Strengthening Health System Capacity to Monitor and Evaluate Programmes targeted at Reducing Abortion-related Maternal Mortality

Reproductive Health Programme Working Paper No. 1

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Strengthening Health Systems Capacity to Monitor and Evaluate Programmes Targeted at Reducing Abortion-related Maternal Mortality

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Foreword

The ICDDR,B Reproductive Health Programme Working Paper Series disseminates ongoing and recently completed work by ICDDR,B scientists and their local and international collaborators on critical questions of reproductive health and related issues. ICDDR,B prioritizes knowledge translation to achieve its vision of Healthier people—Better lives through evidence-based solutions. In keeping with this priority of knowledge translation, all publications of the Reproductive Health Programme Working Paper Series are published with an accompanying Knowledge Translation Brief.

A Knowledge Translation Brief is a one page summary of key messages and evidence-based recommendations for action derived from the evidence produced by ICDDR,B research. While the audience of Knowledge Translation Briefs is varied—including policy makers, healthcare administrators, clinicians, scientists, lawmakers, educators, and many others—the end goal of each Knowledge Translation Brief is always the same: to promote evidence-based action to address the challenges facing the people of Bangladesh and beyond, especially the most vulnerable, through translation of knowledge into policy and practice. Please find these Knowledge Translation Briefs enclosed inside the front cover of this Working Paper, and archived through ICDDR,B's Reproductive Health Knowledge Translation Briefcase.

All Working Papers and Knowledge Translation Briefs go through a peer review process at ICDDR,B prior to publication in the series. Full responsibility for the content of all Working Papers and Knowledge Translation Briefs remains with the authors. Comments from readers are welcomed and should be sent directly to the authors.

International Centre for Diarrhoeal Disease Research, Bangladesh

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is an international health research institution located in Dhaka, the capital city of Bangladesh. Dedicated to saving lives through research, community-based interventions, and high quality medical care, ICDDR,B addresses some of the most critical health concerns facing the world today. In collaboration with academic and research institutions throughout the world, ICDDR,B conducts diverse research, training and programme-based activities to develop and share knowledge for global lifesaving solutions.

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Legends

Study timeline

Baseline   : January-December 2008
                       Data collected during March-April 2009
Quarter 1   : 1 May-31 July 2009
Quarter 2   : 1 August-31 October 2009

Study locations

Jessore   : Jessore is a district in south western Bangladesh with a population of around 2,469,680, according to the 2001 census. It is located in Khulna division.

Upazilla/Sub-district: Jessore has eight upazillas/sub-districts, namely—Abhoynagar, Bagharpara, Chowgacha, Jessore-Sadar, Jhikorgacha, Keshobpur, Monirampur, and Sharsha.

Executive Summary

Background and goals

Unsafe abortion persists as a leading cause of preventable maternal mortality and morbidity in Bangladesh. Improving women's ability to prevent unplanned pregnancy and to access safe care is critical to fulfilling Bangladesh's commitments to improve maternal health and to uphold women's rights. The Safe Menstrual Regulation Care (SMRC) model is designed to build the capacity of health systems to track and measure progress towards these ends. The SMRC model uses seven indicators and a set of signal functions designed to measure whether health facilities are providing all service elements most critical to reducing unsafe abortion and related injuries or death: contraception to prevent unwanted pregnancy, menstrual regulation (MR) and safe abortion for all legal indications, and treatment of abortion-related complications (abortion complications). A key assumption of the model is that if the package of SMRC services are broadly available, used by women and of sufficient quality, unsafe abortion and related mortality will decline. This project aimed to assess the feasibility, acceptability and utility of implementing the SMRC model across public, private and NGO sectors of care in Jessore, Bangladesh.

Methods

The SMRC project was implemented across all 74 public, private and NGO sector health facilities in Jessore district that are registered to provide menstrual regulation (MR), legal abortion, or to care for complications of unsafe abortion and that agreed to participate, from January to December 2009. Five facilities (4 private and 1 NGO) dropped out before project completion, one of which due to facility closure. Project implementation occurred in four phases, including: adaptation of the model to Bangladesh setting, including stakeholder consultation and tool pretest with revision; baseline assessment and facility introduction, including SMRC tool introduction and training; regular monitoring; a feasibility, acceptability and utility evaluation; and discussion and analysis of SMRC and evaluation findings, including a stakeholder review of findings and recommendations. Signal function analysis was used for characterizing facilities as providing basic care, comprehensive care, or neither. Facility mapping, and records on services provided and complications treated were used for further characterizing service availability and to describe service use and quality. Semi-structured interviews with providers at each facility were used for enhancing exploration of the feasibility, acceptability and utility of the SMRC model in Jessore.

Findings

Availability of SMRC: During the baseline period (January-December 2008), no facilities performed enough of the signal functions to meet SMRC criteria for 'basic' facilities; by the second quarter of the project (August-October 2009), one facility met these criteria. No facilities fulfilled criteria for 'comprehensive' care at the baseline or end of the project. These findings in part reflect the programmatic and administrative separations of services (MR and family planning in one facility, emergency medical care for abortion complication in another) while the SMRC approach and indicators are premised on a more integrated service delivery model that requires lifesaving care in all basic and comprehensive SMRC facilities. Seven facilities would be considered basic if more coordination between health and family planning wings were in place; however, failure of referral across wings indicates that this division does impact women's access to care.

Use of SMRC: The high and steady numbers of women presenting with abortion complications, both mild and serious, are concerning. Over the SMRC project period, an average of 179 women presented with abortion complications per month in Jessore. The number of obstetric complications recorded increased significantly over the project period, although this is likely due in part to improvements in recordkeeping. Provision of safe uterine evacuation appeared to increase in the private sector over the project period but likely reflects changes in recordkeeping.

Quality of SMRC: A profound disparity is apparent in quality of care received by MR clients and patients receiving care for abortion complications. Opportunities are clearly present to improve care for patients with abortion complications through use of appropriate technology and provision of contraception before discharge from the hospital. Encouraging improvements in recordkeeping around contraception provision to both MR and abortion complication patients indicate that this goal is actionable and achievable.

Feasibility, acceptability and utility

Feasibility: Uptake and continued use of SMRC tools by the majority of facilities were encouraging but several limitations are apparent. Successful implementation requires successful recordkeeping, and semi-structured interviews revealed that the persistent stigma surrounding MR and abortion can impart negative consequences on reporting via financial disincentives to reporting, fears of legal repercussions, and patient's desire for anonymity. Moreover, the SMRC monitoring tools used in the project may require further adaptation to better capture and analyze the information from the different types of facilities and sectors involved in MR and abortion-related service delivery in Bangladesh.

Acceptability: While many providers expressed positive feedback for the SMRC model and its impact on their recordkeeping—including several who attributed enhanced capacity for monitoring, evaluation, performance, and quality enhancement through the model—others expressed inability to use the model due to limits on time or excessive pre-existing workload. Several private clinics expressed concern that use of the model would not prove beneficial to their business or profit. Many providers suggested integration of SMRC tools with government-led monitoring and evaluation.

Utility: The characterization of SMRC availability, use and quality presented through the model speaks to its utility. The model helped in identifying important gaps in the care women receive, notably the absence of contraceptive services for women treated for abortion complications and the persistent use of dilation & curettage (D&C) for uterine evacuation technologies when the recommended improved technologies are widely available in Bangladesh. Additionally, multiple improvements in recordkeeping over the project period are apparent. Responding to the gaps and sustaining the gains in Jessore would be an important step towards meeting women's needs for SMRC. Applying lessons learned from this project to a careful implementation of SMRC monitoring on a larger scale could further help Bangladesh achieve the important goal of reducing unsafe abortion and its tragic consequences.

