.8% were student followed by 14.5% house-wife, 13.1% daily wages labor, 2.8% motor vehicle driver, 2.8% agro-labor, small businessman and rickshaw puller. Regarding monthly family income of the respondent, 53.4% had BDT 5000 to 10000, 36.6% had less than BDT 5000 and 9.9% had more than BDT 10000 (mean=6782.67±3068.36), and came from joint family (64%). Out of 244 female respondents, 79.9 gave positive history of having any sort of menstrual irregularity like heavy bleeding, painful bleeding etc. According to BMI, 61.6% were underweight. Clinically 25% were found to have anemia and by Hb estimation, 67. 4% were found to have anemia. Anemia was found more among respondents with monthly family income less than BDT 10000 (P<0.05). With the increase of education level, anemia frequency was found to be gradually decreased (p<0.05). The present study concluded that among the slum adolescents, 25% suffer from anemia. It was revealed that anemia is highly prevalent among the low income group and underweight population.

095. Mannan H. Demography on women's reproductive healthcare in Bangladesh. *The Journal of Rural Development.* 2012; 38 (1): 143-164.

The present study attempted to examine to what extent women's reproductive healthcare was influenced and determined by demographic characteristics of the population. Data and information for this study was collected from both secondary and primary sources. National level secondary data was collected mainly from Bangladesh Demographic and Health Survey 2007, Statistical Yearbook of Bangladesh 2009, Gender Statistics of Bangladesh 2008. Primary data was collected from a village Rathura chosen as the research area for this study that was located under Nagarpur Upazia in Tangail District. In this study, interviews, observations and in-depth-discussion methods were followed for collecting primary data. Study findings revealed that women of rich family were more concerned about their reproductive health care rather than poor women. Young women were more conscious about their reproductive health care than old aged women. So, it could be said that education, wealth and age were significant variables in analyzing women's reproductive healthcare i.e. marriage, use of contraceptives, number of children, antenatal, prenatal and postnatal cares, doctors/nurse/midwives during delivery etc. Therefore, demographic characteristics and healthcare of a population as well as individual were almost intertwined. Changes in demographic characteristics bring changes in healthcare also. In Bangladesh, apart from economic progress both education and mass consciousness of the population should be increased for better reproductive healthcare. For that purpose government, donor organization and NGOs will have to play decisive role within a same platform for the development on women's reproductive healthcare in Bangladesh.

096. Mazumder MJU; Hossain MD; Kabir N; Khanam W; Tabib SMSB; Haque MA; Khatoon S; Urmi FJ. Antenatal counseling improves early initiation of and exclusive breast feeding. *ICMH Journal*. 2013; 4(1): 13-18.

The aim of this study was to identify the impact of antenatal counseling on early initiation and exclusive breast feeding for six months. This Quasi-experimental study (post-test only design) was done in the outpatient Department of Gynecology & Obstetrics, ICMH, Dhaka among the pregnant mothers of third trimester who attended for antenatal checkup. Mothers with any serious medical illness during pregnancy and critically ill newborn after delivery were excluded from the study. The study was done from January to December 2011. At first existing knowledge of the mothers about breastfeeding were checked and noted in the questionnaire then every mother was counseled about benefits of colostrums, early initiation (within one hour), exclusive breastfeeding and disadvantages of artificial feeding. Mothers were also demonstrated the cause of lactation failure and showed proper positioning and attachment using breast model and baby doll. A breast feeding counseling booklet was developed which was supplied after the counseling session. Minimum two counseling sessions were provided to these mothers. In the study there was no control group. The group of mother who failed to breast-feed exclusively was small and all the mothers came from peri-urban areas of Dhaka city. All the mothers enrolled in the study knew that breast-feeding was important and accepted counseling in the hospital and on home follow-up their attitudes were therefore apparently positive to start with. For this reason early initiation of breast-feeding increased from 43% to 83% and exclusive breast-feeding rate from 43% to 72% by antenatal counseling. This significant increase suggested that this was a relatively easy behavior to change at scale when mothers were sensitized through trailing and BCC to its importance to infant's health. Early initiation of breastfeeding increased from 43% to 83% and exclusive breastfeeding rate from 43% to 72% by antenatal counseling. A randomized control trial with representative sample in the community and hospital was recommended.

097. Mobarek S; Khaleque MA. Safe motherhood situation of Santal community: a study in the North-Western region of Bangladesh. Bogra: RDA, 2013.

The study explored the situation of safe motherhood of Santal Community in terms of their beliefs, rituals and practices. The specific objectives were to gain an understanding of the ritual practices regarding antenatal, delivery and neonatal care of the Santal Community including decision-making process of the community regarding ANC, delivery and PNC practices. Santal Community is mostly available in North-Western region of Bangladesh and their concentration is higher in greater Rajshahi and Dinajpur districts compared to other areas. Study found the majority of the respondents (89%) were day laborer in agriculture and their socio-economic status was not well. All of them had homestead land and among them 18% had own cultivated land of 18.7 acre. About 95% of the respondents detected their pregnancy with the symptom of vomiting and most of them (88%) also showed anorexia. Though, now-a-days Home Pregnancy Test is very easy and available but unfortunately the community women did not know about this method. Most of the respondents were aware of adequate quantity and quality of food during their pregnancy, but actual practice was found different, 20% respondents consumed less quantity of food during their pregnancy, compared to what they used to take during normal times. However, 55% of them took food like before during their pregnancy and only 25% of the respondents consumed more food in terms of quantity and quality compared to their normal consumption. Only 10% consumed improved food like fruits, egg, milk, small fish and meat. Almost all (99%) of the respondents were

knowledgeable on avoiding heavy weight lifting during pregnancy though they used to do many tasks those were risky during pregnancy. It was found that the status of antenatal, delivery and neonatal care services of the Santal community was very poor in Bangladesh. A vast majority of deliveries were attended by unskilled birth attendants/dais in unhygienic surroundings. A significant proportion of women suffered health hazards while they were pregnant or during postpartum period. They do some cultural and religious events during the pregnancy and after delivery. However, some of them can't enjoy those events due to poor financial condition of the family. Therefore, health care services should be brought close to door step of the Santal women by arranging mobile or satellite clinics more frequently or ensuring home visits by the government or NGO health workers.

098. Moni SY; Ahmed KM; Siddika F; Ara N; Habib A; Rahman MH. Determinants of urinary calcium/creatinine ratio in a spot sample of urine for early prediction of pre-eclampsia. *Bangladesh Medical Journal*. 2012; 41(2): 20-22.

The study was conducted to determine the relationship between PET, hypocalciurea and calcium to creatinine ratio for early prediction of PET in a spot urine sample. This study was carried out on total number of 60 women with age ranged from 17-39 years of the m 30 normotensive gravid women and 30 suspected PET women were taken as study sample. On these 30 healthy pregnant women urinary calcium/creatinine ralio All the subjects were selected from the Department of Obstetric and Gynecology, outdoor and indoor, Rajshahi Medical College Hospital. The study revealed that it was within normal range and on the other hand urinary calcium/creatinine ratio in PET women was significantly decreased on the clinically diagnosed 30 PET women. It was also found that increased urinary albumin and decreased calcium excretion might be an early marker for pre-preeclampsia. Urinary calcium/creatinine ratio less than or equal to 0.04 which might be an early marker for useful screening tool in predicting the subsequent development of preeclampsia. Using the receiver-operator curve a cut off level of 0.225, the calcium to creatinine ratio was chosen for prediction of preeclampsia. Twenty two out of 30 women had calcium/creatinine ratio equal to or less than 0.225. Thirty women who had remained normotensive, 13 had calcium/creatinine ratio equal or less man 0.225. This level thus yielded a 75% sensitivity and 65% specificity. Positive and negative predictive values 68.2% and 72.2% were calculated respectively, at this cut-off point. The present study showed PET patient excretes less calcium in urine. Several studies have used the predictive value of hypocalciurea for preeclampsia. The study result was consistent with the result of these studies. The urinary calcium/creatinine ratio did not differ significantly between patient with preeclampsia and normal pregnant women. It was concluded that a spot single urine sample calcium/creatinine ratio might be an effective method for screening pregnant women for detection of preeclampsia.

099. Nahar S; Rahman A; Hashima-E-Nasreen. Factors influencing stillbirth in Bangladesh: a case –control study. *Paediatric and Perinatal Epidemiology*. 2013; 27: 158-164.

This study aim was to estimate the prevalence of, and risk factors associated with, stillbirth in a developing population. A case control study was conducted on women having a singleton birth between November 2008 and April 2009 in 34 slum areas in Dhaka. Data were collected on 231 women with stillbirth (cases) and 464 women having live birth (controls). This study utilized the records of the Manoshi program and supplemented it with data obtained through interview of the women. The study results revealed that the stillbirth rate was 26 per 1000 total births, of which 62% occurred during the

intra-partum period. Obstetrical complications contributed to 61.4% of stillbirths. Illiterate women [odds ratio (OR) 1.6 {95% confidence interval (C1) 1.1, 2.2]], women aged > years (OR 2.9 [95% C1 1.5. 25.5), preterm delivery (OR 5.2 [95% C1, 3.2, 8.5), prolonged labor (OR 2.8 [95% C1 1.6, 4.6) and failure of labor progress (OR 2.4 [95% C1 1.1, 5.5) were significant maternal risk factors, while decreased fetal movement, fetal mal-presentation and fetal distress were fetal risk factors associated with stillbirth. There is an urgent need to educate pregnant women about risk factors for stillbirths during antenatal visits. Encouraging women to deliver at health facilities and better management of obstetrical complications may help reduce the burden of stillbirths in Bangladesh.

100. Naved RT; Blum LS; Chowdhury S; Khan R; Bilkis S; Koblinsky M. Violence against women with chronic maternal disabilities in rural Bangladesh. *Journal of Health Population and Nutrition.* 2012; 30(2): 181-192.

This study was undertaken to explore of violence against women with chronic maternal disabilities in rural Bangladesh during November 2006 to July 2008. An in-depth interview was conducted with 17 rural Bangladeshi women suffering from uterine prolapsed, stress incontinence, or fistula. Interviews were administered; either inside the households or in the family-yard, and questioning was terminated and scheduled for a later time if privacy could not be maintained. Vernal informed consent was obtained from all the respondents before participation in the study. The study results showed that most of the women living with a chronic maternal disability-stress incontinence, uterine prolapse, or fistula-were subjected to emotional violence, and almost half of them were sexually abused. The common triggers for violence were the inability of the woman to perform household chores and to satisfy her husband's sexual demands. Misconceptions relating to the causes of these disabilities and the inability of the affected women to fulfill gender role expectations fostered stigma. Emotional and sexual violence increased their vulnerability, highlighting the lack of life options outside marriage and silencing most of them into accepting the violence. Thus, violence against women with chronic maternal disabilities crossed the boundaries of domestic violence, which is common in Bangladesh and imposed an added layer of abuse by the community. These findings underscore the need to develop educational efforts to inform the public about the nature of these disabilities, including the cause and appropriate physical and psychological care for women with such problems. It has to enhance opportunities for women outside marriage through education and employment leading to enhancement of their status and rights in the household community, and broader society, making them less vulnerable to violence and more knowledgeable of their rights as human beings. Moreover, in the long-term, by creating economic opportunities for women to reduce the dependence of women on marriage and men and transform the society to overcome rigid gender norms.

101. Nawaz R; Saha K. Early pregnancy termination with oral mifepristone and vaginal misoprostol. *Bangladesh Journal of Obstetrics & Gynaecology.* 2012; 27(2): 44-49.

The aim of the study was to determine the efficacy, side effect and acceptability of medical abortion using mifepristone200mg orally and misoprostol 800µg vaginally in patient less than 49 days of gestation. Seventy-six women who requested termination of pregnancy up to 49 days of gestation were administered 200mg mifepristone orally followed 48 hours later by 800µg of misoprostol per vaginally. The results showed that ninety-six percent (96%) women had complete abortion with this regimen. There was no ongoing pregnancy. The average duration of per vaginal bleeding was 12-13 days. There were some side effects, which included abdominal pain, vomiting, fever etc. In this study

there was no case leading to continuation of pregnancy following medical termination. However, in a multicenter trial conducted by WHO the incidence of continuation of pregnancy rate was 0.4%. In general, 5% of women required surgical curettage following medical termination of pregnancy. But in this study, incidence of incomplete abortion was 3.9%. Complete expulsion before the administration of misoprostol is between 1-6% of the women; the larger rates within these ranges are associated with earlier gestation. In the study only one patient had complete termination before administration of misoprostol. This mifepristone-misoprostol regimen was highly effective in terminating pregnancy in women up to 49 days duration with minimum side effects and this medical method might be advisable to practice the procedure in Bangladesh to save many maternal lives and prevent complications associated with surgical procedure carried out by unskilled attendants.

102. Parveen K; Sultana S; Naved RT. Growing up safe and healthy: baseline survey report on sexual and reproductive health and rights and violence against women and girls in Dhaka slums- spousal violence against women and help seeking behavior. Dhaka: ICDDR,B & Population Council, 2012.

The objectives of SAFE was to creation of demand services among the abused women, and creation of a supportive and enabling environment for the women to access these services. The Domestic Violence (Prevention and Protection) Act 2010, created an opportunity to extend support to the abused women, which underlined the importance of exploring the situation on the ground for understanding it better and for guiding further action. The survey results revealed universality of gender inequitable attitude among the women and měn in Dhaka slums. A high proportion of the women and měn supported multiple gender inequitable statements, accompanied by high levels of spousal violence against women duringthe past 12 months, and low rates of help seeking behaviour of the abused women. The reported levels of violence in a study were higher than previous reports, including the 2006 Urban Health Survey (NIPORT et al., 2008) and the population-based survey conducted by ICDDR,B and Naripokkho in Dhaka in 2001. Despite a high level of spousal violence against women ín the Dhaka slums the rate of disclosure and help seeking was very low. Only one-fifth of the abused women disclosed their experience during the last 12 months and a similarly low proportion of them sought any help. It should be noted that a higher proportion of the abused women sought help frorn institútional sources (e.g., lawyers, local clubs/ local leaders and police) compared to the women in the previous population-based study in Dhaka (Naved et al., 2006).This finding echoes findings from previous study by Naved et. al (2006). Gender inequitable attitudes of the women and měn revealed in the surveys might háve contributed to low help seeking. Furthermore, due to overcrowding even the violence that takés pláce within home usually did not go unnoticed by the slum dwellers. Thus, regardless of disclosure of violence by the abused women relatives and neighbors often come to know about it. This might be treated as an opportunity to try out bystander interventions in this context.

103. Parveen R; Ahmed A; Mohiuddin AS; Rahman SS; Paul TK. Correlation between amniotic fluid index and estimated fetal weight in third trimester of pregnancy. *Bangladesh Medical Journal*. 2011; 40(3): 21-23.

This study was conducted to find out the correlation between amniotic fluid index (API) and estimated fetal weight (EFW) in third trimester of pregnancy. This cross sectional study was carried out in Department of Radiology and Imaging of Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine

and Metabolic Disorders (BIRDEM) from June 2006 to May 2007. As the study data, it was carried out on 105 women with gestational age between 29 to 40 weeks who were referred for obstetric ultrasound and normal singleton pregnancies at third trimester. The pregnant women were subdivided into three groups. The indications of referral were measurements of fetal size, pregnancy dating and evaluation of fetal wellbeing or routine third trimester evaluation. The pregnant women were stratified into three gestational age groups, group I: 29 weeks - 33 weeks 6 days, group II: 34 weeks - 37 weeks 6 days and group III: 38 weeks - 40 wks. Out of 105 women, highest percentage was 47.6% in the group II followed by 28.6% in the group III and 23.8% in group. The API & EFW were evaluated according to gestational age groups and fetal sex. Significant positive correlations were found between estimated fetal weight and amniotic fluid index in female fetuses of all three groups. In male fetuses, there was a significant positive correlation between API & EFW in group III (38 to 40 weeks), but insignificant correlation in other two groups. No study was conducted previously in Bangladesh to see the relationship between API & EFW. This study showed that amniotic fluid volume could be evaluated more precisely during third trimester of pregnancy by taking estimated fetal weight into consideration in third trimester of pregnancy.

104. Rahman L; Hossain MI; Amin S. Growing up safe and healthy: baseline survey report on sexual and reproductive health and rights and violence against women and girls in Dhaka slums- knowledge, attitude and practices associated with sexual and reproductive health and rights. Dhaka: ICDDR,B & Population Council, 2012.

The objectives of this report were to describe the reproductive and sexual health and rights related knowledge, attitudes and practices of ever married young females of Dhaka slums; and to explore the socio-demographic, marital, spousal and violence related factors associated with selected SRHR related KAPs. The sample included 2,989 ever married 15-29 year old females from the SAFE Baseline Survey. The report described weighted distributions of the sample. Almost one-fifth of the sample was less than 20 years old and about 55 percent of them had no education or dropped out before completing fifth grade .Overall, more than eight in ten ever married women experienced either any of the physical, sexual, emotional, or economical violence last year. Attitudes towards condom use by unmarried males and females reflected higher level of positive attitude was coupled with sub-optimal SRHR practices in the slums, creating a risky environment for women. A high level of non-medical attendance in antenatal, delivery and postnatal services, experiencing STI symptoms but not seeking medical care and not drying menstrual clothes in the sun contributed to women's poor health. Some spousal characteristics and current violence exposure were found to be related to women's SRHR related awareness, viewpoints and behaviors. The study clearly established linkages with the issues of SRHR and violence against women. The socio-demographic correlates of SRHR affirmed the need for women's education, while the marital, spousal and violence related factors indicated greater need to educate and involve men for improving women's health and investing in program to prevent violence against women and girls. Since the sample was drawn by using a two-stage randomization process from a large number of slums from three sites of Dhaka, the findings could be generalized to ever married 15-29 years females living in urban slums in Dhaka. However, there were limitations to the findings. Since the study draws from only a sub-sample of 5-29 years old ever married female slum population, findings could not be generalized for other slum dwellers of the city. Lastly, the study for using cross-sectional data merely suggests correlation, not causation. However, the report showed plausible associations between SRHR issues and women's education, wealth, personal, marital and spousal characteristics and their violence experience. It confirmed the need to address the SRHR of the young women and girls living in slums and make services more accessible to them.

105. Rahman MM; Rob U; Noor FR; Bellows B. Out-of-pocket expenses for maternity care in rural Bangladesh: a public-private comparison. *International Quarterly of Community Health Education.*2012-2013; 33 (2): 143-157.

The study measured out-of-pocket expenses incurred by women for availing maternal healthcare services at public and private health facilities in Bangladesh, using a baseline household survey evaluating the impact of demand side financing vouchers on utilization and service delivery for maternal healthcare. The survey was conducted in 2010 among 3,300 women who gave birth in the previous 12 months from the start of data collection. Information on costs incurred to receive antenatal, delivery, and postnatal care services was collected. Study findings suggested that, among all basic maternal health care services, utilization of ANC was comparatively higher than other services. The BHDS data observed that home deliveries were still common in rural areas. Study findings revealed that the majority of women reported paying out-of-pocket expenses for availing maternal healthcare services both at public and private health facilities. Out-of-pocket expenses included registration, consultation, laboratory examination, medicine, transportation, and other associated costs incurred for receiving maternal healthcare services. On average, women paid US$3.60 out-of-pocket expenses for receiving antenatal care at public health facilities and US$12.40 at private health facilities. Similarly, women paid one and half times more for normal (US$42.30) and cesarean deliveries (US$136.20) at private health facilities compared to public health facilities. On the other hand, costs for postnatal care services did not vary significantly between public and private health facilities. Utilization of maternal healthcare services can be improved if out-of-pocket expenses could be minimized. At the same time, effective demand generation strategies are necessary to encourage women to utilize health facilities.

106. Rashid F; Begum S; Sattar MA; Sharmin S; Begum KN. Reproductive health and service delivery status in a rural area of Bangladesh. *Bangladesh Journal of Obstetrics & Gynecology*. 2011; 26(1): 27-30.

This study was undertaken to find out the reproductive health status and also the service delivery pattern in a rural area of Bangladesh. This is a cross sectional study done in a village named Kalirbazar, 3km away from the BARD, Comilla during the period of February 13 to March 13, 2011. Data were collected purposively by individual interview through a structured questionnaire. A total of 30 women of reproductive age group (15-49 yrs.) were taken. Both adolescent unmarried girls and married women of reproductive age group were included in this study. After collection, data were analyzed, tabulated and presented. The study showed that the respondents were mostly married (63%), unmarried 33%; almost all of the women were Muslim (93%) and from low socio-economic status (77%). Sixty-six percent of women got married before 18 yrs of age and 47% were illiterate, more than half of the women (60%) were housewives and 28% dropped out from schools. Forty percent of married women had 2-3 children. Most of the women had knowledge about contraception, like-OCP (7/0), barrier (17%), female sterilization (06%) and 17% had no knowledge. Among the married women, 53% use OCP, 32% injectable contraceptives, 11% sterilization and 04% had vasectomy. Among respondents, 70% had some sorts of menstrual problem, 85% women lacked of antenatal checkup, 95% delivery occurred at home, 90% delivery conducted by local dhai and unexpectedly 73% women of had knowledge of STD/HIV&AIDS. Sixty percent of the women got the information related to reproductive health from relatives and also from media and health care provider. Most of the women (87%) said that whatever the health services status there were problems in getting the services. Only few of them were satisfied

with the services getting either from GO or NGO or from private sector. Almost all the women were buying the reproductive health care services (83%). The study indicated that reproductive health status in the rural area is not at all satisfactory. Government and Non-government Organizations often fail to make health services available to the doorstep of the users in the community who were felt need much of it.

107. Salam SS; Leppard MJ; Al-Mamun MM; Hashima-E-Nasreen. Men's knowledge and practices of maternal, neonatal and child health in rural Bangladesh: do they from women? Dhaka: BRAC, MNCH Project, 2012.

The objective of the study was to assess men's knowledge and their awareness of their wives' actual practices regarding MNCH care issues. The study was conducted in four improving maternal, neonatal and child survival intervention districts (Nilphamari, Rangpur, Gaibandha and Mymensingh) of BRAC and two control districts (Naogaon and Netrokona) during October 2008-January 2009. Data were collected from 7,200 men whose wives had experienced a pregnancy outcome in the preceding year of the survey or who had live child aged 12-59 months. Chi-square tests and t-tests were performed for comparing grouped districts and Cohen's Kappa was used to assess the level of agreement between men and women regarding MNCH practices and decision-making. Study found significantly more men in Nilphamari had correct knowledge on the initiation of breastfeeding within an hour, colostrum feeding, duration of exclusive breastfeeding, time of complementary food initiation, bathing and shaving of newborn, and neonatal danger signs compared to other areas. Knowledge on birth preparedness was low in all the study areas. Men were more aware about their wives' actual practices regarding use of family planning, experience of abortion and menstrual regulation, receiving any ANC, and place and attendant at delivery compared to postnatal care and maternal complications. There were marked differences in the reports of the men and their wives regarding joint decision-making, where more men tended to report that they took the decision jointly. Though it found some spill-over effect of MNCH programme in Nilphamari which actually addresses the women, the overall men's knowledge and their participation in practice and decision-making regarding MNCH issues was low in all the study areas. A well designed programme which directly addresses men is essential to raise men's knowledge and change their practices on MNCH issues.

108. Shelly FE. Postnatal complications between adolescent pregnant women of the sweeper community and general population. *Bangladesh Private Medical Practitioners Journal.* 2012; 18(2): 81-84.

The study was undertaken to compare the postnatal complications between marginalized adolescent pregnant women and adolescent pregnant women from general population. This prospective case-control study was conducted at Gonoktuly Sweeper Colony, Hazaribag and In-patient and Out-patient Department of Gynecology & Obstetrics, Dhaka Medical College Hospital, Dhaka, Bangladesh over a period of two and a half years from January 2006 to July 2008. Married women of sweeper community who conceived before completion of 19 years of age and have already completed the events of pregnancy (antenatal, natal and postnatal period) were considered as case, while adolescent women from the general population with similar characteristics were taken as control. A total of 333 subjects (114 cases and 219 controls) were selected consecutively. The outcome measures were postnatal maternal and neonatal morbidity and mortality. The mean age of the case group was significantly

lower (17.4 ±1.2 years) than that in the control group (18.2 ± 1.0 years) (p<O.OO1) and 44.7% of the case group respondents were below 18 years in comparison to only 16-9% of the control group. All the postnatal maternal complications like postpartum hemorrhage (PPH), fever, foul smelling lochia, vesicovaginal fistula (VVF) and prolapse demonstrated their significant presence in the case group than those in the control group (p<0.05). Comparison of income between groups showed that monthly family income of Taka 5000 or above was significantly less in the case group than that in the control group (2.6% vs.16%, p<0.01). Mortality and morbidity rates were also higher among neonates born to younger mother. It had been demonstrated in the study that the risk of dying in the first year of life is typically greater by 30% or more among babies whose mother were aged 15-19 than among those born to mother aged 20-29 years. The number of abortions performed each year in Bangladesh was more than 800,000. More than 20% of the maternal deaths were due to complications resulting from abortions under unhygienic conditions. All the neonatal complications like prematurity, LBW, delayed cry, jaundice, cyanosis, and death of the baby were almost quality distributed between groups. Marginalized adolescent pregnant women develop postnatal maternal complications more often than the adolescent pregnant women from general population.

109. Shelly FE. Risk encountered by marginalized adolescent pregnant women during antenatal period. *Bangladesh Private Medical Practitioners Journal*. 2011; 17(2): 77-80.

This study was conducted to assess the risks encountered by the marginalized adolescent pregnant women during antenatal period. This retrospective case control study was conducted at Gonoktuly Sweeper Colony, Hazaribag and in-patient and out-patient Department of Gynecology & Obstetrics, Dhaka Medical College Hospital Dhaka, Bangladesh over a period of two and a half years between January 2006 to July 2008. Married women of sweeper community who conceived before completion of 19 years and have already completed the events of pregnancy were considered as case, while women of other than sweeper community with same characteristics were taken as control. A total of 333 subjects (114 cases and 219 controls) were selected consecutively. The study findings revealed that the mean age of the case group was significantly less (17.4 years) than that in the control group (18.2 years) (p<0.001). Respondents of the case group and their husbands were less educated than those of the control group (70.2% vs. 85.4%, p=0.001 and 64.9% vs. 90.4%, p<0.001 respectively). Majority of the cases (97.4%) had monthly family income of Taka <5000 as opposed to 84% of control group (p<0.001). Receiving antenatal care (ANC) from maternal and child health (MCH) clinic was significantly less in the case group (15.8%) than that in the control group (33.3%) (p=0.027). Marginalized pregnant women developed complications like excessive vomiting, hypertension, edema more frequently than the adolescent pregnant women from the general community (45% vs. 29.5%, p = 0.004, 7.3% vs. 3.2%, p = 0.046 and 24.8% vs. 15.2%, p = 0.027 respectively). Poor maternal weight gain was significantly common in the former group than that in the later group (50.5% vs. 37.3%, p = 0.016). The sweeper adolescent pregnant women utilized MCH clinic less for ANC than the adolescent pregnant women from the general community. The antenatal communications were also observed to be significantly more than their counterpart.

110. Singh S; Hossain A; Maddow-Zimet I; Bhuiyan HU; Blassoff M; Hussain R. The incidence of menstrual regulation procedures and abortion in Bangladesh, 2010. *International Perspectives on Sexual and Reproductive Health*. 2012; 38(3): 122-132.

The study objective was to provide updated estimates of the incidence of MR and abortion in 2010 for Bangladesh and examine broader demographic changes as well, including contraceptive use and unmet need for contraception. Surveys of a nationally representative sample of 670 health facilities that provide MR and post-abortion care services and of 151 knowledgeable professionals were conducted in 2010, and MR Service statistics of nongovernmental organizations were compiled. In 2010, an estimated 647,000 induced abortions were performed in Bangladesh, and 231,400 women were treated for complications of such abortions. Furthermore, an estimated 653,000 MR procedures were performed at facilities nationwide. However, an estimated 26% of all women seeking an MR at facilities were turned away, and about one in 10 of those who had an MR were treated for complications. Nationally, the annual abortion rate was 18.2 per 1,000 women aged 15-44, and the MR rate was 18.3 per 1,000 women. The national rate of MRs and induced abortions combined was 28 per 1,000 women aged 15-44 in 1995 (based on indirect estimation techniques), according to another study using a model-based approach, the combined MR and abortion rate in Bangladesh was in the range of 26-30 per 1,000 in the mid-1990s.The incidence of induced abortion was the same as that of MR, which suggested considerable unsatisfied demand for the latter service. Furthermore, the high rates of complications from MRs highlight the need to improve the quality of clinical services. Increased access to contraceptives and MR services would help to reduce rates of unplanned pregnancy and unsafe abortion.

111. Sultana GS; Haque SA; Sultana T; Rahman Q; Ahmed ANN. Role of red cell distribution width (RDW) in the detection of iron deficiency anemia in pregnancy within the first 20 weeks of gestation. *Bangladesh Medical Research Council Bulletin.* 2011; 37(3): 102-105.

The study was undertaken to determine the role of red cell distribution width (RDW) in diagnosing early iron deficiency anemia (IDA) in pregnancy. This cross-sectional study was enrolled in Department of Clinical Pathology and Obstetrics and Gynae outdoor, Bangabandhu Sheikh Mujib Medical University (BSMMU) from August 2008 to 2009. One hundred and ninety pregnant women within the first 20 weeks of gestation were included after scrutinizing inclusion and exclusion criteria. About 6 ml blood was collected through an aseptic venipuncture from antecubital vein. 2ml blood was taken in a clean, dry test tube for complete blood count including RDW and ESR. About 4 ml blood was taken in a clean, dry plain test tube for serum iron profile. A drop of blood was taken on a glass slide for PBF, Hb, MCV, MCH, MCHC, RDW, PBF and iron profile were done. Then all the pregnant women were categorized as group iron deficient group (serum ferritin level <12 ng/ml) and Group II/non-iron deficient group (serum ferritin 12 to 200ng/ml). Then the findings of laboratory investigation were recorded in a predetermined data collection sheet. Data were evaluated by standard statistical methods. Study results showed that RDW was compared between group I and group II. RDW was statistically significantly ($P<0.05$) increased in iron deficient, then non-iron deficient. Again RDW was statistically significantly increased ($P<0.05$) than Hb level, MCV, MCH, MCHC and PBF in latent iron deficiency. In mild and moderate IDA, RDW was statistically significantly increased than MCV, MCHC and PBF, Hb, MCV, MCH, MCHC and PBF were done by calculating sensitivity, specificity, PPV, NPV and accuracy. In this study RDW had high sensitivity 82.3% than other test. But the specificity is slightly lower (97.4%) than PBF & MCV (98.7%). Iron deficiency anemia in pregnancy produces various ill

effects both for mother and fetus. For prevention of iron deficiency early diagnosis is essential. RDW can give the idea of iron deficiency but for final diagnosis serum ferritin should be done. In a mass examination in tertiary hospital where automated analyzer is available, RDW is a simple, cost effective and non-invasive technique that should facilitate the detection of early iron deficiency anemia.

112. Sultana R; Islam S; Nurjahan. Caesarean scar pregnancy- a rare case report. *Bangladesh Journal of Obstetrics & Gynecology.* 2012; 27(2): 83-86.

The purpose of this study was to publish the case report of the rarely occurring and life threatening ectopic pregnancy developing in a caesarean section scar causing uterine rupture. Twenty-five years old, mother of one child with history of caesarean section presented with history of amenorrhea for about 8 years was illustrated as case report. Here the patient was diagnosed initially as a case of incomplete abortion. Other possible diagnoses were molar pregnancy, mass in the cervix. She was admitted in hospital for evacuation and curettage. During the procedure she developed severe paravaginal bleeding leading to hypovolemic shock. So decision was taken for emergency laparotomy. After opening the abdomen rupture was found in lower uterine segment extending up to upper part of cervix. So hysterectomy was performed and the histopathology report confirmed the diagnosis of ectopic pregnancy that developed in a caesarian section scar area. Analysis of the women's obstetric history revealed that she had been previously operated because of breech presentation. Heightened awareness of the possibility of pregnancy in caesarian scar and early diagnosis by means of trans-vaginal ultrasonography along with color Doppler can improve outcome and minimize the need for emergency extended surgery.

113. Sultana S; Bhadra SK; Syed U; Rahman J. Community based postnatal care study in Bangladesh: baseline and end-line survey findings. Dhaka: NIPORT & Save the Children, 2011.

This study was initiated to demonstrate feasible community-based approach to improve newborn care practices in rural Bangladesh and also to compare place, timing and content of postnatal care visits through both in the intervention and comparison areas for evaluation of the intervention program in GO areas. Specifically the analysis will address: i) changes in the program indicators since the baseline survey in order to conduct an evaluation of the program; and ii) examine the effect of the program on the equity of the utilization of the intervention package. The baseline and end-line surveys used same cross-sectional design to depict the estimates of relevant indicators in the intervention and comparison areas of the community-based postnatal care study in Bangladesh. Both the surveys were carried out in same areas under Faridpur district of Bangladesh where the community-based PNC study had been implemented. The surveys were conducted in two domains; GO intervention area (Madhukhali upazila) and GO comparison are (Nagarkanda upazila) for separate estimates for comparison. Since the intervention covered four rural unions in each upazila, same number of unions (four) was randomly selected from the comparison upazila as survey area. The sample size for the surveys was estimated at 437 and multistage cluster sampling method was used for the surveys. A list of live births during last one year before baseline survey and last nine months of intervention period for end-line survey was prepared. Around 400 mothers of selected sample were interviewed and analyzed in each area. Baseline was implemented during April-June 2008 and end-line was conducted during June-August

2010. Respondents interviewed in the baseline and end-line surveys within and between areas were found almost similar irrespective of socio-economic and demographic characteristics such as age and educational level of mother, religion, sex, and birth order of newborn. Respondent's perception about pregnancy care, delivery care, newborn care, birth notification, postnatal care considered in interpreting the results. The practice of at least four ANC visits was very low in both areas, but the proportion of women who had received al least four ANC visits had doubled in both the areas after intervention. Skilled delivery practices increased from 18 percent to 30 percent in intervention area which was 67 percent increase from baseline while increased in comparison area was only 18 percent. It also observed positive changes in newborn care practices. Fifty-one percent of them had received PNC home visit within 24 hrs. Birth notification appeared to be the motivating factor for early postnatal visit at home. The timing of postnatal visit was also found to be executable. PNC at facilities and by the medically trained providers had increased slightly in the intervention area while overall PNC practices at the comparison area were virtually unchanged. From the study findings, it was recommended that early postnatal home visit, birth notification within 24 hours, and postnatal home visit might be extended up to 2 days instead of 24 hours was needed. Finally the visible effect on standard pregnancy, delivery and postnatal care provided by medically trained providers, further examination of linkage between two was recommended.

114. Sultana S; Dabee SR; Akter S; Khatun MR; Akhter P. Serum C reactive protein in preeclamptic women. *Journal of Bangladesh College of Physicians and Surgeons*. 2013; 31(4): 194-198.

The study was intended to determine the elevated maternal CRP with risk of preeclampsia. This was a case control study carried out in the Department of Obstetrics and Gynaecology, BIRDEM, and Dhaka Medical College Hospital during July 2009 and June 2010. The study included consecutively selected 60 pregnant woman at third trimester (30 normotensive and 30 preeclamptic). Two ml of venous blood was drawn from each of the study subjects taking full septic precautions. The blood was transferred into a clean, dry test tube and taken to laboratory. The data obtained from each individual study subject was included in a predesigned data collection sheet, and the collected data was compiled, and appropriate analyses were done using SPSS. Estimation of CRP was done by immunoprecipitation assay turbulometry method for both groups. The mean age was 23.23±4.58 (control) and 23.90±3.20 (case) years (no significant difference). However, BMI, SBP and DBF were significantly high in case compared to control group (BMI: 23.37±1.47 and 21.81±1.45 kg/m^2; SBP: 148.33±13.41 and 108.00±7.14 mmHg; DBF: 106.67±6.99 and 69.67±5.56 mmHg). C reactive protein concentration (mg/dl) was significantly higher in case group (10.57±6.71) compared to control group (0.63±0.49). In control and case group, respectively, CRP was normal (0.8 mg/dl) in 25 (83.3%) and 2 (6.7%), and raised (>0.8 mg/dl) in 5 (16.7%) and 28 (93.3). This study showed that maternal CRP concentration trends to be significantly high in women with preeclampsia. Therefore, identification of raised CRP levels and appropriate measures like intervention, close monitoring, if delivery is not chosen, should be done for maternal and fetal complications. CRP levels might be clinically useful to monitor disease activity and response to treatment in early onset preeclampsia. So, further studies with a large sample size, in which CRP and other inflammatory markers are assayed at multiple time points in pregnancy and postpartum period was needed to support the findings of the present study.

