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Averting maternal death and disability

Experience from Bangladesh: implementing emergency obstetric care as part of the reproductive health agenda

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Abstract

This paper describes the activities of the Ministry of Health and Family Welfare of the Government of Bangladesh and UNFPA to introduce emergency obstetric care (EmOC) services into the reproductive health care agenda. Working through the existing system of Maternal and Child Welfare Centers (MCWC), the quality and availability of comprehensive Reproductive Health and Emergency Obstetric Care services was improved. Investments in training, infrastructure, management information systems, quality assurance mechanisms and linkages between health care facilities in Bangladesh, have produced positive results in terms of increased utilization of these services. The Ministry of Health first implemented services in one division of the country and later scaled up to include all of the MCWCs nationally. While there are still obstacles to preventing obstetric deaths in Bangladesh, this experience shows that improvements in the quality and expansion of the range of services in existing health systems is an important step toward increasing the use of reproductive health care services by the women who need them most.

Keywords: Bangladesh; Emergency obstetric care; Maternal mortality; Reproductive health

1. Introduction

While Bangladesh has an impressive history of achievements in public health, maternal mortality continues to be one of the leading causes of death among women of childbearing age. According to a recent national needs assessment, an estimated 2.5 million births occur each year in Bangladesh, and approximately 376 500 women experience pregnancy-related complications [1]. Twenty thousand of these women die from such complications, while those who survive often suffer sequelae that range from severe discomfort to disability and indignity [2].

Bangladesh has a fairly extensive physical infrastructure for the delivery of health and family

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Table 1
Demographic and health indicators for Bangladesh

Indicators	
Total population	117.7 million
Crude birth rate (per 1000 population)	27.0
Crude death rate (per 1000 population)	9.0
Annual growth rate (%)	1.88
Contraceptive prevalence rate	46.3%
Total fertility rate	3.58
Infant mortality rate (per 1000 live births)	77.0
Maternal mortality ratio (per 100 000 live births)	450
Life expectancy (at birth)	58.1 years

Source: Bangladesh Bureau of Statistics, 1998 Brochure, http://www.bbsqov.org (NB: all data are from the 1994 fiscal year.)

planning services, However, many facilities still do not meet the needs of women with respect to emergency obstetric care (EmOC). The government has identified the lack of equipment, trained personnel, and supervision as major constraints in the existing health care system. This is clearly reflected in Table 1, where the contraceptive prevalence rate has reached an impressive 46.3% while the country's maternal mortality ratio remains unacceptably high at 450 deaths per 100 000 live births. Poverty, social and cultural prejudices, lack of education, and insufficient access to healthcare all contribute to the poor health of women in Bangladesh [3,4]. In addition, the general level of underdevelopment in the country, often prevents women from obtaining timely medical treatment for pregnancy-related complications.

The Government of Bangladesh has fostered several successful partnerships with development agencies, research institutions, and non-governmental organizations (NGOs) to improve the quality and availability of reproductive health services throughout the country. In 1993, the government asked the United Nations Population Fund (UNFPA) to assist in strengthening its reproductive health and EmOC services, with specific attention to improving Maternal and Child Welfare Centers (MCWCs) under the Directorate of Family Planning. The collaboration began in 1993 with a pilot program in eleven MCWC facilities in the Rajshahi Division, which had an estimated population of 27.5 million people, of which 87% lived in rural areas [5].

After the successful pilot project, the program was expanded, to three more Divisions and then throughout the country to include all 64 MCWCs. This paper focuses on the processes that resulted in increased quality and availability of comprehensive EmOC services in the context of a larger reproductive health agenda, and highlights some of the challenges that impede further progress.

2. Background and approach

Two major health units operate in parallel under the auspices of the Ministry of Health (MOH) and Family Welfare in Bangladesh. The Directorate of Health Services advises and supports medical college hospitals, district hospitals, and sub-district Thana Health Complexes (THCs), while the Directorate of Family Planning oversees the operations of district-level MCWCs and smaller facilities called Family Welfare Centers (FWCs).

Bangladesh is divided into six administrative areas called Divisions. A Division has several Districts, each having its own MCWC, with referrals often coming from sub-district facilities such as THCs and FWCs. Each MCWC serves a population of one to two million people [6]. Before UNFPA's involvement in 1993, health services at the MCWCs converged primarily on family planning and antenatal activities, while deliveries and immunizations were provided on a much smaller scale. Facility staff typically included a female physician and a Family Welfare Visitor (FWV) with 18 months of training in maternal and child health care. Equipment was usually limited to instruments needed to perform surgical contraception procedures, and essential drugs and supplies were often unavailable. In addition, clinicians lacked ongoing training and supervision. MCWCs were therefore ill equipped to adequately manage obstetric complications. Recognizing the important role MCWCs play in delivering. Maternal and Child Health (MCH) services, this project aimed to integrate EmOC into preexisting services.