Recommendations

1. Work towards improved post-procedure contraception delivery, particularly for patients with abortion complication. Improved collaboration between the Health Services and Family Planning wings of the Ministry of Health and Family Welfare may be particularly important to achievement of this goal.

2. Work towards evidence-based, appropriate technology use for all procedures, particularly for patients with abortion complication. Targeted interventions to modulate facility preferences may be particularly productive towards this end.

3. Work towards improved reporting and data analysis: Partnership with government leaders and facility administrators may help address financial, legal, and social disincentives to reporting. Supportive supervision can be encouraged at the facility level, while capacity-building interventions to train in statistical analysis or provide statistical support may improve sustainability of this progress. Translation of all monitoring and evaluation tools into Bangla may be a particularly important step.

4. Work towards enhanced collaboration: SMRC indicator and signal function analysis, semi-structured interviews, and discussion with stakeholders alike all reinforced multiple potential benefits of enhanced collaboration between Health Services and Family Planning wings of the public sector, and also increased collaboration between public, private and NGO sectors.

5. Work towards increased facility-based service delivery: Exploration with government stakeholders of the potential to modify legal limits on Last Menstrual Period (LMP) may help towards this end. Achieving stakeholder-suggested authorization and reporting of MR provision by staff of health facilities governed by Directorate General of Health Services (DGHS) may also prove particularly helpful.

6. Achieve recommended service coverage through selective facility enhancement: Addressing gaps in service provision through targeted, resource-efficient interventions could achieve alignment with SMRC recommendations at relatively low cost. Ensuring adequate logistic supply of MR-related materials could also positively impact access to care.

Introduction

Progress in reducing unintended pregnancy and addressing unsafe abortion is critical to maternal mortality reduction efforts in countries such as Bangladesh and to achieving the Millennium Development Goal to improve maternal health. Building the capacity of health systems to track and measure progress in this area is crucial for achieving these goals. Ipas, a USA-based non-profit organization that works globally to increase women's ability to exercise their sexual and reproductive rights and to reduce abortion-related deaths and injuries, has designed a safe abortion care (SAC) model for this purpose. The SAC model consists of a set of seven indicators and a group of SAC signal functions (critical services that facilities must perform to prevent and treat abortion complications) to monitor the availability, use and quality of the services deemed most essential for reducing mortality from unsafe abortion (1,2). The model was adapted by Ipas and ICDDR,B to the Bangladesh setting, where abortion is legally restricted but menstrual regulation (MR) is legal and widely available, as the 'Safe Menstrual Regulation Care' (SMRC) model. This project aimed to assess the utility, feasibility and acceptability of implementing the SMRC tools in public sector, NGO, and private sector health facilities in Jessore district in Bangladesh.

Abortion is legal in Bangladesh only to save a woman's life. Menstrual regulation—defined as evacuation of the uterus performed by a trained provider within 10 weeks of a missed period—is also sanctioned by the government. Menstrual regulation (MR) has been officially provided since 1979 by physicians and paramedics at all levels of the healthcare system through the Bangladesh MR programme. The programme has now been incorporated within a reproductive health and rights agenda, and currently provides services through a nationwide primary care level programme. Although MR service delivery has been decentralized to make services more widely available, concern persists that many women continue to suffer from lack of access to these services, as evidenced by the number of women still presenting at health facilities with complications of unsafely performed abortions (3,4,5).

The SAC model, adapted as the SMRC model in Bangladesh, builds on the monitoring model developed for emergency obstetric care (EmOC). The EmOC Handbook lists the elements or 'signal functions' for EmOC (6). Provision of EmOC addresses many complications that might lead to maternal death but only partially addresses unsafe abortion. The SMRC model aims at contributing to reductions in maternal mortality by including three essential elements in monitoring within a facility: safe uterine evacuation for legal indications (to save the life of the woman), treatment of MR and abortion complications, and contraceptive provision to post-MR and post-abortion patients. Analyzing these services with the SMRC indicators helps determine and measure the extent to which individual facilities are providing essential services, and aids planning and monitoring of service provision. Aggregation of these data across facilities can describe MR and abortion-related service provision on a population scale.

Application of the SMRC model is meant to enable health systems managers to monitor progress towards achieving recommended levels of facility numbers, distribution by population, use of services, and quality of services. Until initiation of the Jessore-based study, this approach had only been implemented in public-sector facilities. Given the importance of the private sector in providing MR and abortion care, all facilities registered to provide MR and/or care for MR or abortion complications—public, private and NGO sector alike—in the study area were targeted for inclusion in the Jessore-based study.

Of the seven SMRC indicators (Table 1) the first two are population-based, and measure the availability of SMRC services at a regional or sub-national level. The other five are used for monitoring the performance of SMRC services at the facility level. Together, the full set of indicators is designed to geographically demonstrate any gaps in SMRC service delivery, and to highlight any elements of care in need of quality improvement (7).

In Bangladesh, as in any country where the model is implemented, the success of the SMRC system depends on high quality facility-level recordkeeping on all MR, abortion, and post-abortion care and related events. Non-availability of data demonstrates the need for improved MR, abortion and post-abortion care recordkeeping at facilities. This paper demonstrates the effect of one approach—implementation of the SMRC model—in improving the quality of recordkeeping and data availability.

Table 1. Seven indicators for measuring SMRC (7)		
SMRC indicators	Definition	Recommendation
Are enough facilities providing SMRC services?		
1. Amount of SMRC services available	No. of facilities providing basic and comprehensive SMRC	For every 500,000 people: 5 SMRC facilities, at least 1 of which offers comprehensive SMRC
Are SMRC services well distributed?		
2. Distribution of SMRC facilities	No. of facilities providing basic and comprehensive SMRC in sub-national areas	Minimum: 100% of sub-national areas have adequate level of SMRC as recommended in indicator 1
What proportion of services for women with obstetric complications are services for abortion/MR complications?		
3. Proportion of women treated for obstetric complications that are abortion/MR-related	Numerator: No. of women with abortion/MR complications treated at a facility in a given period; Denominator: No. of women with obstetric complications treated at facility in the same time period	Over time, a declining percentage of women with abortion/MR complications
How common are serious abortion/MR complications?		
4. Proportion of women treated for abortion/MR complications that are serious	Numerator: No. of women with serious abortion/MR complications treated at a facility in a given period; Denominator: No. of women with any abortion/MR complications treated at facility in the same time period	Over time, a declining percentage of women with serious abortion/MR complications
To what extent are MR and safe, legal abortion being provided?		
5. Proportion of women who receive MR and safe, legal abortion among all women receiving abortion/MR care	Numerator: No. of women receiving MR and safe, legal abortion procedures at a facility in a given time period; Denominator: No. of women receiving MR and abortion-related services in facility in the same time period	Over time, a shift towards a higher proportion of women receiving MR and safe, legal abortion. Recommended level: Approaching 100%
Are appropriate technologies (AT) being used?*		
6. Proportion of uterine evacuations performed with appropriate technology	Numerator: No. of uterine evacuation procedures performed with AT at facility in a given period; Denominator: No. of uterine evacuation procedures performed at facility within the same time period	Over time, a shift towards a higher proportion of procedures performed with AT per WHO recommendations (8) Recommended level: 100%
Are women who have received MR, safe, legal abortion, or treatment for abortion/MR complications provided contraception before being discharged from a facility?		
7. Proportion of women receiving MR, safe, legal abortion, or treatment for abortion complications who obtain contraception before leaving facility	Numerator: No. of women receiving MR, safe, legal abortion, or treatment for abortion complications who obtain contraception before leaving facility; Denominator: No. of women receiving MR, safe, legal abortion, or treatment for abortion complications in facility in the same time period	At least 60% of all women receiving abortion/MR services accept contraception

*WHO has provided evidenced-based guidance on the preferred methods of uterine evacuation for different stages of pregnancy (8)

Methods

The project was conducted in Jessore, Bangladesh (population=2,469,680, according to the 2001 census) (9) during January-December 2009. Because ICDDR,B maintains a field site in the area, ICDDR,B has infrastructure helpful for the project staff, including safe lodging, training facilities, and existing relationships with local authorities. Additionally, the Jessore District Hospital houses an MR training centre run by the leading national MR training organization, Reproductive Health Services Training and Education Programme (RHSTEP). RHSTEP MR training institutions are based at some of the government medical college hospitals, and many of the higher level hospitals in Bangladesh. Including a high level hospital that has an RHSTEP facility was expected to increase the generalizability of the study findings.