115. Sume AK. Realizing MDG 5B in Bangladesh for young people: a youth shadow report on universal access to reproductive health. Dhaka: FPAB & IPPF, 2010.

The purpose of this study was to reflect of the current picture of progress of MDG 5b in Bangladesh, with a focus on where young people stand in relation to the same. To perform this objective, both qualitative and quantitative approaches have been used. Three divisions were selected as study areas- Rajshahi where CPR is high, Sylhet where CPR is low and Barisal where CPR is moderate. While collecting the data group, it was ensured that the respondents were between the ages of 15 and 25 years and educational and professional variation were maintained. The study found that 70.7% married women, 71.8% married men and 63.2% unmarried males and females who have had sexual intercourse used contraceptive methods. A total of 71% of the respondents had used any one modern methods of contraceptive, while 29% did not use any method. A significant finding was that only 36% of married couples used contraceptives during their first day of marriage. For primary data, mixed methods both qualitative and quantitative were used. For quantitative data collection, three semi-structured questionnaires, one each for married young men, married young women and unmarried young men and women, with both open and closed ended questions were used. The questionnaire included questions on background information of the respondents, knowledge about reproductive health and family planning, their access to service centers, availability of the services, their perception about sexual and reproductive health and family planning. The results showed that almost 30% of the respondents faced problems due to unavailability of contraceptives. While the respondents indicated that they postponed sexual intercourse due to lack of availability of contraceptives, 18.7% married female respondents and 25.6% wives of the married males had become pregnant due to lack of the same. Amongst them 60% of the respondents had kept the child. The recommendations are adolescent Reproductive Health Strategy of Bangladesh was a progressive step forward, in the process of being reviewed by the government. Keeping in mind, the frequent need for Bangladesh to address all young people's reproductive rights, it is strongly recommended that the progressive nature of the strategy be retained and specific elements added to make the strategy oriented towards implementation. The strategy would need to be supplemented by specific and time-bound plans of action, measurable results, and adequate resource allocation. It must also continue to remain within the broader framework of reproductive health and rights.

116. Tasnim S; Rahman A; Rahman F; Kabir N; Islam F; Chowdhury S; Shahabuddin AKM. Implementing skilled midwifery services in Dhaka City urban area: experience from Community Based Safe Motherhood Project, Bangladesh. *Journal of Bangladesh College of Physicians and Surgeons*. 2011; 29(1): 10-15.

The objective of this study was to explore the effect of strengthening obstetric care services through implementation of skilled midwives at selected urban centers in terms of utilization of antenatal and delivery care in the community. This was a quasi-experimental community trail conducted during January 2000 to June 2003. The health centers were selected systematically from about 105 primary care and 20 comprehensive reproductive health care centers under urban primary health care project in Dhaka city. They were matched into comparable pair and assigned randomly as intervention and control centers. Data was collected through home visits and interviewing women having less than one year child with pre-tested structured questionnaire during August to November 2001 and November to February 2003 for baseline and post intervention respectively. A total of 6077 mothers having less than one year child were interviewed. Study results revealed that there was significant

improvement from baseline in the utilization of antenatal care services (6.1 vs. 2.1%, p<0.001), consultation with skilled health care providers for pregnancy complication (9.3% vs. 5.7%, p<0.001), institutional delivery (7.3% vs. 4.1% p<0.001) and delivery by skilled birth attendant (9.4% vs. 5.8%, p<0.001) between intervention and control area respectively. Overall socio-demographic characteristics were almost similar at baseline and post-intervention survey in both intervention and control areas. Performance of both types of study centers increased but it was significantly increased in intervention centers. To ascertain any change in mortality and morbidity would require large-scale program implementation over a sufficient length of time so impact evaluation was often discouraged and emphasis was given on process indicators for evaluation. Different programs and services rendered by both government and non-government organizations were potential confounders hut they are applicable to both the control and intervention areas. Some of the changes could be reflection of natural progress with existing programs and services. Although in this study, the intervention of development skilled midwives improved utilization of ANC, increased institutional delivery and delivery by skilled birth attendants. It could make suggestion that the program could be scaled up to look into its impact on maternal health.

117. Yasmin F; Kabir N; Ferdous M. Spontaneous rupture of sub-serous uterine vein in late pregnancy. *Bangladesh Journal of Obstetrics & Gynaecology.* 2012; 27(2): 87-89.

The study was an attempt to find out premature uterine contraction caused by spontaneous rupture of sub serous uterine vein resulting intrauterine asphyxia. A primigravida with uneventful pregnancy having regular antenatal care attended a private clinic at her 38 week of pregnancy with slight pain in whole abdomen and hardening of uterus was illustrated in this study. After giving rest in left lateral position and oxygen inhalation, hardening of uterus persisted. By that time she developed fetal tachycardia and had to undergo caesarian section, there was hemoperitonum and an asphyxiated male baby was delivered. On exploration a sub serous uterine vein was detected on the posterior wall of the uterus. Complete hemostasis was achieved with interrupted sutures and electro cauterization of the bleeding points. Post-operative period was uneventful for the mother but the baby was managed in neonatal care unit. Both of them were well during discharge. In the present case maternal general condition was not so deteriorated but there was fetal tachycardia. Emergency caesarean was planned and performed without confirming the definite diagnosis. Spontaneous rupture of utero-ovarian vessels in pregnancy can often be misdiagnosed. Obstetricians should be aware of this etiology of hemoperitoneum. From the experience of the case study it was suggested that monitoring of pregnant women at last trimester is very important. Any deviation from normal like hardening of uterus should be carefully taken care of for good maternal and fetal outcome.

118. Yoshimura Y; Islam M; Islam T; Akhter S. Saving lives of mothers and children through partnership and capacity development: Narsinghdi model in Bangladesh. Dhaka: JICA Bangladesh, WHO & Safe Motherhood Promotion Project, 2011.

The project was aimed at establishing an effective safe motherhood service delivery system to improve the availability and utilization of quality services for women during pregnancy and childbirth. To achieve the objectives and outputs, the project had both facility and community-level interventions. Recognizing the achievements of the project SMPP was named “Narsingdi Model” and presented in various occasions as a good example of maternal and neonatal health project. Community based

interventions such as Community-Support System (CmSS), Model union, and private community skilled birth attendants (P-CBAs) aimed at building a capacity of community to ensure all pregnant and postpartum women and neonates receive essential and necessary health care. The main purpose of this documentation was to share the unique experiences of the SMPP with other interested parties, either to serve as a reference for advocacy, policy planning, and monitoring, or as a process documentation of good practices created by the SMPP. A three member documentation team was formed, consisting of two senior staffs of the SMPP and an external consultant hired by WHO-SEARO. The consultant collected secondary and primary data through conducting interviews and focus group discussions with different stakeholders of the project including hospital staffs, community members and direct project beneficiaries in the field. Overall the SMPP has demonstrated that the dual interventions of hospital improvement and community mobilization that could improve the utilization of maternal and child health services and key maternal health indicators in rural Bangladesh. The mission of the SMPP still continued to be to find the most viable way to improve the health of mothers and children in Bangladesh. This document is intended to be an informative practical and readable description of the process of the project, with real stories and narratives of different categories of informants that illustrated their experiences and achievements. Moreover, improvement made in Narshingdi District and important lessons learnt, good practices generated, particularly in linking families and communities with facilities, will make a difference in others districts of Bangladesh and beyond. Overall the achievements and experiences of the SMPP have influenced the policies of MOHFW and other MNCH initiatives that have been appreciated.

119. Yousuf NA; Hussain MA; Begum K. Comparative study of urinary albumin excretion in pre-eclamptic women in different duration. *Bangladesh Medical Journal*.2011; 40 (3): 33-36.

The purpose of this surveillance was that increased albumin excretion is a sign of aggravation of pre-eclampsia and reflects serious nephropathy; massive albumin excretion may result in planned pre-term delivery. This surveillance was carried out in BSMMU and DMCH from November 2004 to January 2005 to determine whether 12 hours urine collection for measuring albumin excretion in pre-eclamptic women could be a substitute for 24 hour collection. Pre- eclampsia is one of the important causes of maternal death in developing countries like Bangladesh. The analysis of 24 hour urine for protein excretion remains the best method of monitoring proteinuria in pregnancy. Twenty-four hours urine collection is notoriously difficult to obtain when repeated analysis is needed in pre-eclamptic women. This study was performed on 40 women with pre-eclampsia who were admitted to the hospital. In each patient urinary albumin concentrations in two 12 hours samples (12 hour day and 12 hours night samples) were measured against the standard 24-hour albumin excretion. It was found that albumin concentrations in the 12-hour day and 12-hours night collections were close to the concentrations of the 24-hour collection. The most commonly used screening tests for detecting proteinuria is the test. It is particularly sensitive for albumin, but has a low sensitivity for other proteins such as globulin and Benzones protein. It was found that the albumin excretion in urine correlates significantly to the albumin/creates nine ratios during pregnancy. A small amount of protein 200-300 mg/24 hour is normally excreted in the urine and this amount are probably not increased in pregnancy. A loss of >300 mg/24 hour suggested a disease process. Proteinuria is a late feature but is an important sign of preeclampsia and detecting proteinuria is an integral part of the management of hypertensive pregnant women.

120. Yousuf NA; Hussain MA; Begum K. Shorter timed urine collection for detecting proteinuria in pre-eclamptic women. *Bangladesh Journal of Obstetrics & Gynaecology.* 2012; 27(1): 9-13.

The study was conducted to assess urinary albumin excretion in pre-eclamptic women by shorter timed collection of urine from 12 hours night sample. The cross sectional study was taken from the Department of Obstetrics & Gynecology, Bangabandhu Sheikh Mujib Medical University, and Dhaka Medical College Hospital, during the period of November 2004 to February 2005. Among the admitted patients 40 pregnant women with pre-eclampsia were taken with proper selection criteria like hypertension (140/90 mmHg or more) after 20th week of gestation and a bed side urine albumin test positive. Detailed medical and obstetric history was taken and thorough examination was done and the information was recorded in the pre-designed data collection sheet. The results of the study showed that the mean± SD urinary albumin in 12 hour day, 12 hour high and 24 hour sample were 1.74+0.51 gm/L and 1.75+0.54 gm/L respectively. Urinary albumin concentration in the 12 hour day & night samples agreed well with concentration of the 24 hour samples. Over estimation of albumin excretion may lead to interventions such as planned preterm delivery to be performed earlier than required. This analysis should be valid and easy to perform and should be as inexpensive as possible; a night sample collection starting at 8:00am is thought to be acceptable to women than a 24 hours collection. A shorter period should reduce the risk of incomplete collection. It was suggested that albumin concentration in the 12-hours day and 12-hours night collection were close to the concentration of the 24-hours collection. Further study was suggested to determine whether 12- hour urinary albumin excretion could be used for quantification of albuminuria in pre-eclamptic women with a large number of patients.

2.4 CHILD HEALTH (diarrhea, child rights, growth, immunization etc.)

121. Ahmed ASMNU; Pervez MI; Paul BK; Bishwas KK. Clinical and bacteriological profile of neonatal septicaemia at a community level medical college hospital. *Journal of Bangladesh College of Physicians and Surgeons*. 2011; 29(3): 143-150.

The study aim was to see the association of bacterial meningitis in neonatal septicemia and their clinical and bacteriological profile. The study was performed at the neonatal ward of Kumudini Women's Medical College Hospital in a cohort neonates admitted between August 2007 to July 2009. All admitted newborns diagnosed as septicemia clinically were enrolled prospectively. Detailed history was taken, thorough clinical examination performed, and blood culture, CSF study and other relevant investigation were done. Patients received standard medical care and followed-up daily till discharge/death. Survey results revealed that among 86 cases of clinically suspected neonatal septicemia, 30 (34.9%) had a positive blood culture. Common clinical presentations of culture-positive cases were poor feeding (86,7%), lethargy (70%), respiratory distress (56.7%), fever(46.7%), jaundice (33.3%), seizure (26.7%) and cyanosis (20%). Male child outnumbered the baby girls (1.7:1). Other risk factors were maternal fever during delivery, prolonged rupture of membranes, birth asphyxia and poor socio-economic status. Majority (63.3%) of the cultures isolated gram-negative bacilli, most commonly Klebsiella pneumonia (16.7%), Pseudomonas sp. (16.7%), and Acinetobacter (10%). Staphylococcus aurous (20%) was most common among gram-positive organisms, followed by Streptococcus pneumonia (10%); no Group B streptococcus was isolated. Associated meningitis was present in two cases (6.7%) and nine out of 30 culture–positive cases (30%) died. The present survey confirmed that neonatal septicemia was a major problem in perinatology and pediatric infectious disease with high case fatality. As associated meningitis was difficult distinguish clinically, CSF study needs to be included in septicemia screening. An alarming finding in this study was the high proportion of the organisms are resistant to all of the commonly used antibiotics; again emphasize the importance of judicious antibiotic use. To identify risk factors for adverse outcome and preventive measures, case-control studies with representative sample size was recommended.

122. Alam MJ; Mobarak MR; Islam ATMA; Sultana AT. Effects of probiotics in outcome of acute diarrhea in children in a tertiary care pediatric hospital. *Bangladesh Private Medical Practitioners Journal*. 2012; 18(1): 23-30.

The study was initiated to examine the effects of probiotics preparations recommended to parents in the treatment of proven or presumed acute infectious diarrhea. This was a prospective, randomized controlled clinical trials a specified probiotic agent with no probiotic in children with 3 to 60 months of age hospitalized for acute diarrhea that is proven or presumed to be caused by an infectious agent at Dhaka Shishu Hospital between July 2011 to June 2013. The children were evaluated for infections and it was included in the study of all children with diarrhea lasting less than 48 hours for whom parents gave informed consent. A total 164 children with acute diarrhea where eligible for inclusion -14 were excluded and 150 were randomized to receive intervention and contributed data to the intention to treat analysis. A total of 150 patients were included in the study among this male preponderance

was found and majority of patients age was less than 1 year. A striking finding of this study was that probiotics improved diarrhea. A beneficial effect of probiotics was consistent across the different diarrhea outcomes and was statistically significant in many trials. With the exception of possible mild hypersensitivity to E coli strain Nussle reported in one participant. Vomiting is common in acute diarrhea and was the most frequently reported adverse event. The marked statistical heterogeneity between studies was expected given the marked clinical diversity in the definitions of diarrhea and end of the diarrheal episode, the probiotics tested, the treatment regimens the diarrheal pathogens identified, the types of participants and the settings in which the trials were undertaken. Probiotics administered in addition to rehydration therapy resulted in clear reductions in the duration of severity of diarrhea and were not associated with adverse effects. It was recommended for basic research to identify generic and strain-specific mechanisms underlying the apparent beneficial effects of probiotics in acute diarrhea.

123. Banik SK; Snigdha S.; Islam Z; Nahar N. Transient hyperglycemia in neonate: a case report. *Bangladesh Medical Journal*. 2012; 41(2): 54-56.

This study was undertaken to determine the becoming of risk factors for morbidity and mortality as smaller and more fragile infants survival during the neonatal period from the hyperglycemia. A 4 days old child, born of a full term normal delivery and weighing 2.2 kg. Presented with loose motions and vomiting for 1 day prior to admission. The child also had oliguria for 12 hours prior to admission. The child was a first born, uncomplicated home delivery and had cried immediately after birth. Antenatal history was uneventful. Investigations revealed hemoglobin 16gm%, total W.B.C count 4,400/cmm with polymorphs 75%, lymphocytes 10% and band forms 15%; serum sodium 160 meq/L, potassium 6.7 meq/L and chlorides 104 meq/L. Blood sugar was 495 mg%, and blood gases were as follows: pH 6.92, HCO3 6.6 meq/L, PCO2 34.3 mm Hg, PO2 71.5 mm Hg and O2 saturation 88.4%. Urine showed the presence of reducing substances. Transient neonatal diabetes mellitus is uncommon and the exact incidence is unknown. McDonald found 41 cases in world literature in 1974, 31 being SGA. This syndrome is usually sporadic in occurrence, though congenital or familial forms may occur. Family history of diabetes is present in 35% cases; no sex prediction has been noted in the case reported. Treatment consists of rapid correction of dehydration and metabolic acidosis and insulin in the dose of 1-3 u/kg/day or 2-8 u/day. Some patients may not require insulin, but those who do, respond dramatically. Later on the dose of insulin should be gradually tapered off with periodic blood sugar monitoring. Septic babies and sick neonates may have hyperglycemia. This may be due to altered renal threshold with decreased utilization of glucose in the presence of increased circulating insulin. The squeal of these disturbances in glucose metabolism is extensive. Efforts to prevent hyperglycemia should include general measures to improve the health of the infant and attempts to treat pathophysiologic conditions and diseases.

124. Barkat A; Karim A; Hossain AA. Social protection measures in Bangladesh: as means to improve child well-being. Dhaka: HDRC, Save the Children and Pathak Samabesh, 2011.

The objective of the study was to better understand the scope of existing social protection programmes in Bangladesh to assist chronically poor to come out of poverty and to ensure that moderately poor did not slide into poverty. In addition, the objective was to understand the implications of various social protection programs for children. The HDRC study team along with relevant experts from Save the

Children Sweden-Denmark and Save the Children Finland developed the detailed methodology prior to the fieldwork. The description of each of the programmes starts with a summary of the programme as per government document which included history, objectives, coverage, eligibility criteria, benefit - kind and amount, frequency, delivery mechanism and some budgetary information of the respective programme for the fiscal years 2008-09 and 2009-10. Then the description follows the field findings for that particular programme in line with the findings from the beneficiary in-depth interviews. The impact of each of the programmes on the respective beneficiary households was also assessed using an alternative approach. As there was no baseline study on the beneficiaries of the existing social protection programmes. This study applied an alternative approach to assess the impact of such programmes on the beneficiary households in general and on their children in particular. In line with this approach an effort had been made to compare the financial benefit received by the respondent households with their household expenditure in general and expenditure on children's food, health, education etc. in particular to see what contribution the benefit made to the household economy. Most of the respondent households were not satisfied with quality of food for family and children. Food received under VGD program contributes 35.41% of the total household food consumption. Annual expenditure of children's food ranges from Tk 5,300 to Tk. 20.000 with average Tk. 15.844. Children from respondent households severely suffered from diarrhea. The child got treatment from district hospital. During that time, the household had to spend near about Tk. 5,000. Furthermore, the social protection benefit had also been compared with the income earned by children involved in wage labor. Finally, the per capita monthly expenditures (with and without the social protection benefit) of these households had also been compared with the relevant poverty lines of the cost of basic needs (CBN) method to see whether adding the social protection benefit in the household economy gave it an opportunity to come out of poverty or not.

125. Begum S; Baki MA; Kundu GK; Islam I; Kumar M; Haque A. Bacteriological profile of neonatal sepsis in a tertiary hospital in Bangladesh. *Journal of Bangladesh College of Physicians and Surgeons*. 2012; 30(2): 66-70.

The study was initiated to evaluate the common pathogens associated with neonatal sepsis in a tertiary care hospital in Bangladesh and their antibiotic susceptibility pattern. This prospective study was done at Special Care Baby Unit (SCABU) in BIRDEM Hospital from January to December 2008. Neonates whose blood culture yielded growth of bacteria were included in this study. Neonates were categorized in two groups; group-1 included preterm and group-2 term neonate. Blood culture samples were aseptically collected by the doctors into the blood culture broth and were sent to the laboratory where they were handled according to the manufacturers specifications. The antibiotic sensitivity tests were carried out by disk diffusion method. In this study total 65 neonates were included whose blood culture was positive. Majority of neonates presented with feeding intolerance (50.77%), respiratory distress (40.28%), abdominal distension (33.85%), apnea (24.62%) and bleeding manifestation (23.08%). In a study done in the tertiary care center in Bangladesh poor feeding, respiratory distress and fever was reported in 22.2%, 27.8% and 44.4% cases respectively. In fine it could be said, bacterial profile was not the same as western countries, Gram-negative bacteria and in particular Klebsiella and enterobacter species were the leading causes of neonatal sepsis and resistance of ampicillin, gentamicin and third generation cephalosporin. The prevalence of re-instant klebsiella spp was significant and deserves more consideration.

126. Chowdhury K; Mollah MAH; Choudhury AM; Parvin R; Begum M. Pattern and frequency of congenital anomalies among newborn: a hospital based study. *Journal of Bangladesh College of Physicians and Surgeons*. 2013; 31(2): 84-87.

The present study was undertaken to document the frequency and pattern of congenital anomalies among the newborn delivered at Department of Gynecology and Obstetrics, Dhaka Medical College and Hospital (DMCH). This was a cross-sectional study done over 2000 live born babies during January, 2008 – December 2008 in the department of Obstetrics and Gynaecology of DMCH. After delivery, all the newborns were thoroughly examined clinically within 48 hours of birth to detect the presence of any birth defect. Congenital anomalies divided according to the involvement of organs of the body and the frequencies of different types of birth defects were also calculated. Sixty-six, out of 2000 newborn babies had congenital malformations. Stillborn babies were excluded from this study. The overall frequency of congenital anomaly was 3.3%. Among the system distribution of the malformation, musculoskeletal system (37.88%) was the most commonly involved system followed by gastrointestinal (25.96%) and genitourinary (18.18%) system respectively. Anomalies involving respiratory and cardiovascular system were least common: only 3.03% cases belonged to each group. Among the musculoskeletal system, the most frequent lesions were club foot and arthrogryoposis. A pediatrician might face the problems of congenital malformations, in day to day practice in the form of failure to thrive, mental retardation, recurrent infections etc. Among the system distribution of the malformations musculoskeletal system (37.88%) was the most commonly involved system followed in order by gastrointestinal (25.74%) and genitourinary system (18.18%) respectively. Anomalies involving respiratory and cardiovascular system were least common; only 3.03% cases belonged to each group. According to severity, major anomalies constituted 51 (60.71%) cases and minor anomaly constituted 33 (38.29%) cases. Many other workers had also found the musculoskeletal system as the most commonly involved system. Major malformation was observed in 60.7% patients and 15.15% babies had multiple malformations. Among the musculoskeletal system, the most frequent lesions were club foot and arthrogryoposis.

127. Haider SJ; Ferdous S; Alam H; Nashir-uddin. Final report on rapid/midline assessment on strengthening the zinc supplementation and ORS distribution for childhood (6-59 months) diarrhea in Gaibandha and Barisal Districts, Bangladesh. Dhaka: READ, 2013.

The study objectives were to understand the health seeking behavior of the care givers with regards to diarrhea; to measure the level of knowledge and practice of zinc and ORS treatment; and to measure the use of zinc and ORS during diarrhea episode and duration of treatment, source of zinc and ORS, counseling by health workers. The study was conducted in the two project districts where the target respondents were care-givers of children 6-59 months of age, who had an episode of diarrhea in one month preceding the survey. From each district, a purposive sample of 100 care-givers of children was decided for the survey. Findings showed that 100% of the supervisors were aware on use of zinc and ORS in the management of diarrhea program. In Barisal, 100% of the supervisors also aware on correct dosage of zinc tablets, while in Gaibandha, 45% of the supervisors were not aware on correct dosage of zinc tablets. Most of the supervisors were aware on correct duration of zinc tablets intake (98%).Two-third of the supervisors reported that they receive HMIS / monitoring reports timely and complete (65%) reported that they received HMIS /monitoring reports timely but not complete, while 7% of the supervisors receive HMIS / monitoring reports complete but not timely. Exactly a quarter of the supervisors (25%) from Barisal and 7% of the supervisors from Gaibandha informed that they didn't get

reports. Hundred percent (100%) of the supervisors reported that they received training on use of zinc and ORS in the treatment of diarrhea. About half of the supervisors received such training within 6 months of the interview (52%) and about one-third of the supervisors received such training within 7 months to 1 year (30%). About three-quarter of the supervisors felt that further training was necessary (77%). Findings found that 100% of the Gram Daktars understood the definition of diarrhea. In Barisal, 100% of the Gram Daktars also aware on correct dosage of zinc tablets. Findings of the survey when compared with baseline and also the BDHS 2011, clearly demonstrated that the program had gained strength and the coverage had improved substantially. Hence further intensification of the program not only in the project areas but in larger geographical context might also be considered. However, lot of improvements in the current program, such as on home visits, supply of zinc in the community, training of the service providers and lastly strengthening monitoring are essential.

128. Haque MR; Kabir ARML; Jesmin S; Uddin N; Haque MA; Hasan S; Mazumder MJU; Hossain MD; Mannan MA. Magnitude of the respiratory disorders in under-five children attending the upazila hospitals of Bangladesh. *ICMH Journal*. 2013; 4(1): 19-25

The purpose of this study was conducted to find out the magnitude of respiratory disorders in under-five children in different upazila hospitals in Bangladesh. In this cross sectional study, twelve upazila hospitals were randomly selected from all six divisions of Bangladesh. Data were collected from all children who attended outdoor patient department (OPD) and hospitalized into indoor patient department (IPD) on the day of visiting the hospitals as regards to number of children, clinical diagnosis of all respiratory cases in a structured questionnaire. Study was done from February 2008 to January 2009 and the sample was 773. Results showed that total children surveyed in this study was 1006 (Outdoor 938, Indoor 68) and the number of children who had respiratory problems were 773 (77%). The percentage of outdoor cases was 719 (93%) and indoor cases 54 (7%). There were 452 (58%) male and 321 (42%) female cases. The age distribution of children who attended the hospitals were 1-6 months 18.5%, 7 to 12m-19.5%, 13 to 24m 20.2%, 25 to 59m 41.8%, mean age 24.5m. Clinical diagnosis of important respiratory disorders were common cold 371 (48%), bronchiolitis 143 (18.5%), pneumonia 52 (6.7%), asthma 80 (10.3%) and others 127 (16.4%). In this study asthma was found 8%, pneumonia 11.5%, bronchiolitis (21%). At upazila level more children were suffering from asthma. In conclusion, the study had drawn a picture that the magnitude of respiratory disorders in under-five children was very high: More than two-third of children were suffering from various types of respiratory disorders. The most common respiratory disorders in under-five children attending different hospitals were common cold, bronchiolitis, pneumonia and asthma.

129. Hasan MS; Mahmood CB. Predictive values of risk factors in neonatal sepsis. *Journal of Bangladesh College of Physicians and Surgeons*. 2011; 29(4): 187-195.

The study was done to see the effects of maternal and neonatal risk factors and to find their predictive values in the development of neonatal sepsis. In this case-control study, fifty cases and fifty suitably matched controls were enrolled in the study and different maternal, natal and newborn factors were compared. A total number of 50 cases were enrolled as case having established sepsis and 50 cases were matched control having no established sepsis. This study was done in Child Health Department of Chittagong Medical College Hospital from October 2002 to 31 March 2003. Neonates who developed symptomatic sepsis within 28 days of birth irrespective of gestational age and birth weight were

included in this study. Study findings revealed that many risk factors were found to have influence in the development of neonatal sepsis. Among them the maternal intra-partum fever, foul smelling liquor, young mother (< 20 yrs), poor income group, prolonged labor, unclean vaginal examination (UVE) and primi mother were much associated with the occurrence of sepsis. Also the neonatal factors, like prematurity, resuscitation at birth and low APGAR score carried the significant risk of developing sepsis. But when relative influence of these risk factors were analyzed over neonatal sepsis in detecting their predictive values, it was found that maternal antenatal check-up, prematurity, resuscitation at birth, and maternal intra-partum fever had influenced most in the development of neonatal sepsis in chronological order. Based on the result of the study, a cohort study can be undertaken to obtain additional evidence to refute or support the existence of association between the risk factors and neonatal sepsis.

130. Hoque MM; Khan MFH; Begum JA; Chowdhury MA; Persson LA. Newborn care practices by the mother/care givers and their knowledge about signs of sickness of neonates. *Bangladesh Journal of Child Health.* 2011; 35(3): 90-96.

The study objective was to see the knowledge, perception and behaviour of mothers towards their norml and sick newborn. A cross sectional study was carried out in Dhaka Shishu Hospital from June to November, 2007. A semi-structured, pretested questionnaire was useed to interview mothers attending inpatient (IPD) and outpatient department (OPD) of hospital. A total 198 mothers were interviewed for this study. Stduty results showed that home deliveries were 35.5% and institutional were 64.5%. Among the institutional deliveries 35% (44 out of 127) were planned and tried first at horne but when failed mothers were taken to hospital. Majority (86%) of horne deliveries were conducted by Dai/relatives. Umbilical cord was cut with new/boiled blade in 85% of home deliveries and household knife was useded in 4% cases. Birth place were not at all heated in all home deliveries. In 32 % of horne deliveries babies were given bath within 1 hour of birth and it was 15% in case of hospital deliveries. Forty-eight percent babies of home deliveries were wrapped within l0 minutes. Prelacteal feed was given in 51 % of home deliveries in comparison to 23% of institutional deliveries. The rate of initiation of breast feeding within oné hour ofbirth was 52% in home and 35% in institutional deliveries. In all cases breast milk was given within 48 hours. Main reasons cited for delivering at home were preference (43%) and fear about hospital (39%). In case of educated (graduate) mothers 72% deliveries took place at hospital. Less feeding (56%), vomiting (42%), less movement (32%), fever (29%) and cough (27%) could be recognized by mothers as signs of sickness. Home deliveries and poor newborn care practices were commonly found in this study. As per study suggestins, traditional birth attendants should be adequately trained as they were conducting majority of home deliveries. Moreover, female education is very important to reduce home delivery as it is was seen that deliveries of educated mothers were taking pláce in hospital. High risk traditional newborn care practices like delayed wrapping, early bathing, use of oil in umbilical stump and prelacteal feeding was need to be addressed.

131. Hoque MS; Alam, S; Ahmed ASMNU. Pattern of neonatal admissions and outcome in an intensive care unit (ICU) of a tertiary care pediatric hospital in Bangladesh: a one year analysis. *Journal of Bangladesh College of Physicians and Surgeons*. 2013; 31(3): 134-139.

The objective of the study was to describe the characteristics of neonates admitted to intensive care unit (ICU) and their outcome in a tertiary care pediatric hospital in Bangladesh. It was a retrospective and descriptive study that was designed to conduct at pediatric intensive care unit in Dhaka Shishu Hospital from

January to December 2011. Study data was retrieved from the file records of all admitted neonates regarding age, gender, gestational age, birth and admission weight, reason for admission and outcome. During this study period, the total number of patients admitted was 191; most of them were neonates (146, 76.4%). Among the 146 neonates, the highest number comprised of birth asphyxia (55, 37.7%), followed by serious bacterial infections (sepsis, pneumonia, meningitis) (30, 20.5%) preterm low birth weight (LEW) babies (28,19.2%), surgical conditions (congenital diaphragmatic hernia, esophageal atresia with trachea-esophageal fistula, Hirsch sprung disease and anorectic malformations) (18, 12.3%), respiratory distress syndrome (RDS) (9, 6.2%), and congenital heart disease (6, 4.1%). Out of 146 patients, 42 expired (28.8%). Most of the expiries were due to sepsis (35.7%); followed by prematurity (21.4%), perinatal asphyxia (19.0%) and surgical conditions (14.3%). Birth asphyxia, septicemia, and prematurity comprised the major bulk of ICU admissions, but many of these conditions could be averted by regular antenatal visits, safe delivery practice and timely referral of ill neonates to a healthcare facility. These measures would not only save lives of such babies, but also of those who don't get ICU facility at the time of need. However, to maximize on benefits versus cost in an atmosphere of budgetary constraint, evidence based management policies and protocols must be developed and implemented.

132. Hasan GZ; Hossain AKMZ; Amin MR; Hoque S; Siddique MTH. Anderson-hynes pyeloplasty in children: non-intubated versus intubated. *Bangladesh Journal of Child Health.* 2011; 35(2): 59-61.

The study was undertaken to compare between non-intubated versus intubated Anderson-hynes (A-H) pyeloplasty in children. This prospective study was done in the Department of Pediatric Surgery, Bangabandhu Sheikh Mujib Medical Universty (BSMMU), Dhaka, Bangladesh and some private clinics of Dhaka city during the period of March 2001 to December 2008. A total of 75 patients were included in this study. They were divided in two groups. Non-intubated Anderson-Hynes pyeloplasty was done in 45 patients and intubated Anderson-Hynes pyeloplasty was done in 30 patients. Study results showed that the anastomotic leakage of urine, urinary tract infection, hospital stay and improvement of differential renal function were assessed post operatively in both non-intubated and intubated group. This study also showed that there was no anastomotic failure and no post-operative urinary tract infection in either group. The percentage of improvement of differential renal function is almost same in both the groups. The post- operative hospital stay was markedly reduced in non-intubated Anderson-Hynes pyeloplasty. The difference of hospital stay between the non-intubated and intubated pyeloplasty was highly significant ($P<0.01$). In this study the post-operative hospital stay in non-intubated group was average 6 days and it was average 16.5 days in intubated group. From this study, it may be concluded that the effects of non-intubated A-Hypeloplasty are safe and effective procedure and it as good as intubated one but an additional advantage of significantly less post-operative hospital stay was observed in non-intubated group. Moreover, as the tube was a foreign body and there were no additional advantages of intubated A-Hypeloplasty, such drainage may be avoided.

133. Hossain Z; Ahmed F. Cranial ultrasonography findings and immediate outcome of neonates with seizure. *Dhaka Shishu (Children) Hospital Journal.* 2011; 27(2): 72-78.

The objective of this study was to evaluate the cranial ultrasonographic findings and immediate outcome of neonates with seizures. This was a prospective study conducted from July 2010 to June 2011 at Dhaka Shishu (Children) Hospital. A total of 94 neonates with seizures were included

in the study. Cranial USG was done in all the cases. Neurological assessment was done to evaluate the outcome at discharge. The studty found that among the 94 neonates with seizures 59 (62.8%) were male and 35 (37.2%) were female with male to female ratio (M:F) was 1.7:1. Moreover among the 94 neonates 25 (26.6%) came within 24 hours of birth, 85 (90.4%) were term and 20 (21.3%) were low birth weight. In 49 (52.1%) neonate time of onset of seizure was first 48 hours of life. Hypoxic ischemic encephalopathy (HIE) was found to be the commonest etiology of seizure (56.4%). Commonest abnormal cranial USG finding was intraventricular haemorrhage (IVH) 26 (27.6%); IVH Grade-113 (13.8%), IVH grade-II 10(10.6%), IVH grade-III 3(3.2%). The other sonographic abnormalities were cerebral oedema 11(11.7%), subdural haematoma 6(6.4%), sub-arachnoid haemorrhage 5 (5.3%), and agenesis of corpus callosum 1(1.1 %). Finding was normal in 45 (48.5%) neonates. It was found that immediate outcome was poor in neonates with seizure who had cerebral oedema, IVH grade-III and subdural haematoma.This study found that cranial USG was a useful investigation to identify the pathology of neonatal seizure. The neonates with seizures who had cerebral oedema, IVH-III and subdural haematoma had poor outcome.

134. Islam QS; Ahmed SM; Khan MAU. Revisiting the ARI program of BRAC: how well are we doing? Dhaka: BRAC, RED, 2011. (RED working paper; no. 23)

The main objective of the study was to examine the effectiveness of the community-based program of BRAC among the under-five children. This is a cross-sectional population-based study comparing groups with or without ARI programs. The study was conducted in 30 Upazilas where BRAC ARI control program is being implemented since 2007. In addition, 10 Upazilas were selected from adjacent program areas to serve as control. The study included 2,800 mothers, 1,440 children with ARI symptoms, and 238 community health workers who were actively involved in the implementation of the ARI program. The Shasthya Shebikas (SS), frontline workers of BRAC, appeared to have insufficient knowledge about ARI, its prevention and other related information. Similarly, the level of awareness among mothers in terms of recognition of symptoms of ARI and its prevention remains inadequate. However, the awareness was higher in programme areas compared to non-program areas. The majority of the mothers heard about the community-based BRAC ARI control program, but they were unaware about the detail activities of the program. The overall management of ARI with respect to diagnosis and treatment by the health workers especially SSs were not up to the expected level. They did not count the rate of respiration regularly while diagnosing different stages of pneumonia. The SSs did not tell mothers about the doses of co-trimoxazole syrup in many cases, and about the danger symptoms and signs, and prevention of ARI further. Sixty percent of mothers would not seek ARI treatment from BRAC in program areas. Mothers prefer to go the village doctors and drug sellers in the program and non-program areas. During health-seeking, one-fourth of the mothers did not seek treatment and one-fourth received spiritual treatment. The knowledge of BRAC SSs and the mothers were not enough to deal with ARI management. Thus, it is difficult to expect quick management of ARI to save life of the children in the community. Many mothers still seek treatment from unqualified providers. Furthermore, the quality of management by BRAC SSs was not of expected level. BRAC ARI programme should look into the matter seriously to achieve the program goal, and to reduce child morbidity and mortality.