3. The Rajshahi Division program

3.1. Planning

To avoid duplication of planned EmOC services at facilities that were in close proximity but governed by two different arms of the Ministry, program activities began in 1993 with consensus building and strengthening of coordination between the Directorate of Family Planning and the Directorate of Health Services. Orientation workshops on the new reproductive health (RH) and EmOC services were conducted throughout the country, with a particular emphasis on the Rajshahi Division where the pilot project was to be launched. Discussions focused on the actual (as defined by the Ministry) and proposed responsibilities of staff, requirements for further training and skill development, and the kinds of new services to be provided at MCWCs.

3.2. Renovation and equipment

During a 6-month period, staff from the Directorate of Family Planning conducted needs assessments (developed by UNFPA) for all 11 MCWCs included in the pilot project. The needs assessments found that 10 of the 11 facilities lacked basic furniture and supplies such as beds and linens, as well as EmOC-related drugs and equipment. In addition, a consultant firm was hired to conduct a separate assessment of each facility's infrastructure to determine construction and renovation needs.

Renovation needs included the rehabilitation of water and electrical supplies and ensuring adequate space for labor and delivery, outpatient consultation, an operating theater, scrub area, changing room, and autoclave. To improve the 24-h availability of EmOC services, residential space for staff was constructed. The facility compound was also enclosed to enhance the overall appearance and safety of the health centers.

Procurement began immediately following the assessment exercises, and each MCWC was subsequently equipped with general surgical instruments, obstetrical instruments including vacuum extractors and forceps, anesthesia machines with oxygen and nitrous oxide cylinders, operating room lights, operating and labor/delivery tables, a refrigerator, electric generator, and essential obstetric medicines. The entire process of renovation and equipment procurement was completed over the course of 1 year.

3.3. Staffing

The needs assessment of MCWCs identified a shortage of trained personnel at the facilities who were capable of providing reproductive health services, particularly EmOC. The staff originally included one female Medical Officer, two FWVs, two nursing attendants and two maintenance/support staff. Following the needs assessment, it was decided that the complement of staff should be increased to include a second Medical Officer, an additional FWV and nursing attendant, as well as a pharmacist and ambulance driver.

3.4. Training

Once the new staff was identified for posting to the MCWCs, training to improve skills for RH and EmOC commenced. A team from each MCWC, comprised of two general physicians (medical officers), and two FWVs, was selected to train together at one of three medical college hospitals in the Rajshahi Division. One doctor was trained in obstetrics while the second trained in anesthesia. This was done to encourage individuals to recognize the importance of functioning as a team, to understand their own roles, and to assist one another in developing clinical and management skills. The medical officers (MOs) trained for a period of 1 year, while the FWVs joined the MOs after the initial 6 months of training. In facilities that underwent major renovations, limited services, including family planning, continued to be provided by substitute physicians until the team completed the necessary training.

The training curriculum was developed in 1993 by UNFPA staff in consultation with the Directorate of Family Planning and medical college faculty members from around the country. The curriculum was later modified to include the strategies called for in the Programme of Action of the 1994

International Conference on Population and Development. Topics included in the curriculum were: management of pregnancy-related complications, detection of reproductive tract infections (RTIs) and sexually transmitted infections (STIs), infertility, and care of gynecological problems.

As a part of the training curriculum, each MCWC team was given a monthly assignment such as performing a cesarean section or handling other emergency reproductive health-related cases encountered in an actual hospital setting. The following month, each medical team gave a presentation on the assignment. A UNFPA project staff member and a representative from the MCH unit of the Directorate of Family Planning regularly visited the teams during training to discuss each provider's performance and to resolve any difficulties the team may have faced throughout the previous month. Trainees also had a special session with UNFPA project staff on a variety of management topics, including team building, supervision of clinical staff, and how to address future obstacles. Upon completion of their training and return to their respective MCWCs, the medical teams started functioning immediately in the provision of EmOC services.

3.5. Ongoing supervision for quality assurance

To ensure that clinicians maintained a high standard of care once they returned to their posts, the UNFPA Advisor and National Consultants as well as members of the MCH Unit of the Directorate of Family Planning made monthly monitoring visits to each of the eleven MCWCs. During these visits, the advisory team observed the care of patients, readiness for obstetric emergencies, and whether services were being provided according to the standards and protocols developed by UNFPA and government officials. Through the ongoing supervision process, an incremental improvement in quality of care and management was observed as a result of the recommendations and on-the-job training provided during the visits.