The SMRC project was implemented across all the public, private and NGO sector health facilities in Jessore district that are registered to provide MR or care for abortion complications, and that agreed to participate in the study (n=74). The facilities represented all levels of service delivery at which different aspects of SMRC services are provided (Tables 2 and 3). Private and NGO sector facilities were included in this project for several reasons: very little is known about MR and abortion services in these sectors, and these are believed to be large and growing sectors for MR and abortion care. A national MR and abortion monitoring system that does not include NGO and private sector activities likely would be misrepresentative of the availability of MR and abortion-related services. We developed our initial list of public, private and NGO facilities from a national maternal and child health mapping study conducted by ICDDR,B in 2007-2008 (Tables 2 and 3).

Table 2. Facilities participating in SMRC project by sector			
Facilities by sector	Baseline	Quarter 1	Quarter 2
Public	44	44	44
Private	22	18	18
NGO	8	8	7
Total	74	70	69
NGO=Non-governmental organization; SMRC=Safe menstrual regulation care			

Table 3. Type of public-sector facilities in SMRC project				
Type of facility	DGHS facilities	DGFP facilities	Facility level	MoHFW facilities
DGHS: District Hospital	1	-	Secondary	1
DGHS: UHC-Health	7	-	Primary	7
DGFP: MCWC	-	1	Secondary	1
DGFP: UHC-FP	-	5	Primary	5
DGFP: UHFWC	-	20	Primary	20
DGFP: FWC	-	10	Primary	10
Total	8	36	-	44
DGFP=Directorate General of Family Planning; DGHS=Directorate General of Health Services; FWC= Family Welfare Centre; MCWC=Maternal and Child Welfare Centre; MoHFW=Ministry of Health and Family Welfare; SMRC=Safe menstrual regulation care; UHC=Upazilla Health Complex; UHC-FP=Upazilla Health Complex-Family Planning; UHFWC=Union Health and Family Welfare Centre				

The project was implemented in four phases, described below.

Phase 1: Adaptation of SAC tools to Bangladesh setting (development of SMRC tools) (months 1-2)

In Phase 1, ICDDR,B and Ipas project staff developed and adapted recordkeeping materials appropriate to the Bangladesh setting; held stakeholder meetings to review preliminary recordkeeping materials and implementation plan; revised recordkeeping materials and implementation plan based on recommendations from stakeholders;

trained baseline data collectors and pretested the baseline and monitoring tools at a secondary level care facility. After the pretest, tools were revised and the team prepared for baseline data collection and project orientation. In addition, ICDDR,B project staff introduced the study to staff at each of the 74 facilities in Jessore that met the criteria for participation in the study, and invited each of these facilities to participate in the study. At each site (or ward, in sites that have multiple wards relevant to the study), we identified one person who was familiar with recordkeeping and requested their participation in the baseline assessment, monitoring throughout the project, and in final evaluation. We enlisted one alternate contact person per study site wherever possible.

Phase 2: Baseline assessment and introduction to SMRC monitoring and quality improvement approach for up to 74 selected facilities (months 3-4)

The baseline assessment had three aims. The first was to gain an understanding of what relevant data were collected prior to project initiation; the second was to collect the relevant information from these existing records onto the SMRC collection forms to obtain a baseline calculation of the SMRC indicators, and the third was to document how these data were used, if at all, to improve programme performance. The baseline was conducted in two components: one structured and the other semi-structured. The structured data collection instruments were used at baseline to obtain the relevant data collected by the facilities prior to study onset. The semi-structured interview tools were used for indicating how MR and abortion care data were used in the facility and to provide a basis for evaluation of the feasibility and acceptability.

Shortly after the baseline data collection was completed and analyzed, the broader ICDDR,B project team held an SMRC orientation workshop for all participating facilities in Jessore town to share the preliminary results. Subsequently, the SMRC field staff visited facilities, worked with facility staff to ensure that data necessary to complete the SMRC forms were being collected, ensured that SMRC cards were in place and initiated use of the SMRC card in the participating facilities. Recordkeepers and administrators implemented monitoring. SMRC field staff regularly visited each facility as a quality control mechanism. On a quarterly basis, the SMRC field staff worked with the key staff at each site to analyze the data collected with the monitoring tools.

Phase 3: Monitoring and evaluation (months 5-10)

SMRC information was collected on a quarterly basis for two quarters (Q1 and Q2), occurred at the 7th and 10th project months. At these monitoring visits, ICDDR,B project staff reviewed facilities' maintenance of SMRC records, and the use of records to identify MR and abortion care service delivery areas requiring quality improvement. Also in the tenth project month, ICDDR,B project staff implemented a facility-level evaluation to assess the feasibility and acceptability of introducing the SMRC approach in Bangladesh healthcare facilities.

In evaluation of feasibility and acceptability, we collected information from a minimum of one clinic administrator or recordkeeper at each participating facility. We explored the benefits and challenges to implementing the SMRC model at facilities of different sectors, and documented how the SMRC data were being used within clinic settings, for example, by exploring whether specific gaps in coverage or quality were revealed by having the SMRC indicators in place. ICDDR,B project staff conducted semi-structured interviews with SMRC implementers at each of the participating facilities to identify challenges associated with obtaining information for the records, challenges associated with maintaining the records, perceptions of accuracy of data in the record books, and other information.

Four of the private facilities dropped out during the project as they felt that participation in the project was time-consuming and not valuable to their business. One NGO clinic which was still participating at the 7-month visit had closed by the tenth project month due to lack of funds.

Phase 4: Discussion and analysis of evaluation findings; adaptations to SMRC tool-kit for broader dissemination (months 11-12)

During Phase 4, project staff conducted a final analysis of SMRC monitoring and evaluation data collection, and shared results of analysis with stakeholders through a dissemination workshop at month 12. Stakeholders in attendance included representatives from almost every participating facility, government leaders of both the health and family planning wings of the Ministry of Health and Family Welfare (MoHFW) from local to national leadership positions, members of every participating NGO with representatives from national level NGO, and members of the Obstetrics & Gynecological Society of Bangladesh. Following presentation of data and analysis by the SMRC project team, stakeholders discussed and debated interpretations of the results through workshops and feedback sessions. The SMRC project team synthesized stakeholder recommendations based on this interactive interpretation of project results, prepared the final report, and subsequently composed this working paper.