135. Karim MR; Rahman MA; Mamum SAA; Alam MA; Akhter S. What cannot be measured cannot be done; risk factors for childhood tuberculosis: a case control study. *Bangladesh Medical Research Council Bulletin*. 2012; 38(1): 27-32.

This case control study was carried out to identify risk factors for tuberculosis among children. The exposure status of the newly diagnosed childhood TB patients, who were sputum positive at the peripheral laboratory (cases) were collected and compared with the exposure information of the children who were sent to the laboratory suspecting tuberculosis infection but were sputum negative(controls). Cases (n=95) and controls (n=94) were selected from Directly Treatment Short Course (DOTS) centers of four Upazilas of Dhaka and Gazipur Districts. Cases were childhood tuberculosis patient, who were test positive by sputum microscopy from January to May 2011 and controls were children who visited DOTS laboratory suspecting tuberculosis infection but were sputum negative. Both cases and controls were selected from the sputum examination registers and were traced at home for exposure data. The study findings revealed that more girls were infected than boys. Several socio-demographic and environmental factors were found to be associated with the development of childhood tuberculosis. Logistic regression model was constructed to find out the important predictors which revealed age, education of the respondent, indoor environment and contact pattern were significantly associated with childhood tuberculosis. Children more than 14 years of age had 6.25 times higher risk of developing childhood tuberculosis; (Odds ration=6.25; 95% Cl for OR=2.00 to 19.55). Children completed primary education had 3.12 times lower risk of developing childhood tuberculosis, (Odds ratio=.32; 95% CI for OR=.10 to 1.00). Those who resided in better in-house environment had 4.35 times lower risk of developing childhood tuberculosis (Odds ration=.23; 95% Cl for OR=.06 to .95) and children came in contact with source tuberculosis cases who were their relatives or neighbors were 55.26 times lower risk of developing childhood tuberculosis than being in contact with family members with TB (Odds ratio=.19; 95% CI for OR=.07 to .49). Tuberculosis prevention program in Bangladesh mostly focused on detecting and treating index cases rather identifying the risk factors for TB transmission. Identifying cases earlier in their illness would require a combination of approaches. Latent tuberculosis infection should be screened and contact investigation should be incorporated as part of National TB program. Improvement of indoor environment and ventilation status of the bedroom could minimize the risk of developing childhood tuberculosis.

136. Karim MR; Rahman MA; Mamun SAA; Alam MA; Akhter S. Risk factors of childhood tuberculosis: a case control study from rural Bangladesh. *WHO South-East Asia Journal of Public Health*. 2012; 1(1): 76-84.

This study was conducted to determine the risk factors that may be helpful in taking preventive measures against childhood tuberculosis to reduce morbidity and mortality related to this disease.
This case control study was carried out to identify risk factors for tuberculosis among children (<18-year-olds). The exposure status of recently-diagnosed childhood TB patients, who were sputum-positive at the peripheral laboratory were collected and compared with the exposure information of the children who were sent to the laboratory with suspected tuberculosis but were sputum-negative. Data were collected by a structured questionnaire from January to May, 2011. The study found that children under 14 years of age (AOR: 0.25; 95% CI: 0.10-0.66), having completed primary education (AOR: 0.28; 95% CI: 0.10-0.74), whose fathers' were in business or service (AOR: 0.24; 95% CI: 0.08-0.72),

and who slept in a less crowded room (AOR: 0.32; 95% CI: 0.14-0.76), lived in a house with a separate kitchen (AOR: 0.39; 95% CI: 0.16-0.96) had less chance of having TB. Those who had contact with cases of TB among relatives or neighbors were less likely to have TB (AOR: 0.28; 95% CI: 0.16-0.70) compared to those who had contact with a TB case in the family. Addresses were taken from the sputum microscopy register with a view to trace study subjects at home for exploring exposure information. Almost all the households of the respondents used tube-well water for drinking and cooking. Seventeen percent of the households (32/189) used kerosene lamp for lighting and the rest of the households had electricity. The mean age of the respondents was about 14 years and 52% were females. According to national statistics of Bangladesh, the male to female ratio is 2:1 among TB patients below 14 years of age. In this study, the frequency of male and female child TB cases was almost equal in the age category of 14 years or less but child TB cases were two times higher in girls than boys in the more than 14 years age category. Age, education, crowding, kitchen location and intimate contact with a TB cases were significantly associated with smear-positive childhood TB. To conclude, improvement in the living standard of children (education and housing condition etc.) will help in reducing childhood TB in the community. The tuberculosis prevention program in Bangladesh mostly focuses on detecting and treating index cases.

137. Nahar BS; Mannan MA; Noor K; Shahidullah M. Role of serum procalcitonin and C-Reactive Protein in the diagnosis of neonatal sepsis. *Bangladesh Medical Research Council Bulletin.* 2011; 37(2): 40-46.

The main objective of this study was to assess serum procalcitonin (PCT) as a better diagnostic marker that C-reactive protein (CRP) in neonatal sepsis. It was carried out in neonatal care unit (NCU) of Bangabandhu Sheikh Mujib Medical University in 2007. The study populations were 50 newborns in total which needed evaluation of sepsis on clinical suspicion. The total populations were classified into 4 groups like highly probable and possible and no sepsis group according to the clinical and blood parameters. PCT and CRP were assessed and compared by statistical analysis. For the estimation of PCT and CRP, venous blood was drawn and centrifuged and stored at 20°C in the refrigerator. After that, serum was stored at- 20°C in the refrigerator of the laboratory of Immunology department of BIRDEM. PCT was measured by a rapid semi quantitative immuno chromatographic test (Brahms PCTQ; Brahms diagnostic Berlin Germany) in 20 min. (range result: <0.5ng<ml. more than 0.5ng.'rnl. more than 2ng.ml and more than 1O ng/ml.). Briefly 200 microliter of serum was applied on to the least strip. PCT in The sample is bound by mouse and calcitonin anti bodies conjugated with colloidal gold to form a complex. The study included a total of 60 newborns who met the inclusion criteria. 10 were excluded because of incomplete data (e.g. missing blood culture report and haemolyzed blood sample) by which estimation of CRP and PCT could not be done. Therefore 50 newborns were included in the final statistical analysis. New and efficacious laboratory tests are needed in the diagnosis of neonatal sepsis. Acute phase reactants have been used frequently as an early marker of bacterial sepsis. It was seen that infection was more common in the low birth weight baby compared to babies of normal birth weight in studies reported from India"". Bangladesh" as is also in our study. Out of 50 cases of suspected neonatal sepsis, blood culture was found positive only in 3 cases (6%) and negative in 47 cases (94%). In many studies the incidence of culture positive sepsis was not more than 10%. In our study, less number of culture proven sepsis may be due to late arrival, our data confirm sepsis. PCT is a sensitive, independent and useful biomarker of neonatal sepsis. As this was a study in small group of population, we further studies in a large number of populations to confirm the role of PCT in the diagnosis of neonatal sepsis was recommended.

138. Reza KMH; Shahjahan M; Faruquee MH; Lahilry S; Chaklader MA; Yasmin N. EPI vaccination status of children in selected hard to reach areas of Bangladesh. *SUB Journal of Public Health*. 2012; 5(1):7-12.

This study was initiated to find out the vaccination status of children at selected hard to reach areas of Balloverkhash union of Nagessari Upazila, Kurigram District among the women having at least one child of 12 months to 23 months of age during April to July 2012.The survey was done according to WHO recommended cluster survey (30 clusters). A sampling frame was prepared for each target population and 8 target samples were randomly selected from each cluster, ultimately the sample size was 240. Occupation of maximum fathers of the surveyed children was farmer 60.1%, service holder 7%, domestic /day labor 17.3%, businessmen 9.1% teacher 0.4%, fishermen 2.9% and rest 3.3% fathers had other occupation. Among the 243 respondents, 19.3% mentioned their preoccupation with cultivation during vaccination program, 49.8% reported the distance and 30.9% mentioned their household work. The study noted that out of total of 243 children, 87.7% got immunization card and 70.8% of children were immunized fully. Among all, 97.5% had been immunized with BCG, 85.2% completed three doses of penta, and 83.1% received the all the doses of OPV and 70.8% children were provided with measles vaccination and Vitamin A capsule intake. The valid coverage was 65.8%. That socio-economic status played an important role was borne out by the coverage reported for different income and wealth categories. In the study, as per verified report, two-third subjects were fully immunized, one-fourth were partially vaccinated and only 2.5% never vaccinated. Reasons for partially or never vaccinated were lack of information, lack of motivation and different types of barriers. A few reported about the service providers' problem such as closure of vaccination center, shortage of vaccine and the long distance of vaccination center. The current study concluded that in the study area, 87.7% had immunization card and 70.8% of children were fully immunized. Since incomplete/partial vaccination was due to mothers' lack of understanding on immunization of full vaccination, a state timing of vaccination, required number of doses, interval of doses, benefits of getting fully immunized. Field workers must conduct the household visit before the EPI session. As mosque's microphone played an important role in getting information on EPI vaccination. Health authorities are needed to be advocated to involve the Imam in EPI activities. A study on barriers/suggestions to reduce drop out of vaccination among the children is also recommended.

139. Shahidullah M; Mannan MA; Alam MS; Uddin MZ; Dey AC; Dey SK. High likelihood of meningitis with late onset septicemia in newborn. *Journ al of Bangladesh College of Physicians and Surgeons*. 2012; 30(1): 17-23.

This study was conducted to evaluate the bacterial meningitis among the late onset sepsis in newborn and to identify the clinical manifestations that can distinguish neonate septicemia from meningitis in neonates. Clinical data of the infants and laboratory findings were examined retrospectively. Positive blood and CSF cultures were considered the 'gold standard" against the laboratory values of CBC and CRP level. A total of 1706 neonates were admitted in the NICU BSMMU from January 2007 to December 2009. Among the 133 (27.94%) cases of suspected late onset sepsis 47 (35.33%) were proven sepsis, 63 (47.37%) cases were probable sepsis and 23 (17.29%) cases were clinical sepsis based on clinical features laboratory reports and blood cultures. Among the proven sepsis 12 (42.85%) cases were found to have definitive bacterial meningitis and 16 (57.15%) were probable bacterial meningitis. Among the provable sepsis only 1 (12.50%) cases were found to have definite bacterial

meningitis and 7 (87.50%) cases were probable bacterial meningitis. There were no meningitis have found among the clinical sepsis. Neonatal meningitis frequently occurred in late onset sepsis. The most frequent presenting clinical features for meningitis cases were more or less similar to those of septicemia cases. The data of the study suggested that neonates with positive blood culture were significantly and more likely to have meningitis than those with negative blood culture and lumbar puncture should be considered as a part of routine investigation in late onset sepsis.

140. Sultana A; Bhuiyan MSI; Haque A; Basher A; Islam MT; Rahman MM. Pattern of cutaneous tuberculosis among children and adolescent. *Bangladesh Medical Research Council Bulletin.* 2012; 38(3): 94-97.

The current study was conducted to see the pattern of pattern of cutaneous tuberculosis in children and adolescents in Bangladesh. This cross sectional observational study was conducted in all government medical college hospitals in Dhaka, Bangabandhu Sheikh Mujib Medical University (BSMMU), Bangladesh Institute of Child Health (BICH) and Institute of Diseases of Chest and Hospital (IDCH) from January to December 2010. Sixty children (<19 years) with tuberculosis were included after taking consent from parents or the legal guardians. A detailed history including present and past history of tuberculosis and BCG immunization status were taken and a thorough physical examination was done. Complete blood count (CBC), erythrocyte sedimentation rates (ESR), Mantoux test, X-ray of chest and other regions, ultrasound of the abdomen and biopsy of the lesion were done. The study results revealed that five percent of the children had previous history of tuberculosis, 10% had family history of tuberculosis and only one patient had radiological evidence of pulmonary tuberculosis. Seventy five percent of children had single and 25% had multiple lesion on skin. Histopahology revealed 38.3% had skin tuberculosis and 61.7% had diseases other than tuberculosis. Among 23 histopathologically proved cutaneous tuberculosis, 47% had scrofuloderma, 34.8% had lupus vulgaris and 17.4% had tuberculosis verrucae cutis (TVC). Most common site for scrofuloderma lesions was neck and that for lupus vulgaris and TVC was lower limb. Skin tuberculosis as well as other extra-pulmonary TB is an important issue in the era of HIV-AIDS. As current and newer diagnostic tools are not enough sensitive, specific or cost effective in its diagnosis knowing to clinical pattern and presentation which is important. Scrofuloderma is the most common type of skin TB in children and adolescent scrofuloderma followed by lupus vulgaris and tuberculosis verrucosa cutis (TVC).

141. Zaman T; Sultana F. The Socio-economic profile of street and working children in Bangladesh. *Bangladesh Rural Development Studies.* 2012; XV (1): 139-149.

The prime objective of the research was to explore the socio-economic profile of the street and working children and to identify the intolerable condition to inform the citizens about the active participation of the NGOs who were following the CRC principle (Convention on the right of the child) and working with their foreign counterpart and having strident effort to have a positive impact on the socio economic life of the ill-fated children. The research work was a fusion of qualitative and quantitative data analysis about the street and working children in the Dhaka city. Interview and case study was used in this study. About 64 street and working children were interviewed in this research. Human capital is the most important factor of production for a labor intensive country. Child population consists of a large portion of the population of Bangladesh. Improving the standard of living of the street and working children is one of the goals of the millennium development agenda. The standard of living of the street and working children

of Bangladesh is bleak and confirms our position far away from achieving the millennium development goal. So, considering their vulnerable condition immediate investment in this segment of population could be a fruitful attempt, otherwise they could pose definite threat to the way of our long-term progress. The finding of the research suggested that their needs should be addressed in the priority basis. It also advocated the distribution of resources properly, via eradication of poverty, accessible education, improved health services and security conditions of this class. Child right should be vastly introduced in every level of the economy and reduction of exploitation of the children by the haves should be ensured. The children belong to the community and therefore, it is the responsibility of the community to create conducive environment to protect the rights of the child. Increased coordination between civil society, NGOs, Government and the foreign partners should be assured and this would establish their respective responsibilities to the deprived children. Social mobilization and community awareness program should be adopted.

2.5 UTILIZATION OF MCH-FP SERVICE FACILITIES (Satellite Clinic/FWC/MCWC/UHC/UHFWC etc.)

142. Anonymous. Bangladesh: district level socio-demographic and health care utilization indicators. Dhaka: NIPORT, MEASURE Evaluation, UNC-CH, USA, ICDDR, B, 2011.

The purpose of the study was to present health care utilization and socio-demographic indicators at the district level. The data was taken from the Bangladesh Maternal Mortality and Health Care Survey (BMMS) 2010. The objective of the BMMS 2010 was to collect data on the level and causes of maternal mortality and the utilization of maternal health services in Bangladesh. The survey also collected other information such as household socio-economic conditions, education, reproductive health and childhood mortality. The BMMS used a representative sample designed to provide estimates for maternal mortality at the national level and for most other indicators at the national, urban/rural, divisional, and district levels. A total of 654 urban, 488 other urban and 1,566 rural clusters were selected, for a total of 2,708 cluster overall. Within each selected cluster a sample of 65 households was randomly selected. Of the 175,600 households selected for the sample, 168,629 households were successfully interviewed. The following indicators were presented in this report, i.e. reproductive health- includes with total fertility rate (TFR), percentage of female adolescent (age 15-19) currently married, contraceptive prevalence rate; socio-economic development- includes with percentage of households with electricity, sanitary toilet, improved housing, owning a radio, owning a television, lowest wealth quintile (poorest households), children aged 12-15 and 15-19 with completed primary education, female and male aged 18-24 with completed primary and secondary education, aged 20-24 with completed secondary education; infant and child mortality- included with neonatal mortality rate, post-neonatal mortality rate, infant mortality rate, child mortality rate and under-five mortality rate; and maternal health- includes with antenatal care from any provider and medically trained provider, at least four or more antenatal care from any provider, deliveries attended by skilled birth attendants, deliveries at health care facilities, postnatal care for mother from any provider within 2 days of delivery and postnatal care for mother from medically trained provider within 2 days of delivery. Most national surveys in Bangladesh concerning the health sector provide data on the country's socio-economic development, health and family planning only down to the division level. There is a need for data for monitoring of program indicators at the district level. Due to the large sample size of the BMMS, it is possible to present utilization of services and socio-economic information at the district level.

143. Anonymous. Utilization of community clinic. Dhaka: NIPORT and EC Bangladesh, 2011.

The aim of the study was to assess the status of Community Clinic utilization and the factors influencing the utilization of community clinic (CC) in order to provide data for increasing acceptance of community clinic service. A number of 10 community people from each of the selected 12 community clinic catchment areas under 12 districts (sample basis selected) of 6 divisions were interviewed through the sample questionnaire. Thus, a total number of 120 community people were interviewed during this study. Data were collected through sample questionnaire. An interview of key informer likes UNO, UH&FPO, Upazila Chairman from selected districts was conducted. About 8 persons from each of 12 districts were interviewed. In this study, some of other methods like focus group discussion (FGD), observation, opinion sharing meeting, existing literature review, data input and interpretation and

sharing draft workshop report were followed for doing this research. The study found widespread dissatisfaction with the overall performance of the CCs. Even the members of the Community Group (CG) expressed their dissatisfaction. From the FGD findings from 12 CCs reveal that out of studied CCs only a tenth were working well, a third were partly satisfactory, more than half were not really functioning. Whilst there is some good service delivery, overall people are not satisfied, and this is justified by the physical facilities, lack of timely service delivery, shortage of drugs and equipment, poor skills of staff and low morale in the service. Disillusion with the performance of clinics is made worse by the mistaken expectations in the population, who expected a doctor led service locally with a wider range of services and high quality. This study also found that the objectives of CCs are not yet been achieved. Community expectations had been raised but not met. If the policy has to be implemented effectively it is important to give at least as much attention to the working of CCs as it is to build facilities across the whole country. Some recommendations may be drawn on this study had been given in the following ways that there is a need to monitor the supply of equipment and furnishing to ensure that CCs can operate as planned way, there is a need for effective mechanisms to allow more ownership by local communities, but this is not yet happening in CCs, even when staff was posted to CCs it was often difficult to find them and productivity seems low, much more is needed to equip CC staff for the full range of ESP services for which they require skills, policy specified that 23 drugs that should be available at CCs, policy suggested that CCs should be open during normal working hours six days per week, and finally the service quality of development of the CCs should be ensured .

144. Anonymous. Assessment of the essential service delivery (ESD) implementation capacity of community clinics. Dhaka: NIPORT & Siam Health Care, 2012.

The study objectives were to assess the capacity of the Community Clinics (CC) for implementation of Essential Service Delivery (ESD), investigate the type of providers involved in the services of the community clinic, investigate their experience and training to provide ESD, capacity to provide services at the community clinic level, investigate facilities of the exit clients of the community clinic to know their opinions of services, and to investigate the opinions of the community level influential about the capacity of the service providers . The study collected information on the prevailing situation of CC including current levels of knowledge and practices of CHCP at CC on ESD services. In addition, the study collected information from the CG members and program managers to have their perception on the functioning status of CC. Also exit clients of CC were interviewed to have their satisfaction level of received services. The study also utilized the quantitative technique of face to face interviews with the primary target respondents and qualitative approach with the secondary target groups. A total of 21 situation analyses of CCs were conducted, 50 CG members and 50 program members were interviewed for the study. The study found that around half of the participants interviewed expressed dissatisfaction with the services and one-third disagreed to refer CCs for health care services to other persons. Even, in some cases, they spent 2 to 5 taka for receiving services. More than one-third of them referred to the private clinic. The average age of service providers was 34.8 years and on average they stay 4 kilometer distance from the CC. Irrespective of CC, on an average service providers were working for about 2 years at CC. More than one-third of service providers received training during last five years on health care but only half of them stated that received training was sufficient to provide information and services to clients. The average age of the respondents was 48 years and 9 years of schooling on average. Based on the findings, the study recommended that government needs to ensure the availability of service providers, logistics, medicine and equipment to

the CCs. Family Welfare Assistants (FWAs) should be recruited to provide services approximately 600' couples by each FWA at the community through home visits at every two months interval. Extra FWA have to be recruited as per proportion of couple increase. Also logistic like toilet, seating arrangement water supply medicine and equipment should be provided proportionately, also recommended to update knowledge of CHCP in terms of ESD packages. Community Group members should be included in the monthly coordination meeting of Upazila.

145. Anonymous. Assessment of the essential service delivery (ESD) implementation and utilization capacity of UHFWCs. Dhaka: NIPORT & RTM International, 2012.

This study aims to outline the utilization of ESD service provision in the UHFWC, with a broad objective to assess the capacity and utilization of the UHFWCs for implementation of ESD. The study used cross-sectional statistical design to obtain information from the primary and secondary sources. An integrated approach combining qualitative and quantitative methods was adopted to conduct the study. Sampling frame was constituted three types of UHFWCs (High performing, medium performing and low performing) to equal selection from each division. Based on the objectives structured questionnaire was used for client exit interview. The present study tried to get answers whether the facilities, logistics and human resources existing at the static centers in the rural area are sufficient, in terms of both quality and quantity for providing ESD services. During the supervision most of the supervisor supervises the management of the centre, examine the records, the stock maintenance and the store. Neither the supervisors provide the mentionable help to the SACMOs nor the FWVs in their professional field for making them more skillful and for increasing the standard of the provided services, nor the supervisors show the way of working by doing themselves to the SACMOs and the FWVs. There are residents for the working SACMOs and FWVs in all UHFWCs. But majority of them do not reside in those residential quarters, which were built for them. The supply of pure water is one of the major problems in the UHFWCs. A good number of tube wells are not in order. Even the tube wells of some UHFWCs have-not been yet tested whether it is arsenic free or not. Even there were examples of taking 'fees' by the SACMOs and it varies from twenty to fifty taka. The patients remarked that they were treated properly and given proper medicines if the fee was given. Availability of furniture and basic equipment were not uniform in all UHFWCs. All the ANC related supplies and equipment were not available in UHFWCs. The essential equipment (like BP apparatus, stethoscope, thermometer, speculum, uterine sound, scissors, and sponge holding forceps) for providing FP services was found available in UHFWCs. The lack of manpower, communication problems, water supply problems, toilet facilities and last of all lack of coordination between the SACMOs and FWVs in receiving DDS kit for the UHFWCs a much for providing health facility to clients. The study recommended that all the facilities of UHFWCs should be addressed through proper supervision and take necessary action for providing toilet facilities, furniture, medical equipments, water supply, accommodation and communication facilities etc. Most important factors are that coordination between SACMOs and FWVs should be improved.

146. Anonymous. Assessment on essential service delivery (ESD) program in NGO clinic and UPHCP. Dhaka: NIPORT & EC Bangladesh, 2012

The aim of the study was to investigate type of providers involved with this service and their experience in ESD, capacity to provide service, community influential opinion as well as client's satisfaction to the services of NGO clinic and UPHCP. Using a combination of quantitative and qualitative techniques, the

study gathered data and evidence from service providers, service receivers and local influential people. The study also reviewed policy and management documents, routine statistics, and previous studies reports that included information on NGO clinic and UPHCP. The sample of clinics covered all areas of the country including a wide range of settings. An innovative project for the delivery of a package of preventive, primitive and curative health services to the urban poor was started with a loan from the Asian Development Bank (ADB) in 1998. 'The main objective of the health project was to provide ESP services and curative care with a focus on women, children and on reproductive health. The targeted geographical areas were slums of Rajshahi, Khulna, Chittagong, sylhet, Barishal, Bogra Municipality, Shirajgonj Municipality, Comilla Municipality, Madhobdi Municipality, Savar Municipality and divisional towns and cities. This network of NGO's worked through 346 urban and rural clinics, nearly 8000 satellite clinics and almost 7000 female depot holders nationwide, serving approximately 17% of the national population. Over 1.5 million customers were served each month. 12.5% patient comes to the clinic for antenatal care, 27.5% for very low cost treatment, 20% for maternal and child health care, 5% patient for family planning, 17.50% 1.5% patient comes to the clinic because it is nearby, 17.5% patient comes to the clinic for better treatment, 15% patient comes to the clinic for delivery and 10% patient comes to the clinic for fever/cough. Most of the centers under UPHCP have the physicians who are designated as Clinic Manager playing the role as a doctor and manager at the same time. It seemed barriers to ensure quality service in cause of workload to a doctor, which of the same time hampered proper monitoring and supervision. It is suggested to determine the individual responsibilities for both of the position of Clinic Manager and Physician, to recruit extra skilled field worker Family Welfare Assistant (FWA), Service Promoter according to the density of population. Refresher training was also to suggested for the doctors, paramedics and health assistant who were directly involved with service. More medicine supply as per need of various diseases, proper monitoring of the center ensured regular and timely budget flow, expand satellite clinic service and improve most of knowledge and awareness of community influential were also suggested.

147. Anonymous. Identify weakness of service delivery system in delivering family planning services at different levels. Dhaka: NIPORT & READ, 2012.

The aims of the study were to find out the weakness of service delivery system in delivering family planning services at different levels of Bangladesh; to determine the reasons for weakness of service delivery in family planning; to assess what needs to be done for improving the service delivery and; to identify the determinants of the FP service delivery in rural Bangladesh. The study used cross-sectional statistical design to obtain information from the primary and secondary sources. An integrated approach combining qualitative and quantitative methods has been adopted to conduct the study. Samples from different segments of the population such as service providers, service recipients and program managers have been obtained from the various service delivery points of health and family planning services. Observation method has been undertaken in selected areas to dig out the situation and quality of services. The major approach was to compare the performances of more (high performing) normal (medium performing) and less (low performing) effective/efficient service delivery at the institutional and at the community levels has been measured by the proportions of services delivered in each areas. A total 2400 respondent has been interviewed in the areas from the 7 divisions. Findings of the current study showed interesting results when compared with a national survey (BDHS 2011) and field level statistics (FWA Registers); Conventional contraceptives across three different sources; CPR of the current study

(82%); estimated CPR obtained from FWA register (83%) and the CPR of BDHS 2011(85%), are comparable. Long acting method, findings of the three sources differ widely; and permanent method rates are somewhat comparable with survey findings of the current study falling shorter than those of FWA register and BDHS 2011, while the latter two sources are comparable. These differences could occur due to variations of sampling between this and national survey. Moreover, data obtained by the FWAs, need to be reported after careful verification. About one third of the users from both high and medium performing clusters changed (shifted) use of FP methods in the past. But such proportion was very high in the low performing clusters (53%). This finding showed comparative low quality of use of FP methods in the clusters in the low performing areas, where motivation of the recruited users might not be as solid as those in the high and medium performing areas. Findings of facilities observations revealed that irrespective of the levels of performing areas (high, medium and low), none of the facilities were fully equipped with the standard components ideally provided for a facility (FWC or CC). The recommendations are to improve service delivery, its coverage and quality, uniformity or standardization of the training irrespective of area need to be ensured. A national plan of training of FP service delivery manpower might be designed. There should be a human resource management (HRM) plan; whenever there are vacancies staff should be recruited, trained and deployed to their places of posting; strategies for recruitment of staff for hard to reach remote areas should be on the basis of contract for certain years. Regular supporting supervision for the supervisors and incentives for the good performing workers and disincentives for bad performing workers should be ensured.

148. Anonymous. Utilization of CSBA training of the FWAs in reduction of maternal and child mortality and morbidity. Dhaka: NIPORT & CDS, 2012.

The study was intended to assess the utilization status of the CSBA training of the FWAs in the reduction of the maternal and child mortality and morbidity, to identify the effectiveness of the CSBA services in the reduction of morbidity of the pregnant women and to investigate the opinions of the community about their services. The study areas were selected from the seven administrative divisions. The districts were Meherpur, Kushtia, Barisal, Habigonj, Nilphamari, Thakurgaon, Narsingdi, Brahmanbaria, Faridpur and Madaripur. The survey covered 400 trained CSBAs from union level spreading over all the districts. The data were organized and analyzed through standard analytical tools, and were interpreted through tables, figures, graphs, maps, diagrams, charts, etc. Data collection was done by interviewing selected CSBA and clients (service users) through two separate pre-tested semi-structured questionnaire. Findings of the study revealed that the CSBA have required education and have long working experiences. In terms of knowledge about training materials, majority of the CSBA could remember most of the training sessions and the content in the training session. Most of the CSBA have clearly explained their responsibilities Viz. antenatal care, pregnancy and delivery complications, post-delivery care and care about high risk pregnancy, newborn child care session related emergency care and referrals but the could less remembered about session organized for creating community awareness and related sessions. Findings of the FGD conducted on services receiving clients and community leaders are found consistent with the results found in the study. About quality care indicator, out of 6 factors, 45% of CSBA treated "be attentive to patient's problems" as rank one indicator for measuring the standard of services of CSBA. Only 18% CSBA were treated as standard of services for measuring as rank one indicator. CSBA successfully and consistently referred a large number of patients with serious complications to higher technical authority. The situation of the institutional support system, such as physical facilities, logistics, equipment and ancillaries provided by the government seems to

be satisfactory but need regular follow up to check whether the different machine set up for quality of care are working. The study also found lack of weighing machine and blood pressure machine and the supply of adequate and necessary medicines seems to be a chronic problem the CSBA encounter in almost all the CC. The CSBA still felt hesitate to give treatment to incoming pregnant women with severe complication. Study results recommended that regular refresher courses should be organized for the CSBA to enhance their technical knowledge, capacity and confidence in handling sensitive and complicated cases. More CSBAs should be recruited and be deployed after training for providing ANC, PNC and other related services to the community. There should be a review of BCC materials, and the communication campaign mechanism as well to determine why the messages and information about various healthcare services made available at different health centers have failed to attract community to get access to those services. An in-depth socio-economic study can be undertaken in order to identify the community perception about the services brought to their doorsteps for pregnant mothers.

149. Anonymous. Utilization of community clinic. Dhaka: NIPORT & PSSMRTD, 2013.

The study was conducted to assess the readiness service provision of the community clinic, manpower, types of available services, drug and MSR, delivery facility, BCC, privacy, infrastructure, supervision assess present status of job performance (number of women, children and adolescent received services, number of delivery conducted, general treatment, number of health education and counseling sessions conducted etc.) of the clinic providers as against. The community clinics of the whole country was the population of the study from which 105 community clinics have selected using multistage simple random sampling technique. As per the TOR of the assignment they have interviewed 3132 users from 7 divisions of the country for exit interview, taking 15 Community Clinic (CC) and 450 users from each of the divisions. From each CC, they conducted interview of 30 users after they had finished taking services in the CC (in one CC the number of interviews fell down to 12 as there were not enough users to meet the required number in 3 days. From each of the CC, 30 exit interviews were conducted. About 39 percent of the respondents reported that medicines were not adequately available in the CC and even antibiotic medicines were not given in full course. Only antenatal and postnatal cares were provided from the clinics as maternal health care. About 59% of the respondents perceived the quality of child health services as 'good', 27% perceived 'fairly good' and only 1 percent perceived 'not good'. Twelve percent of the respondents did not know about the quality of child health services. About 75% perceived the quality of immunization services as good, 10 percent perceived 'fairly good' and only less than 1 percent perceived 'not good'. Fourteen percent of the respondents did not know about the quality of immunization seen ices provided in the community clinic. A slightly less than 72% of the respondents felt that the quality of treatment of general diseases are good, 25% felt 'fairly good', and the respondents who perceived general treatment as 'not good' constitute only a fraction of 1%. About 3% of the respondents did not know about the quality of general treatment services provided in the community clinic. The performance of community clinic program seems quite satisfactory and promising as a large number of patients, including male, female, children and adolescent were attending the CC daily for primary health care services. Also the perceptions of patients on behavior of service providers and about health care services provided in the CC were found very encouraging as four-fifths of users were, at least fairly satisfied with behavior of service providers and health services received. The study suggested that the recruitment in the vacant position, supply of adequate medicines should be ensured. It should be ensured of Medical Officers, preferably lady doctor, and FWV to sit fortnightly in the CC and

SACMO's siting once a week in the CC. It should be updated the job descriptions of service providers according to the envisioned responsibilities for specific service provider-CHCP, HA and FWA. It has to review and modify the service registers for proper monitoring of different age categories of people, e.g. adolescents (required need based according to job description) basic and regular refreshers training for the service providers. Adequate sitting arrangement for the patients, cleanliness, repair, and renovate tube well and toilet, construct boundary wall for security, necessary equipment and electricity supply should be ensured for sustainable development of the Community Clinic.

150. Anonymous. Determinants of lowest performance of MCH-FP in Sunamgonj District. Dhaka: NIPORT & Department of Population Science, University of Dhaka, 2013.

The study was carried out to assess the determinants of the lowest performance in terms of MCH-FP indicators in Sunamganj district and suggest corrective measures to increase the program performance. The specific objectives of the study were to: i) investigate the accessibility and availability of MCH-FP services in Sunamganj district; ii) explore the socio-cultural, religious and programmatic factors that responsible for the lowest performance in Sunamganj; and iii) generate a set of recommendations to improve the performance of the district. A mixed methods cross-sectional research design was adopted for this study. Both primary and secondary data were collected for this research. Both quantitative and qualitative data were collected as part of the primary data collection process. Quantitative data were collected from the 322 reproductive aged married women by using a structured questionnaire. In-depth interviews were conducted among the program managers and service providers while focus group discussions were conducted among the community people. Most of the respondents of this research fall within the age bracket of 20-34 years and the average age of the respondent were about 30 years. A notable proportion (42.2%) of the respondents in surveyed households had no formal education while around 57% of them had some sort of formal education most of the respondents (95%) were housewife. The study showed that around 82:3% percent respondents have delivered their last baby at home and of them 46% of the deliveries were assisted by untrained traditional birth attendants. Only 60.6% respondents received at least one ANC though 98.4% of the respondents have experienced pregnancy. The major sources from where respondents have received ANC services are MBBS doctors (31.4%), FWA (15.8%), nurse/ birth attendants/paramedics (12.1%), and health assistant and family welfare visitors (11.25). The major reasons for not receiving delivery care were no problem (82.3%), not understand that service ware needed (25.6%) and lack of money. In order to increase the utilization of MCH-FP services in low performing areas, the program manager and policy maker should consider to effective BCC campaign to focus on motivating study areas, create special program to involve male partners to enhance MCH-FP services, establish more service centers considering the local context such as distance and transportation, chalk out effective intervention to address women's education, employment and empowerment, create social awareness about the intrinsic worth of using MCH-FP services as well as and negative aspects of not using MCH-FP services, involve religious and local government institutions and NGOs to augment the MCH-FP services for increasing the better performance.

151. Anonymous. Barriers of facility delivery in upgrade Union Health and Family Welfare Center and Upazila Health Complex. Dhaka: NIPORT & MCIWO, 2013.