To enhance sustainability of skill development, several tools were created to assist clinicians in their everyday activities. An MCWC Operations Manual was written and distributed to facility staff to serve as a ready reference on standards for RH and EmOC and as a guide to solving various management issues. Each facility was also equipped with a television and video cassette player so staff could watch continuing medical education (CME) units on topics such as infection prevention practices and IUD insertion. In addition, MCWC teams were required annually to attend a five-day CME course at a nearby medical college to reinforce clinical skills learned in previous training exercises.

3.6. Management information systems

Because the range of services at the district MCWCs in the Rajshahi Division pilot program were expanded to include EmOC, the management of data and information had to be redesigned and streamlined. The program introduced, with government approval, a new system of registers and forms that would capture statistics on more general reproductive health issues (required by the government for compilation of national statistics), as well as specific information necessary to track and analyze obstetric emergencies. Registers for admission/discharge, operation, delivery, and monthly statistics, as well as new forms, including outpatient slips, physician orders, anesthesia records, birth certificates, and discharge and referral slips were developed. MCWC and district managers participated in an orientation on these new data collection tools. Monthly statistics from each MCWC were collected and reported to the Director of MCH Services in the National Directorate of Family Planning.

3.7. Health system linkages

Staff from the MCWCs were encouraged to maintain close links with both higher and lower level health facilities to encourage referral of cases that could not be managed at a given level. A joint letter from the Directorate of Family Planning and the Directorate of Health Services was issued to encourage cooperation among the staff of MCWCs and district hospitals. District and Thana level managers were involved in promoting links between lower level facilities and the MCWCs as

Table 2
Changes in utilization of services at 11 Maternal and Child Welfare Centers in Rajshahi Division, Bangladesh, 1992–1998

Activities	July 1992–June 1993 baseline	July 1995–June 1996	July 1996–June 1997	July 1997–June 1998	Percent change 1995–6 to 1997–8
New services					
Cesarean sections	0	134	462	501	+273
Patients treated for obstetric complications	0	1006	1147	1324	+31
Patients treated for RTIs/STIs	0	4097	4594	4996	+22
Blood transfusions	0	128	200	118	−7
Existing services					
Antenatal visits	22 451	34 585	44 710	55 511	+147
Deliveries	1989	3297	5129	5826	+192
Postnatal visits	5913	5734	8898	8248	+40
Childhood immunizations	10 103	32 409	41 279	43 976	+335

a first referral center for sexually transmitted infections and obstetric emergencies. Links were also made between government and project staff and local and international NGOs working in the area to coordinate coverage of services, transport arrangements and community awareness building activities. In addition, ambulances were provided to the MCWCs that did not already have one.

3.8. Delivering services

The UNFPA program in the Rajshahi Division moved from initiation to implementation within 2 years. By 1995, all 11 MCWCs were equipped to provide comprehensive emergency obstetric care (CEmOC), as well as other MCH services including neonatal resuscitation and implantation of the Norplant contraceptive. The results of strengthening reproductive health services, with special attention to EmOC, have been encouraging. Table 2 shows the dramatic increase in utilization over the three years since the staff training and facilities of the pilot MCWCs were upgraded. (There are no data for 1994–95 since the facilities were under renovation and therefore not providing services during that period.) There was an increase in all reproductive health services rendered, with the exception of blood transfusions. The main reason for the decline in blood transfusions was the lack of blood screening for HIV, which was available in only one hospital in the capital city of Dhaka at the time of this analysis.

Deliveries at the MCWCs increased three-fold probably as a result of the strengthening of health service delivery and infrastructure, including improved linkages between the MCWCs and higher and lower level health care facilities. A separate analyses the indications for 374 cesarean sections performed between July 1995 and December 1996. Staff cited increased confidence in recognizing and dealing with obstetric complications and performing C-sections as reasons for the increase in procedures. With the availability of this crucial procedure, maternal deaths, severe disability and stillbirths were avoided, particularly in the 44.5% of cases where obstructed labor was the leading indication.

The final evaluation of the project found that staff dedication to providing RH and EmOC services was high and could be attributed to the training, particularly the focus on serving the client and working as a team. MCWC staff also identified supportive supervision and monitoring as valuable for the advice received and supportive relationships that resulted from the regular visits. Finally, the increase in caseload can be attributed to increased client satisfaction, both in terms of new clients attracted by recommendations of family and friends, and women's interest in returning to the

MCWC for delivery or other services following an initial good experience [7].

3.9. Cost

Over the 6 years of the pilot program in the Rajshahi Division, improving the quality and availability of comprehensive RH and EmOC services cost less than five million dollars. The cost per trainee was US$900 for doctors and US$450 for FWVs. This amount included stipends for the trainees and honorariums for project coordinators and trainers. The average cost for new equipment and supplies was US$5000 per facility, while the average expenditure for renovation and construction per MCWC was US$65 000 (range: US$17 000–78 000). The financial investment made by UNFPA, the Government of Bangladesh, and their partners was modest in relation to the increase in delivery services provided to women.