Findings

Implementation of SMRC in Jessore district

This section describes the availability, distribution, use and quality of safe MR care in Jessore, Bangladesh as depicted by analysis of SMRC indicator data collected through the SMRC study, and explores changes in recorded service delivery over the course of the project. This discussion of implementation of SMRC is closed with a presentation of users' views of the feasibility, acceptability and utility of implementing the SMRC model in the Bangladesh setting.

SMRC indicators: results of analysis

Availability and distribution of SMRC services

Availability of SMRC services is assessed by determining signal function performance at each facility. Facilities that offer all basic functions (listed in the left column of Table 4) were considered a basic SMRC site, and facilities that perform all of the SMRC signal functions (right column of Table 4) were considered a comprehensive SMRC site.

Table 4. Signal functions for safe MR care (7,10)	
Signal functions for basic SMRC services	Signal functions for comprehensive SMRC services
• Administer essential antibiotics	*Perform all basic functions and*:
• Administer intravenous fluids	• Perform safe, legal abortion for uterine size >12 weeks, for all legal indications
• Administer oxytocics	
• Perform removal of retained products for uterine size ≤12 weeks	• Perform removal of retained products for uterine size >12 weeks
• Perform MR for uterine size ≤10 weeks	• Perform blood transfusion
• Provide post-MR and post-abortion contraception	• Perform laparotomy
MR=Menstrual regulation; SMRC=Safe menstrual regulation care	

Indicator 1. Are enough facilities in Jessore district providing SMRC services?

The SMRC guidelines recommend 5 SMRC facilities per 500,000 people. At least one of these should offer comprehensive care. With a population of 2,469,680 (according to the 2001 census) (9) Jessore is recommended to have 20 basic facilities and five comprehensive facilities. Only one facility, however, offered basic SMRC, and this was only in the last quarter (Q2) of the project. No facility offered comprehensive SMRC at any point in the project (Table 5).

Table 5. Availability of basic and comprehensive care according to SMRC indicators across 3 time periods				
Type of care	Recommended	Baseline	Quarter 1	Quarter 2
Basic care	20	0	0	1
Comprehensive care	5	0	0	0

A facility needs 6 signal functions to be recognized as providing basic care. The one facility that met these criteria at the end of the project was from the private sector. It should be noted that 5 of 7 Upazilla Health Complexes (UHCs) would qualify as basic care facilities if it were not for an administrative division. The UHCs are divided into a health wing administered by the Directorate General of Health Services (DGHS), and a family planning wing, administered by the Directorate General of Family Planning (DGFP). The health wing of each UHC provides first 4 of the 6 basic signal functions, and the family planning wing provides the remaining two: MR and post-MR contraception. If considered as a whole, 5 of the 7 UHCs would provide the 6 basic signal functions. The remaining 2 UHCs only have a health wing, and so these 2 health complexes offer a maximum of 4 of the 6 basic signal functions.

Presenting the SMRC indicators for a unified UHC, however, would mask an important gap: after providing care for women with complications of unsafe abortion, the health wing theoretically refers these patients to the family planning wing for contraceptive services. Health wings do not provide contraceptive counselling or supplies on the ward, and they have no system of follow-up to track the proportion who accepts contraception. The family planning wings do offer post-MR contraceptive counselling and services, and does keep records on MR clients who subsequently accept contraception.

Surprisingly Jessore's Maternal and Child Welfare Centre (MCWC), a DGFP facility, did not have records showing that it provided the basic signal functions. In the baseline the MCWC reported providing all of the basic signal functions except removal of retained products at LMP less than or equal to 12 weeks. However, in quarters 1 and 2, the MCWC only recorded providing MR services and post-MR contraceptive services.

A facility needs 10 signal functions to be recognized as providing comprehensive care. No facility met these criteria. Four facilities recorded providing 8-9 basic signal functions. One of these facilities—the district hospital—was documented as providing 8 of the 10 signal functions. All 10 signal functions were in reality offered on the hospital campus but were not tabulated as such because of administrative divisions. The two signal functions not attributed to the district hospital were contraceptive acceptance specific to patients who have treatment for complications of unsafe abortion ['post-abortion complication' (PAC) patients] and MR service delivery with associated contraceptive services. For the first missing signal function, the PAC patients were referred to the contraceptive facility point at the hospital but no records were kept of acceptance rates specific to this key group of patients. The second missing signal function, MR, was provided in the district hospital campus but by an NGO, RHSTEP, that maintains a very close relationship with the MoHFW, demonstrating good public-private sector partnership. In these data, the MR and post-MR contraceptive services offered at the district hospital appear as services provided by the NGO sector.

The UHC in Jhikorgacha would have met the criteria of providing care for all 10 signal functions in the second quarter if the two wings were considered one facility, and if PAC patients were recorded as receiving contraceptive counselling and services. The private sector Matrimongal Clinic in Keshobpur provided 9 of 10 signal functions in the second quarter. However, they have no record of providing safe, legal abortion for women with pregnancies over 12 weeks gestation. The Rahima Private Hospital and Diagnostic Complex in Jessore sadar upazila provided all signal functions, except two. They have no record of providing MR or contraceptive counseling for women who present for treatment of abortion complications.

Clearly to meet the SMRC recommendations Jessore needs more facilities that offer and record providing each of the 6 basic and 10 comprehensive SMRC signal functions. However, an analysis of the individual indicators shows that the SMRC services may be more available than the facility analysis superficially suggests. Table 6 shows that each of the individual basic signal functions was offered at a minimum of 25 facilities. Three of the four comprehensive signal functions were offered at 19 or more facilities. Safe, legal abortion for gestations over 10 weeks was recorded as performed at a maximum of 4 facilities.

Table 6. Number of facilities meeting signal functions at baseline, Quarter 1 and Quarter 2			
Signal function	Baseline (n=74)	Quarter 1 (n=70)	Quarter 2 (n=69)
Basic signal functions—20 basic facilities recommended			
Antibiotics	30	31	29
IV fluids	31	29	29
Uterotonics	32	31	29
Removal of retained products (≤12 weeks)	27	28	26
Post-procedure contraception	32	36	36
MR (≤10 weeks) and/or safe, legal abortion (≤12 weeks)	39	38	37
Comprehensive signal functions—5 comprehensive facilities recommended			
Removal of retained products (>12 weeks)	20	24	22
Blood transfusion	23	25	24
Laparotomy	21	20	19
Safe, legal abortion (>12 weeks)	1	1	4
IV=Intravenous; MR=Menstrual regulation			

Indicator 2. Are SMRC facilities well distributed?

To assess whether the services necessary to reduce abortion-related morbidity and mortality are geographically accessible to women, it is important to consider the distribution of facilities in smaller geographical areas. Jessore is divided into 8 upazillas, each with populations between 195,000 and 637,000. All of Jessore's upazillas have an Upazilla Health Complex (UHC) and multiple Union Health and Family Welfare Centres (UHFWC). Private and NGO health facilities are scattered less evenly throughout Jessore. The figure below shows the 8 upazillas, their population as of 2001, and the location of public, private and NGO health facilities that provide care directly related to reducing morbidity and mortality from unsafe abortion.

According to the SMRC model's Indicator 1, Jessore needs 19 additional basic SMRC facilities and 5 comprehensive SMRC facilities. The figure shows a comparatively promising actual scenario. The UHCs are well-distributed throughout Jessore. Barring Sadar upazilla, where the district hospital is located, every upazilla has a multi-bed UHC with staff trained and equipped to provide care for complications of unsafe abortion. In every upazilla except Chowgacha and Bagharpara (the two with the smallest populations), the UHC has a family planning wing with staff providing MR and contraceptive services. It could be fairly simple for the 5 UHCs with both health and family planning wings to become comprehensive SMRC facilities. Likewise at the union level, if the staff at the UHFWCs who provide MR and post-MR contraception could be trained, equipped and authorized to provide antibiotics, IV fluids, and uterotonics, to remove retained products and to refer patients with dangerous complications to the appropriate level of care, Jessore's 20 well-distributed UHFWCs would be transformed into basic SMRC facilities.