The broad objective of the study was to assess barriers of facility delivery in upgraded UHFWC and UHC in order to promote facility delivery. Both qualitative and quantitative data collection methodology

was followed during study. Set questionnaire were used for interview during conduction of study for quantitative data collection. Key informant interview and checklist were used for qualitative data collection. A total of 600 numbers of the recently delivered women were estimated as primary population. The study considered 7 divisions as sample division. From the 7 divisions, 14 districts were selected (2 district of each division), from each of the district 2 upazilas were selected. Thus 28 upazilas were selected as sample. Then each of the upazila 2 unions were selected, thus 56 unions were selected through simple random sampling technique. Findings of the study revealed that 8% of the recently delivered women was belong to age below 18 years, which needs urgent attention to work with demand side of the family planning and reproductive health services. It is appreciated that 17% of recently delivered women were involved with income activities which is higher than BDHS 2011 (11%). In regards to the caesarian delivery it is (UHC 9%) lower than the national rate (BDHS 2011 (11%). It could be because of efficiency of the service providers who provide ANC timely and appropriately. About 31% of the recently delivered women received the 4th visit of ANC which may not be significant, but possesses slightly higher performance than other statistics in the country (26%, BDHS-2011). The study gathered three types of information of cost of the pregnant women spent (i.e. transportation, medicine and service providers cost). Study findings also showed that more than one-third of the study population was not satisfied with the service providers' behavior, treatment & advice and timely treatment and also insufficient and unskilled doctors, midwives, nurses and FWVs, which is very important factor for not utilizing the services offered from the delivery. Some of the facilities were properly furnished with the range of essential equipment for provision of delivery services i.e. delivery room, doctors apron, musk and available staff, but many materials were less available and functioning i.e. about 8.35% examination light was not functioning, 19.9% of the sterilization machine was not functioning at UHC. A significant number (14%) of emergency transport was not functioning well at UHC. Around (53.6%) of the UHCs staff did not receive training on CEmOC during last 2 years. It was found during observation that most (89%) of the "Anesthetist" were not present at UHCs, only 11% found on call round the clock. The study recommended that health financing strategies should be designed to protect against complicated delivery costs for the poor and protection against its impoverishing impacts. The concerned authority may take initiative to set up effective health watch groups in the local level who will take initiative against unseen/undocumented cost spent by the patients in the UHCs and UHFWCs. Government should develop a guideline and provide training regarding enhancing skill and change attitude and behavior to make them responsive, client focused services. On the other hand UHC should have a plan "on call round the clock" mechanism for caesarian delivery. Finally, medicine should be available, experienced doctors and nurses should be recruited in the UHCs and UHFWCs.

152. Anonymous. Provision of HPN services in the private sector. Dhaka: NIPORT & RTM International, 2013.

The study was conducted to make an assessment of the Health, Population and Nutrition (HPN) services offered at the private health facilities of Bangladesh. In this context, an attempt was made to assess the selected private health facilities in Bangladesh which were involved in providing HPN services in non-profit private sector and registered with the government of Bangladesh. The study was conducted in a sample of 164 registered private health facilities throughout the Bangladesh. The survey covered registered private facilities from city corporations, districts and Upazillas. The study used interviews with private health service providers and clients to obtain information on the capacity

of facilities to provided quality services, and the existence of functioning systems to support quality services. The areas addressed were the overall facility infrastructure, specific child health, family planning, and maternal health services, and services for sexually transmitted infections. Data collection activities were carried out during the month of May-June 2013. The maternal health, neonatal health and child health service were widely available in the private health sector. However, the majority of the facilities did not provide all the components of child and neonatal health. Although majority of the exit patients at all levels were highly satisfied with the services received from private facilities, yet a significant portion of them were less satisfied or dissatisfied with the counseling, availability of the appropriate service providers, waiting time and fees charged by the facility. The study recommended that coverage of family planning, reproductive health and nutrition services as well as treatment for communicable diseases could be improved. All the private facilities should have some facilities, i.e. visible signboard or posters for displaying the services facility, surrounding areas of facilities kept clean, all the private sector should have their own ambulance or transportation arrangement for pick and drop during emergency. Separate room for counseling services particularly for RH and FP patients should be made available to ensure the effective service delivery. Availability of the appropriate service providers should be ensured to provide all the components of HPN services. Doctors should be available for emergency and outdoor services.

153. Anonymous. End-line household survey under second urban primary health care project: Dhaka City Corporation. Dhaka: NIPORT & UPHCP Bangladesh, 2013.

The aim of the survey were to provide end-line estimates for program indicators in terms of exposure and utilization of services provided through UPHCP-II, measures differences in selected service utilization and outcome indicators between the project and non-project areas and the status of red card holding among the poor and its utilization. The survey used a cross-sectional design to show the estimates of relevant program indicators in the Partnership Agreement (PA) and the Non-Partnership Agreement (NPA) areas covering ten City Corporations and twelve Municipalities in Bangladesh. The primary focus of the survey was to do the project evaluation following a quasi-experimental design (post-test only measure between PA and Non-PA areas) to oversee the effectiveness of the project. The survey was conducted in three different areas for separate evaluation of the project in Dhaka City Corporation (DCC), Other City Corporation (OCC) and Municipalities. Each area covered equal number of PA and NPA areas. The survey utilized two-stage cluster sampling method. In this survey, three types of tools used to obtain information. These were household questionnaire, individual women questionnaire, and cluster information availability of health facilities and providers. The survey revealed that more than one in three women in PA area and one in five women in the NPA area were aware about UPHCP health centers. Antenatal check up, family planning services, child health care and immunization, delivery care and general treatment were well-known services of UPHCP. The women were not much aware about other important services such as adolescent care, health care for men, and treatment of RTI/STI, treatment of communicable diseases, nutritional counseling and primary eye care. Data showed that about 60 percent of all ever-married women age 15-49 might require maternal and child health services in a calendar year. Thus, one in nine of them sought care from a UPHCP facility was really a great concern. Use of family planning in the PA area reached at 70 percent mark. Almost two in three were currently using a modern method, mostly dominated by pill and condom. The survey suggests that the UPHCP II was successful in providing better access of primary health care services to the poor. Social safety net for more utilization of reproductive and child health care by the poor was an appropriate

innovation. Comparison of the utilization of services and related outcome indicators in the PA and NPA areas also suggested that the achievements of UPHCP II were almost similar to the achievements of parallel programs implemented in the NPA area. However, still there were opportunities to create public health awareness among urban population and demand for services. This initiative should be expanded in all municipalities as it was implemented in all city corporations and some selected municipalities under the local government authorities.

154. Anonymous. End-line household survey under second urban primary health care project: other city corporations. Dhaka: NIPORT & UPHCP Bangladesh, 2013.

The objectives of the end-line survey were to provide end-line estimates for program indicators in terms of exposure and utilization of services provided through UPHCP-M, measures differences in selected service utilization and outcome indicators between the project and non-project areas, and the status of red card holding among the poor and its utilization. The survey used a cross-sectional design to show the estimates of relevant program indicators in the Partnership Agreement (PA) and the Non-Partnership Agreement (NPA) areas covering Ten City Corporations and twelve Municipalities in Bangladesh. The primary focus of the survey was to do the project evaluation following a quasi-experimental design (post-test only measure between PA and Non-PA areas) to oversee the effectiveness of the project. The survey was conducted in three different areas for separate evaluation of the project in Dhaka City Corporation (DCC), Other City Corporation (OCC) and Municipalities. Each area covered equal number of PA and NPA areas. The survey utilized two-stage cluster sampling method. In this survey, three types of tools used to obtain information. These were household questionnaire, individual women questionnaire, and cluster information availability of health facilities and providers. Considering the broader spectrum of service coverage in more cities in next few years the present survey covered all city corporations of the country and some other municipalities which had not been part of UPHCP II. The survey was carried out during August-October in 2012. The findings revealed that more than 80 percent of ever-married women in the PA area as against 74 percent in the NPA area were aware that family planning services were provided form UPHCP. About half of women availed the services from CRHCC on family planning. Only 9 percent of the ever-married women in the PA area admitted that their households possess red card provided from UPHCP. Only 39 percent women in the PA area and 22 percent in the NPS area were found to use red card while visiting CRHCC in their last visit. More than 85 percent of the women with a birth received antenatal care at least once from a medically trained provider. Most women (65 percent) received ANC from a qualified doctor. Overall 56 percent of the births in the PA area took place at a health facility, which includes public sector and private sector. Under-five mortality in OCC area is 46 per 1,000 live births which was lower than the MDG 4 target of 48. Overall 87 percent of children received all basic vaccines. Knowledge of HIV/AIDS was almost universal among women in PA and NPA area. UPHCP II was successful in providing better access of primary health care services to the poor. The survey findings recommended that social safety net for more utilization of reproductive and child health care by the poor was an appropriate innovation. There were opportunities to create public health awareness among urban population and demand for services. This initiative should be expanded in all municipalities as it is now implemented in all city corporations and some selected municipalities under the local government authorities.

155. Anonymous. End-line household survey under second urban primary health care project: municipalities. Dhaka: NIPORT& UPHCP Bangladesh, 2013

The purpose of the survey of the municipalities were to provide end-line estimates for program indicators in terms of exposure and utilization of services provided through UPHCP-M, measures differences in selected service utilization and outcome indicators between the project and non-project areas, and the status of red card holding among the poor and its utilization. The survey used a cross-sectional design to show the estimates of relevant program indicators in the Partnership Agreement (PA) and the Non-Partnership Agreement (NPA) areas covering 10 City Corporations and twelve Municipalities in Bangladesh. The primary focus of the survey was to do the project evaluation following a quasi-experimental design (post-test only measure between PA and Non-PA areas) to oversee the effectiveness of the project. The survey was conducted in three different areas for separate evaluation of the project in Dhaka City Corporation (DCC), Other City Corporation (OCC) and Municipalities. Each area covered equal number of PA and NPA areas. The survey utilized two-stage cluster sampling method. In this survey, three types of tools used to obtain information. These were household questionnaire, individual women questionnaire, and cluster information availability of health facilities and providers. Considering the broader spectrum of service coverage in more cities in next few years the present survey covered some selected municipalities which had not been part of UPHCP II. The survey was carried out during August-October in 2012. The findings revealed that more than 80 percent of ever-married women in the PA area as against 74 percent in the NPA area were aware that family planning services were provided form UPHCP. About half of women availed the services from CRHCC on family planning. Only 9 percent of the ever-married women in the PA area admitted that their households possess red card provided from UPHCP. Only 39 percent women in the PA area and 22 percent in the NPS area were found to use red card while visiting CRHCC in their last visit. More than 85 percent of the women with a birth received antenatal care at least once from a medically trained provider. Most women (65 percent) received ANC from a qualified doctor. The total fertility rate is 1.9 children per women age 15-49 for in the MPA and MNPA areas. More than one third of mothers have awareness about any three signs/symptoms of ARI. Overall 56 percent of the births in the PA area took place at a health facility, which includes public sector and private sector. Under-five mortality in OCC area is 46 per 1,000 live births which is lower than the MDG-4 target of 48. Overall 87 percent of children received all basic vaccines. Knowledge of HIV/AIDS is almost universal among women in PA and NPA area. From the survey, suggestions might be drawn that social safety net for more utilization of reproductive and child health care by the poor was an appropriate innovation. It has some opportunities to create public health awareness among urban population and demand for services. Initiative should be taken in all municipalities as it was implemented in all city corporations under the local government authorities.

156. Anonymous. Evaluation of the community based skilled birth attendant (CSBA) programme Bangladesh. Dhaka: Directorate General of Health Services (DGHS), 2011.

This study was conducted to evaluate the CSBA program in the context of improving skilled attendance during childbirth in Bangladesh. The evaluation was expected to provide evidence for formulating strategic directions for the future in the context of achieving MDG 5. It was also expected to provide evidence for designing strategies related to skilled attendance for the next cycle of funding for the health, population and nutrition (HPN) sector. It was conducted during July-September 2010, based on data from interviews, focus group discussions and record reviews from 12 upazilas selected from

all six administrative divisions, review of data from the routine monitoring systems of the MOHFW, desk reviews of training curricula, and interviews of key officials at national and district levels. BDHS 2007 showed that skilled attendance for childbirth was about 18% in Bangladesh, and only 13.6% among rural women. Bangladesh's MGG 5 target is to increase the percent of births with skilled attendance to 50% by 2015. Assessment of samples of CSBAs showed that they had a fairly good level of knowledge and skills although there were significant gaps. However, the CSBA programme management leaves much to be desired. Once trained and deployed to her community, the CSBA was given no clinical supervision and very little support from the health system. Monitoring systems were poor, accountability was weak, and linkage with referral centers was poor. There was hardly any communication or community mobilization for CSBA services. CSBAs do deliveries mainly for women who lived close to their homes and/or with their relatives. However, communities were largely unaware of CSBA services. Most of the groups of community leaders who participated in the focus group discussions, about half the groups of private doctors, and even some TBAs generally appreciated CSBA services, but felt there were insufficient numbers and local people were not aware of the existence of CSBAs or their services. They felt that 24 hour availability of service was essential and that some CSBAs who lived outside their service area were not effective. The study concluded that under the existing circumstances, the approach of using CSBAs for home-based first level care for childbirth in Bangladesh was appropriate, BUT it would not be effective unless immediate remedial steps were implemented to improve program management.

157. Anonymous. Assess the quality of health care service at community level. Dhaka: NIPORT & BIRPERHT, 2013.

The general objective of the study was to assess the quality of health care services provided at community level, identify the level of awareness and perception of the clients about the health facilities, and to assess the quality of care in the delivery of health care service and service provider at different health care facilities. This study was a community based cross-sectional survey conducted out among total 3039 health care recipients selected through multistage simple random sampling technique. Family Planning service provider and program managers i.e. CHCP, FWV, SACMO. UHFPQ, UFPQ of union and Upazila level were interviewed to get a view of their perspective for quality of health care service at community level. Among The respondents two-third was female among all. Half of them were of younger age group (21-40 years) with average age of 37 years. Almost ninety percent respondents attended the health care facilities for the treatment of their own. Data indicated that three-fourth of the health care recipients visited the centers for the treatment of general diseases including diarrhea and dysentery. The ratio of number of recipients were found more or less equal by the centers; UH-FWC, union sub-center and community clinic. Some participants specifically reported that they did not get necessary medicine due to shortage and inadequate supply and in some places service providers were not available, mostly absent for long time some participants also mentioned that medicines are not dispensing properly. Regular presence of an MBBS doctor (especially female doctor) for at least once a week, adequate supply of essential medicines, facilities for Caesarean operation at UH-FWC, availability of emergency services, treatment facility for pregnant mothers including delivery facility, transport facility for critical patients for better treatment, modern pathological laboratory at the Union Health and Family Welfare Centers and community clinic are recommended. Raising awareness on service availability in the rural health centers using appropriate communication materials and Medias and adequate and uninterrupted supply of essential medicine and provision on free of cost to the poor people were suggested by the service providers.

158. Anonymous. Effectiveness of family planning program in Bangladesh. Dhaka: NIPORT, UNFPA & PSSMRTD, 2011.

The objectives of the study were to analyze all the major components of the family planning program in the light of the goals and objectives stated in the OPs and other documents and understand the major components activities of the family planning program of GOB, NGOs and international organizations working in Bangladesh. The in-depth interviews with the government officers at Division, District and Upuzila levels indicated that vacant positions, too many couples in a single unit, inadequate that thus prepare need based local level planning (LLP) at Upuzila level but it never worked properly because of lack of allocation of budget. There were shortage of contraceptives due to shortage at central level and problems in the supply chain between 2008 and 2010. The program performances also hampered due to unavailability of lungi and saree at central store and cash due to insufficient impressed fund. Unmet need is a big problem which can be addressed by ensuring supply, making people aware through media so that there is active and strong demand from the users. Strong BCC was needed to enhance long acting and permanent methods. Public demand needs to be matched with availability of supply. Strategies need to be evolved to increase supply at grass root level. Majority of the FGD participants claimed that they knew- correct use of the methods. However, to reduce unintended pregnancy, they thought that the government should make MR services easily available to the women. What the consumers, however, need perhaps is prevention of pregnancy rather than termination of pregnancy. The male participants of FGDs were found to be aware of the activities of family planning field workers. But many of them do not know the location of community clinics (ICC). Males were not found to have adequate idea as to who should use what type of method. Majority of them knew about the permanent methods and most of them do not like the available male methods. The recommendations are fill up all vacant positions with urgency and ensure placement training. Conduct needs assessment of family planning logistics every two years for advance procurement. Conduct, in low performing areas, strong motivational and advocacy programs with religious leaders and local public leaders.

159. Anwar I; Akhter S. Evaluation of private community skilled birth attendants (P-CSBA) program in char areas of Narsinghdi district in Bangladesh. Dhaka: JICA Bangladesh, 2012.

The overall objective of the study was to evaluate the P-CSBA program of SMPP and to compare the SMPP Model of P-CSBA with other community based SBA initiatives by the Ministry of Health and other organizations to determine their strengths, weaknesses and relative advantages to inform policy for future strategic direction for MDG 4 and 5. Three FGDs were held to conduct the study; one with the P-CSBAs of the SMPP project one with the P-CSBAs of ICDDR,B Shahajadpur project and another with the government CSBAs of Muktagatcha upazila of Mymensingn district. All CSBAs in these three study areas were targeted to cover with FGDs but a considerable proportion of them were absent in all study areas (Raipura, Muktagatcha and Shahajadpur). Eight informal discussions were conducted with other stakeholders such as guardians, opinion leaders and professionals such as gynecologists and general physicians from the public and private sector organizations. With the view to reduce maternal and neonatal morbidity and mortality, JICA has been supporting the government to implement the Safe Motherhood Promotion Project (SMPP) in Narsinghdi district since 2006. A total of 19 women were selected from 6 Char unions of Narshindhi district although the requirement was more as envisioned in the initial CSBA policy guidelines of the MOH&FW. As per government criteria (1 CSBA for every

6-10 thousand population), 19 P-CSBAs were probably inadequate for 6 Char unions of Raipura upazila. Study findings showed that P-CSBA initiative by SMPP was line with this year's Safe Motherhood Day slogan and is an important step in achieving the target for MDG 5 in Bangladesh. The study findings also indicated that SMPP was successful in imparting P-CSBA interventions in targeted char unions of Narshindhi district. There was no big problem in recruitment and training. Selection criteria were followed mostly and the drop-out in 2-3 years was minimum (3 out of 19) and 2 of them are working in the same area as government service providers. Findings also suggested that the P-CSBAs could detect obstetric complications early and could make effective referrals promptly. More importantly they have not turned into brokers of rapidly growing private sector hospitals in the country. Effective referrals of obstetric complications might really contribute in impacting high MMR in the country. The current trend of MCH was shifting from home delivery to facility. It might require long lime to achieve universal coverage of facilities which could provide sufficient care with highly sophisticated skills especially in rural remote areas. To ensure the reduction of MMR by 75% between 1990 and 2010, in adherence to MDGs 4 and 5, collaboration and complementation between government and private sector was reviewed. It was concluded that development of P-CSBAs could be one of the effective strategies, especially for hard to reach areas where there was scarcity of skilled service providers, to provide skilled services to mothers and newborns.

160. Anwar I; Islam N. Maternal, neonatal and child health (MNCH) mapping study 2011. Dhaka: JICA Bangladesh, 2011.

The specific objectives were to collect the updated information regarding on-going MNCH related projects from the Government, Development partners, Technical agencies and NGOs, using the information collection formats. A Policy related documents such as Bangladesh National Health Policy 2001, Neonatal Health Strategy 2009, Program Implementation Plans (PIPs) and operational plans (Ops) on MNCH in Health, Nutrition and Population Sector Program (HNPSP) 2003-2010 and Health, Population and Nutrition Sector Development Program (HPNSDP) 2011-2016 were extensively reviewed for the study. A data collection checklist was developed to collect information on designed community and facility based interventions from the project office or from the NGOs involved in the provision of MNCH services in different parts of the country. In depth interviews, informal discussions and meetings were conducted with the program directors, field managers and service providers from the government, NGOs, Development Projects and Development Partners. The new sector program for Health, Nutrition and Population termed Health, Population and Nutrition Sector Development Program (HPNSDP) 2011-2016 had been formulated. The HPNSDP designated three components of services within this broad area: maternal and neonatal health-child health; and adolescent and reproductive health, and within each of these identified priority interventions for implementation in next 5 years. Several parties were involved in the provision of MNCH care services in addition to the MOH&FW. In rural areas all government health and family planning services are provided by two departments of MOH&FW. Although, MOH&FW has been implementing sector development plans since 1998 where sector-wide approach (SWAp) in planning and managements was the key strategy for health development, many bilateral projects had been initiated even in the HNPSP 2003-2011 period. Now, several bilateral projects are been implemented with donor support for quick visible results such as MNCHI, MNCS, MNCH, SMPP Ma-Moni etc. The overall aims of these projects were the same and their interventions are concentrated in improving the quality and coverage of cost-effective MNCH services through supply side interventions like HRD, logistics, renovation etc. and to

enhance demand for these services through community level interventions. The goals and objectives of bilateral projects are almost same and they impart many identical interventions at facility or community level such as, improving HR and supplies and enhancing demand for services by the community. More implementation research should be conducted in the field of maternal and neonatal health. Need based training and appropriate human resource policy is needed. Finally, it is needed to strengthen the governance and stewardship role of the government for achieving the MNH goals.

161. Banu M; Hashima-E-Nasreen; Nahar S. Factors affecting the performance of delivery centre. Dhaka: BRAC, RED, 2013. (Working paper; no. 25)

The study aimed to measure the performance of delivery centres (DC) and explore the factors related to performance of DCs. Data were collected using qualitative methods during December 2009-January 2010 form six DCs in the slums of Dhaka city. Findings revealed that the DCs at Magbazar and Kamrangir Char performed 'Well' due to availability of community health workers (CHW), their emotional support and caring, regular antenatal care (ANC) visits, convenient location, cleanliness and free services of the DCs. The DCs at Madertak and Shyampur performed 'Average' and Ramna and Kotwali DCs performed poor. Poor performance was largely due to lack of CHWs, less motivation, frequent dropout due to low remuneration, and recurrent slum demolition. As women reported, the reasons for not attending DCs was fear of being referred to the hospital which might compel them to have caesarean delivery, lack of comprehensive services at DCs including doctor-assisted normal deliveries, medicines, and emergency case management. Neonatal mortality rate in poor performed DCs found to be high. The respondents suggested that instead of referring women for minor complications, DCs should be competent of providing supervised skilled service package with basic treatment during childbirth, tetanus toxoid during ANC and child immunizations and postnatal care.

162. Dasgupta SK; Islam MS. Governance of rural health service delivery: case studies of three Upazila Health Complexes of Bangladesh. Comilla: BARD, 3013.

The general objective of the study was to evaluate the quality of governance of rural health services delivery from Upazila Health Complex (UHC).The study was conducted on purposively selected three UHCs of three districts-Comilla, Chandpur and Noakhali considering their comparatively rural locations. The study covered the issues related to health services delivery to citizens from the UHCs. The study revealed that among the study UHCs average population size per doctor was the highest (42013) in Subarnachar Upazila followed by Shaharasti Upazila (17406) and Nangalkot Upazila (17302) respectively. Therefore, average population size per doctor in most of the rural areas was many times higher than the national average (2832) in general and urban areas in particular in Bangladesh. Percentage of stunting children, underweight children and anemia among pregnant women under the three study UHCs were more than the national rates respectively. It was observed during the study that the public health professionals, equipment operators and officials of UHCs and USCs were unable to serve people at the level of their efficiency due to inadequate provision of medical supplies, supports and services by the government. This study observed that the majority of the public health professionals, equipment operators and officials of UHCs and USCs were loyal to the rules of law to some extent. Some of them were reluctant in this matter particularly amongst the trade union leaders. Findings of the study on the state of major four principles of good governance and their various attributes led to conclude that governance quality of public health service delivery in the rural areas of Bangladesh was

behind the required level. Government's allocation and technical support (medical equipment) were not found sufficient in the rural health complexes and that people's participation is far from being satisfactory. Therefore health sector of Bangladesh deserves a lot more interventions to improve the quality of governance. National health policy of the government of Bangladesh should be revised to make its implementation more transparent, accountable and participatory with integrity and thus to improve the quality of people oriented governance of rural health care service delivery.

163. Haider SJ; Sultana N; Begum F; Alam H; Giasuddin MS; Nashir-Uddin; Saha BR; Awal MA. Final report on formative evaluation of performance of Maternal and Child Welfare Centres (MCWCs). Dhaka: READ & UNFPA, 2011.

The study objective was to assess the impact of the UNFPA-supported interventions on MCWC performance in terms of quality as well as utilization of RH services and to identify the determinants of MCWC performance to guide in designing the next country program of UNFPA. Both quantitative and qualitative investigations including physical verifications and intensive interviews with the stakeholders in the sample MCWCs were constituted the primary methods of data collection for the evaluation study. A stratified two-stage sampling methodology was applied to select the survey units where the UNFPA supported 70 MCWCs, 85 percent sample MCWC (i.e. 13 MCWC) were selected from district level, 11 percent sample MCWC (i.e. 2 MCWC) were selected from upazila level and remaining 4 percent sample MCWC (i.e 1 MCWC) were selected from union level. The study findings showed that majority (83%) of the mothers received ANC during their last pregnancy. Less than half (44%) of the mothers received ANC from the FWVs and exactly one-third (33%) of them received such care from the doctors. Majority (93%) of the respondents were exposed to measurement of body weight in course of physical examination during ANC visit, while about two-third (64%) of them were not exposed to measurement of blood pressure. Exactly half of the mothers (50%) delivered their last child at their residences. Majority of the mothers (87%) sought treatment and 48% received treatment from the MCWCs. About a quarter of the mothers (24%) received PNC after their last delivery. About one-tenth of the mothers (11%) had experience of abortion. Only 4% of the respondents had experiences of performing MR. A quarter of the respondents (25%) had experience on itching or infections in external genital organ and more than a quarter of the respondents (29%) experienced of passing whitish vaginal discharge. Study results indicated that CPR observed in the current study was 77%. Adolescents care was also satisfactory (60%). Findings of the study, UNFPA intended to feed into the current country program to facilitate the design of the new country program. Current preparedness (skills and competence) of the service providers in rendering quality care have to be strengthened through improved training, particularly on client counseling, after care services, follow-up and treatments for complications. Service facilities should be equipped with modern facilities. Finally, the knowledge and skills of service providers and the institutional capacities of the service facilities (ensuring adequate logistics support) at various levels have to be further improved to render quality care with optimum levels of client coverage both at pre and post service stages.

164. Leppard M; Rashid S; Rahman A; Akhter M; Hashima-E-Nasreen. Voice accountability: the role of maternal, neonatal and child health committee. Dhaka: BRAC, RED, 2011. (RED working paper; no. 26)

The study was initiated to explore how the MNCH committee encouraged community participation and how its communication activities empowered the community people to ensure the healthcare needs of the poor and disadvantaged people. A range of qualitative method was used in the study. In-depth interview, focus group discussion, informal discussion, observation and document review were used as data collection method. This study conducted in two sub-districts of Nilphamari and Mymensigh districts of Bangladesh during February-April 2010. Thematic content analysis technique was followed. Findings revealed that the committee members took necessary steps to solve the maternal complication by referral, follow up of referral cases, and providing financial support to the extreme poor if needed, and the committee helped increase the availability of healthcare service providers and improve the nature of service accessible to the community people. However, the capacity of the committees to raise the voice of poor people was fairly limited due to lack of adequate orientation of the committee members and also for lack of publicity about their roles. Besides, the committee could not run properly due to disagreement between power and literacy among the committee members. The MNCH committee has potential as it allowed the people's voice and could, thus, serve as a pathway through which ordinary people could hold local health authorities and local service providers to account. The findings informed the further development of an enabling environment in which the voices of MNCH committee members and community people would be stronger.

165. Mannan MA. Access to public health facilities in Bangladesh: a study of facility utilization and burden of treatment. *The Bangladesh Development Studies*. 2013(Dec.); XXXVI (4): 25-80.

The main purpose of this study was to assess whether the general perception that public health facilities, suffer from staff absenteeism, widespread prevalence of unofficial payments and inadequate supply of MSR could be substantiated. The study assessed, using primary information from a survey, whether the public health facilities suffer from inadequacies and identifies factors which act as barriers to effective utilization of public health facilities. The findings showed that in general, women and the poor were more likely to use these facilities. The study noted that although physical accessibility was no longer a major barrier, economic accessibility remains as a major hurdle. The poorest were the largest users of public health facilities but also born a disproportionate share of the burden of ill health and sufferings. There also existed a number of governance issues which contributed to poor quality of services. The poor dominate the use of public health facilities; the share of the poorest quintile is 26 per cent of total utilization, while the share of their chest 20 per cent in total utilization was 15 per cent. Some of the results were surprising, and show a wide discrepancy between the expected and observed activities. For example, the fact that about 60 per cent of staff time at the UHFWC was spent on unproductive activities was clearly an unacceptable use of health care personnel at a time when all health care resources were scarce. The findings from the quantitative and qualitative data revealed that government efforts to improve health service delivery had not yet produced the desired results. Rebuilding hope among the patients required that urgent governance issues be addressed to ensure that service providers were available at the facilities, minimum amount of drugs reached the patients and unofficial payments were at the lowest possible levels. The findings suggested that health facilities were paying for labor which they did not obtain. The government of Bangladesh spent substantial amounts of resources on health services but dissatisfaction was often expressed over availability and quality of these services.

166. Millat MH; Jahan MU; Hassan M; Alam K; Hossain MM; Miah MS. Status and prospect of Community Clinic in rural areas of Bangladesh: an overview of health workers. *Bangladesh Medical Research Council Bulletin.* 2011; 37(2): 76-77.

The present survey was undertaken to assess the status of functioning of the community clinic as well as to identify the problems and possible steps for the enhancement of the effective and efficient activities of community clinic. This cross-sectional study was conducted in Sirajgong Sadar and Kamarkhondo Upazila of Sirajgong district. Purposively 113 health workers were selected during the period of June 2011. Data were collected by a structured and open ended questionnaire with informed consent. The questionnaires were filled up by Health Assistant who was working in Community Clinics. The study findings showed that among 113 health workers, all were aware about the activities of Community Clinics and 95.6% were aware about the types of medicines available in community clinics. All community clinics were in running condition; this statement was agreed to by 92.9%b of health workers. Only 5.4% of workers had received sufficient training whereas 94.7% did not have sufficient training. Out of 113 respondents 70.3% stated that the supply of medicine in community clinic was adequate. Sixty-four percent respondents agreed that the methods of temporary family planning were available in community clinics. Most of the health workers (93.6%) were able to identify seriously ill patients and took necessary steps for further care of such patients. The study also showed 99.1% of health workers discussed with local people about health care, 95.5% respondents discussed regularly with local people about the reasons of maternal and infant mortality and 88.3% worker got help from Community group about health care. Female patients were the most prominent group of health care seekers in community clinics. According to the Health workers' opinion, 60% respondents stated that female and children patients are the main health care seekers. Most health workers felt that the number of community clinics was not sufficient. Community clinics should concentrate most in proper training of health workers and recruitment of skilled manpower for delivering proper health care. Eighty-two percent respondents opined that the recruitment of manpower, proper training of health workers, increasing the facilities of health workers was needed urgently. There is scarcity of manpower, training, unavailability of electricity and medicine, communication problem, inadequate facilities for health workers. Therefor it was suggested that proper training of health workers, recruitment of more manpower, increasing the facilities of health workers might facilitate the enhancement of the effective and efficient activities of community clinics.

167. Nahar S; Rahman MM. Factors influencing health and healthcare delivery system for the urban poor in Chittagong city, Bangladesh. *Asian Journal of Management Research*. 2013; 4(2): 288-296.

This article was initiated to examine the present conditions of health and healthcare delivery system, especially to find out different patterns of diseases, to examine the environmental factors which created various types of diseases, and to understand the coping strategies for the urban poor people in Chittagong city. The present research was done mainly based on primary data collection, included pilot survey, close observation and quantitative data collection. Primary data were collected following data collection tools i.e. questionnaire survey (sample size 120) of the head of the household level. A close observation was followed during the primary field investigation to know actual scenario of the overall environment and way of life of slum dwellers which may influence health of the urban poor. Secondary data had been gathered from different organization. From the analysis, it was found

that urban poor were suffering from various types of diseases and health complexity such as cough, fever, respiratory illness and malnutrition etc. due to water shortage, poor sanitation, and inadequate gas supply. The main reason was that the local dispensaries were available and the treatment was of low cost. The congestion of living spaces, unhealthy environment and lack of health services were the prerequisite of health problems. It is indeed that health is one of the basic needs of human being. On the other hand, public hospitals were not available. They suffered from many diseases such as fever, cough and cold, asthma and malnutrition which were caused by various reasons. Environmental problems such as indoor and outdoor air pollutions caused of fever, cough and respiratory illness. The results of this study indicated that a joint effort both by the governmental, nongovernmental and private organizations could solve the health care delivery problems for the urban poor in Chittagong city. The research findings suggested that as they receive their medical aid from by nearby dispensary, it was very risky for their sound health because without the description of a qualified doctor might cause hazardous situation to the poor any time. Both poverty reduction and sound awareness programs needed to be extended in the urban poor areas by enhancing urban amenities and infrastructure facilities for the development of locals.

168. Nahar S; Banu M; Hashima-E-Nasreen. Women-focused development intervention reduces delays in accessing emergency obstetric care in urban slums in Bangladesh: a cross sectional study. *BMC Pregnancy and Childbirth*. 2011; 11:11.

This study aimed to assess whether Manoshi DCs reduces delays in accessing EmOC. This cross-sectional study was conducted during October 2008 to January 2009 in the slums of Dhaka city among 450 obstetric complicated cases referred either form DCs of Manoshi of from their home to the EmOC facilities. Trained female interviewers interviewed at their homestead with structured questionnaire. The median time for making the decision to seek care was significantly longer among women who were referred from home than referred from DCs (9.7 hours vs. 5.0 hours, $p < 0.001$). The median time to reach a facility and to receive treatment was found to be similar in both groups. Time taken to decide to seek care was significantly shorter in the case of life-threatening complications among those who were referred from DC than home (0.9 hours vs. 2.3 hours, $p = 0.002$). Financial assistance from Manoshi significantly reduced the first delay in accessing EmOC services for life-threatening complications referred from DC ($p=0.006$). Reasons for first delay include fear of medical intervention, inability of judge maternal condition, traditional beliefs and financial constraints. Role of gender was found to be an important issue in decision making. First delay was significantly higher among elderly women, multi-parity, non-life-threatening complications and who were not involved in incoming-generating activities. Manoshi program reduces the first delay for life-threatening conditions but not non-life-threatening complications even though providing financial assistance. Program should give more emphasis on raising awareness through couple/family-based education about maternal complications and dispel fear of clinical care who was not involved in income-generating activities.

169. Quayyum Z; Khan MNU; Quayyum T; Hashima-E-Nasreen; Chowdhury M; Ensor T. Can community level interventions have an impact on equity and utilization of maternal health care–evidence from rural Bangladesh. *International Journal of Equity and Health*. 2013; 12:22.

This study aimed to look at the impact of the intervention on utilization and also on equity of access to maternal health services. A quasi-experimental pre-post comparison study was conducted in rural

area of five districts comprising three interventions (Gaibandha, Rangpur and Mymensingh) and two comparison districts (Netrokona and Naogaon). Data on health seeking behavior for maternal health were collected from a repeated cross sectional household survey conducted in 2008 and 2010. Results showed that the intervention appears to cause an increase in the utilization of antenatal care. The concentration index (CI) showed that this has become pro-poor over time (from CI: 0.30 to CI: 0.18 to CI: 0.22). In contrast the use of ANC from medically trained providers has become pro-rich (from, CI: 0.04) in the intervention area. There was a significant increase in the utilization of trained attendants for home delivery in the intervention areas compared to the comparison areas and the change was found to be pro-poor. Use of postnatal care services was also found to be pro-poor (from CI: 0.37 to CI: 0.14). Utilization of ANC services provided by medically trained provider did not improve in the intervention area. However, where the intervention had a positive effect on utilization it-also seemed to have had a positive effect on equity. Accordingly, the study recommended that to sustain equity in health care utilization, the IMNCS program needs to continue providing free home based services. In addition to this, the program should also continue to provide funding to bear the cost to those mothers who are not able to have the comprehensive ANC from medically trained providers

170. Rahman MM. Health seeking behavior during pregnancy: a study on the slum dwellers in Rajshahi City Corporation. *Social Science Journal.* 2012; 17: 53-60.

The intent of the study was to learn about health seeking behavior, their circumstances, experiences and the nature of treatment seeking behavior during pregnancy in Rajshahi City Corporation. A combination of semi structured interview, in-depth interview and observation had been used in the study. It was observed that people generally did not pay much attention to the routine problems during pregnancy. In case of pregnancy at first stage of problems some treatments was administrated at home followed by Sasthya Apa and Homeopathic doctor. In the study area it was also revealed that during pregnancy some women taken homeopathic medicine in order to get the normal delivery. One respondent with four children said that during every pregnancy period she took homeopathic medicine to get the normal delivery. The outcome was that traditional medicine was almost disappeared in this area. The present study also found that during pregnancy traditional medicine was used rarely. The next stage involved taking medicine from pharmacist or an unqualified medical practitioner depending upon availability and affordability. It was only very advanced stages of the problems that the help of qualified medical person sought. The study also revealed that poverty played a vital role in influencing the seeking treatment during pregnancy. Some beliefs on medicine, high cost of modern medicine and easy accessibility to the pharmacist also led the slum dwellers to visit the ill-qualified medical practitioners.