4. Scaling up

Because of the success of the original pilot project in the Rajshahi Division, plans were made to replicate activities nationally by expanding the project to MCWCs in the remaining five Divisions. While most implementation activities were replicated from the original program, some components were added to ensure that quality and availability of EmOC services remained high.

A technical support system was established nationwide and consisted of one quality control team at the national level, four quality assurance teams (QATs) at the regional level, and 64 district teams. Checklists for each level were designed to include information about problems experienced in each health facility, on-the-job training provided to MCWC teams, and management issues raised by the MCWC teams. Each month, the regional QATs submitted their report to the Director of MCH. The national quality control team then looked at whether QATs were contributing to improvements in the quality of care provided by MCWCs. Low-performing facilities were given more attention in order to improve the quality of services provided.

By March 1999, 47 out of 64 MCWCs were providing comprehensive RH and EmOC services nationally. At this writing (2003) all 64 MCWCs have completed the upgrade of services. In addition to providing a wider range of services, these facilities are serving as on-the-job training sites for Family Welfare Visitors from surrounding health centers, which has helped to incorporate them into the RH team of the MCWC and promote referrals of complicated cases. In terms of funding the scaling-up efforts, the Government of Bangladesh has provided the existing infrastructure, as well as supplies and human resources. UNFPA has contributed continuing technical assistance and advocacy in addition to resources for infrastructure repair and the training and continuing education needs of MCWC clinical teams.

5. Discussion

Through qualitative interviews with staff and patients, and objective assessments of quality of care provided by clinicians, we learned that increased utilization resulted from both improved performance as well as the improved reputation of the facilities in local communities. In focusing on key program elements including renovations, procurement of equipment and supplies, training activities, management issues, and ongoing supervision, the project was able to effectively introduce comprehensive EmOC services into an existing national reproductive health agenda. This not only led to overall improvements in the health system, but also increased access to EmOC in Bangladesh. This kind of sector-wide approach has proven successful in several other country programs aimed at reducing maternal mortality and morbidity [8].

Despite the gains made through this project, however, there are still many obstacles to preventing obstetric deaths in Bangladesh. Although utilization increased dramatically in the MCWCs targeted by this project, there remain a host of infrastructure, human resource and sociocultural barriers that prevent many women from accessing services.

The parallel health systems of the Directorate of Health Services and the Directorate of Family Planning in Bangladesh posed particular challenges

for establishing a viable referral system. The consensus building that marked the beginning of this project was successful in developing a common goal of improving the availability of RH and EmOC, particularly at the national level.

Unfortunately, however, cooperation between MCWCs and District Hospitals was inconsistent. Unless the government and its partners make a more substantial attempt either to improve coordination between the separate directorates or to merge the two units, there will continue to be systemic discontinuity in EmOC service provision as well as duplication of efforts.

Although an agreement between UNFPA and the Government of Bangladesh ensured that each team of newly trained clinicians would continue to work as a unit, the availability of human resources to provide RH and EmOC services in Bangladesh remains a challenge. The issue of transfers and posting to rural areas is of particular concern. As in many developed and developing countries, trained health personnel in Bangladesh are concentrated in urban areas, and are often unwilling to work in rural areas for financial, security, and family concerns. Without some sort of requirement or incentive to work in rural areas, it will remain difficult to make health services available where and when they are needed. This issue will become even more significant as the caseload of the upgraded MCWC facilities increases.

Socio-cultural barriers, including lack of decision-making power by women within their households, poverty, and poor infrastructure (roads, transport, communications) remain significant barriers to accessing RH and EmOC services in Bangladesh. A recent study of 28 998 maternal deaths (most of which were due to obstetric complications) in the country found that more than half of the women died at home [9] while another investigation found that 95% of deliveries in rural areas still take place at home [10].

6. Conclusion

Through this program, we have been able to show that meaningful gains in the quality and availability of EmOC services can be made on a large scale. It is important to note that the success of the program was a direct result of sustained partnerships between several key players-the Government of Bangladesh, UNFPA, medical college staff, and MCWC clinical teams. The long-term impact of the efforts described in this paper remains to be seen, but other examples suggest that strong government support of and investment in EmOC efforts can lead to sustainable outcomes [11]. If a country like Bangladesh, which ranks near the bottom of the human development index (144th out of 174 nations) [12], can achieve this kind of progress in confronting the large number of maternal deaths, it is possible for other country programs to learn from our experience presented here so that fewer women will die from obstetric complications in the future.

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