Fig. Public, private and NGO sector health facilities working to reduce mortality and morbidity from unsafe abortion, Jessore district, 2009
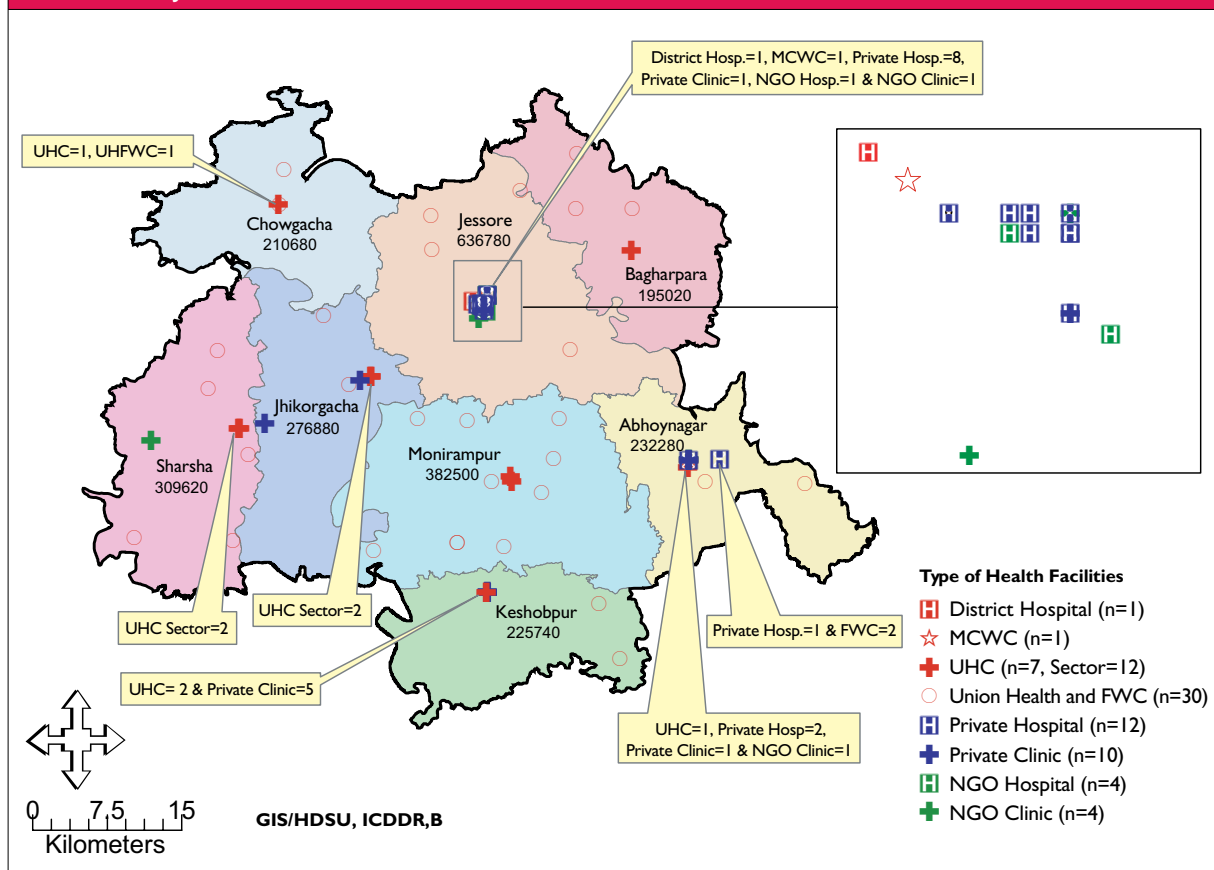
FWC=Family Welfare Centre; MCWC=Maternal and Child Welfare Centre; NGO=Non-governmental organization; UHC=Upazilla Health Complex; UHFWC=Upazilla Health and Family Welfare Centre

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Use of SMRC services

Indicator 3. What proportion of services for women with obstetric complications are services for abortion/MR-related complications?

In the baseline 48% of presentations for obstetric complications were recorded as abortion-related, a surprisingly high percentage in a country with a decentralized MR programme (Table 7). The change in proportions of abortion complications from 48% at baseline to 35% at the first monitoring visit (Q1) and 27% at the second monitoring visit (Q2) suggests a significant decline. However, it is important to look at the actual numbers of abortion complications and other obstetric complications when considering this indicator. Extrapolating the number of abortion complications recorded during the 6-month project period demonstrates a small predicted increase in annual abortion complication incidence, when compared to the annual incidence derived from the 12 months of baseline data. A similar extrapolation to annual incidence of other obstetric complications, however, demonstrates a predicted annual incidence of more than double the incidence at baseline. Thus, an in-depth analysis of this indicator suggests that while the recorded abortion complication caseload increased slightly, the recorded total obstetric complication caseload increased dramatically.

It is unlikely that changes in this indicator resulted from changes in service delivery associated with SMRC implementation. More likely the changes resulted from more detailed recordkeeping associated with SMRC implementation. More specific recordkeeping by providers during the first and the second quarter would have reduced misclassifications.

Aggregation of these data—by level of care, and by healthcare sector—facilitated investigation of care-seeking patterns and resource utilization. Data presented in Table 7 show that while more women present to the public sector with abortion complications, the proportion of women treated for obstetric complications that are abortion-related is consistently higher in the private sector.

Table 7. Abortion complications as a percentage of obstetric complications					
Facility level and sector	Baseline: January-December 2008 (12 months)		Quarter 1: May-July 2009 (3 months)		Quarter 2: August-October 2009 (3 months)	
	No.	%	No.	%	No.	%
Total	1991/4121	48	574/1659	35	502/1856	27
Secondary level	796/1672	48	164/515	32	172/607	28
Primary level	1195/2449	49	410/1144	36	330/1249	26
Public sector	1062/2405	44	279/900	31	223/962	23
Private sector	561/1036	54	235/492	48	200/595	34
NGO sector	368/680	54	60/267	22	79/299	26
NGO=Non-governmental organization						

Indicator 4. How common are serious abortion/MR-related complications?

Over the three periods of measurement, the indicator reflecting 'women treated for serious abortion complications as a percentage of all women treated for abortion complications' do not demonstrate any stable trend. During the baseline, 13% of all presentations with complications of abortion were considered serious while during quarter 1 the percentage went down to 4%, and during quarter 2 the percentage went back up to 11%. The data do show that serious complications occur with frequency, and demand attention.

The more detailed data demonstrate that during the course of SMRC implementation, more than three times as many women with serious abortion complications presented to the primary care level (n=62) compared to the secondary level (n=18). These primary care level clinics—primarily the UHCs in the public sector—are staffed and equipped to provide care for most abortion complications. Also, over the course of SMRC recordkeeping, nearly twice as many women presented to the public sector (n=47) as to the private sector (n=24), showing the importance of including both sectors in interventions to provide lifesaving care and improve service delivery for patients with complications of unsafe abortion.