171. Rob U; Rahman M; Bellows B. Evaluation of the impact of the voucher and accreditation approach on improving reproductive behaviors and RH status: Bangladesh. *BMC Public Health*. 2011; 11:257.

This is a quasi-experimental study which had investigated the impact of the voucher approach on improving maternal health behaviors and status and reducing inequities at the population level. Population Council-Nairobi, funded by the Bill and Melinda Gates Foundation, intends to address the lack of evidence around the pros and cons of voucher and accreditation' approaches to improving the reproductive health of low income women in five developing countries. In Bangladesh, the activities was conducted in 11 accredited

health facilities where Demand Side Financing program was being implemented and compared with populations drawn from areas served by similar non-accredited facilities. Facility inventories, client exit interviews and service provider interviews would be used to collect comparable data across each facility for assessing readiness and quality of care, in-depth interviews with key stakeholders would be conducted to gain a deeper understanding about the program. A population-based survey would also be carried out in two types of locations: areas where vouchers were distributed and similar locations where vouchers were not distributed. This was a quasi-experimental study which would investigated the impact of the voucher approach on improving maternal health behaviors and status and reducing inequities at the population level. A significant increase was created in the utilization of maternal health care services by the accredited health facilities in the experimental areas compared to the control areas as a direct result of the interventions. If the voucher scheme in Bangladesh could find effective, it might help other countries to adopt this approach for improving utilization of maternity care services for reducing maternal mortality. Cost of delivering reproductive health services to low-income populations would always require total or partial subsidization by the government and/or development partners. Broadly termed "Demand-Side Financing" or "Output-Based Aid, includes a range of interventions that channel government or donor subsidies to the service user rather than the service provider, initial findings from the few assessments of reproductive health voucher-and-accreditation programs suggested that if implemented well, these programs have great potential for achieving the policy objectives of increasing access and use, reducing inequities and enhancing program efficiency and service quality. At this point in time, however, there was a paucity of evidence describing how the various voucher programs function in different settings, for various reproductive health services.

172. Stephen R; Ahmed J; Smith M; Li H. Bangladesh family planning private health sector assessment: brief. Bethesda, MD: SHOPS Project, Abt. Associates, 2013.

The study objectives were to understand which private sector actors were well-positioned to provide or expand quality LA/PM services, to identify and define the potential barriers, gaps and needs that NGOs and for-profit providers face in becoming effective providers of quality LA/PM services; and to assess consumer demand for LA/PMs obtained from private providers. A comprehensive literature review of published and gray literature related to the Bangladesh health system, family planning services, private health sector, financial sector, and major relevant donor-funded programs was conducted. Study revealed that 17% unmet need for family planning services and products, 63% of urban and 62% of rural women reported that they did not wish to have more children. 99% of women know of at least methods of FP. Private-sector source account for nearly 44% modern family planning methods used, with 40% representing pharmacies where only oral contraceptives and condoms were available. There were numerous opportunities for USAID to increase availability of LA/ PMs through the private sector and improve the utilization of LA/PMs in the overall family planning method mix in Bangladesh. While the market for LA/PMs in Bangladesh has some unique and significant barriers to the entry of for-profit providers and the development of a commercially viable and sustainable LA/PM market, the time for making strategic investments is now. The increased interest in long-acting methods like injectables among consumers, providers, and local manufacturers—should be capitalized on by family planning programmers with a careful eye on how to facilitate the development of a commercially viable market and an interest in other long-acting methods.

173. Sultana S; Bhadra SK; Alam MA. Utilization of essential service delivery survey 2010. Dhaka: NIPORT and ACPR, 2011.

The survey objective was to provide information on the basic indicators of utilization of the services provided under the Essential Service Delivery (ESD) in public, private and NGO services, especially by the lowest two (asset) quintiles of population. The survey used a stratified multistage cluster sampling scheme of Bangladesh Demographic and Health Survey (BDHS) 2007. It is a nationally representative survey of 11,671 ever married women age 15-49 from 11,563 households covering 181 sample points (PSUs) including 67 urban and 114 rural PSUs from six administrative divisions of the country. In this survey, 10,000 households were visited. All ever-married women age 15-49 who are usual residence of selected households were selected for interview. Data collection took place during December 2010. The survey collected information specifically from women who were asked about utilization of antenatal care (ANC), TT immunization, delivery practices and postnatal care (PNC) for mother and children. Use of family planning method was another important aspect covered in this survey. Information on child health care like vitamin A supplementation for children 9-59 months, vaccination of children, and prevalence and treatment of ARI and diarrhea was collected. Study findings revealed that fifty-six percent of pregnant women received antenatal care from medically trained providers that were qualified doctor, nurse/midwife/paramedic, Medical Assistant/SACMO, FWV or CSBA. Antenatal care from medically trained providers has increased from 46 percent in the 2006 UESD survey to 56 percent in the 2010 UESD survey. The proportion of women in the lowest quintiles received ANC from a medically provider increased to 40% in 2010 from 31 percent in 2006. Four or more ANC had increased 5% of points in 2010. Findings also showed that educated and wealthier women prefer to receive antenatal care from private facilities. A large majority of last five births (91%) were protected against neonatal tetanus and its proportion is unchanged since the 2006 UESD. Twenty-six percent of births are assisted at delivery by medically trained providers. Rich-poor ratio of utilizing facility delivery had reduced from 22 in 2006 to 7 in 2010. Only 23 percent mothers and newborns received postnatal care within 42 days of delivery from medically trained providers, and most checkups were done within two days of births. Overall, 62 percent of currently married women in Bangladesh are currently using a contraceptives method (modern 54% & traditional 8%). Among the users, over fifty percent (54 percent) use modern methods and 8 percent traditional methods. Sources of sectors of contraceptives were public 49%, private 46% and NGO 5%. Eighty-two percent of children age 12-23 months was fully vaccinated. There was 5% points decline in receiving vitamin A supplementation from 88 percent in 2008 to 83 percent in 2010. ARI in the two weeks preceding the survey among the under-five children was 20% which was decreased at 11% in 2010 and 7% of children under age five years had experienced with diarrhea. According to study findings, government should be taken necessary steps for improving the situation of utilization of essential service delivery of health care facilities of Bangladesh.

174. Tasnim S; Rahman A. Effect of community based skilled birth attendant service on maternal and newborn care practices in rural Bangladesh. *Journal of Bangladesh College of Physicians and Surgeons*. 2013; 31(2): 71-76.

The aim of this study was to evaluate the effect of community-based skilled birth attendant (CSBA) program on maternity care practices in the community. This was a quasi-experimental study in 4 randomly selected sub-districts of Bangladesh- 2 had C-SBA programs for3-4 years (intervention

areas) and 2 were control areas without C-SBA. Data were collected during 2007 by interviewing 1008 mothers who had delivered in the preceding year. The study findings revealed that more women used professional care during antenatal and postnatal periods in the intervention areas than in the control areas (82.5% vs 65.8% and 71.3% vs 39.8% respectively). Delivery by specialist doctor was 14.1% vs 2.4% in intervention and control areas respectively. C-SBA provided 39.1% of antenatal care, 5.6% of delivery care and 1.6% of postnatal care. Use of best practices for maternal and newborn care was more prevalent in intervention areas. Antenatal and postnatal care availed during pregnancy was significantly more in intervention area. Traditional birth attendants conducted majority of deliveries in both intervention and control areas (66.5% vs. 55.2%) respectively and C-SBA conducted 5.6% of the deliveries. BDHS 2007 showed that 18 percent of births were attended by medically trained person and nearly two in three births were still assisted by dais or traditional birth attendants. Among the institutional deliveries (15%) half of them were in private/NGO facilities. This was consistent with the present study. National data showed that only 21% of mothers received postnatal care from a medically trained person and 19% received the care within first two days .In the study 71.3% in intervention area and 39.8% in control area reported to have received postnatal care within forty days of childbirth. However, Implementation of Community Based Skilled Birth Attendant program had shown better utilization of professional care during pregnancy, delivery and postnatal period. Some improvements in the newborn care practices were also noticed. The study recommended to take initiatives to scale-up the program and also utilize the CSBAs for delivery care in primary care facility to see significant improvement in maternal health indicators.

2.6 BEHAVIORAL CHANGE COMMUNICATION (BCC)

175. Anonymous. Impact survey on radio and TV programme broadcasted by population cell of BTV and Bangladesh Betar. Dhaka: DGFP, IEM Unit & GUS, 2011.

The objective of this study was to assess the impact of different population program broadcasted by BTV and Bangladesh Betar under population cell in order to strengthen the program. The study conducted focusing the impact of the program related to family planning, maternal and child health on the target audience and level of practice of the same in their personal lives. This study followed a cross sectional statistical design where both qualitative and quantitative methods were used to collect the information. In total 1,500 respondents of radio program and 3,500 respondents of TV programs were successfully interviewed. Studies found on impact survey on Radio & TV program broadcasted by Population Cell of Bangladesh Betar & BTV were limited in nature. This study identified the factors that facilitate to improve and popularize the messages disseminated by the program broadcasted by Radio & BTV on family planning, mother & child health and other health issues. It also identified the barriers/problems in listening Radio and viewing TV program. This study further showed that around two-thirds of both Radio/ TV listener/ viewer were belonging to the family size in the range between 3 to 5 persons. About 34% of the respondents of radio program and 36% respondents of the TV program were engaged in business. Majority of the both respondents of radio listener and TV viewers had reported through multiple responses that they had received information on family planning, MCH and health related issues. In addition, most of the respondents of Radio listeners (96%) and TV viewers (94%) had reported that they were practicing family planning and other health related issues in personal and family life according to the information broadcasted from Radio and TV as media of dissemination of key messages. Overall, the findings suggested that communication had a positive impact on ongoing interventions at achieving high levels of knowledge and practicing FP methods. However, this study provided indications that message dissemination to improve family planning program should be improved, especially in addressing practical barriers to reach target population for successful implementation, such as different aspects of broadcasting in Radio and TV program in terms of quality program design in more attractive ways, extension of broadcasting time, re-broadcasting of good existing program and change the time schedule to reach more target population in order to fulfill all recommendations for an evidence-based intervention.

176. Hashima-E-Nasreen; Leppard M; Al-Mamun M; Billah M; Mistry SK; Rahman M; Nicholas P. Men's knowledge and awareness of maternal, neonatal and child health care in rural Bangladesh: a comparative cross sectional study. *Reproductive Health*. 2012; 9:8.

This study was undertaken to identify the extent of men's knowledge and awareness on maternal, neonatal and child health issues between intervention and control groups. This cross sectional comparative study was carried out in six rural districts of Bangladesh in 2008. BRAC health program operates improving maternal, neonatal and child survival intervention in four of the above –mentioned six districts. The intervention comprises a number of components including improving awareness of family planning, identification of pregnancy, providing antenatal, delivery and postnatal care, newborn care, under-5 child health care, referral of complications and improving clinical management in health facilities. Three groups were identified: intervention (2 years exposure); transitional (6 month exposure) and control. Data were collected by interviewing 7,200 men using a structured questionnaire.

Study results showed that men prefer to gather in informal sites to interact socially. Overall men's knowledge on maternal care was higher in intervention than control groups, for example, advice on tetanus injection should be given during antenatal care (intervention=50%, control=7%). There were low levels of knowledge about birth preparedness (buying delivery kit=18%, arranging emergency transport=13%) and newborn care (wrapping=25%, cord cutting with sterile bade=36%, cord tying with sterile thread=11%) in the intervention. Men reported joint decision-making for delivery care relatively frequently (intervention=66%, control=46%, $p<0.001$). The study suggested that emphasis should be given to behavioral change communication message place on birth preparedness for clean delivery and referral and on newborn care. These messages may be best directed to men by targeting informal meeting places like market places and tea stalls.

177. R**ahman A; Leppard M; Hashima-E-Nasreen; Rashid S. Acceptability, comprehensibility and reported influence of behavior change communication tools: experience from MNCH programme in Nilphari District of Bangladesh. Dhaka: BRAC, RED, 2011. (RED working paper; no. 21)**

This operational research aimed to assess the acceptability comprehensibility and reported influence of behavior change communication tools such as interpersonal communications (IPC), print materials, and entertainment education (E-E) used in the maternal, neonatal and child health program of BRAC. A qualitative study was conducted during March-April 2010 in two unions in Nilphamary Sadar upazila of Nilphamari district in northern Bangladesh. Data were collected by using semi-structured questionnaire, key informant interview, focus group discussion, and document review. Respondents were selected using snowball sampling technique. Data were analyzed using framework and content analyses. Findings of the study revealed that face-to-face IPC was unanimously accepted by the community members. The respondent requested increased frequency of IPC. Community members identified some inconsistencies in some of the pictures and message on maternal danger signs. Other communication channels such as folk songs and street theatres were perceived to play strong supporting role in communicating the key messages. The community people made limited use of television and radio, although where accessible, community members perceived television as a useful medium to support adoption of new knowledge in certain groups of the viewers. Overall, the study reveals that well integrated IPC, use of modified printed materials, and E-E have potentials for motivating and supporting families and other community members to take health decision for birth planning and maternal and neonatal care-seeking.

2.7 MANAGEMENT INFORMATION SYSTEM (MIS)

178. Haider SJ; Anisuzzaman M; Giasuddin S; Akter S; Saha BR; Awal MA; Islam MN. Final report on field study on the human rights-based approach to disability and development in Bangladesh. Dhaka: GTZ & READ, 2012.

The purpose of this study to describe the political and legal framework, as well as implementation structures for the realization of human rights of persons with disabilities in Bangladesh. The study was conducted in Netrokona and in Madaripur district during October and November 2011. And in each district, 2 upazilas were selected randomly. Data analyses was organized by the detailed outline of CRPD guideline and segmented by districts, upazilas and unions. The study results found that majority of the storekeepers mentioned that they received (94-100%) and stored (93-98%) the contraceptives and MSRs as per guidelines specified in the Supply Manual. About four fifths (79%) of the respondents mentioned that they distributed contraceptives and MSRs by issue voucher/invoice/ as per guideline of supply manual. And the rest (21%) mentioned that they distributed according to the indent of lower tier/according to stock and report/following push and pull method and by recording in the register. However, in all cases issue vouchers must be used for distribution of the commodities. Problems in maintaining inventory of contraceptives and MSRs: About three fifths (61%) of the respondents opined that they were facing problems in managing the inventories. Out of the 111 warehouses and stores, 39% faced problems of inadequate space followed by inappropriate storing equipment and furniture (36%), shortage of manpower (35%), non-receipt of timely report from lower tiers (12%) and inadequate supply (9%). Two-thirds (65%) of the respondents mentioned inadequate manpower interrupted with the supply of commodities. About a half (47%) mentioned transport problem, and exactly one third (33%) mentioned inadequate skills of the manpower. Findings of the current study were encouraging, as the supply system in practice under LMIS was found to be operating quite effectively with a few lapses in following the principles and guidelines of Supply Manual. As per study findings, actions to be taken in the health sector are: i) strengthening early identification of symptoms of disability and providing primary medical rehabilitation; ii) raising awareness among adolescent boys and girls and men and women regarding disability related issues; iii) undertaking a nutrition program for pregnant women; iv) training of doctors, nurses & other caregivers to deal with disability issues; and v) support services of assistive devices and equipment at the health canter.

179. Khan MK; Rahman Z; Kaiser FR; Ferdous J. Management of emergency services in some selected Upazila Health Complexes (a dissertation for MPH Degree) . Dhaka: NIPSOM, Department of Public Health and Hospital Administration, 2012.

The study was designed to find out the information regarding management of emergency services in UHCs that results would enrich the planners, managers, policymakers and health care providers to take positive measures to improve the management of emergency services in the Upazila Health Complexes of the country. A cross sectional descriptive study was conducted in the Emergency Departments of Ghatail, Kalihati, Gopalpur, Bashail and Nagorpur Upazila Health Complexes under Tangail District to find out the available facilities, availability of service providers, waiting time of patients for receiving service, emergency referral rate and to assess patients' and doctors' satisfaction regarding services in the Emergency Departments. A total of 105 patients and 10 doctors were interviewed, using structured

questionnaires and facilities were observed through a check list. Results of the study revealed that majority of the patients (75.2%) did not find doctor in the Emergency Departments immediately and in 94.3% cases they found either Medical Assistant (MA) or Nurse or Pharmacist. 5.7% patients did not find any health personnel in the Emergency Departments immediately. Fifty-five (55%) percent attending the Emergency Departments did not receive doctors' service. Waiting time of the most patients (58.1%) for receiving health care was less than 2 minutes. Seventy (70%) percent patients did not get urgent investigation facilities in the Upazila Health Complexes. Fifty-nine (59%) percent patients were discharged after treatment. Thirty-three (33.3%) percent were admitted and 6.7% were referred to higher centers. Fifty-eight (58.4%) percent patients using toilets were poorly satisfied with the cleanliness of toilets. Ninety-one (91.4%) percent patients were satisfied with overall management of the Emergency Departments. According to the doctors' opinion, patients' and attendants' attitude was good but sometimes not satisfactory. Most of the doctors were not satisfied with their job and think the Emergency Departments were not well equipped and not well staffed. It was found that emergency departments of Upazila Health Complexes were not so clean, not well equipped and not well staffed. Though the waiting time was satisfactory, doctor presence was poor. Most of the patients received services from either Medical Assistant or Nurse or Pharmacist. Diagnostic facilities played a vital part in the management of patients. Diagnostic facilities for the patients of the Emergency Departments in Upazila Health Complexes were available to some extent only in the morning shift. Life-saving drugs were not available or inadequately available in the Emergency Departments. The findings of the study might be useful in the improvement of the management status of the emergency services in the Upazila Health Complexes. The results also indicated further study in this field.

180. Rahman MS. Health care delivery system and challenges in health seeking behavior in rural Bangladesh. *Social Science Journal.* 2011; 16: 103-116.

The study explored the impact of healthcare delivery system and socioeconomic status on health seeking behaviors in rural Bangladesh. The paper was mostly based on secondary information gathered from different sources. Inequalities in the distribution of resources between urban and rural communities contribute to the differential pattern of health seeking behavior. Bangladesh, a poor country, suffered from inadequate health infrastructure as well as trained health manpower to meet the uneven healthcare demand of a vast population of about 160 million people. The public health facilities in rural Bangladesh functioning poorly due to lack of resources and shortage of trained manpower. Although there has been remarkable progress in private sector health system, they are intended to serve the urban affluent section of the society. This disproportionate ratio between health providers and health seekers made room for monopoly of the health professionals. This unregulated health market and poor socioeconomic status of the rural people influence to choose unqualified practitioners that were available to them. The healthcare delivery system in Bangladesh awfully suffers from scarcity of resources, inadequate number of trained manpower, poor quality of services, underutilization of existing facilities, corruption and poor management. Instead of giving priority to serve the majority population of the country living in rural areas, the role of public sector was biased in favors of urban affluent class. The existing union health and family planning welfare centers were insufficient to meet the growing healthcare needs of the rural population. The Government of Bangladesh should immediately consider decentralization of healthcare services through restoring the community clinics. Availability of health services could improve the situation and minify the inequality to access to the health system. These findings imply the need to incorporate these semi/unqualified practitioners in the health care system at the primary health care level through capacity building.

2.8 MCH-FP PERSONNEL EVALUATION (training, human resources development, performance of the workers, etc.)

181. Anonymous. Develop HR strategy for health sector. Dhaka: NIPORT, 2011.

The objectives of the study were to review existing service strategies and to develop a standard HR strategy for health sector program personnel working at different level. This study was implemented by collecting both primary and secondary data. The primary data were collected from such respondents as people from different occupations, physicians, medical students, nurses, medical technologists and management personnel engaged in managing hospitals of different categories. A SWOT analysis conducted to determine strengths, weaknesses, opportunities and threats of the health sector in Bangladesh. In addition to this Focus Group Discussion (FGD) were conducted in five villages of five districts each belonging to a Division. The respondents were selected from both rural and urban areas. The study revealed that even in rural areas people go to qualified physicians for treatment. This was a positive indication about increased consciousness of people about healthcare. In Bangladesh physician to population ratio is very low, one registered doctor per 2860 persons, one hospital bed per 1860 people and doctor /nurse ratio is 2:1. The physician population ratio needs to be rationalized to ensure health care services to all. In Bangladesh medical technology is not given due importance. The levels of people on whom tests are dependent are not appropriate ones for conducting complicated tests. The situation of job of nurses is also not satisfactory. Overall situation of human resource in the health sector is not appropriate to ensure health for all. The study found that not adequate research was done in medical field and also the health care system suffered from succession plan. Strategic approaches need to be taken to develop human resources for the health sector. The study found that position of physicians had been lying vacant for years in Upazila and District level hospitals. The situation of job of nurses was also not satisfactory. Although recently nursing services have been upgraded to second class grade, still the job conditions are not attractive enough to make nursing an attractive profession. The HR strategy should take into consideration need for timely filling up of vacant positions. An effective in-service training system is essential for development of human resources for health sector. The HR strategy should emphasize conducting research by physicians and other professionals working in the health sector. Adequate attention need to be given to improve quality of nursing education and thus improve service conditions of nurses.

182. Anonymous. Identify the workload of fieldworkers (FWAs) under changed circumstances. Dhaka: NIPORT & ARTCOP, 2012.

The general objective of the study was to identify the workload of the field workers (FWA) under changed circumstances and the specific objectives were: i) to determine the reasons for workload of the FWA; ii) to assess how far the family planning program was affected due to workload; iii) to determine the impact of workload on the FP performance; and iv) to investigate what should be done for reducing the workload of the FWA. The study followed a cross sectional statistical design to obtain information from both the primary and secondary sources. Three categories of samples were selected for the study purpose viz. program managers, service providers and field workers and women of reproductive age. Multi-stage sampling procedure was followed to select the samples. From all the upazillas of Bangladesh, 20 upazillas were selected for taking the study samples by Probability Proportional to Size (PPS) method. From each selected upazilla 6 unions were selected by random

sampling technique. Finally, 5 women of reproductive age were selected from each village using systematic sampling. Analysis of the data on implementation of family planning program (counseling, motivation, distribution of methods, taking the clients to the clinics or advising or referring the clients for the treatment of side effects) showed that these activities could be covered only partially as reported by about 69% (in the case of advising or referring cases for the treatment of side effects) to 85% (in the case of motivation) of the respondents. Most of the problems centered on devotion of their time on national day activities, time spent in the community clinic, coverage of large working area, poor communication and the like. Lack of counseling could have enormous effect on reducing number of family planning acceptors and which was felt by 90% of the respondents. The same cause could make delay in distribution of methods in due time, was mentioned by 70% of the respondents. The other shortfalls were identified to be lack of motivation in the distribution of methods (80.1 %) and services rendered to the clients (79.4%) for the same reason. The increased size of the population, eligible couples and households were the major reasons for which FWA could not perform their responsibility properly with full satisfaction. However, before revision, an assessment of the extent to which the revision feasible and achievable is required. The study also showed that field workers cannot perform their regular activities as they were engaged in community clinic for 3-days a week. It is recommended that for the sake of family planning program they should be withdrawn from the community clinics. Moreover, FWAs are engaged with other activities like EPI, Arsenic, Electoral process which also jeopardizes the family planning program implementation. Therefore, proper steps should be taken to reduce the extra burden of other activities from the FWAs. Although majority field workers reported that their works were supervised by high officials. Thus the effective and supportive supervision system should be introduced for smooth operation and functioning of the family planning program.

183. Anonymous. Assess the acceptance of field service providers to the community level in providing RH-FP services. Dhaka: NIPORT & Pathmark Associates Limited, 2013.

The study was conducted to ascertain the acceptability of the field service providers (FWV, CHCP, FWA, CSBA) at community level in delivering RH-FP services. The study had focused on service recipients and community level field service providers who are providing RH-FP services for community people. The respondents or major data sources for this study were service recipients, Family Welfare Visitors (FWVs), Family Welfare Assistants (FWAs), Community Health Care Providers (CHCP), Community Skilled Birth Attendants (CSBA). The study has covered a total of 21 districts with three from each division. From each district four Upazila was selected. The sample consisted of 168 FWVs, 336 recipients of services from FWVs, 336 FWAs, 672 recipients who take services from FWAs, 168 CHCPs, 336 service recipients CHCPs, 168 CSBAs and 168 service recipients who take services from CSBAs. In the total were collected from 2184 respondents. In addition to these activities of 84 FWVs, 168 FWAs, 84 CHCPs were observed. The study also included observation of works of the mentioned family planning reproductive health service providers. The recipients' opinion was taken from each category of field service providers. The study findings showed that average age of FWVs was 44.11 years, minimum qualification SSC, average age of FWAs was 42 years, minimum qualification class VIII, average age of CHCPs was 26.98 years, most were gradates and holder of qualification, average age of CSBA was 42.09 years and minimum qualification was class VIII pass. Two FWVs and FWAs got training on FP methods; CHCPs got basic training for CHCPs, CSBAs' got basic training for CSBAs. It was reported that complications develop in use of some FP methods. These are in using IUDs, excessive bleeding due to injection and bleeding due to incomplete MR.

The FWAs were found to give FP services. Besides they give pre-pregnancy services, and antenatal check-up and postnatal services. Of the CHCPs 76.79% prepare the annual work plan. They gave such services as giving drug for common ailment, measuring blood pressure, treatment for anemia and pediatric service. The CSBAs were found to give acceptable level of services in conducting normal delivery. They refer the complicated cases to Upazila Health Complexes. The study had found that in most cases the service providers and their services are acceptable to the communities. In some areas, there were religious and social barriers in respect of delivery and acceptance of RH-FP services. The FWVs had a key role to play in management of RH-FP services at the entry level qualifications of FWVs, the capacity of FWVs should be increased by giving training. The FWAs play an effective role in rendering RH-FP services by making house to house visits. With the increase in level of literacy of the service recipients there has to be a concomitant increase in the quality of service providers. It is therefore, recommended that the entry level minimum qualification of FWAs should be increased. After recruitment training should be more on the job than class room based. There should be arrangements for a sitting space water supply and sanitation facilities at the union level services centers. The community clinics can be expanded to provide delivery services. Steps need to be taken to conduct mass awareness about bad result of such barriers. The community clinics and union health and family welfare centers should have proper water supply and sanitation, comfort sitting arrangement, provided ambulance services facilities.

184. Anonymous. Training needs assessment of program personnel and service providers of FP. Dhaka: NIPORT& GUS, 2013.

The aims of this study is to ascertain the training needs of the family planning program personnel and service providers by each category of Upazila and below levels by analyzing tasks, time spending by key assignments, gap between assigned and actual task, training received, constraints faced during performance, needs of immediate and future training. In statistical point of view and making representative in regards to each division, an efficient district sample frame has been followed in this study. Apart from documents review and performance observation, the study collected information through face to face interviews from the population that includes Program Managers such as UFPO, Medical Officer (MCH) and AUFPO at the Upazilla level in the selected areas. For collecting data, the study covered 168 unions of 56 Upazillas of 14 districts from 7 divisions in the country. Relevant information such as organizational work process, prior training plans, job/tasks analysis findings of the FP personnel at Upazilla level were collected and analyzed. A total number of 1176 respondents considered for in-depth interview using semi-structured questionnaires. The study findings found that all Medical Officers, UFPOs, AUFPOs FWVs, SACMOs were senior and experienced. On the average they have been working in the family planning program for around 17 years. According to job description they perform a range of key activities such as administration management, financial management, planning and program implementation, service delivery and monitoring, IEC, provide training, collection and distribution of materials; information documentation and reporting. This study included the program managers, service providers, field workers of the FP directorate working at Upazilla level. Majority of the field personnel (UFPO, MO (MCH-FP), AUFPO, FWV, SACMO, FPI, FWA) stated that they needed further training on Job Description (JD) related activities to improve their level of knowledge and skills and they also provided their opinion on duration ranged from one to three weeks. Finally, the study recommended that organizing of training on priority areas, particularly on MCH related service i.e. recording and reporting.

185. Anonymous. Follow–up of FWV basic training. Dhaka: NIPORT & ARTCOP, 2012.

The purpose of the study was to examine the effectiveness of FWVs basic training in providing services at facility and outside facility level in terms of their knowledge, skills and performance in order to identify gap between the training curriculum and process and also identify the needs for refresher training. The study followed a cross sectional design to obtain information from primary, and secondary sources. Both quantitative and qualitative instruments were used to collect information from the selected respondents. Standard statistical formula was used in deciding the minimum sample size for each stratum. About 400 FWVs who received basic training from 12 FWVTI's were selected and for this separate list was prepared for each of the FWVTI. Stratified random sampling technique was applied to select the FVWs. However, 360 FVWs were successfully interviewed. Results of the study showed that a substantial proportion of the respondents knew the type of job they were supposed to perform. On an average, about three-fourths of the respondents provided such services as motivating the eligible couples for accepting family planning methods (80.3%), encouraging adopting permanent method (82.8%), counseling (74.4%), helping physicians in their endeavor to provide permanent method (77.1%), and advising clients for follow-up visits (75.8%). The FWVs were required to attend two days a week in satellite clinics to provide services related to MCH and family planning to the clients. All the selected FWVs were asked if they are aware of the services provided from these clinics. MCH related services include, among others, antenatal care (ANC), postnatal care (PNC), nursing under-5 children, and treatment of general patients and the awareness was highly satisfactory as in most cases, 87% to 89% FVWs could recall these services. Knowledge on the family planning services provided from the satellite clinics was also significantly high. The number of clients who were reported to seek services from the clinics was seen to vary substantially by type of services. The average numbers clients asking for general treatment was 868 followed by ANC 133. A query to know the field level problems, it was revealed that in most cases FVWs were able to do the same performance neighborhood 90%, except problem to get Medical Surgical Requisite (MSR) (43.3%), record keeping and record generation (34.4%), accommodation problem (44.4%) and problem applying training knowledge in practical field. Nearly 40%-50% of the respondents were on the opinion that most of the arrangements were highly satisfactory. On average, 5-10% expressed their dissatisfaction on the arrangement. The weakest side of the training was that the training was unrelated to their job, which was mentioned by about 6% of the respondents, while 41.4% of them found the training consistent with their current job. An equal proportion disclosed that the training manual was not useful at all. On the contrary, 42% found the manual very helpful for them. About 5% of the respondents were dissatisfied with their training allowances while 52.2% expressed their utmost satisfaction on the training allowances. The study indicated that nearly one-third of the FWVs felt the need for practical and field level training. According to the findings, the study suggested that duration of hands on training should be increased, more skilled persons should be engaged to provide professional training, training module should include both theoretical and practical issues, sufficient training materials should be provided, refresher training on MR, IUD Copper T and midwifery should be arranged and as per desire of the FWVs the above mentioned refresher training should be provided on short term basis.

186. Banu M; Hashima-E-Nasreen; Rashid S. Stakeholders' knowledge in obstetric complications and role of health providers in accessing emergency obstetric care: experiences from Nilphamary district. Dhaka: BRAC, RED, 2011. (RED Working paper; no. 18)

This study was initiated to explore the stakeholders' knowledge in obstetric complications, role of MNCH interventions in accessing Emergency Obstetric Care (EOC) and factors associated with delays. A community-based qualitative study carried out during May-June 2007 among 42 obstetrically complicated women and 18 community health workers (CHW) in three upazilas of Nilphamary district. The findings revealed that a substantial proportion of women pointed out at least three obstetric complications but family members' knowledge found inadequate, whereas the level of knowledge among CHWs found average. CHWs referred 36 women and assisted in accessing EmOC in the facility. Nineteen respondents delayed in deciding to seek care for financial constraint, informal treatment, failure to recognize the complication, absence of household head, and lack of emergency preparedness. Gender role found important in decision-making. Eleven women got delayed treatment in facility level due to lack of doctors trained in EmOC, operation facility, blood bank and poor performance of pathology and non-functional transport. The programme should give emphasis on educating pregnant women and their family members especially husbands. Capacity development of newborn health workers in assessing the severity of illness, appropriate referring, and making linkage with local transport facility to transfer patients during obstetric complicaitons is needed.

187. Rob U; Talukder MN; Khan AKMZU. Strengthening union level facility for providing normal delivery and newborn care services: workshop report. Dhaka: Population Council & UK Aid, 2011.

The objective of the study was to identify possible mechanism of strengthening Health and Family Welfare Center (HFWCs) for providing normal delivery and newborn care services. This study was the outcome of the workshop titled" Strengthening Union Level Facility for providing normal delivery and newborn care services." The workshop was designed to produce recommendations that were appropriate and pragmatic. Study found in rural areas, first level fixed-facility service was provided at the union level (the lowest administrative unit covering about 30,000 populations) through HFWCs. These union-level health facilities (HFWC is used interchangeably) were designed to improve maternal and child health by making services available to the people in rural areas. However, a full range of reproductive health services for women was not available in those facilities. In particular, most of the HFWCs did not have the provision for normal delivery services, which is often compounded by the unwillingness of pregnant women to receive maternal health care services from the Upazila Health Complex due to long distance from their home. Transportation was one of the main determinants of low utilization of professional maternity care in Bangladesh. Since Bangladesh was far from achieving the Millennium Development Goal (MDG) of reducing its maternal mortality ratio by 2015, it was critical to ensure access to institutional delivery from the nearest fixed facility. Upgrading the HFWC could help women to receive free normal delivery services within their convenient distance and without difficulties related to transportation. HFWCs were not utilized optimally, partly due to a shortage of service providers and inadequate availability of some essential services such as delivery, newborn care, and integrated management of childhood illnesses; these services need to be integrated into all the HFWCs. The existing infrastructure should

be strengthened for providing those services, for which situation analysis was required. At the union level, the Family Planning Committee was supposed to act as an oversight body, but these committees are mostly non-functional. Union Family Planning Committees need to be revitalized. There were gaps in the existing programs targeted towards reducing maternal mortality. Although initiatives are underway to strengthen Upazila Health Complex to provide emergency obstetric care and Community Clinics being made functional, union-level facilities were in a weak functioning condition. The government is yet to ensure institutional delivery and newborn care services at the union level except a few. It may not be possible to reduce maternal mortality or infant mortality only by strengthening community clinic or upazila hospital while leaving in between weakly functional union health facilities.

188. Sattar MA; Islam MN; Alam MA; Bhuiyan RH; Rashid MA. Workload of field workers (FWA) of family planning program of Bangladesh. *South Asian Journal of Population and Health*. 2012; 4(1&2): 11-20.

The general objective of the study was to identify the workload of the field workers (FWA) under changed circumstances as described in the background section of the present paper. The study followed a cross sectional design to obtain information from the primary and secondary sources. The study data were collected using both quantitative and qualitative methods. Four categories of samples were selected for the study purpose. The categories were: program managers, service providers, field workers, and women of reproductive age. Standard statistical formula was used to determine the sample size. Multi-stage sampling procedure was followed to select the samples. The study results showed that the coverage of the population in terms of its size, number of households and the number of families increased substantially over the period under reference except that for pregnant women. For example, 2220 persons on average were being served by the respondents before 2000, which increased to 5046 persons as of the current date, a more than two-fold increase over the period under study. A vast majority of the field workers failed to provide proper counseling of their clients due to their involvement in other unscheduled works. Motivational campaign also remained at a stack due to their additional pressure and burden of extra work. For these reasons, the number of permanent method users was not increasing as expected. The study further indicated that the field workers remain involved in the activities related to organize the satellite clinics. In organizing satellite clinics they require to prepare advance work-plan make door to door campaign for satellite clinic and had to take patients for side effects management. The increased size of the population vis-a-vis families, eligible couples and households were the major reasons for which FWA could not perform their responsibilities properly and fully. It was recommended that a revision of the target in terms of the coverage should be considered to help the program implementation. However, before revision, an assessment was required to fix an achievable target. Therefore proper steps should be taken to reduce the extra burden of other programs. This may be included recruitment of more field workers to share the responsibilities of each other.

2.9 WOMEN IN DEVELOPMENT (decision making, mobility etc.)

189. Akhter MS; Mazumder MAH. Household decision making of rural women in Bangladesh: present status and challenges. *Empowerment-A Journal of Women for Women*. 2013; 20: 57-70.

The objective of the study was to focus on the present status of rural women in the participation of household decision making process in Bangladesh. Qualitative survey method was applied in this study. It was conducted among the rural women of Guabasina village of Charghat Upazila of Rajshahi District, Bangladesh during February to April 2012. One hundred fifty married women were randomly selected from 499 households from the study are. The process of decision making is one of the most complex mechanisms of human thinking, as various factors and courses of action intervene in it, with different results. Rural women in Bangladesh have a lower socio-economic status compared to men in all aspects including the sector of household decision making, although they often contribute significantly to their families. Respondent's age, educational status, household size, household income and relationship with heads of the household were analyzed descriptively considering socio-demographic characteristics. Age is an important factor to identify the socio-demographic situation of a man or woman, because age provides a woman the experience and ability to take decision about and around her. Educational attainment was the most fundamental prerequisite for empowering women in all spheres of society. Family income was an important index of measuring socio-economic condition of a person or a family. In Bangladesh, rural women are the most disadvantaged minority in the social, economic and political realms. Traditional rural society of Bangladesh is permeated with patriarchal values and norms of female subordination, subservience, subjugation and segregation. In the rural areas of Bangladesh, men work outside and move about freely, while women are often secluded in their homes. Women were the most affected by negative impact resulting from discrimination at birth leading to deprivation of access to all opportunities in family and social life. Besides household performance, Bangladeshi rural women started lo contribute to the economically productive activities of the country. The study suggested that smooth running of a family as well as sustainable development of the community and the country is very important that equal status and equal authority should be given to the basic constituents of family, i.e. man and woman so that they can gear up their children in a better way and solve their day to day problems for achieving their desired goals, and play an active role in the overall development.

190. Anonymous. Report on violence against women (VAW) survey 2011. Dhaka: BBS, 2013.

The main objective of this survey was to generate official national statistics on the prevalence of violence against women and to observe the overall situation including the forms of violence along with their magnitude in Bangladesh. Another objective was to identify and understand the magnitude and intensity of violence against women, which could help in policy formulation, programs and interventions and also improve the existing laws and act related with this issue. The survey used a stratified two-stage cluster sampling design with 7 urban and 7 rural (second level) strata in each of the 7 administrative divisions (first level independent strata) of Bangladesh. In the first stage, 30 Primary Sampling Units (PSUs with about 250 households each) were selected systematically from each of the 14 strata. At the second stage, 30 single dwelling HHs was randomly selected from each

selected enumeration area (EA). The final sample comprised of 420 PSUs and 12,600 eligible women over 15 years of age interviewed about current husband, previous husband or non-partner violence. Study found violence against women by partners as many as 87% of currently married women had ever experienced any type of violence by current husband, and 77% reported any type of violence in the past 12 months. Amongst different types of violence reported, psychological violence was most common, followed by physical violence. Sixty-five percent of married women experienced physical violence perpetrated by their current husbands in their lifetime. The recent incidence was also high as nearly half of married women reported such violence in the past 12 months. More than one-third of married women experienced sexual violence perpetrated by their current husbands in their lifetime. Psychological violence against married women was extremely common and persistently practiced by their husbands in Bangladesh, as over 80% had ever experienced it in their life time with 72% in the past 12 months. About 8% of women reported the recent incidence of non-partner physical violence in the past 12 months while almost one quarter of the women reported their life-time experience of such violence. Further analysis of non-partner violence by type of perpetrator indicated that parents, stepparents, and parents-in-law combined represent the most commonly-cited perpetrator of physical violence, followed by other family members, including sisters/brothers-in-law. The survey results emphasized that we all need to do better to protect women and prevent this pervasive human rights violation. New and improved laws and their implementation are crucial to end impunity for violence against women and girls. Action plans for safe houses, free hot line services and free health and legal aid to survivors are also important areas. The education system should teach human rights, equality and mutual respect and the youth should be in front to end violence against women and girls.

191. Barkat A; Osman A; Sengupta SK; Ara R; Ahsan M. Situational analysis of sexual harassment at tertiary level education institutes in and around Dhaka. Dhaka: Human Development Research Centre (HDRC) & MDGIF, 2013.

The objective of the study was to document and analyze the present status of prevalence, types, and effects of sexual harassments towards female students of public and private tertiary level education institutes in and around Dhaka. The research had been designed with adequate innovativeness with precise methodology. Both quantitative and qualitative methods have been used in the survey and the data (from quantitative survey) and information (from qualitative survey) has been triangulated while making analysis. However, 8 tertiary level education institutes were surveyed (namely: 2 public universities, 2 private universities, 2 medical colleges, and 2 university-colleges). A sample size of total 897 was determined using statistical formula. The findings of the study revealed that three-fourths (76%) of the female students faced at least one type of sexual harassment during their study period in the universities inside and/or outside campus by campus related people (students, teachers, management staff, support staff). The prevalence was highest in public universities (87%), followed by university colleges (76%), private universities (66%), and medical colleges (54%). On an average, a female student faced 1.51 sexual harassments in the university, which was highest in public universities (1.88), followed by university-colleges (1.45), private universities (1.27), and medical colleges (0.95). In this study, 16 type acts have been defined as sexual harassment. The survey data also showed that 679 victims (out of 897 sample respondents) faced a total of 1,355 harassments; and they responded to the harassments in 10 different ways where number of total response was 1,660. On the other hand, 28.3% response were shared with friends, but did no more. Only 6.9% responded as- told parents/

family members, but did no more, which clearly indicated that female students did not feel comfort in sharing this type of information in their family. Protesting openly/publicly was almost absent, and none complaint to authority. As an exploratory study, the current research revealed that three-fourths of the female students faced at least one type of sexual harassment during their study period in the universities in Dhaka city and around. In most cases male students of other classes have been accused as the perpetrators. Male teachers had also been accused as perpetrator for sexual harassments in the universities; though the cases were not significant in number. The recommendations are mainly the output of the compilations of the suggestions given by the respondents to stop sexual harassments at the tertiary level education institutes and also the expert judgments of the researchers of the study. By considering the prevalence, types and effects or consequences of such incidents in a woman's life immediate, medium, and long term strategies need to be taken to combat sexual harassments in the universities. There is a vital need for immediate conduction of a wider-scale research study covering all types of education institutes at all levels from all over Bangladesh. Therefore, instead of looking into those separately, recommendations must be treated with priority as a continuous through a social movement to ensure women empowerment inside the society in every level.

192. Khan MAK. Role of NGOs in socio-economic empowerment of women in Bangladehs: a study on Kushtia district. Rajshahi: University of Rajshahi, Department of Political Science, 2012.

The study was designed to identify the role of NGOs that affect empowerment of women and its impact on the social, economic and political changes. The study has been conducted in the two NGOs-BRAC and ASA. The analysis of the study is based mainly on data obtained from 250 women respondents from two selected NGOs under Kushtia district in Bangladesh. These NGOs, namely BRAC and ASA, are working nationwide in Bangladesh. The findings of the study revealed that most of the women have less right to take decision in the rural areas. Women s ownership of landed property is extremely limited. Majority of women have less opportunity to select contraceptives and majority of them have no right in case of pregnancy. It is found that among the various socio-economic factors, such as women's education, income, ownership of assets of assets, credit, training, duration of marriage and socio-cultural, the most significant contributing factors of women s empowerment are very less. Involvement of women in different NGOs like BRAC and ASA increases their opportunity to receive training and credit, which helps them to be empowered. Among the different empowerment factors, which are provided by NGOs-like awareness of women, decision-making power, family decision, reproductive rights and mobility of women which have greater impact on demographic on demographic changes. The role of BRAC and ASA are very significant to empowering women in Bangladesh as well as in the study areas. This study expresses different programs of BRAC and ASA. In the micro credit program for empowerment of men in Bangladesh, empowerment barriers have also been examined in this study. It is found that traditional economic systems, religious beliefs, values, and running gender biased socialization etc. work as the barriers to in the rural areas. Women s ownership of landed property is extremely. It is found that among the various socio-economic no right in case of pregnancy. It is found that among the various socio-economic factors, such as; women's education, income, ownership of assets, credit, training, duration of marriage and socio-cultural practices, the most significant limited. Most of them cannot decide even to cast their votes by their own choice. Majority of women less have less opportunity to select contraceptives and majority of them have no right in case of pregnancy right to take decision contributing factors of women s empowerment are very less. Involvement of women

in different NGOs like BRAC and ASA increases their opportunity to receive training and credit, which helps them to be empowered. Among the different empowerment factors, which are provided by NGOs-like awareness of women, decision-making power, family decision, reproductive rights and mobility of women had greater impact on demographic change. In the light of the analysis, the study recommends that the process has observed important implication, both for theory and policy. It will also help policy makers, academicians and program administrators in adopting measures to readjust the program strategy and implementation procedures for empowering women in Bangladesh. It also may portray a clear picture of women empowerment and the role of NGOs in the selected areas.

193. Naznin T; Rahman MM. Occupational health and women: a study among the home-based workers in Manikgang District. *Social Science Journal.* 2013; 18: 161-170.

The main objective of this study was to explore the health situation of female home based workers in Bangladesh especially occupational health conditions such as diseases, accidents and injuries. Beside this, the study also tried to discover male and female home based workers treatment seeking behavior pattern, their perception and practice of health related problems. The study was exploratory and descriptive in nature. Both qualitative and quantitative data were collected through structural interview, key informant interview, in-depth interview and focus group discussion. Study revealed that most of the female home based worker suffered from work related health problems like back pain, eye problems, headache. In the study area home based workers have limited health care facilities form the government hospital/health centre. As the private clinics charge huge amount of money so most of the workers could not undergo proper medical treatment. It was found that women's health problems were not taken seriously by themselves or as the family members and most of the time women's treatment depends on the availability of household resources. However, women were more vulnerable because of reproductive health problems which were directly related to their work. Women were suffering more than men because of constraints on their capabilities and lack of agency. The result suggests that the pattern of diseases and health related problems varied on the basis of nature and type of home based workers and their gender status. Moreover due to gender division of labor home based female workers mostly suffered from chronic diseases but they had less access to health care facilities compared to men workers. This research suggested that free health care facilities should be provided to the home based workers through public health institutions and NGOs.

194. Siddque KN. Budgetary review on violence against women and costing of the implementation of the domestic violence act. Dhaka: UN Women, IRG, 2013.

The objectives of this analysis were to ensure appropriate and higher allocation of resources in the budget to mitigate Violence Against Women (VAW) effectively and to implement the Domestic Violence [Protection & Prevention] Act 2010. The analysis of the study was done by justifying four methodological parts. Part one- dealt with budgetary review on Violence Against Women of 11 ministries of the government who participated in 'UN-GOB Joint Programme on VAW in Bangladesh initiatives. Part two- dealt with the methodology on calculation the total budget of the government in dealing with VAW. Part three- dealt with the methodology on calculation the cost of implementing the Domestic Violence Act, 2010. Finally, the fourth part- dealt with the methodology in identifying recommendations for the 11-ministries in dealing with violence against women. Study found that budgetary analysis of the 11 ministries and the government in general indicates that government's financial commitment

in addressing violence against women was not sufficient given the magnitude of the problem. Total expenditure of the government (including recurrent and development expenditure) for the FT 2012-13 on dealing with violence against women was about taka 220.72 crore for the FY13. This was about 0.10 per cent of total government budget for FY 2012-13 which was about 0.02 per cent of GDP estimated for that year. Estimation of the costs of implementation of domestic violence act 2010 indicated that non-recurrent or capital expenditure would be approximately in the area of Taka 236.46 crore and estimated recurrent expenditure is expected to be in the amount Taka 590.08 crore. The total cost, therefore, was expected to be in the amount of Taka 826.54 crore. In estimating the cost of introducing and implementing Domestic Violence bill consideration was given to the fact that this would be rolled out over a period of two to three years. To mitigate violence against women at least four things are required. First is to address the policy legal issues (policy and law adoption, implementation and monitoring). Secondly, area where efforts can be made in encouraging changes in attitude and behavior of men and boys, women and girls. Thirdly, to work on immediate relief and rehabilitation of those who are victims of violence or are particularly vulnerable to violence. Finally, there needs to be sufficient budgetary allocation from the government to carry out activities in an effective manner. General recommendations are made in six broad headings to reduce VAW. These recommendations are changing social norms and values, women's participation in income generating activities, strengthening the legal framework and implementation, undertaking multi-sectoral approach in addressing VAW, budgetary allocation, data on VAW.

195. Siddique KN. Seeking to understand social costs of domestic violence in Bangladesh. *In: Training of Trainers (TOT) manual addressing violence against women (VAW).* Dhaka: UN Women IRG, 2013. pp. 85-99.

The focus of this study was only violence against women within marital relationship, which was referred as intimate partner violence or IPV. Given that the focus of this study was violence against women particularly marital violence where victims were wives and the perpetrators were husbands, for collecting information it was important to have their confidence and trust on the person who would be asking questions on domestic violence for data collection. To calculate cost of violence, a survey was carried out in three districts of Bangladesh-Sunamganj, Dinajpur and Tangail. CARE Bangladesh had been carrying out activities in three districts on domestic violence against women particularly marital. It was important to highlight the fact that there was no well-establish methodology available to estimate social costs of violence against women. With that in background here an attempt made to get a qualitative idea about the social costs of violence against women. It was difficult to actually estimate the monetized social cost of violence. However, one could understand how many women were being subject to violence and to what extent violence was negatively impacting individuals and society. On the basis of a household survey and some case studies information was gathered on social costs of violence against women. The study found four groups of people are suffered from the violence, i.e. first victims, secondly children, thirdly members of the victim's parental family and fourthly perpetrator. Violence is triggered by conflicts over not getting enough dowries, not having sufficient money, burden of domestic work, extramarital relationship by the husband and suspicion of the husband about wife having extramarital, alcoholism and gambling. In answering what type of violence and how frequently the respondent endured on a regular basis, 51.0% complained about being slapped 30.9% complained that they were punched by hand. Other kinds of violence were in the forms of kicking, kicking during

pregnancy, beating with stick/sweeping broom or other objects, throwing hard objects at the victim, burning/setting fire, pulling hand, throwing hot water etc. In a highly patriarchal society, Bangladesh is mired by gender inequalities in both public and private spheres. Within households, women are highly dependent on men control resources. In Bangladesh, culturally and socially the family is still seen as the rightful place for women and yet it is within this family where power relations are often played out and women become subject to physical and psychological violence against them. In the cases of VAW, it is recognized that the effects of violence have larger ranging social costs to the society. It has also been shown that costs of violence do not take the victim only it also negatively affects other members of the family, community greater society and also the state.

196. Win HWY; Yasmin N; Kakoly NS; Lahiri S. Women empowerment towards health: perspective of garments workers in Bangladesh. *SUB Journal of Public Health*. 2011; 4(2): 5-13.

The study was undertaken to assess female RMG worker's empowerment regarding health in Dhaka, Bangladesh. The present cross-sectional study engaged mixed method. Quantitative survey and qualitative in-depth interviews and focus group discussion (FGD) interviews were done concurrently. Survey was conducted in one purposively selected garment factory in Uttara in Dhaka, Bangladesh. In depth interviews and focus group discussion were conducted in female garment workers' houses in Uttara in Dhaka, Bangladesh. For quantitative method, face to face interview was conducted using a structured questionnaire. Study findings revealed that among the respondents (89), 68% were found to be under 25 years (mean age=24± 5 years), and 58% married when they were under 18 year of age (mean age at first marriage = 16± 3 years). About half of respondents and respondents' husbands had no education or primary level of education. Basic element for women empowerment is rejection of social norms.[10] Women attitude towards wife beating can indicate her perception of her status. If she accepts that a husband is justified in beating wife for these reasons, she is considered to be low empowered. [11] In this study, most widely accepted reason for wife beating was showing disrespect for in-laws followed by arguing with husband. It was also found that RMG workers were young low educated, earned less and married in their early ages. The status of their empowerment was low and only 30.68% of respondents participated in various decision making process. Participation in decision making varied with types of decision. Only 11.2% of women participated in all five decisions (own health care, how many children to have, whether to use contraception, visit to family/relatives, how women's earnings are used) and same percentage of women didn't participate in any of five decisions. About 25% were found to be autonomous in decision making on own health care, whether to use contraception, child sickness and in case of spending respondents own earnings. Although some workers participated in decision making, there were still workers who couldn't say anything over husbands. Findings in this study suggest that women need to be empowered for improving access to health care. For women empowerment, income generation activities, girls and women education, delaying age at first marriage and exposure to information media should be promoted. There should be clinic in each factory and clinic facility should be improved in order to access to health services easily.

2.10 COST-BENEFIT ANALYSIS-MCH SERVICES (contraceptive price, cost-effectiveness, sustainability etc.)

197. Anonymous. Evaluation of maternal health voucher program. Dhaka: NIPORT and READ, 2011.

The main objective of the study was to evaluate maternal health voucher program to find out the challenges of existing program in order to strengthen future program in a wider coverage. The target beneficiaries of the program were pregnant women on their first or second pregnancy who were considered extremely poor and vulnerable. A multidimensional assessment was conducted of the operations and impact of the Maternal Health Voucher (MHV) Program using both qualitative and quantitative methodologies. The survey has been conducted in 14 districts, 22 Upazilas (16 interventions and 6 controls) covering 560 sample women from the intervention areas and 210 women from the control areas. In-depth qualitative investigation was done through intensive interviews. Data collection of the study was carried out on May 2011. Almost (96%) household beneficiaries received the brochure describing the Health Voucher Program (HVP) components, but only 66% actually read the brochure and understood thoroughly the program. All the FGD participants (100%) are aware about the HVP. Overwhelming majority (93%) of the key informants was aware of the HVP. The household respondents thought in the overall (six divisions combine) 24% eligible mothers were not included for HVP services. FGD participants responses indicate (estimated) that 50% of the women were (could be) selected, 25% of the eligible women were not selected for HVP services. Out of the 560 sample mothers (household respondents) interviewed in the intervention areas: 29% received payments against each entitled services; 37% received payments at one time; and 34% reported they did not receive the payments but were expecting to be paid. The household respondents thought in the overall (six divisions combined) 24% eligible mothers were not included for HVP services. Overwhelming majority (95%) of the household respondents expressed satisfaction about the HVP services in general; of them 16% are extremely satisfied and 79% are just satisfied, while only 5% were not satisfied. At the UHC level 95% (score 123) of services are available; and at the FWC level 60% (score 93) of services were available. Ensure adequate supply of medicines and logistics to service centers; emphasize on timely supervision and monitoring of the programs in order to remove the problems of selection of the appropriate beneficiaries; improve quality of services through supervision and monitoring, strengthen local dissemination of information campaigns; FWCs may be strengthened; reduce influences of nepotism; increase allowances under the HVP for the hardcore poor and may be included for the services; amounts payable to clients should be increased.

198. Anonymous. Expanding social protection for health towards universal coverage: health care financial strategy 2012-2032. Dhaka: MOH&FW, Health Economic Unit, 2012.

The study aims were to provide the framework and direction for increasing the level of funding for health, ensuring an equitable distribution of the health financing burden, improving access to essential health services, reducing the incidence of impoverishment and catastrophic health care expenditures and improving quality and efficiency of service delivery. This strategic document was developed through participatory process, led by the Health Financing Resource Task Group. Thematic papers on the financing challenges were drafted by technical working

groups with representatives from the academia, research organizations, NGOs and public sectors; integrating the thematic papers, a preliminary draft was shared with representatives of stakeholders in regional consultation workshops. The strategy is aligned with the vision of the Health, Population and Nutrition Sector Development Program (HPNSDP) 2011-2016, the universal coverage as defined by WHO, and the National Health Policy 2011 that recognizes the importance of bringing more funds to the health sector and pooling the resources more adequately. The high out of pocket spending and the catastrophic impact of the health care, especially on the poor and vulnerable, must be decreased and financial protection for health must be increased. The strategy needs to meet the financing challenges confronting the health sector now and in the future. The challenges posed by health financing in Bangladesh are many and can be summarized under three broad categories like (i) inadequate health financing; (ii) inequity in health financing and utilization; and (iii) inefficient use of existing resources. The strategy recognizes the importance of other building blocks of the health system; however, discussions on those and their impact on this strategy have been beyond the scope of this document. This strategy document has been developed through participatory process, led by the Health Financing Resource Task Group with the Senior Secretary of the Ministry of Health & Family Welfare (MOHFW) in the chair. The Strategy is designed to address these challenges and presents a compelling case for an increase in public resources dedicated to health while outlining an actionable mechanism to capture private spending and channel it efficiently in prepayment and pooling arrangements. It puts emphasis on extending financial protection to all segments of the population. The goal of the national health financing strategy is to strengthen financial protection and extend health services and population coverage especially to the poor and vulnerable segments of the population, with the long-term aim to achieve universal coverage. To cope with the challenges and increase financial protection for the entire population and decrease out-of-pocket at point service, the following three thematic strategic points like: a. generate more resources for effective health services; b. improve equity and increase health care access especially for the poor; and c. enhance efficiency in resource allocation and utilization may be suggested.

199. Haider SJ; Biswas SN; Alam MH; Jamshed AM; Chowdhury S; Giash-uddin MS; Islam M; Sultana N. Enhancing cost effectiveness and improving quality of UPHC: final report. Dhaka: UPHCP-II & READ, 2012.

The operation research aim was to assess the quality of partner NGOs, improving quality of care and costing of partnership model in terms of PHC services provided by the PA NGOs through model developed. Stratified multistage random sampling was used to select respondents for interview. The stratification was done according to geographical areas such as City Corporation and Municipality. Ever-married women between aged 15-49 years (with U5 children at time of survey period) were the target respondents. Survey areas comprised 24 Partnership Areas (PAs). The study findings clearly demonstrated that costs of certain services in case of certain PA NGOs were very high whereas the costs of similar type of services were comparatively low in case of other PA NGOs. The average service cost was almost 0% in compare to the saving due to recovery after medical attention; meaning that the cost recovery at post treatment outweighs the cost incurred for medical treatment. The study clearly stated that eighty-seven percent of the mothers received ANC during their last pregnancy, where national coverage was 67.7%, BDHS preliminary repost 2011. Sixty-seven percent of the mothers (66%) delivered their last child at home. In project areas comparatively higher proportion of the mothers (41%) were delivered by the skilled health professionals

(doctors: 14%; paramedic/nurse/midwives: 27%) than the mothers (32%) of control areas (doctors: 13%; paramedic/nurse/FWVs/midwives: 19%). About one-tenth of the mothers delivered their last child by Caesarean section (12%). The contraceptive prevalence rate observed in the current study was 74%. Highest rate was observed on use of oral pills (45%), followed by injectables (31%), condoms (13%), IUD (6%), tubectomy (3%), Implant (1%), and NSV (1%). The stakeholders (participants in the workshop) emphasized on the need for mobilizing local resources, particularly by encouraging local donors to contribute to strengthen clinical services through donation of either cash funds for supporting the poor clients. Reducing wastages in the use of utilities would ultimately contribute to the savings of resources of the clinics. Delay in disbursements of funds to the clinics was mentioned as one of the program impediments. The system of depositing part of the revenue for health programs by the municipalities and the city corporations was a good example to attain financial sustainability gradually. Client satisfaction could be enhanced at an optimum level by adapting necessary measures regarding mentioned above. Finally, quality of services ensured demand creation, which certainly would ascertain further sustainability of the UPHC programs.

200. Hoque ME; Powel-Jacson T; Dasgupta SK; Chowdhury ME; Koblinsky M. Costs of maternal health-related complications in Bangladesh. *Journal of Health Population and Nutrition.* 2012; 30(2): 205-212.

This paper examined the economic consequences of maternal illness over six months postpartum in the context of rural Bangladesh. The hypothesis of the study objective is that the obstetric morbidity leads women to seek care at which time out-of-pocket expenditure is incurred. Second, a woman may also take time out from employment or from doing her household chores. Data for this study were collected as part of a larger project which aimed at examining the burden of maternal ill-health and its programmatic implications. This paper assessed both out-of-pocket payments for healthcare and losses of productivity over six months postpartum among women who gave birth in Matlab, Bangladesh. This loss of resources placed a financial burden on the household that might lead to reduced consumption of usual but less important goods and use of other services depending on the extent to which a household copes up by using savings, taking loans, and selling assets. Women were divided into three groups based on their morbidity patterns: (a) women with a severe obstetric complication (n=92); (b) less-severe obstetric complication (n=127); and (c) a normal delivery (n=483). Data were collected from households of these women at two time-points—at six weeks and six months after delivery. The results showed that maternal morbidity led to a considerable loss of resources up to six weeks postpartum, with the greatest financial burden of cost of healthcare among the poorest households. However, families coped up with loss of resources by taking loans and selling assets, and by the end of six months postpartum, the households had paid back more than 40% of the loans.

201. Khan MNU; Quayyum Z; Quayyum T; Hashima-E-Nasreen; Mahmud SN; Ensor T. Costs of providing maternal, newborn and child healthcare: estimates from BRAC,s program in rural Bangladesh. Dhaka: BRAC, Research and Evaluation Division, 2012.

The objective of this study was to provide information on full economic costs of providing maternal, neonatal and child health (MNCH) services in the IMNCS and Essential Health Care (EHC) intervention. The study was conducted in three rural districts in northern Bangladesh, two IMNCS intervention districts (Nilphamari and Gaibandha) and one control District (Netrokona) where there was EHC intervention. All resources mobilized by the program for service delivery were identified, quantified and valued in local currency combining top-down and bottom-up approach. Market value

approach was applied to capture the opportunity cost of free resources and volunteer time. Study revealed the average economic cost of any ANC provided by IMNCS program is BDT 79.2 (USD 1.1). The average cost of four ANCs along with the pregnancy identification in the IMNCS program was BDT 337.5 (USD 4.9), home delivery was BDT 1,457 (USD 21.1), PNC was BDT 1, 14.7 (USD 1.7), and the average cost of referral case during maternal complication was BDT 1,275.9 (USD 18.5). Findings revealed that the IMNCS intervention areas had provided more services to the mothers and also had higher costs compared to the comparison district. Findings suggest that the average cost of any ANC was BDT 46.4 but rose to BDT 79.2 if it valued the cost of volunteer services of the CHWs. In the intervention districts during first ANC visit IMNCS program provided BCC materials showing the maternal danger signs and piggy banks to encourage saving for delivery care, free of cost to households. Besides, the findings could have implications for program budgeting sustainability and scaling up the similar program. The differences in economic and financial unit costs of services were useful lessons for BRAC health program and other NGOs in the country for planning and scaling up such programs. The success of the programs and minimizing the unit cost would largely depend on mobilizing community members to contribute their volunteer time. The study could contribute to formulating macro-level policy and health sector reform strategy in light of cost analysis of community intervention in low income countries like Bangladesh.

202. Rahman L; Rob U; Mahmud R; Alim A; Hena IA; Talukder MN; Rahman H. A Pay-for-performance innovation integrating the quality and quality of care in maternal, newborn and child health services in Bangladesh; P4P final report. Dhaka: DGHS, Population Council & UNICEF, 2011.

The objective of the study was to test and compare the two service delivery models on utilization of MNCH services to improve maternal, newborn and under-five children's health. Twelve public-sector health facilities in Jamalpur, Gaibandha and Kurigram districts were the intervention sites and three facilities of Thakurgaon District comprise the comparison sites. The intervention period was from October 2010 to November 2011. The study found feasibility of implementing performance incentives for providers and clients were measured in terms of operationalization of the incentive scheme, increased volume of services and improvement in quality of care of the MNCH services at the intervention facilities. The intervention facilities significantly increased quality of care of MNCH services measured on a 100 point scale. The overall client satisfaction score was highest in strategy I sites relative to both the strategy II and comparison sites after adjusting for age, years of education, husband's education, total number of children and religion. Providers reported higher rate of reception of the supervisory feedback and recognition, which were attenuated after adjusting for the baseline performances. The total incentive cost per unit of maternal health service unit was lower at the strategy II sites relative to the strategy I sites, because of higher number of service units delivered at strategy II relative to strategy I facilities while strategy I facilities incurred costs for coupons to the poor clients. Facilities with sub-optimal performance tended to respond to the performance targets in terms of increasing quantity and quality of MNCH care if it was tied with incentives, in spite of the human resource and other constraints. However, certain level of infrastructure is pivotal to ensure quality of care related with offering privacy to the clients. Using results from the validation for performance measurement is likely to improve providers' attitude towards clients and increase their level of satisfaction. Pre-existing conditions are to be addressed through behavior change communication activities to mitigate the demand-side barriers. In order to increase utilization, coupon promotion and payment of transportation costs in actual are important. The P4P models offering incentives to the providers, with or without the demand-side

financing, hold great potential to enable the health facilities to provide better quality of care in MNCH services bringing greater accountability and transparency into the health system. Therefore, these strategies should be pursued through the health financing schemes being implemented in Bangladesh.

203. Rahman MM. Micro-finance as a device for developing health status of beneficiaries: a study on selected branches of TMSS (a Ph. D dissertation). Rajshahi: University of Rajshahi, IBS, 2012.

The dissertation was undertaken to examine the impact of micro-finance on beneficiaries of health status as a device and especially in rural areas covering 15 branches of TMSS microfinance programs under three upazilas named Bogra Sadar, Shibganj and Kahalu. This is an empirical study covering both qualitative and quantitative information regarding the impact of micro-finance on developing health status. The data analysis and interpretation include the analysis of both secondary and primary data. Secondary data followed mainly the publications of PKSF, TMSS, CDF, Ministry of Finance, MRA & some other relevant organizations. The researcher interviewed four hundred and fifty sample women borrowers of the selected borrowers of the selected areas through using structured questionnaire. The study revealed that significant variation also exist in the yearly income and expenses before and after joining TMSS microfinance programs and a significant variations were found in savings of beneficiaries after joining TMSS microfinance programs. All three hypotheses are accepted based on statistical interpretation. It was also found that awareness level and capacity level of the respondents regarding health related aspects and reproduction had been increased in respect of health and other socio-economic aspects. Important information regarding health issues before joining and after joining TMSS microfinance programs was remarkable. It impacts positively on gender relationship, access to resources and awareness developing system within households and society gradually in the study area and in fact, as a whole of Bangladesh. Maternal & child health and nutritional status had been improved after joining the microfinance programs. The microfinance programs increased the assets, savings and the capacity for family and can expense leading to the situations for improved health status. The study suggested that TMSS should give emphasis on the health aspect of beneficiaries through the microfinance programs by providing training to the staffs of that sector. That would ultimate influence the health status of the beneficiaries.

204. Sarker MAR; Hossain MA. Unit root and co-integration properties of health care expenditure and GDP for Bangladesh. *Social Science Journal.* 2012; 17: 9-16.

The purpose of the study was to investigate the long run relation between health care expenditure and gross domestic product (GDP) using time series techniques focusing on the Bangladesh case. The data comprise of annual time series of health care expenditure per capita and gross domestic product per capita covering the period of 1973-2004. The health care expenditure per capita data for period 1973-1979 are based on authors' calculation, while that for the period of 1980-2004 are culled from the various issues of Bangladesh Statistical Yearbook. On the other hand, the data on GDPPC came from the World Development Indicators CD-ROM, 2007. Both the variables were measured in local currency unit, i.e. Taka. The results confirmed that there existed long-run relationship between HCE and GDP along with a strong evidence of unit root in both the data series. The income elasticity of health expenditure was found to be greater than 1 indicating that health care was a luxury good in Bangladesh. Study observed that there was one-way causality running from per capita health care

expenditure to per capita gross domestic product. In addition to these, it located one-way causality running from HCE to GDP, not the vise-versa. The implication of this finding was that GDP (income) could be increased by increasing people's productivity through higher levels of health care expenditures for public health.

205. Talukder MN; Rob U; Rahman L; Hena IA. Innovative financing through pay-for-performance for providers to improve quality of care in Bangladesh: transforming research into action: workshop report. Dhaka: Population Council, 2011.

The study identified the lessons learned, limitations of demand-side financing (DSF) and pay-for-performance (P4P) models, and scopes for cross learning, by the workshop which intended to develop recommendations for the Ministry of Health and Family Welfare (MOHFW) to incorporate changes into the DSF scheme or to modify the P4P approach for further expansion. Both DSF and P4P schemes were designed to contribute to achieving the Millennium Development Goal (MDG) targets 4 and 5. DSF scheme provided financial support to poor women for receiving safe delivery services in rural areas. Started in 2006, currently the program was implemented in 53 Upazilas. This program focused primarily on Upazila Health Complexes, with referral to Maternal and Child Welfare Center or District Hospital. Both demand and supply sides were financially benefited through the DSF program. At the demand side, if deliveries were conducted at the facility or by skilled birth attendant (SBA), poor pregnant women receive financial assistance to receive service. At the supply side, service providers received case-based incentive. P4P project was a human resource innovation initiative - paying an incentive to the institution for achieving pre-determined targets. Three District Hospitals and nine Upazila Health Complexes tested P4P approach for 14 months. At the supply side, incentives were provided to the institution, where managers, direct and indirect providers' related to maternal, newborn and child health services. Although both DSF and P4P had shown promise in rapid reduction of maternal deaths, they faced challenges of sustainability. These programs were still in trial phase and highly valued for their contribution towards increasing institutional delivery. Nevertheless, human resources, sustainable funding and delegation of authority remained as the key challenges. It would be more useful and feasible if policymakers and program managers adopt results from both DSF and P4P and advance with a revised model, which would require less money and be more effective. The government needs to prepare itself to continue performance-based incentive programs in pursuance of achieving MDGs of reducing maternal and neonatal mortality.

206. Talukder MN; Rob U; Rahman L; Khan AKMZU; Mahmud R; Alim A; Hena IA; Akter F; Dey AK. Incentivizing providers to improve maternal, newborn and child health services in Bangladesh: pay-for-performance model refinement and advocacy (P4P MRA) final report. Dhaka: UNICEF, Population Council & DGFP, 2013.

The key objective of the P4P MRA project was to refine and utilize the institution-based incentivized service delivery model tested under the P4P OR project for increasing utilization of maternal, neonatal, and under-five children's health care services from public-sector facilities. The P4P MRA project implemented a refined P4P model in 12 health facilities of Gaibandha, Kurigram and Jamalpur districts that had participated in the P4P OR project. Intervention health facilities included three District Hospitals and nine Upazila Health Complexes (UHCs). Study found differences in the improvement between the intervention and control facilities for PNC utilization were even greater. Comparison of ANC services indicated no considerable

difference between intervention and control facilities. The P4P MRA intervention facilities initially had higher QOC score compared to the comparison facilities (79% vs. 60%); following the single quarter intervention, this increased to 90%, which was significantly higher than the comparison facilities (64%). A comparison of composite quality score on client satisfaction across the facilities revealed a higher reported satisfaction with maternal health services at the intervention facilities than at the comparison facilities. Implementation of a system of regular performance review and reporting through unit-based QATs within the facility, and the performance assessment and mentoring by the external QAG contributed to quality improvement. For the QAG, absence of outcome indicators in measuring quality of care remains a key deficiency. However, the P4P model, that rewards a team of providers for achieving performance targets, generated dissatisfaction among the providers when non-performance by one unit affected the target achievement of the whole institution, thereby preventing the performing units from receiving their reward. An evaluation of implementation of a refined P4P model to measure changes in health outcomes at the population level and to compare costs between the P4P and DSF financing models would enable policymakers to make decisions on modification and scaling up of P4P and DSF models at the national level.

2.11 NUTRITION

207. Afreen DT; Islam F; Yasmin N; Hasan S. Is there any effect of maternal BMI on birth weight of baby? *ICMH Journal*. 2013; 4(1): 38-42.

The study was undertaken to observe the effect of maternal BMI on birth weight of baby. An observational follow up study was carried out in the impatient and out-patient department of Institute of Child and Mother Health (ICMH) Matuail, Dhaka among 101 primi-gravida single tone pregnancy in first trimester. Observation was done up to admission in inpatient department and delivery of baby. All patients included for this study who were living within catchment areas of ICMH for better follow up. Total 101 were recruited from ICMH over a period from July, 2007 to November, 2008 for duration of 1 year and 4 months. Among 101 patients 10 were drop out due to PET (4), GDM (2), Abortion (1). Rest of 3 had home delivery. Ultimately 91 patients were enrolled for data analysis. Majority of pregnant women (58.2%) belongs to extended family. Out of all respondents 44.0% were in normal BMI group whereas 35.2% were in lean, 15.4% were overweight and 5.5% were obese. All are primi gravida patients. Mean age of all patients was 21.07 ±3.67 years. Out of all patients normal BMI (G-1) total 45.0% had given birth to baby below 2.5kg and 55.0% had above 2.5kg. In lean group (G-2) 78% had give birth to underweight baby and 21.9 had given-birth normal weighted baby. The influence of BMI on the degradation of health has been the subject of many studies. BMI is a good marker of health status of mother and is used to classify people from thin to obese. The impact of low or increases BMI in the general population has been focus on many studies, but studies pertaining to pregnant women one few. The mean birth weight of the baby also increases according to increasing BMI of mother. As BMI of mother increases mean birth weight of the baby also increases. So it can be concluded that maternal BMI has effect on birth weight of baby.