Table 8. Serious abortion complications as a percentage of all abortion complications by type of facility

Facility level and sector	Baseline: January-December 2008 (12 months)		Quarter 1: May-July 2009 (3 months)		Quarter 2: August-October 2009 (3 months)	
	No.	%	No.	%	No.	%
Total	252/1991	13	25/574	4	55/502	11
Secondary level	(85/796	11	7/164	4	11/172	6
Primary level	167/1195	14	18/410	4	44/330	13
Public sector	119/1062	11	18/279	6	29/223	13
Private sector	132/561	24	6/235	3	18/200	9
NGO sector	1/368	0	1/60	2	8/79	10
NGO=Non-governmental organization						

Table 9. Service provision for serious abortion complications by sector

Facility sector	Baseline: January-December 2008 (12 months)		Quarter 1: May-July 2009 (3 months)		Quarter 2: August-October 2009 (3 months)	
	No.	%	No.	%	No.	%
Public	119	47	18	72	29	53
Private	132	52	6	24	18	33
NGO	1	0	1	4	8	14
Total	252	100	25	100	55	100
NGO=Non-governmental organization						

Indicator 5. To what extent are MR and safe, legal abortion being provided?

By providing safe uterine evacuations to women at risk of unwanted pregnancies, the longstanding Bangladesh MR Programme averts many but not all unsafe abortions and associated complications. In Jessore during the SMRC project period, legal and safely performed MR made up the large majority (75-77%) of abortion-related care (Table 10). care for complications of unsafe abortion represented the remainder of care. Data in Table 10 show another important statistic: of all safe, legal abortion and MR provided in Quarter 2 (n=1635), 98-99% (n=1615) were conducted in primary level facilities. The major share of MR service (over 64%) was provided by NGO facilities (Table 11).

Table 10. Proportion of all women receiving abortion services who receive MR or safe, legal abortions

Facility level and sector	Baseline: January-December 2008 (12 months)		Quarter 1: May-July 2009 (3 months)		Quarter 2: August-October 2009 (3 months)	
	No.	%	No.	%	No.	%
Total	6271/8262	76	1765/2339	75	1635/2137	77
Secondary level	73/869	8	20/184	11	20/192	10
Primary level	6198/7393	84	1745/2155	80	1615/1945	83
Public sector	1435/2497	57	550/829	66	495/718	70
Private sector	7/568	1	4/239	2	100/300	33
NGO sector	4829/5197	93	1211/1271	95	1040/1119	93
NGO=Non-governmental organization						

Table 11. Provision of MR by sector						
Facility sector	Baseline: January-December 2008 (12 months) (n=6,271)		Quarter 1: May-July 2009 (3 months) (n=1,765)		Quarter 2: August-October 2009 (3 months) (n=1,635)	
	No.	%	No.	%	No.	%
Public	1435	23	550	34	495	30
Private	7	0	4	0	100	6
NGO	4829	77	1211	66	1040	64
Total	6271	100	1765	100	1635	100
NGO=Non-governmental organization						

The data do not clarify whether safe, legal services were averting complications among women requiring secondary care. At evaluation, only 10% of abortion-related care at the secondary level in Jessore consisted of these services. Given the successful decentralization of MR services through primary level facilities, it is not surprising to see secondary level facilities providing care to more women seeking treatment of complications than women seeking MR or safe abortions. Unfortunately, women presenting at this level are likely seeking care for complications incurred in unsafe abortion at home or with one of many untrained providers. Implementation of the SMRC model facilitates improved description of this problem at the population level.

Quality of SMRC services

Indicator 6. Are appropriate technologies (AT) being used?

Recommended or preferred methods for uterine evacuation have been described by the WHO according the stage of pregnancy and using the best available scientific evidence (8).

In the Bangladesh MR Programme, preferred technologies are consistently used for MR care, but not in care for complications of MR and abortion. Manual vacuum aspiration (a preferred technology) is the technology used in 76-81% of uterine evacuations. As shown in Table 12, at the primary care level 82-88% of uterine evacuations were conducted with MVA. At NGOs 95-96% of uterine evacuations were conducted with MVA. No electric vacuum aspiration was reported.

Table 12. Proportion of uterine evacuation procedures performed with recommended appropriate technologies						
Facility level and sector	Baseline: January-December 2008 (12 months)		Quarter 1: May-July 2009 (3 months)		Quarter 2: August-October 2009 (3 months)	
	No.	%	No.	%	No.	%
Total	6399/7940	81	1766/2132	76	1636/2127	77
Secondary level	97/748	13	19/171	11	15/175	9
Primary level	6302/7192	88	1747/2141	82	1621/1952	83
Public sector	1,543/2297	67	549/807	68	487/723	67
Private sector	27/579	5	6/241	2	101/300	34
NGO sector	4,829/5064	95	1211/1264	96	1048/1104	95
NGO=Non-governmental organization						

Disaggregating technologies used for MR care and technologies used for care for complications of abortion revealed a disparity between these groups in the appropriateness of technology used (Table 13).

Table 13. Use of appropriate technology (AT), by type of procedure performed

Use of AT by procedure performed	Baseline: January-December 2008 (12 months)		Quarter 1: May-July 2009 (3 months)		Quarter 2: August-October 2009 (3 months)	
	No.	%	No.	%	No.	%
MR and safe, legal abortion cases with AT	6238		1764		1635	
		99		100		100
Total no. of MR and safe, legal abortion cases	6271		1765		1635	
Abortion complications with AT	128		2		1	
		6		<1		<1
Total abortion complications with AT	1991		574		502	

As shown in Table 13, in Quarters 1 and 2, MVA was the technology used in 100% of MR performed—this is considered appropriate technology for this procedure in this setting. In Quarters 1 and 2 however, the proportion of abortion complication patients treated with appropriate technology was less than 1%. Some confusion persists in classification of technology used. For example, over the baseline and the whole project period, 131 uterine evacuation procedures used aspiration but were referred to as D&C. It is not clear if these procedures included only aspiration or aspiration in addition to curettage. Fifty-eight procedures were specifically aspiration, followed by curettage (referred to as evacuation and curettage or E&C). Despite the cases of unclear technology use or appropriateness, a disparity in appropriate technology use between MR and abortion complication cases is clearly evident.

All 8 legal abortion procedures for gestations over 12 weeks from the LMP were done with D&C, and all were done at government facilities. Interestingly, the majority of facilities used either MVA or D&C but not both. The facilities that performed MR used MVA, and the facilities that provided care for abortion complications used D&C. Only 6 of the 74 facilities included in the SMRC project reported using both MVA and D&C technology (Data not shown). This striking difference in technology used implies a role for targeted capacity building at the facilities using D&C alone.

Indicator 7. Are women who have received MR, safe, legal abortion or treatment for abortion complications provided contraception before discharge?

The aggregated data (Table 14) show that at the beginning of the SMRC project, only 50% of MR clients and women treated for abortion complications were recorded as having received contraceptive services. Over the course of the project this increased to 70%. These increases were most dramatic in the NGO sector—from 58% in the baseline to 89% at the end of the second quarter. A closer look at the data shows that only 9 of the 69 facilities that participated in both baseline and evaluation showed steady increases in recorded provision of post-MR or post-abortion contraceptive services. For 4 of these, the increases were very dramatic, showing increases from no recorded post-abortion or post-MR contraception provided in the year-long baseline to 86%, 94%, or in the case of 2 facilities, 100% of all PAC or MR clients leaving with contraception. While we expect a fraction of these increases to reflect improvements in contraceptive provision, the dramatic patterns observed here are more indicative of much-needed improvements in recordkeeping.