208. Ahmed T; Mahfuz M; Ireen S; Ahmed AMS; Rahman S; Islam MM; Alam N; Hossain MI; Rahman SMM, Ali MM; Choudhury FP; Cravioto A. Nutrition of children and women in Bangladesh: trends and directions for the future. *Journal of Health Population and Nutrition.* 2012; 30(1): 1-11.

The objectives of this paper were to summarize the trends in under nutrition situation in Bangladesh, explore the potential reasons for slow improvement of the nutrition situation and attempts at charting out directions for the future. The methodology involved desk reviews of published results of various national-level nutrition surveys conducted by the Government and nongovernment organizations (NGOs). These surveys included, among others, the Bangladesh Demographic and Health Surveys since 1990 up to 2007 and the nutrition surveys conducted by Helen Keller International (HKI) and United Nations Children Fund (UNICEF). Study findings showed that the prevalence of underweight (weight-for-age z-score <-2) among children aged less than five years is still high (41%) although child and maternal malnutrition had been reduced in Bangladesh. Nearly one-third of women undernourished with body mass index of <18.5 kg/m^2 . The prevalence of anemia among young infants, adolescent girls, and pregnant women is still at unacceptable levels. Despite the success in specific programs, such as the Expanded Program of Immunization and vitamin A supplementation, program for nutrition intervention are yet to be implemented at scale for reaching the entire population. Given the low annual rate of reduction in child under-nutrition of 1.27 percentage points per year, it is unlikely

that Bangladesh would be able to achieve the UN Millennium Development Goal to address under-nutrition. This warrants that the policy-makers and program managers think urgently about the ways to accelerate the progress. The Government, development partners, NGOs, and the academia have to work in concert to improve the coverage of basic and effective nutrition interventions, including explosive breastfeeding, appropriate complementary feeding, supplementation of micronutrients to children, adolescents girls, pregnant and lactating women, management of severe acute malnutrition and deworming, and hygiene interventions, coupled with those that address more structural causes and indirectly improve nutrition. The key challenges for promoting programs to prevent under-nutrition at the national level in Bangladesh include: placing nutrition high up on the list of priorities, implementing cost-effective and sustainable interventions at scale following appropriate strategies, improving access to the services for those in real need, and evidence-based decision-making and building up operational capacity. In addition to health and nutrition interventions, economic and social policies addressing poverty, trade, and agriculture that have been associated with rapid improvements in nutritional status should be implemented.

209. Akter D; Tasnim S; Mannan MA; Kabir N; Sheikh R. Effect of intravenous iron sucrose complex vs oral iron therapy in iron deficiency anemia of pregnancy. *ICMH Journal*. 2013; 4(1):4-12.

The study was aimed to compare the effects of injectable and oral iron supplementation on gastrointestinal problem and pregnancy outcome like preterm delivery, birth weight of babies and postpartum hemorrhage in iron deficiency anemia during pregnancy. Clinical trial by iron supplementation Injectable vs oral conducted in the Department of Obstetrics and Gynecology of the Institute of Child & Mother Health from 1 January 2011- 30 June 2011. Sixty-eight pregnant women
Of iron deficiency anemia between 28 weeks to 34 weeks were sequentially selected and randomly assigned either to injectable or oral ferrous sulfate. Data was collected three times from each patient during the period of study. Findings showed that injectable group achieved a significantly higher Hb level (11.66±0.60) than oral group Hb level (10.84±0.59) at 30th day of intervention. Injectable group showed no major side effects while of oral group (26.74%) complained of gastrointestinal disturbance. Target Hb was achieved 94.1% vs. 50% at 30th day in intravenous and oral iron group respectively. Postpartum haemorrhage developed in 3.3% vs. 33.3% in I/V and oral iron group respectively. Blood transfusion required in 13.33% cases in oral iron group. Preterm delivery was found 3.2% vs. 36.66%, Low birth weight (<2500 gm) was 3.2% vs. 30% in I/V and oral iron group respectively. The study found that iron sucrose injection increases the hemoglobin level significantly with no serious side effects and improves birth weight of babies and can replace the blood transfusion in peri-partum period in iron deficiency anemia of pregnancy.

210. Alam MA; Rahman MA; Flora MS; Karim MR; Sharif MOI; Ahmad A. Household food security and nutritional status of rural elderly. *Bangladesh Medical Journal*. 2011; 40(3): 8-13.

This study objective was to find out the factors behind poor nutritional status of rural elderly and finally it would help to control the nutritional problem by taking appropriate measures. Household food security is an emerging public health issue and the rural elderly people are one of the most vulnerable groups for the household food security. This cross-sectional study was conducted in Barobaria union of Gofargaon

upazila of Mymensingh district to assess the nutritional status of rural elderly (>60 years) in relation to the household food security. A total of 118 purposively selected elderly were interviewed and measured for height and weight following a standard protocol. The mean age of the respondents was 68.6 (7.3) years and gender participation was equally represented. Majority (68.6%) of the respondents was illiterate and 92% were Muslims. Mean family size and monthly family income was estimated to be 5.5 and Taka 6106, respectively and 70% of the rural elderly were found to be dependent on their family members as they were not involved in income generation and most of the respondents were the members of joint family. Only about 29% of the total elderly were at the highest quarter of food security. Illiteracy, members of single family and larger family were found to be significantly associated with lower level of household food security ($p < 0.05$). Although age, sex, personal income and occupational category had no significant association; the total family income was significantly associated with household food security. Among the respondents 56% were underweight including 13% with severe chronic energy deficiency. Only 5.9% were overweight. Illiterates were three times more likely to be underweight than literates (OR 2.95 with 95% CI 1.32, 6.59). Smoking, lower family income, poor housing, single family, irregularity in treatment were significantly associated with underweight. A significant difference was found between mean body mass index of different household food security level ($F = 3.22$, $p < 0.05$). There was gradual increase of mean body mass index with the improved status of food security level. Policy makers, therefore, need to consider programs that empower people to solve the problem of food insecurity and to improve the nutritional status of rural elderly people.

211. Ara R; Choudhury S; Munmun SA; Sarker MA; Shahinoor AM. Prevalence and risk factors of low birth weight babies delivered at BSMMU. *Journal of Bangladesh College of Physicians and Surgeons*. 2013; 31(2): 88-91.

The study was undertaken to measure the prevalence and to explore the risk factors for delivered low birth weight (LBW) babies at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka. A descriptive type of cross sectional study was done in the Department of Obstetric and Gynaecology, BSMMU, Dhaka from July–December, 2006. The results showed that the prevalence of low birth weight baby was 16%. The results were statistically analyzed by chi-square test. In this study p value <0.05 was taken as significant and p value >0.05 was taken as not significant, other p value <0.01 was taken as very significant and p<0.001 was taken as highly significant. The study explored out that age of the women (p >0.05), weight of women (p<0.001), occupation of women (p<0.001) status of food intake (p<0.001), malnutrition of women (anemia) (p>0.001), antenatal check-up (p<0.001), parity of mother (p<0.001), association of gestational age (p<0.001) of the pregnant women, maternal disease (Hypertension & Nephritis) (p<0.001) with their mid arm circumference (p<0.001), were highly significant with delivery of low birth weight baby. Low birth weight is probably the most important single factor in perinatal death throughout the world especially in the developing countries. The frequency of low birth weight varies throughout the world and even among groups within same community. The study also showed that lower the weight of the mother, the greater was the chance of LBW baby. Prevention of LBW should be the principle goal of every obstetric team but ultimate goal is the removal of the pathology leading to LBW.

212. Banu B; Hasnin SS; Khanom K. Nutritional status of the children of non-formal primary school: Bangladesh experience. *South Asian Journal of Population and Health*. 2011; 4(1&2): 83-90.

The study was undertaken to assess the nutritional status of non-formal primary school children. This was a descriptive cross sectional study carried out amongst the I-V classes of children (usually 7-14 years) attended in Azampur BRAC Non- Formal Primary School, Uttara, Dhaka. The respondents were selected by non-probability purposive sampling technique. Nutritional status of the school children was assessed by anthropometric measurement of weight, height and MUAC and calculated by Z scores according to NCHS/WHO standards. In this study, about 35.8% of the respondents fall in the age group of 11-12yrs and maximum (62.5%) were female among total respondents. It was found that majority parents have now at least primary level of education (fathers 49.16% and mother, 65.83%). Maximum of the respondent's father (40%) were daily laborer and mother, (41%) were service holder like garments worker, house maid etc. Most of the parents (father 61.6% and mothers 40%) have monthly income Tk.2000-5000. There was no significant association between parents' education and children nutritional status. The mean height was 134.91cm and the mean height 27.11kg which are 92.64% and 72.22% of the NCH medium height for age and weight for age. The study revealed that maximum number of parents had at least primary level of education (fathers 49.1% and mothers 65.8%) but literacy rate of fathers and mothers (39% and 34% respectively) of the children were still high. There was no significant association between parents' education and children nutritional status. The study also reflected that most of the children were from low socioeconomic status (Income level 2000-5000) whose fathers were daily labor & mothers were service holder. It was found that 7-8 years old children mostly (7.5%) intake 1501-2000 kcal/day, 6% children of 9-10 years intake 1000-1500 kcal/day and 7.5% of 13-14 years old intake 1501-2000 kcal/day. According to Nutrition Survey of Rural Bangladesh (1995-1996), 26.6% children of age group (0-12) was found to be normal, 9.2% stunted but not underweight, 13% underweight but not stunted and 51.2% both stunted and under weight. The nutritional status of the study population was not so poor but their calorie intake was not at satisfactory level according to recommended calorie intake regarding their age group. Female children were more vulnerable for malnutrition than male children and underweight was more prevalent than stunted and wasted.

213. Haque F; Bhowmik M. Comparison of determinants of clinical recovery from acute watery diarrhea of well-nourished and malnourished children in an urban hospital. *Bangladesh Journal of Nutrition*. 2011-2012; 24-25: 83-92.

Hospital based cross sectional study was carried out among the under-five children admitted to the longer stay wards (LSU) of the hospital of ICDDR.B to investigate the relationship between children's nutritional status and clinical recovery as well as socio-economic condition. Nutritional status was determined by anthropometric measurements. This was a cross sectional study involving under-five children admitted to the longer stay wards of the hospital of icddr,b. The study was conducted among 94 children of 6-59 months, of whom 49 were malnourished and 49 were well-nourished. Out of 64 of them were male and 35 were female. In this study, mother's education level was lower, 32.6% mothers were illiterate and 40% mothers of malnourished whose children were illiterate. Whereas 25% mothers having well-nourished child were illiterate. Most of the malnourished children's family income was below Tk. 5,000 per month for majority of the parents whereas most of the well-nourished

children's family income was Tk.8000. It also showed that children having low family income were more likely malnourished than well- nourished children. Family member was within 4 persons for majority of the well-nourished children's households. On the other hand family member was more than 5 in out of the malnourished households. Study revealed that knowledge, attitude and practices of dietary pattern, health, sanitation and immunization of the malnourished children's family were lower than well-nourished children's family. Their nutritional knowledge was too low, compared to well-nourished children's parents. Most of the parents of well-nourished children used to feed colostrum (80.6%) but parents having malnourished children discarded colostrum (93.6%). Most (64.4%) of malnourished children's mother had started complementary food in <2 months of age. On the other hand majority of well-nourished children's mother gave their child complementary food at the age of 6-9 months. It was seen that the majority of well-nourished children (62%) were immunized by taking all doses of vaccines, whereas most of the malnourished children (49%) had not taken all doses as result there immunity was lesser than well –nourished children. Most of the caregivers of well-nourished children (43.5%) knew that diarrhea causes by not giving immunization, on the other hand majority of caregiver of malnourished patients (31.9) knows that main cause of diarrhea is infection by germs. Only 40% malnourished children were completely immunized. It has been seen that, mean duration of diarrhea before hospitalization was lower in well-nourished children group, but duration of fever, vomiting and abdominal pain rate was higher in this group compared to malnourished group.

214. Hossain MA; Naimunnahar; Bhuyan MAH. Effectiveness of ABCN interventions on reducing under two child malnutrition in a selected NNP area. *Bangladesh Journal of Nutrition*. 2011-2012; 24-25: 93-106.

The cross-sectional comparative study was conducted in Muradnagar Upazila, Comilla district to observe the effectiveness of NNP-ABCN (Area Based Community Nutrition) interventions on reducing under-two child malnutrition (0-23 months) and establish whether there was any significant difference from the non-operational area. A total of 240 households, of which 120 were from the NNP project area with children aged between 0-23 months were randomly selected. In households with more than one child at this age category, the last child was selected. Indices of nutritional status that is weight-for-age, length-for-age and weight-for-length were computed for the measurement of nutritional status. The study was carried out between June and July 2008 in Comilla District. Analysis of nutritional status data showed that the prevalence of underweight (<-2SD) in the project area (35.8%) was slightly lower than the non-project area (39.2%) with severe underweight being 5.0% vs. 7.5% respectively. Within the project sample, 32.5% children were stunted (<-2SD) with 11.7% being severely stunted while in non-project area these figures were 33.3% and 7.5% respectively. On the other hand, 17.5% children were wasted (<-2SD) with 2.5% being severely wasted in project area while in non-project area these figures were 19.2% and 1.7% respectively. No significant differences in the prevalence of stunting, wasting and underweight (<-2SD) between the project area and non-project area (WAZ, p=0.078; LAZ, p=0.214 & WLZ, p=0.421) were found. The study area and sample size weren't large enough to draw any conclusion still this is an indication that NNP-ABCN interventions might not be effective in reducing under two child malnutrition in study area. Even though NNP had been involved in providing ABCN interventions in the project area, there was still need for more targeted and income oriented nutrition interventions in the project area. Large scale operational research was thus suggested to adopt those findings for the whole NNP areas. The prevalence of stunting, wasting and underweight in project and control area was not differed significantly (p>0.05). In project area, 32.5 percent of the children

were short for their age, or stunted (<-2SD) with 11.7 percent being severely stunted in contrast to 33.3 with 7.5 percent in control area respectively while 17.5 percent of all under two children were underweight for their height, or wasted (<-2SD) with 2.5 percent being severely wasted in project area in contrast to 19.2 and 1.7 percent respectively in control area. In project area 35.8 percent of the children were underweight for their age (<-2SD) with 13.3 percent being severely underweight while in control area these figures were 39.2 with 11.7 percent respectively. Still it can be said from the study findings that if some income-generating activities are implemented alongside nutrition gardening, the key problem above mentioned can be remedied. Large scale operational research is thus suggested to adopt those findings for the whole NNP areas.

215. Imam MH; Karim MR; Ferdous C; Akhter S. Birth-weight of the babies delivered by chronic energy deficient mothers in National Nutrition Program (NNP) intervention area. *Bangladesh Medical Research Council Bulletin.* 2011; 37(1): 17-23.

This study was performed to assess the effects of pregnancy interventions through nutrition project, using project-based data. This was a non-experimental operational research aiming to evaluate the effect of targeted food supplementation by NNP Bangladesh by comparing the birth weight of the babies of two areas (intervention and non-intervention). The samples were taken from two different upazillas. Voluntary Association for Rural Development (VARD) was implementing the maternal and child nutritional supportive program following NNP guidelines in Kapasia upazilla and non-NNP [Gonosashthaya Kendra] delivering maternal and Child health Care services through primary health care at Savar. At first 1193 mothers' information were collected, 658 from non NNP Gonosasthaya Kendra & 535 from VARD NNP area all of whom delivered from January to December 2008. Data collected from the records of Gonoshasthaya Kendra were overburdened by inconsistencies and missing values and only 126 of the sample mothers met the selection criteria. Records from NNP area revealed that 228 out of 439 chronic energy deficient mothers were not-supplemented. So the samples were primarily divided into three categories, Non NNP area (Gonosashthaya Kendra Savar) (n=228), NNP area (Kapasia supplemented) (n=211). Study results showed that this record-based study was carried out to explore the effect of targeted food supplementation comparing the pregnancy weight gain of the sample mothers of NNP and non NNP areas. The mean age of the sample mothers was around 24 years among all categories. Illiteracy rate was higher in Savar area mothers (21.4%) and fathers (19.8%) than those of Kapasia. There was significant relationship between food supplementation and birth weight (p-<0.001); on average non NNP, Savar group babies were born with the lowest birth weight (2470.44±366.04) gm whereas almost no difference was observed in birth weight between supplemented and non-supplemented mothers of NNP area (2664.15±360.33 and 2720.18±368.63) gm. Only 8% of all eligible Kapasia pregnant mothers got full course of supplementation. Good supplemented mothers delivered better weighted babies (2752.94±344.86) GM than all other subcategories based on duration of supplementation though not statistically significant. The birth weight status were compared among supplementation categories and found no association. This result highlighted serious deficiencies in the implementation of the NNP in these rural areas with over 50% of women either not receiving supplementation or receiving it incorrectly. Supplementation could not increase birth-weight significantly as other effects contributed to improve birth-weight were removed. As fully supplemented CED III mothers gave birth almost same weighted babies in comparison to the babies of CED I mothers; the recovery from being less weighted to the current status might be considered as a potential effect of food supplementation. A large-scale well-designed trial is recommended to explore the effect of NNP food supplementation program on birth weight.

216. Islam MS; Khurshed AAM; Azad TMA; Bhuyan MAH. Changing patterns in lifestyle, food intake and health status between selected beneficiary people and non-beneficiary people of urban slums in Dhaka City. *Bangladesh Journal of Nutrition*. 2011-2012; 24-25: 15-22.

The purpose of this study was to see the improvement in lifestyle, food intake and nutritional status of beneficiary people of Shiree Project under Dushtha Shasthya Kendra and compared with non-beneficiary people, a comparative cross sectional study was done in Kamrangirchar slum among extreme poor people of Dhaka city and compared with non-beneficiary households. Beneficiary households of MDG-1 under Shiree Project got household economic intervention packages. In this study, it was found that mean monthly income of the family was Tk. 6175.65 in beneficiary group and Tk.4288.14 in non-beneficiary group. The mean monthly expenditure on food items of family was Tk. 3787.83 in beneficiary group and Tk.2796.61 in non-beneficiary group. About 34 percent beneficiary households and 75 percent of all non-beneficiary households were poor having household's monthly income less than Tk.3000. Some 15.7 percent beneficiary households had five amenities out of selected six and only 1.7 percent non-beneficiary households had five amenities, indicated the socio-economic condition of beneficiary extreme poor people has been improved. Consumption of food items was significantly more in beneficiary households than non-beneficiary ones. Some 74 percent beneficiary households consumed four or more food items daily against 26 percent non-beneficiary households. On average 3.37 food items were consumed by beneficiary households and 2.49 food items by non-beneficiary households daily. More than 60% of the beneficiary people ate full stomach meals and less than 25 % of non-beneficiary people could afford the same. So, beneficiary people were more food secure and more food diversified than non-beneficiary people. Nutritional status of the children by MUAC, weight for age Z-score, and height for age Z-score showed no significant difference between beneficiary and non-beneficiary group. Prevalence rate of underweight was 60.5% in beneficiary children and 65.9% in non-beneficiary children. Significant difference (P^O.044) was found by Weight for Height Z-score in both beneficiary and non-beneficiary group. The difference of mothers' nutritional status by BMI between beneficiary group and non-beneficiary group was not statistically significant, though percentage of CRD was lower and overweight was higher in beneficiary mothers than non-beneficiary ones. Though socio-economic status, food security and food intake were better in beneficiary people than non-beneficiary ones, the outcome of these factors were not significant in clinical and anthropometric status. Beneficiary households were on the way to meet first target of MGD-1 which was related to poverty reduction. It was revealed that severe, moderate and mild chronic energy deficiency was higher among non-beneficiary mothers as compared with beneficiary one.

217. Jahan K; Mafiz AI; Ara E; Bhuyan AH. Studies on socio-demographic condition, health and nutritional status of the selected breast cancer patients of Bangladesh with special reference to dietary habits. *South Asian Journal of Population and Health*. 2012; 5(1&2): 19-25.

The present study was an endeavor to find out the socioa condition of the breast cancer patients along with the health and nutritional status of Bangladesh. A cross sectional study was carried out among the female breast cancer patients aged between 30-60 years admitted in National Institute of Cancer

Research and Hospital and Delta Medical College and Hospital, Dhaka. A total of seventy (female) cases were taken for this study. The study subjects were diagnosed cases of carcinoma breast. The subjects were selected purposively. Personal interview method was used for collecting socio-demographic and dietary information. The result showed that the percentage of Muslim was higher (91.4%) than non-Muslim (8.6%) among the study subjects. Again, 84.3% patients were married, 88.6% were multiparous and 28.6% having positive family history of breast cancer. It was found that more than 50% of breast cancer patients were obese and 82.4% cancer patients were anemic. Here dietary intake was analyzed in terms of food frequency per week. It was also observed that the consumption of cruciferous vegetables (4%) was the lowest among all vegetables (non-cruciferous 65%, leafy vegetables 14%) at 4-6 days/week. Fish consumption was highest (72%) compare to meat (8%), egg (2%), milk and milk products (4%) at 4-6 days/week. Intake of cookies was highest (32%) compare to fried foods (15%) at 4-6 days/week. Sugar intake was highest (30%) at 1-3 days/week. It was also observed that the consumption of cereals and fats and oils were 100% among breast cancer patients. The important finding was about 60% of cancer patients never consumed cruciferous vegetables and 50% never consumed citrus fruits. Cruciferous vegetables contain compounds glucosinolates and its hydrolysis products isothiocyanates and indole-3-carbinol which have anti carcinogenic mechanism against breast cancer. Vitamin C is found in citrus fruits and juices which act an antioxidant, inhibit or reduce oxidation damage caused by free radicals, thus preventing some cell damage and can reduce breast cancer risk. So less consumption of cruciferous vegetables and citrus fruits might play important role as risk factors among breast cancer patients.

218. Karim KMR; Zahid MK. Nutritional status and dietary intake of the orphans: a case study in the ICH (Intervida Children Home) in Dhaka city in Bangladesh. *Bangladesh Journal of Nutrition*. 2011-2012; 24-25: 23-30.

The purpose of the study was to assess the nutritional status and dietary intake of the orphan children. A cross sectional study was carried out in ICH of Dhaka city in October 2010. This orphanage provides shelter, education and other facilities to 46 orphans (male-16, female-30) about 6-15 years of age belonging specially to Muslim community. Information was collected regarding socio-economic condition, dietary intake, anthropometry and some clinical history. In order to assess the nutritional status of the orphans, anthropometric measurement of height and weight were obtained from all the children. Food intake was obtained by 24 hour food weighing method for seven consecutive days. The study results showed that all of the children were abandoned and got admitted to the ICMH within one year of age. Among them 89.1% were Muslim, 2.2% were Christian and 8.7% were Hindu. 8.70 % students got enrolled in special education as they were either physically or mentally disabled. The mean ± Sd of age, height and weight were 104.65±16.51 months, 126.37±6.98cm and 26.871 6.98kg respectively. While BMI was considered, it was found that 60.87% (28) students were normal, 21.74% (10) students were overweight, 6.5% (3) were obese and 10.87% (5) were underweight. None of the children were taken care by their father or mother. Among them most of were Muslim. Half (50%) of the students studies in class one and 30.44% studies in class two. Besides this 8.70 % students get enrolled in special education as they were either physically or mentally disabled. From this study it found that there is a significant negative relationship between time spent for sports and extracurricular activities and obesity development. Each school had indoor food facilities. About two-third (65.6%) of students take foods from the shops for their school meal and only one-third (34.4%) of the students bring foods from home for their school meals. Majority of the students prefer to have fast foods (68.75%) and soft

drinks (58.33%) at afternoon. Most (78.1%) students consume fast foods while they are at school but while they are away from school they preferred to take dairy products (96.7%) as well as fruits and vegetables (93.7%). From this study also found that 68.31% students have basic nutritional knowledge but 70.20% students have correct basic nutritional knowledge whereas 12.08% have partially correct and 17.92% students have incorrect knowledge. There is a fair chance to develop a healthy environment in each school which will lead them to choose and eat healthy foods to make their diet balanced. Therefore, it needs immediate measures to control malnutrition problems of children coming from affluent societies in Dhaka city. So, if proper steps are taken quickly then it could hope a healthy nation with healthy children.

219. Karim MR; Flora MS; Akhter S. Targeted food supplementation through National Nutrition Program and pregnancy weight gain status in selected upazilas. *Bangladesh Medical Research Council Bulletin* 2011; 37(2): 71-75.

This study was performed to assess the effects of nutritional intervention in pregnancy using project based data. This non-experimental operational research was aimed to evaluate the effect of targeted food supplementation by NNP. The samples were taken from two different sub-districts served by two different national non-government organizations. Voluntary Association for Rural Development (VARD) was implementing the maternal and child nutritional supportive program following NNP guidelines in Kapasia sub-district and Savar sub district was taken as control area where Gonosashthaya Kendra was delivering comprehensive maternal and child health care services. Records of all chronic energy deficient pregnant mothers who delivered their baby between 1st January and 31st December; 2008 in both study areas were reviewed. The study included 439 samples from Kapasia sub-district, a National Nutritional Program (NNP) intervention area 211 (48%) of the chronic energy deficient mothers were enrolled for supplementation and only 34 (8%) of them completed the full course. The findings of the study revealed that samples of Kapasia and Savar were significantly different in their socio-demographic status. The early-pregnancy average body mass index of supplemented mothers (16.21±0.77) was significantly different from non-supplemented mothers of Kapasia (17.14±.82) and Savar area (17.03±1.19). Average pregnancy weight gain in mothers of control area (6.50±1.53 kg) were significantly lower than supplemented (7.94±1.99 kg) and non-supplemented mothers (7.82±2.28 kg) in National Nutritional Program intervention area ($p<0.001$). Multivariate analysis showed supplemented mothers were six times [OR with 95% CI; 6.34 (2.43, 16.52)] and non–supplemented mothers from same area were eleven times more likely to gain targeted weight than the mothers of control area after adjusting for other variables. Duration of supplementation did not show any influence on pregnancy weight gain. The current study showed significant difference in pregnancy weight gain between NNP area and control area, but no significance difference was observed between non-supplemented and supplemented mothers within National Nutritional Program (NNP) intervention area. A large-scale well-designed trial is recommended to explore this effect.

220. Khan SH; Talukder SH. Nutrition transition in Bangladesh: is the country ready for this double burden. *Obesity Reviews*. 2013; 14 (special suppl. 2): 126-133.

The objective of this study sheds light on both under and over nutrition in Bangladesh and the country's preparedness to tackle this silent epidemic. The data presented in this paper were the trend data from the Bangladesh Demographic and Health Survey (BDHS) from the last 10 years. To date,

all the Sector-Wide Approach (SWAp) for health, nutrition and population well-being had identified malnutrition as a priority. Donors, United Nations organizations and non-governmental organizations provided extensive support to prevent and tackle malnutrition in the country. The government delineated an effective policy response to the high prevalence of under nutrition. Bangladesh has a wide range of policies encouraging appropriate infant and young child feeding practices, 6 months of paid maternity leave in the public sector, school meals for vulnerable communities, micronutrient supplementation interventions and more. However, almost all of these efforts addressed the under nutrition aspect of malnutrition, neglecting the other form of malnutrition - over nutrition. Trend data from national surveys showed steady increases in overweight and steady decreases in underweight among women of reproductive age. This paper showed the transition from under- to over nutrition and the double burden of malnutrition among Bangladeshi women of reproductive age. It also discusses the national policy and program responses to overweight and obesity in Bangladesh among the same population. The stakeholders need to keep in mind that only focusing on one aspect of malnutrition would result in further catastrophe and might unintentionally escalate the other.

221. Khatun T; Mollah MAH; Choudhury AM; Islam MM; Rahman KM. Association between infant and child-feeding index and nutritional status: results from a cross-sectional study among children attending an urban hospital in Bangladesh. ***Journal of Health Population and Nutrition.*** **2011;29(4): 349-356.**

This study was conducted to explore the capability of ICFI in assessing the overall child-feeding practices as a whole and their association with nutritional status of children. This cross-sectional study was conducted among 259 children of either sex attending the Paediatric Outpatient Department (OPD) of the Dhaka Medical College Hospital. All children who attended the OPD during data-collection from August to December 2008 were enrolled in the study. The study children were divided into age-groups of 6-8 months, 9-11 months, and 12-23 months at the time of interview. The findings of the study stated that the mean length-for-age z-score (LAZ) of children aged 12-23 months was significantly ($p<0.05$) higher among those who were at the upper ICFI tercile compared to those who were at the middle or lower ICFI tercile (-2.01 and -3.20 respectively). A significant co-relation was found between the ICFI and the LAZ ($r=0.24$, $p=0.01$ and $r=0.29$, $p=0.01$) in children aged 6-8-months and 12-23-months. Multivariable analysis, after adjusting for potential confounders, also found a significant association between the ICFI and the LAZ ($ß=0.13$, $p=0.03$) among the children aged 6-8 months. Length-for-age represents the stunting status of children. The proportion of children with stunting increases with age, resulting from cumulating inappropriate complementary feeding practices, along with many other causes. Moreover it takes time to have appropriate complementary feeding practices well in place during the latter half of infancy. The predictive capability of the proposed ICFI on nutritional status of children, especially length-for-age, needs to be further evaluated prospectively among healthy children in the community. Collection of prospective data with direct observation of children on their feeding practices will generate more robust evidence necessary to provide programmatic directions.

222. Lemaire M; Islam QS; Shen H; Khan MA; Parveen M; Abedin F; Haseen F; Hyder Z; Cook RJ; Zlotkin SH. Iron containing micronutrient powder provided to children with moderate-to-severe malnutrition increases hemoglobin concentrations but not the risk of infectious morbidity: a randomized, double-bling, placebo-controlled, non-inferiority safety trial. *Am J Clin Nutr*. 2011; 94: 585-93.

This study evaluated the effect of iron-containing micronutrient powder (iron MNP) on infectious morbidities when provided to children with moderate-to-severe malnutrition and anemia. A randomized double-bling, placebo-controlled, non-inferiority safety trial using a 2-mo course of daily iron MNP or placebo powder (PP) was conducted in 268 Bangladeshi children aged 12-24 mo with moderate-to-severe malnutrition (weight-for-age z score < -2) and a hemoglobin concentration between 70 and 110 g/L. The primary endpoint was a composite of diarrhea, dysentery, and lower respiratory tract infection episodes (DDL) recorded through home visits every 2 d during the intervention and then weekly for 4 mo. The non-inferiority margin was 1.2. Secondary endpoints included hemoglobin and anthropometric changes at 2 and 6 mo. An intention-to-treat analysis of recurrent events was performed by using the univariate Anderson-Gill model. The baseline characteristics of the subjects were similar. Analysis of phase-aggregated DDL data showed that iron MNP was not inferior to PP (relative risk: 0.81; 95% CI: 0.62, 1.04) and improved hemoglobin concentrations (P < 0.0001). The study recorded no deaths, and hospitalizations were rare. Iron MNP was safe and efficacious when provided to children aged 12-24 with moderate-to-severe malnutrition and anemia.

223. Mafiz AI; Ismail I; Bhuyan MAH. Effects of socio-economic, demographic and internet exposure factors on school performance among selected students of Nilkhet High School. *Bangladesh Journal of Nutrition*. 2011-2012; 24-25: 107-120.

The purpose of the study was to investigate the effects of socio-economic, demographic and internet exposure factors on school performance among 10 grade students of Nilkhet High School. All of the 87 students were selected for this study. In this study school performance was measured by class roll number. A questionnaire was developed containing both close and open ended questions to obtain relevant information on internet exposure, socio-economic and demographic condition. The lower the class role numbers the better the school performance. During Chi-square test grade (A+, A, A-, B, C, D) achieved in the class 9 final examinations was taken as dependent variable. An upper grade indicated better school performance than lower grade. Class roll number were highly negatively correlated with the factors-actual income of the family, actual monthly tuition cost, number of rooms in the house, number of earning persons in the family, and this correlation was significant ($p<0.01$) at 1% level of significance. Chi-square test was used to check for association between the category of these factors and the school performance measured by grade. Chi-square test also found highly significant. In Chi-square test some of the other factors namely highest education of mothers ($p<0.05$), highest education of fathers ($p<0.05$), occupation of fathers ($p<0.01$), and occupation of mothers ($p<0.05$) were significant. Maximum 80.7% change in school performance was found when studied the aggregate effects of fourteen factors. The school performance measured by grade of the students was significantly related with the work on internet and number of friends in Face book because the Chi-square test shows the P-value<0.01. When considered all of these factors simultaneously then actual income of the family, actual monthly tuition cost, number of earning person, grouped earning person in the family, grouped family income, monthly tuition cost grouped, parents are good friend were found to be significant at

1% level of significance and occupation of father, type of house, caring about nutrition were found to be significant at 10% level of significance and occupation of mother at 5% level of significance. Maximum 43.5 % changes occurred in school performance when number of friends in Facebook was significant at 1% level of significance and both work on internet and Facebook account were significant at 10% level of significance.

224. Mafiz AI; Islam MI; Shafiullah AZM; Islam K. A Study on the nutritional status and socio-economic condition of the selected rickshaw puller in Dhaka city. *South Asian Journal of Population and Health*. 2012; 5(1&2): 39-46.

The purpose of this cross-sectional study was to find out the socio economic condition and the nutritional status of the rickshaw puller in Dhaka Metropolitan City aged between 20 to 45 years. A total of 103 rickshaw pullers engaged in pulling rickshaw permanently for at least 1 year. The frequency distribution of socio-economic and health and nutritional factors of rickshaw pullers showed that 13 rickshaw pullers were single which was 12.6 of the total sample, 21.4% rickshaw puller had the family member as more as 2-4 persons, 43.7% of the respondent had the family members between 5-7 persons, 22.3% respondent had the family member >1 persons, 10.7% rickshaw pullers worked for 4-5 hours daily, 15.5% worked 6-7 hrs, 37.9% worked 8-9 hrs and 35.92% of the respondent worked for 10-11 hrs. This study the mean BMI of the rickshaw puller was 19.45. According to BMI classification of WHO 63.1% of the respondents were found to be normal, 28. 2% were found mild thinness, 7.8% were found moderate thinness and 1.0% was found severe thinness. The monthly income of the 18.4% rickshaw pullers was Tk.3000-5000, 25.2% earned around Tk.5000-7000, 28.2% earned around Tk.7000-9000 and 28.2% earned around Tk.9000-11000. This study revealed that the income of the rickshaw pullers was not too standard to maintain their household task properly in proportion with large number of family members. The study also reveals the association between nutritional status and various socio-economic factors. Due to lower socio-economic status the nutritional status of the respondents was poor. It was concluded that the overall situation of the rickshaw puller was not standard and they were far behind from their basic needs.

225. Majumder UK; Roy LN; Dey R; Rahman MM; Hassan MZ. Socioeconomic and demographic determinants: malnutrition of 6-59 months old rural Santal children and food security status of their families in Dinajpur. *South Asian Journal of Population and Health*. 2011; 4(1&2): 35-50.