Disaggregation of MR clients and abortion complication patients reveals another unfortunate disparity in the care received by these two groups: over all data collection periods, 75% of MR clients were recorded as having left with a contraceptive method whereas only 2% of patients with abortion complications were recorded as having left with a contraceptive method (Table 15). An additional 13% of patients with abortion complications were recorded as having left with a referral for contraceptive services. It is possible that additional patients were referred for or supplied with a family planning method without a record of that referral.

Table 14. Proportion of women receiving MR or abortion services who obtained contraception before leaving the facility

Facility level and sector	Baseline: January-December 2008		Quarter 1: May-July 2009		Quarter 2: August-October 2009	
	No.	%	No.	%	No.	%
Total	4167/8262	50	1626/2339	70	1504/2137	70
Secondary level	108/869	12	18/184	10	12/192	6
Primary level	4059/7393	55	1608/2155	75	1492/1945	77
Public sector	1132/2497	45	448/829	54	418/718	58
Private sector	0/568	0	0/239	0	89/300	30
NGO sector	3035/5197	58	1178/1271	93	997/1119	89

NGO=Non-governmental organization

Table 15. Post-MR and post-abortion contraception

Case definition	Number of patients/clients	Receive FP supplies*		Receive FP referral		Total receiving FP referral or supplies	
		No.	%	No.	%	No.	%
Care for abortion complications	3067	69	2	405	13	474	15
MR and legal abortion	9671	7233	75	26	0.3	7259	75

*Defined as leaving the facility with a contraceptive method
FP=Family planning; MR=Menstrual regulation

Feasibility, acceptability and utility of implementing the SMRC model

The continued participation of the large majority of facilities (69/74) in the SMRC project speaks to its feasibility and acceptability while the success of SMRC model implementation both in facilitating evaluation of the availability, distribution, utilization and quality of safe care in Jessore and in improving recordkeeping speaks to the utility of implementing the SMRC model. Additionally, however, the input of facility staff on the feasibility, acceptability and utility of implementing the SMRC model was sought through semi-structured interviews by SMRC field staff of facility-based respondents. Input was also sought from the SMRC field staff themselves through questionnaires designed to elicit their evaluation of the quality of recordkeeping and of the general feasibility, acceptability and utility of implementing this model at each facility. This section presents a summary of the data collected from both facility-based respondents and SMRC field staff over the course of the study. While all data were considered in synthesizing the summary below, not all qualitative data are shown due to the desire to present a comprehensive report in a space-efficient format.

It should be noted that it may be misleading to use these data for analyzing temporal trends. Based on their regular interactions with clinic staff, the SMRC field team believes that the facility-based staff initially provided the answer that would reflect their facility as high performing. Through developing relationships with the facility-based staff, the SMRC field team feels that they were able to get more accurate information in the evaluation compared to the baseline; responses to the evaluation are, therefore, thought to better reflect reality. Additionally, much more information was obtained from open-ended questions at the time of evaluation; description below of qualitative responses is confined, therefore, to evaluation.

At baseline and evaluation, SMRC field staff asked facility-based respondents whether specific key information for reducing abortion-related morbidity and mortality was recorded at the facility. The comparison between the

baseline and evaluation data show unexpected trends, if the difference in number of respondents is not accounted for. Table 16 shows that compared to the baseline, in the evaluation fewer facilities report recording data on number of clients receiving MR—a surprising finding, and fewer facilities report specifically not keeping records on MR—a welcome finding. Excluding the non-service providing facilities from calculation of these proportions, however, ('% among service providing facilities' columns in the table) clarifies that among service-providing facilities, MR client number recording increased between baseline and evaluation from 79% to 82% while the proportion of facilities that avoid recordkeeping on MR dropped from 84% to 50% between baseline and evaluation.

Table 16. Changes in practices of recording different services					
Does your facility…	Response	Baseline		Evaluation	
		Among all facilities (n=74)	% among service-providing facilities (n varies with service)	Among all facilities (n=69)*	% among service-providing facilities (n varies with service)
Record data on no. of clients receiving MR?	Yes	45 (60.8)	79	37 (53.6)	82
	No	12 (16.2)	21	8 (11.6)	18
	Don't perform	17 (23.0)	N/A	24 (34.8)	N/A
Record data on no. of clients rejected for MR?	Yes	4 (5.4)	7	25 (36.2)	56
	No	53 (71.6)	93	20 (29.0)	44
	Don't perform	17 (23.0)	N/A	24 (34.8)	N/A
Record data on no. of clients who accepted post-MR contraception?	Yes	36 (48.6)	68	36 (52.2)	100
	No	17 (23.0)	32	0	0
	Don't perform	21 (28.4)	N/A	33 (47.8)	N/A
Record data on no. of patients treated with legal abortion?	Yes	14 (18.9)	38	17 (24.6)	89
	No	23 (31.1)	62	2 (2.9)	11
	Don't perform	37 (50.0)	N/A	50 (72.5)	N/A
Record data on no. of patients treated for abortion complications?	Yes	31 (41.9)	66	26 (37.7)	90
	No	16 (21.6)	34	3 (4.3)	10
	Don't perform	27 (36.5)	N/A	40 (58.0)	N/A
Record data on no. of patients who received post-MR and post-abortion contraception?	Yes	5 (6.8)	16	4 (5.8)	50
	No	27 (36.5)	84	4 (5.8)	50
	Don't perform	42 (56.8)	N/A	61 (88.4)	N/A
*5 of the facilities dropped out (1 NGO clinic closed and 4 private facilities refused to provide information) during monitoring and evaluation phase NA=Not applicable Figures in parentheses indicate percentages					

Improving recordkeeping of the number of clients rejected for MR and working to reduce the number of clients rejected may be particularly important goals for the Bangladesh MR Programme, as women rejected for MR are at high risk of turning to unsafe abortion providers. Twenty-one facilities began tracking this important measure during the SMRC intervention.

Triangulating the diverse sources of data collected over the course of SMRC baseline assessment and implementation—including via questionnaire, semi-structured interview, and field researchers' assessment—

identifies several interesting inconsistencies. Some of these inconsistencies are small: for example, the data garnered from facility interview indicate that 100% of facilities that provided post-MR contraception also kept records on contraceptive acceptance. In field researchers' assessment of the quality of recordkeeping in facilities, however, missing family planning information was noted in 5% of MR-providing facilities. Other inconsistencies may be more significant. The triangulated data highlight inconsistencies in reporting around the provision of two services in particular: post-MR and post-abortion family planning, and safe, legal abortion.

A first cluster of inconsistencies surrounds provision of post-MR and post-abortion family planning. At evaluation, 8 facilities reported providing post-MR or post-abortion contraception. Four of these claimed to keep records of this service, and 4 reported that they did not keep records of post-MR or post-abortion contraceptive service delivery. Interestingly, however, there are actually 37 facilities with recorded caseloads of clients receiving this service, well beyond these 8 facilities at which service provision was reported to an interviewer. Qualitative findings indicate that recordkeeping around post-MR and post-abortion contraception may be uniquely problematic, even when recordkeeping is otherwise complete. For example, in field researchers' assessment of recordkeeping quality, post procedure family planning was noted as particularly lacking in one facility's records of abortion complication care despite otherwise comprehensive collection.

Provision of safe, legal abortion appears to be the focus of a second cluster of inconsistencies. By the end of the SMRC intervention, 17 of 19 facilities claiming to provide legal abortion services also claimed to keep records on these services (Table 16). This represents an absolute addition of three recordkeeping facilities between the baseline and evaluation. This could be considered an important shift, particularly in a context where legal indications for abortion are not widely known. Investigation of caseload records, however, reveals that only two facilities recorded providing safe, legal abortion during the final quarter of the project.