The study aims was to: i) know the present status of malnutrition situation of under-five Santal children and food security status of their families; ii) investigate the responsible socio-economic and demographic factors affecting malnutrition and food security status of Santal families of Dinajpur, Bangladesh. The study conducted among the Santal families having at least one under five children of randomly selected 3 rural locations of Dinajpur district. A three-stage simple random sampling scheme was followed for selecting the Santal families in Dinajpur. Socio-economic data were collected through direct interview of the respondents using a pre-tested structured questionnaire that composed of both open and close ended questions. The interviewers were the females, recruited from selected localities and were given adequate training for collecting information. Total number of studied children 6-59 months old age was 104 (58 % boys and 42% girls). Standard deviations and skewers of the anthropometric indicators according to sex groups of the surveyed Santal children 6-59 months old was measured. The

average height and weight of 6-59 months old Santal children are 61.39 cm and 11.99 kg respectively. In addition, the female child aged 6-59 months is found to be taller and little heavier (i.e. 63.76cm & 12.35 kg) than from the male child (i.e. 59.78 cm and 11.88 kg). The distribution of underweight and wasting showed that proportion of children suffering from underweight and wasting were about 33 percent and16 percent respectively. The prevalence of underweight increased with age of children 6-23 months from 29.2 percent to 47.6 percent of children 24-47 months and decreased to18.4 percent among children of 48-59 months. Children of mothers age less than 25 years were more likely to be underweight than that of other higher ages. Children of illiterate mothers were underweight than children of literate mothers. The likelihood of underweight children increased as mother's age at marriage and mother's age at childbirth decreased. To determine the significant factors affecting food security status (hunger s non-hunger) of Santal families by logistic regression analysis, we have merged two categories of food security status of households i.e. food secure and food insecure without hunger as non-hunger and the other categories food insecure with moderated and severe hunger merged as hunger. The significant factors for the reduction of hunger families to non-hunger were the interment of breast feeding mothers, age of household head, employment of housewife, earning family members and random income of household. Recommendations that followed from this study were full free education facilities to the children, social modification to be geared up against early marriage and early pregnancy and introducing of income generating activities through providing easy loan. Moreover, both the government and non-government initiatives should be geared up to identify and introduce IGAs.

226. Mannan MA; Saha AK; Arefin SMZH; Hossain N; Ahmed Z. Nutritional status and disease pattern of children below two years in relation to breast feeding status. *ICMH Journal*. 2012; 3(2): 77-82.

The study was undertaken to determine the nutritional status and diseases pattern of children below two years in relation to breast feeding status. This cross-sectional study was conducted among 59 purposively selected children (6-23 months) of a peri-urban area of Narayangonj District from September to December 2010 to see their nutritional status and disease pattern. Among the studied children, 59.3% were male and 40.7% were female. Most of the subjects, around sixty percent were male and most of them were Muslim by religion. By education of the fathers, one-fifth were illiterate, forty-six percent had primary level, less than one-third had secondary level of education. In a national surveillance on breastfeeding and complementary feeding situation and nutritional status of mother and children in Bangladesh, 2005, it was found that 32.2% children were initiated breastfeeding within 30 minutes of birth. 61% mother gave pre-lacteal feeding to their babies. Pre-lacteal feed was given in the form of honey 53.8%, sugar water 34.4%, cow's/ goat's milk 10.5%. More than 96% of the mothers fed colostrums to their babies 15. In this study 39% respondents were start breast feeding within 1 hour after birth the same percentage started breast feeding within 24 hours after birth and 22% start breast feeding after 24 hours of birth. Study showed that 28.8% subjects were exclusively breast fed and 71.2% were non-exclusive, according to breastfeeding definition. Subject of the study suffered from different diseases, among them common cold was highest (28.8%), respiratory tract infection 15.3%, diarrhea 11.95, dysentery were 3.4%. By weight for length, 3.4% subjects were severely wasted, 18.6% were moderately and 16.9% were middle under-weight and 45.8% were normal. Breastfeeding is the important intervention in reducing the mortality and morbidity among children. Moreover breastfeeding provides all the important nutrients for optimum growth and development. This study showed the significant association between nutritional status and breastfeeding practice and association between

breastfeeding and nutritional status. Campaign for exclusive breast feeding for six months should be strengthened.

227. Rahman ME; Quamruzzaman K; Bhuiyan MMR; Karim MN; Rahman MM. Efficacy of locally adapted dietary regimen in the treatment of nutritional marasmus: a randomized control trial. *Bangladesh Medical Journal*. 2012; 41(2): 45-49.

This study was conducted to determine effectiveness of locally adapted Dhaka Medical College and Hospital (DMCH) dietary regimen (F-75 and F-100 peanut based) as compared to WHO regimen for the management of marasmus in a selected tertiary centre. The study was conducted from July 2009 to June 2010. Sixty marasmus patients (Weight for length/height equal and or less than -3SD of the median WHO references) admitted in the hospital aged 06 months to 59 months who meet the inclusion criteria were enrolled in the study. Children with major congenital anomalies having feeding difficulty and bi-pedal edema, severe anemia, severe dehydration, TB, congestive heart failure with shock, critically sick child were excluded from the study. The WHO standards were used to determine the nutritional status of children. A total of 60 children were enrolled for the trial, 30 in each group. In DMCH group 30(93.74%) continued till the end, one withdrew from the study. Children in WHO group 29 (90.6%) continued till the end. In both DMCH and WHO group most had two or less siblings. Prevalence of exclusive breastfeeding was also similar in both groups. Similar inference goes to age of complementary feeding. Distribution of formula feeding was indifferent in two groups (P>0.05). Almost similar fraction of subjects in two groups had completed immunization and majority in both groups had received Vitamin A supplementation. Around eighty percent in both the group had mild pallor majority had respiratory rate and heart rate within normal limit in both DMCH and WHO group. And in both the groups most cases had liver not palpable. Similar proportion of subjects in both the group had dehydration, hypoglycemia, oral thrush, eye infection and hair change. Malnutrition has to be treated with body food and drugs. It was therefore necessary to regard provision of nutrients as essential for recovery, and to organize and ensure nutrient supply in the same way as the supply of essential drugs. To maintain dietary requirement the regime based on peanuts was tested, and it was found as well tolerated none experienced any adverse event. Although WHO regimen was considered standard our study finding illustrated superiority of peanut based DMCH regimen over the WHO one. DMCH regimen took on average 3.47 days to return to smile the time was 4.47 in WHO regimen group (P< 0.01). Rate of weight gain was also higher in the group by around 2.66 gm/kg/day. In DMCH group, the time taken to achieve targeted weight was 13.4 days which was around one day less than that of WHO group (14.3 days). Total amount off-75 was also required less in WHO group. Most importantly daily treatment cost was higher by around 17 BDT per day in WHO regimen group. Neither of the group experienced any serious adverse effect or fatality. Therefore, it might be concluded that locally peanut based DMCH protocol is more efficacious than the WHO regime for treatment of nutritional marasmus in the age group of 6 months to 59 months.

228. Rahman MN; Prodhan UK; Elahi T; Haque MM. Community based assessment of nutritional status of under-5 children in South-West region of Bangladesh. *South Asian Journal of Population and Health*. 2012; 5(1&2): 27-37.

The study is undertaken to find out the nutritional status of under-5 children which would help to choose an effective program to reduce child mortality and also contribute in achieving MDG. A

nutritional survey was conducted for the collection of a broad range of dietary, clinical, biochemical, anthropometric and socio-economic data during January 2010 to June 2010 to determine nutritional status of under-five years aged children. A cross sectional study was conducted and it included their economic and socio-demographic data, cultural practice, food habits, food beliefs and food prices. A total of 400 under-5 years aged children were taken randomly and interviewed from various area of Khulna Division. The MUAC was used only among children above 75 cm (which corresponds approximately to 1 year) and below 110 cm (approximately 5 years), a reliable indicator of the muscular status of the child and mainly used to identify children with a high risk of mortality. A low MUAC had been correlated to an increased risk of mortality. This study showed that about 30.0% of the children were severely underweighted (3 SD) and 37.0%, 11.0% were moderately, mildly underweighted and only 25.0% were well nourished (using weight for age indicator). The prevalence of severe stunting (<-3 SD) were found in the sample data about 29.0%, while the prevalence of moderate, mild stunting and well nourished were 35.0%,10.5% and 24,0% respectively. This paper highlighted the existence of significant differences in child malnutrition (severe stunting and moderate stunting), which was still an important health problem among children under-five years of age in south-west region of Bangladesh. Malnutrition affects child survival negatively. It might also adversely affect health status and productivity in later adult life. The health status is also associated with child health, indicating that a healthy mother may produce a healthy child. There is a need of integrating all these components in the malnutrition response to be able to observe a positive impact. Without real change of habits by health and hygiene education and without a support to public health services, no improvement might be noticed.

229. Saha S; Zahid MK; Rashid S. The Study of the level of knowledge, attitude, practices (KAP) as well as the effects of school environment on the nutritional status of children (7-12) coming from affluent families in the Dhaka City in Bangladesh. *Bangladesh Journal of Nutrition*. 2011-2012; 24-25: 31-48.

The objective of the study was to find-out the level of knowledge, attitude and practices and effects of school environment on the nutritional status of children (7-12 yrs) coming from affluent society in Dhaka city in Bangladesh. This research had been conducted in Dhaka city at three English Medium Schools on children of 7 to 12 years representing the affluent society. A standard questionnaire was developed for collecting data on socio-economic, dietary and KAP information. Data were collected in 96 (male-70, female-26) students of the three schools. Survey showed that majority (68.31%) of the students has basic nutritional knowledge but only 70.20 % students have correct basic nutritional knowledge. Each school gives basic nutrition education to their students along with the general courses, so that the students as well as their parents adopted healthy eating practices. All schools have classroom teaching programmed related to food and nutrition. On average students spent 4.8 hours per day at school. Though all schools have indoor sports facilities but students were mostly involved in sedentary activities. Majority (86.5%) of the students participated in indoor sports and extracurricular activities at school as well as almost half (47.91%) of the students took part in outdoor sports. One fifth (18.75%) of students spend more than one hour in extracurricular activities. From this study it was found that there was a significant negative relationship between duration of physical activity (sports and extracurricular activities) at school and over-nutrition (obesity & overweight). In case of students' parents, most (59.37%) of the fathers were businessman and most (67.7%) of the mothers are housewife. About 59 % of students get their pocket money from their mother. About two-third (65.6%) of students foods from

the shops for their school meal and only one third (34.4%) of the students bring foods from home for their school meals. Most (72.9%) students consume fast foods and fried foods in school hours. Majority of the students prefer to have fast foods (68.75%) and soft drinks (58.33%) at afternoon. There is no significant negative relationship between fast food intake at school and overweight development. High percentage of overweight among the studied subjects possibly could be done due to total intake both at home and outside. The study suggested that immediate measures to control malnutrition problems of children coming from affluent societies in Dhaka city should be taken into consideration and proper steps should be taken quickly then it would possible could hope a healthy nation with healthy children.

230. Saha S; Zahid MK; Rashid S. Obesity and overweight problem in children (7-12 years) coming from affluent families in Dhaka city in Bangladesh. *Bangladesh Journal of Nutrition*. 2011-2012; 24-25: 77-82.

The objective of the study was to find-out the obesity and overweight problems in children (7-12 yrs) coming from affluent families in Dhaka city in Bangladesh. This cross sectional study had been conducted in Dhaka city at three different English medium schools which had children of 7 to 12 years. These schools were representative of the affluent society. At first, we listed schools based on their tuition fees, location and willingness to participate in the study. Three schools were chosen based on the following criteria: availability of cafeteria, vending machines, and fast food shops in or near the school. A standard questionnaire was developed for collecting data on anthropometry (height and weight). After attaining consents from school authority and parents, we were going to collect data from these three schools on three different specific days. These three schools provided 96 students (Malc-70, Female-26) to participate in this study. The study results found that mean height and weight were 142.611.10.43 cm and 40.50±11.95kg respectively. One fourth (25%) of the students were found to be obese and 21.88% were overweight according to their BMI percentile. Among boys 31.43% were obese and for the girls it was 7.69%. Among boys 18.57% are overweight and for the girls it was 30.76%. Male students were both obese and overweight than the female. Most (63.64%) of the male obese students were in the age group of 7.92-9.17 yrs and 10.5-11.67 yrs whereas most (62.5%), n=5 of 8) of the female obese students were in the age group of 7.92-I0.42yrs. Based on WAZ, 12.5% of the students were found to be obese and 10.41% were overweight. Among boys 28.34% were obese and for the girls it was 6.82%. Among boys 25.71% arc overweight and for the girls it was 35.23%. Male students were more obese than the female. Based on HAZ one sixth (5.20%) of the students were found to be obese and 17.70% were overweight. Among boys 28.34% were obese and for the girls it was 6.82%. Among boys 25.71% were overweight and for the girls it was 35.23%. Based on WHZ one sixth (4.23%) of the students were found to be obese and 8.51% were overweight. Among boys 28.34% were obese and for the girls it was 6.82%. Among boys 25.71% arc overweight and for the girls it was 35.23%. From these (BMI percentile and Z-scores) findings it is vivid that half of the children are vulnerable to over-nutrition problems. Among them male students are in a risky position relative to female student. So, everybody should aware of both groups particularly for male students to reduce obesity and overweight problems.

231. Shams B; Lahiry S; Bhuyan NH; Bhuyan MAH. Hemoglobin status of children aged 6-24 months and their mothers: a comparison between slum and non-slum areas of Dhaka city. *SUB Journal of Health. Public* 2010-2011; 3(2)-4(1): 23-27.

This cross-sectional study was undertaken to determine the hemoglobin status of children aged 6 to 24 months and their mothers between selected slum and non-slum areas of Dhaka city during the period of January to December 2010. A total of 190 children (6-24 months) and their mothers, 95 from slum areas and another 95 from non-slum areas were selected randomly for the study. Anthropometric status of the target children were assessed with weight-for-age, height-for-age, weight-for-height (in z-scores). Level of blood hemoglobin was determined in the field using the cyanmehemoglobin method using Hemo-Cue machine. In the present study, 49 percent slum male children were found to have normal nutritional status, 33.3 percent moderately stunted and 17.6 percent were found severely stunted. Among slum female children, 56.8 percent had normal nutritional status, 17.6 percent were moderately stunted and 11.4 percent severely stunted. However, in case of non-slum children, 84.5 percent male children were not stunted, for female children this percentage was 76. Among them 11.1 percent boy and 12 percent girl were found to be moderately stunted while 4.4 percent boy and 12 percent girls were found severely stunted. Findings from the present study revealed that 60 percent of slum mothers and 28.4 percent of non-slum mothers were suffering from low hemoglobin status. Among the children, 42.1 percent from slum and 21.1 percent from non-slum areas were found having low hemoglobin status. Strong correlation was found between child hemoglobin status and child height-for-age Z-score. Between child's hemoglobin status and mother's hemoglobin status no significant association was observed for slum areas but for non-slum areas significant relation was found at 1 percent level. These two variables were also found strongly correlated. From the key findings of the present study, it was strongly recommended that anemia in slum areas should be controlled and for those purpose practical steps has to be taken immediately. The study findings were very important, suggesting the need for improving knowledge of mothers about anemia and providing care for new mothers and their children both in slum and non-slum areas. Care should also be taken to the future mothers.

232. Yasmin BHN; Chowdhury MAKA; Hoque MM; Hossain MM; Jahan R; Akhtar S. Effect of short term recombinant human erythropoietin therapy in the prevention of anemia of prematurity in very low birth weight neonates. *Bangladesh Medical Research Council Bulletin*. 2012; 38(3): 119-123.

The study was carried out to see the effect of short term administration of rHuEPO with iron and folic acid in prevention of AOP and reduction in the number of transfusions in PTVLBW neonates. This randomized controlled trial study was conducted from April 2007-May 2008 at Neonatal Unit and Intensive Care Unit (ICU) of Dhaka Shishu (children) Hospital, Dhaka, Bangladesh. There was around 2000 neonatal admission per year of which around 18% were preterm very low birth weight neonates (hospital admission register- Jan-Dec. 2006). Both male & female preterm neonates of less than 7 days of age, <35 weeks of gestation and <l500gm weight were included in the study. Neonates with IUGR, anemia due to other causes, gross congenital anomalies and acutely ill patients were excluded. The purpose and procedure of the study were explained and written consent was obtained from the parents or guardian who agreed to participate. Sixty neonates were selected and divided into two groups by simple randomization (lottery method). Neonates of both groups were matched and similar in age, sex, gestational age, birth weight, length and OFC during the admission. This study showed slight male

preponderance. In group I number of male was 18 i.e. 60% and in group II male was 19 i.e. 63.3%. Baseline clinical and hematological values (Hb, Hct, reticulocyte count) estimated and there were no significant differences were found between the two groups. During hospital stay in the first 3 weeks of their life, total number of neonates (7 vs. 8), number of transfusions (2.1± 0.6 vs. 1.9±0.6) and age at which blood transfusions required were almost similar in both groups. There were a total of 13 infants who were dropped out from this study. 6 infants were from group 1 and 7 infants from group II. In group I out of 6, 4 infants died due to neonatal sepsis (3) and NEC (1) during the hospital stay, 2 did not come to the follow up. In group II, 5 patients died four due to neonatal sepsis and 1 due to IVH. Two infants of this group did not come to the follow up. This study showed OFC increment in both group during the l and 2 follow up was not statistically significant. Though the sample size was small but it was evident from this study that despite giving a moderate dose of rHuEPO for a relatively shorter duration the regime was equally effective as higher doses and longer duration to prevent AOP in PTVLBW. It also improved weight gain and linear growth in these babies. Therefore short term therapy of rHuEPO could be practiced along with iron and folic acid in preterm very low birth weight babies to prevent AOP.

2.12 HIV/AIDS/STDs

233. Anonymous. 3rd National strategic plan for HIV and AIDS response 2011-2015. Dhaka: DGHS, National AIDS/STD Programme (NASP), 2011.

The objectives of the strategic plan were to implement services to prevent new HIV infections ensuring universal access; to provide universal access to treatment, care and support services for people infected and affected by HIV; strengthen the coordination mechanisms and management capacity at different levels to ensure an effective multi-sector HIV/AIDS response; and strengthen the strategie information systems and research for an evidence based response. In June 2010 the NASP established a steering committee with representation from all key sectors to oversee the development of the National Strategic Plan for HIV/ AIDS 2011-2015. A task force operating under the directio of the steering committee has conducted a series of workshops involving all key stakeholders to analyse the current situation and develop objectives and implementing strategies. In this strategic plan, section one- describes the background of the strategy. The strategy builds upon lessons learnt over more than twenty years in responding to HIV in Bangladesh. Section two- outlines the principles guiding implementation. They are based on partnership across sectors in implementing an evidence based approach within a human rights framework. Section three - provides an overview of the current situation, key challenges in achieving the goal and the response approach of this strategy. Section four- outlines the goals, objectives and strategies to be implemented. Goals, objectives and strategies have been set within a results based framework and are intended to provide clear direction for program implementation. Section five- describes the content of each strategy. The key issues to be addressed under each strategy and the response approach are outlined. A results based framework is outlined in section six. The framework illustrates the linkages between program outputs, outcomes and impact under each objective and provides indicators to measure results. A detailed implementation plan and budget accompany the strategie plan. Bangladesh is one of the few countries in the developing world that has maintained low HIV prevalence through deliberate and concerted action. This strategy provides a framework for harmonising the efforts of all partners to ensure that low HIV prevalence is maintained and people living with HIV (PLHIV) are provided with the best possible treatment and care.

234. Haider SJ; Akter S; Begum F; Alam H; Gias-uddin MS; Gias-uddin M; Nashir-Uddin. Final report on baseline survey on linkage of HIV and SRH. Dhaka: READ, 2013.

The main objective of the baseline survey was to collect and provide relevant and reliable current information on linkage issues related to policy, strategies, knowledge and capacity of service providers, demand and utilization of integrated services, as well as information, on status of coordination, consensus and collaborating roles of implementing partners and networking organizations. The Baseline Survey was conducted in 3 Districts (Dhaka, Sylhet and Cox's Bazar) through both quantitative and qualitative techniques. The target population included key informants (policy makers, planners, program managers, supervisors, and implementers), service providers and service recipients (people age 15-49 years and young people aged 15-24) from government, NGOs and civil societies. The study found that no specific national SRH strategy/policy, though there were some SRH components included in the National HIV/AIDS Policy and in the National HIV Strategic Plan 2004-2010. Criminalization of some risk behaviors associated with HIV transmission (sex work, illicit drug use) was impeding the implementation of other HIV-supportive policies. Understanding the

strategies of integrated services serving at the district and upazila levels, such understanding existed at 72% among the key informants from DGHS, while it existed at 55% among those from DGFP. Among the key informants form NGO/Private agencies, the understanding on dispensation services jointly on HIV-AIDs and SRH prevailed at 50% in the national level and at 62% in the district level. Across the three districts, only 13% of the female and 14% of the male clients could at least perceive the concept of the strategies of integrated and functionally linked SRH & HIV-AIDS service. At the district and at upazila level, the perceived need among the key informants for integrated and functionally linked services on HIV-AIDS and SRH existed at 79% among those in DGHS, at 85% among those from DGFP and at 82% among the key informants from NGO and Private agencies at 90% level. There was a lack of conceptual clarity about SRH-HIV linkage issues among stakeholders. It was hard to find specific activities and implementation methods precisely in the HIV Strategy. Integrated planning and implementation of HIV and SRH activities were largely confined to projects rather than programs. There was a lack of consensus among donors, UN agencies, the government, NGOs and the private sector about linkages between SRH and HIV.

235. Haider SJ; Giasuddin M; Akter S; Nashir-Uddin. Revised national HIV-AIDS and SRH communication strategy Bangladesh. Dhaka: UNFPA & READ, 2014.

The objective of the study was to achieve service integration, which was key strategy for overcoming missed opportunities of meeting the needs of overlapping target population in the areas of HIV and SRH services. The study for updating the strategy document National HIV-AIDS Communication Strategy Bangladesh 2005-2010 was conducted primarily through qualitative in-depth investigations. Study found the health care system was not yet equipped to deal adequately with HIV or STI prevention, treatment and support. Lack of resources, supervision, and training all contributed to the challenges in improving the system. A divided and decentralized service delivery system among private, public and NGO sectors also posed a barrier to creating more universal training and counseling as well as integrated, comprehensive HIV and STI prevention, treatment, and care systems. Majority of the HIV infections were sexually transmitted. Presence of certain sexual and reproductive health illness could increase risk of HIV transmission. Sexual and reproductive ill health and HIV shared same root causes including economic inequality, limited access to information and services, gender inequality and social marginalization. Because of limited human, financial and infrastructure resources, the on-going programs were only able to offer a core package of basic SRH services, usually focused around maternal, newborn and child health, including family planning. As program expand their vision of addressing peoples' rights to a full and comprehensive range of SRH services, while streamlining the management of SRH services, it was recommended that SRH services should be integrated within the primary health care system, with referrals for more specialized needs. Furthermore, to reflect the Plan of Action proposed at the International Conference on Population and Development (ICPD) in 1994 and to accelerate progress towards all three health millennium development goals, it is recommended that a full SRH package delivered through primary health care with referrals would include. Important concerns have to develop a comprehensive communication plan within the policy framework for demand generation for integrated HIV and SRH services as well as to facilitate understanding about linkages and integrations among policy makers and service providers.

236. Hasan MT; Nath SR; Khan NS; Akram O; Gomes TM; Rashid SF. Internalized HIV/AIDS-related stigma in a sample of HIV-positive people in Bangladesh. *Journal of Health Population and Nutrition.* 2012; 30(1): 22-30.

The study highlighted the present picture of the prevalence of HIV/AIDS related internalized stigma among PLHA in Bangladesh. It also identified the domains that might be helpful to discriminate against difficult manifestations of internalized HIV/AIDS related stigma. A quantitative survey was conducted by 238 adult PLHA (aged not less than 15 years) following the stigma index questionnaire developed by the International Planned Parenthood Federation (IPPF) in partnership with the Joint United Nations Program on HIV/AIDS (UNAIDS), the Global Network of People Living with HIV (GNP+) and the International Community of Women Living with HIV (ICW). Data were collected during October 2008-November 2008 in four divisions: Dhaka, Chittagong, Sylhet and Khulna. The study results showed that about three-fourths (72.7%) of the 238 PLHA were living in small towns or villages while 27.3% were living in large towns or cities at the time of interview. Nearly 64% of the PLHA were male 36% were female 46.2% were aged 30-39 years; and 24.4% were aged 40-49 years. The result showed the prevalence of internalized stigma among the 238 PLHA. The percentage of PLHA feeling guilty was two times higher among the males than among the females. Most (88%) males blamed themselves for being HIV-positive while this result was found reversely true for the females (20%). Internalized stigma was prevalent among the study participants and varied according to their gender and poverty status. Every three in four male PLHA felt ashamed because of their HIV status. More than half (87.5% male and 19.8%) of the PLHA blamed themselves for their HIV status while many of them (38.25%) male and 8.1% female) felt that they should be punished. The male PLHA more frequently chose to withdraw themselves from family and social gathering compared to the female PLHA. They also experienced a higher level of internalized stigma compared to the female PLHA. The results suggested that the prevalence of internalize stigma is high in Bangladesh, and much needed to be done by different organizations working for and with the PLHA to reduce internalized stigma among this vulnerable group. Moreover, combat stigma among the PLHA, comprehensive program including education to understand complexities and factors which surround HIV/AIDS could be done towards reducing its stigmatization. Support groups/network, including PLHA and other stakeholders, might also be helped to reduce stigma at the individual level.

237. Imam MH; Karim MR; Ferdous C; Akhter S. Health related quality of life among the people living with HIV. *Bangladesh Medical Research Council Bulletin.* 2011; 37(1): 1-6.

The study was undertaken to determine the level and associated factors of health related quality of life among the people living with HIV. The increasing pandemic of HIV/AIDS at present is a major global concern and a significant development issue. This cross-sectional study was conducted on a convenient sample of 82 HIV-infected people attending for receiving services and care from three selected NGOs and one hospital during the period of January 2009 to June 2009. In this study a check list was used to obtain clinical and lab information from medical records. The questionnaire was developed by adopting "31 items World Health Organization Quality of Life HIV BREF (WHOQOL-HIV BREF) instrument". The respondent's perception of the overall quality of life within the 6 (six) broad domains physical, psychological, level of independence, social, environmental and spiritual. Of the total 82 participants, more than half the respondents were male (57.3%) and mostly (81.7%) between 18-40 years of age, residing in rural areas (61.0%), predominantly unemployed (56.1%) and most of them (62.2%) had no

family income or less than Tk. 5000 per month. More than half (56.1%) of the respondents had shared their serostatus with friends. The majority of the respondents had been infected with this virus for a long time. Most of them (64.6%) were not receiving antiretroviral treatment. The respondents were almost equal in three groups of the CDC stage of HIV infection, 34.1% of respondents were in both asymptomatic and AIDS group and 31.7% were in symptomatic group. The analysis revealed that the perception of overall health was higher in female, respondents with an age of less than 35 years, who were asymptomatic of the CDC stage of HIV- infection and whose current CD_4 count was greater than 200 cell/mm. The overall perception of quality of life (QOL) was better in the respondents living in urban areas. The largest portion of respondents were affected with this disease between 18-40 years of age and congruent the report of UNAIDSA/WHO Report on the global AIDS epidemic 2008, in 2007. A significant relationship was found between being employed and overall perception of health related quality of life. Therefore, providing employment, financial self-sufficiency, and financial assistance for patients and making appropriate job safety for patients were the interventions causing promotion in quality of patients' life. These findings highlighted the need for enhanced socio-psychosocial support and better environment for improving the health related quality of life among PLHV. It could be attained by offering comprehensive and integrated services lo the PLHIV including primary medical care, substance abuse treatment, financial assistance, housing, food, child care and social sensitization. Finally it should be recommended to attempt further studies in longitudinal design with considering all possible predictors of HQoL in PLHIV.

238. Islam MR; Islam MA; Kabir MA. Determinants of awareness of and attitude towards HIV/AIDS: a study in Bangladesh. *South Asian Journal of Population and Health*. 2012; 5 (1&2): 1-8.

The objective of this study were to investigate if awareness of and attitude towards HIV/AIDS differ significantly between male and female, married and unmarried respondents. Bi-variate analysis was conducted to identify variables that had significant association with awareness of and attitude towards HIV/AIDS. Two logistic regression models had been followed. The response variables were: i) awareness of HIV/AIDS; and ii) attitude towards HIV/AIDS patients. If the respondent had ever heard of HIV/AIDS, he/she would be considered as aware of HIV/AIDS. Among the respondents 59% were from urban areas. About 66% of the respondents belong to the age group 20 to 39 years. About 61 % of the respondents were male and 39% were female. Among the respondents about 60% were married and 37% were unmarried. Majority of the respondents (70.6%) had more than six years of education. Only about 17.1% of the respondents were involved in paid employment. About 85% of the surveyed respondents were Muslim. Almost all (97.1%) of the respondents living in urban areas had heard of HIV/AIDS, while only half (50.8) of the rural residents were aware of HIV/AIDS. Study reported that the awareness of HIV/AIDS decreased by age. About 90.9% of the teenage respondents had heard of HIV/AIDS, while only 55.7% of the respondents aged more than forty had heard of HIV/AIDS. Awareness of HIV/AIDS among males (83.6%) was higher than females (70.1%C). Television was reported to be the main source of information regarding HIV/ AIDS among the respondents. About 89.6% of the respondents who reported to have heard of HIV/AIDS mentioned that they got the information from television followed by radio (46.2%), newspaper (44.5%), relatives/friends (33.5%), poster (30.9%), doctor (18.6%) and NGO workers (11.9%). This study also revealed that 78.4 percent of the respondents reported to have ever heard of HIV/AIDS. Urban people were more aware of HIV/AIDS compared to rural people. Awareness of HIV/AIDS was less among aged respondents. This might

be due to the cohort effect. Level of education was significantly positively associated with HIV/AIDS awareness. Even though awareness of HIV/AIDS among people was appreciable, still some people perceived wrong ideas about HTV/AIDS transmission, which might be detrimental to the program achievements. About half of the people who were aware of HIV/AIDS were holding negative attitude towards HIV/AIDS patients, which was threat to the program success and wellbeing of HIV patients. Effective use of mass media, involvement of religious leaders, program should be targeted to minimize the gender and urban rural differences of awareness of HIV/AIDS were suggested.

239. Paul JR. AIDS coverage in mass media: a study on selected newspapers of Bangladesh. (a Ph.D. dissertation). Rajshahi: University of Rajshahi, IBS, 2011.

The study has examined and analyzed the overall HIV/AIDS coverage of five selected newspapers of Bangladesh from January 2002 to December 2006. Newspaper of Bangladesh has been picking up the issue of HIV/AIDS since long ago. Newspapers focus on HIV/AIDS giving emphasis in many aspects. Some has given emphasis on HIV positives, some on awareness rising and some on treatment etc. HIV/AIDS is now-a-days not only a health issue but also a development issue. With this issue some news elements have been working upon it so that the importance may increase. The study had revealed that the quantity of HIV/AIDS coverage is not so satisfactory so far. It was identified that. The Daily Prothom Alo had provided 303 news stories, while the Daily Ittefaq provided 129 news items. The Daily Sangbad 131 news, the Daily Star 313 news and the Bangladesh Observer 289 news stories in total. Against found all the news stories, amount of coverage was found in such was that the Daily Proteome Alo provided 5048 column inches, while the Daily Ittefaq offered 2330 column inches, the Daily Sang bad 1399 column inches, the Daily Star 6754 column inches and the Bangladesh Observer 4911 column inches. The average column inches of per month in allocating against HIV/AIDS news stories were found that the Daily Prothom Alo provided only 84 column inches while the Daily Ittefaq gave 39 column inches, the Daily Sangbad 23 column inches, the Daily Star 112 column inches and The Bangladesh Observer 82 column inches only. The study had appraised the pattern of coverage of HIV/AIDS in many aspects such as the nature of writer or reporter, length of the story, size of the story, source of the story, types of news, structure element of news, placement of news, types of headline, illustration of news etc. staff reporter and by-line story reporter had identified as the dominant writer of the report on HIV/AIDS. It was also found that experts, medical doctors and concern reporters were the by-line story writer. The news stories were single column (S/C) dominated though the double column (D/C) was also found in one newspaper in dominating form. The study had also examined the news story on HIV/AIDS for identifying the total understanding of the news report. In this process, total 24 themes had been identified. These are kike Woman Affairs; Young People; Medical care and Service; Projection of Vulnerability and Alarming; Social Factor, Superstition and Stigma; International Perspective; Local Issue; Awareness Raising; Treatment; Advocacy; Political and Leadership; HIV/AIDS Positive People; Drug Addiction; Statistics of HIV/AIDS; Children Affairs; Human Rights; HIV/AIDS Prevention; Role of Media; Policy; Risk Barer; Fund and Economic; Attract the Attention to All Concerns; Regional Affairs and HIV/AIDS Intervention. These themes also include specific sub themes. There was found a similarity in the top identified themes. Awareness Raising and Awareness Raising and Advocacy theme were found first and second ranking in the top five positions in all the five newspapers. The newspapers of Bangladesh have been trying to highlight HIV/AIDS issue though the coverage was found inadequate. The study had visualized the overall HIV/AIDS coverage pattern in all possible ways so far. On the basis of the above findings of study, the concern personnel

would be able to take measure in fighting against HIV/AIDS with the help of mass media especially the newspaper.

240. Sarker DC. Exploring the extent and determinants of knowledge and attitude of sexually transmitted infections (STIs) among adolescent women in Bangladesh. *South Asian Journal of Population and Health*. 2012; 5(1&2): 57-62.

The study assessed the extent of knowledge and attitudes of sexually transmitted infections among adolescent women and examined some selected demographic and socioeconomic characteristics which influence the knowledge and attitudes among adolescent women in our country. This study utilized data from the 2007 Bangladesh Demographic and Health Survey (BDHS. 2007), a nationally represented survey that was conducted under the authority of the National Institute of Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare. The study participants were aged between 14 to 24 years who live in both rural and urban areas and had gynecological health problems during the six month preceding the survey. The respondents were asked, if they had other infections or diseases that could be transmitted through sexual contact and what signs and symptoms would lead them to think that she has such a disease. The results of the bivariate and multi-variate analysis revealed that the increase in the education level, percentage of knowledge of STIs increased sequentially. Since education acts on the awareness of different phenomenon, there was a strong and positive association between knowledge of STIs and education level. Type of resident of the respondent is also an important factor in the case knowledge of STIs. In urban area the percentage of having knowledge is around three percent. In this study, the respondent who heard about Family planning (FP) on TV last month, 3.5 percent of them have knowledge of symptom of STIs while that percentage for the women who had not heard of FP on TV last month it was1.4 percent only. Both bivariate analysis and multivariate analysis indicated several factors that have considerable association with the knowledge and attitudes of sexually transmitted infections (STIs) among adolescent women in Bangladesh. The analysis also demonstrated that wealth index of the adolescent woman played an important role on the knowledge of STIs and attitudes of adolescent women. It was suggested that by improving women education and socio-economic status along with their empowerment and expressing the importance of the knowledge of symptom of STIs on mass media, the knowledge and attitude of STIs could be enhanced among adolescent women in Bangladesh.

241. Sarker S. HIV counseling and testing at ICDDR,B Dhaka Hospital. *Health and Science Bulletin*. 2013; 11(4): 15-20.

The objective of this study was to describe the characteristics of HIV-infected patients diagnosed at Dhaka Hospital using different counseling and testing approaches. The study collected demographic and clinical data from persons who were tested by Dhaka Hospital's VCT and PITC services during May 2008 to May 2012. During this time, 4,236 persons were tested for HIV. Of these 3,582 (85%) were tested by VCT and 654 (15%) were tested by PITC. Among those tested by PITC, 114 (17.4%) were referred by providers at Dhaka Hospital and 540 (82.6%) were referred by providers from other hospitals and clinics. A total of 277 (6.5%) persons tested positive for HIV; 195 (70.4%) were male and average age was 32.8 (standard deviation: ±10.3) years. Among HIV-infected persons, 151 (54.5%) were identified through VCT and 126 (45.5%) were identified through PITC; 4.2% of those tested by VCT were HIV-positive and 19.3% of those tested by PITC

were positive. The study found that while more HIV were identified by VCT than PITC (151 vs. 126), the proportion which tested was substantially higher among those tested by PITC than by VCT. PITC has proven to be an important intervention that increased HIV testing, particularly in setting where it complements existing VCT services. In this study, it demonstrated that both VCT and PITC contributed towards the diagnosis of HIV infection at an urban hospital in a country with low HIV prevalence. Both VCT and PITC were important for HIV diagnosis at Dhaka Hospital and both should be expanded at Dhaka Hospital and in other hospitals in Bangladesh, particularly in areas where HIV prevalence is high. The Govt. of Bangladesh should consider incorporating PITC into the National HIV Testing and Counseling Guidelines. All health care providers should receive training on the clinical manifestations of and risk behaviors associated with HIV infection, the importance of HIV counseling and testing and the strengths and limitations of VCT and PITC in the diagnosis of HIV infection.

CHAPTER - III
Indexes

3.1 Author Index:

3.2 Subject Index:

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