Several hypotheses could be generated in response to these inconsistencies. Interview-specific under-reporting of post procedure family planning could represent situations of not yet standardized service provision, through which one or more providers did consistently offer post-MR and post-abortion contraception but unbeknownst to volunteer selected for facility interview at the time of evaluation. The situation generating the phenomenon observed in the data surrounding provision of safe, legal abortion may be nearly the opposite. In the world of financial disincentives to reporting described in many interviews (Table 20 and discussion below) a provider may be willing to disclose their service provision to an SMRC field researcher, and even imply use of some sort of recordkeeping based on, perhaps, a personal system while the reality of their practice environment keeps them from formally recording any provision of safe, legal abortion.

To better understand motivations working for and against real improvements in recordkeeping, facility-based respondents were asked to describe how SMRC monitoring helped or hindered service delivery at facilities. Several themes emerged: 21% of respondents cited learning new or many things through SMRC training, and 14% specifically described learning the importance of maintaining information or records on MR and/or D&C service provision (data not shown). Another 3% stated that SMRC's presence every month helped them or encouraged them to realize the importance of the information collected.

Triangulation of multiple data sources facilitates closer understanding of participants' perceptions of the value and appropriate use of the information collected. Table 17 shows that compared to the baseline, at the time of the evaluation fewer facilities sent their data to the MoHFW. This can partially be explained by the five facilities that dropped out of the intervention, and some facilities curtailed service delivery during the course of the project. Nonetheless, that 35% of facilities—all of which are registered with the MoHFW—reported not sending data to the MoHFW at the time of the evaluation may indicate a problem with the national Health Management Information System (HMIS). At baseline, ticked responses in questionnaire-based interview imply that a perception of data inaccuracy (35%) may have been an important contributor to this phenomenon but this perception appeared to be less frequent and less important at evaluation (5.8%). Analysis of free responses to the question 'Why are data from this facility not sent to the MoHFW?' at evaluation clearly reveals two specific problems: (a) that these facilities do not perceive any demand for this information (according to 70% of respondents) and (b), that these facilities are not aware of any system in place to share this information, as cited by 30% of respondents (Table 17).

Table 17. Use and perceived use of data on services relating to reducing abortion-related morbidity and mortality

Question	Response	Baseline (facility n=74)	Evaluation (facility n=69)*
Does your facility send these data to MoHFW?	Yes	54 (73.0)	45 (65.2)
	No	20 (27.0)	24 (34.8)
Close-ended question: Why are data from this facility not sent to MoHFW?*	Data perceived as inaccurate	7 (35.0)	4 (5.8)
	No staff is designated with this task	4 (20.0)	7 (10.1)
	Others	19 (95.0)	23 (31.1)
Free responses in interview (n=20): Why are data from this facility not sent to MoHFW?*	Government does not want/ask for this information		14 (70.0)
	There is no system to share this information		6 (30.0)
	Others		6 (30.0)
How are data from this facility used by MoHFW?*	Presented in national report	36 (66.7)	37 (53.6)
	For service delivery improvement	43 (79.6)	39 (56.5)
	Not used	2 (3.7)	2 (2.9)
Close-ended question: How should these data be used at this facility?*	For regional and national statistics	31 (41.9)	43 (62.3)
	For service delivery improvement	69 (93.2)	50 (72.5)
	Should not be used	3 (4.1)	3 (4.3)
	Others	62 (83.8)	43 (58.2)
Free responses in interview (n=49): How should these data be used at this facility?*	Monitoring and/or feedback for better performance		25 (51.0)
	For 'follow-up' (including, in 2 cases, follow-up to ensure patients' use of FP)		12 (24.5)
	To increase service delivery, to increase the number of patients served		9 (18.4)
Close-ended question: How should these data be used by MoHFW?*	For regional and national statistics	50 (67.6)	56 (81.2)
	For service delivery improvement	67 (90.5)	62 (89.9)
	Should not be used	3 (4.1)	0
	Others	61 (82.4)	59 (79.7)
Free responses in interview (n=52): How should these data be used by MoHFW?*	Monitoring and/or supervision 'for better performance'		11 (21.1)
	Identification and/or reward for best performance among facilities		8 (15.4)
	Reduction of MR through increased use of FP		3 (5.7)

*Multiple responses
Figures in parentheses indicate percentages
FP=Family planning; MoHFW=Ministry of Health and Family Welfare; MR=Menstrual regulation

In the evaluation, 73% of respondents stated through close-ended questionnaire that the facility should use the data to inform improvements in service delivery. Through additional free responses in interview, many respondents specified potential roles for these data in monitoring and/or 'feedback' activities towards 'better performance' (51%); others spoke to their potential usefulness in increasing the number of patients served or the total number of services provided (18%). These data suggest that at least three quarters of facilities in the SMRC project would be agreeable to a time-saving mechanism like the SMRC card, which would help facility-based staff analyze data to identify gaps in important services and take action to address them.

In the evaluation, 90% of respondents reported that the MoHFW should use the data for service delivery improvement. Participants in semi-structured evaluation interview (n=52) additionally suggested a wide variety of specific mechanisms through which the MoHFW could use the data for improved service delivery, including (among others) monitoring and/or supervision 'for better performance' (21%), identification and reward of best performers among facilities (15%), and reduction of MR through increased use of FP methods (6%). That this 90% is substantially higher than 73% of respondents who reported that the facility should use the data for service delivery improvement indicates that many (though not most) see service delivery improvement as the responsibility of the central government rather than the facility.

Perceptions of data accuracy and its importance were explored through both close-ended questionnaire and invitation to free response in semi-structured interview. Table 18 demonstrates a sharp increase—from 29% to 71%—in the percentage of respondents who reported perceiving that the MR data recorded at their facility were highly accurate, suggesting that the SMRC project may have improved the accuracy of MR records. The percentage of respondents who perceived MR statistics outside their facility to be highly accurate remained low but still increased from 2% to 11%. This may be an effective strategy to indirectly question participants about the value of the SMRC training and materials. Participants were all well aware of the forces working for and against better

Table 18. Perceived accuracy of data recorded on different services provided		Baseline (March-April 2008)		Evaluation (November 2009)	
Question	Response	No.	%	No.	%
Perceived accuracy of MR data recorded at this facility	Highly accurate	13	28.8	32	71.1
	Moderately accurate	25	55.6	6	13.3
	Not accurate	4	10.9	1	2.2
	Not collected	3	6.5	6	13.3
Perceived accuracy of MR data recorded in general	Highly accurate	1	2.2	5	11.1
	Moderately accurate	19	42.2	16	35.5
	Not accurate	9	20.0	12	26.7
	Not collected	0		3	6.7
	Don't know	16	35.6	9	20.0
Worth staff time to collect MR data accurately	Yes	44	97.8	43	95.6
	No	1	2.2	2	4.4
Perceived accuracy of abortion complication treatment data recorded at this facility	Highly accurate	10	30.3	4	13.8
	Moderately accurate	17	51.5	21	72.4
	Not accurate	02	12.1	2	6.9
	Not collected	02	6.1	2	6.9
Perceived accuracy of abortion complication treatment data recorded in general	Highly accurate	2	6.3	2	6.9
	Moderately accurate	11	34.4	13	44.8
	Not accurate	9	28.1	7	24.1
	Not collected	2	6.3	2	6.9
	Don't know	7	25.0	5	17.2
Worth staff time to collect abortion complication treatment data accurately	Yes	27	87.1	25	86.2
	No	4	12.9	4	13.8
MR=Menstrual regulation					

recordkeeping around MR and abortion; if nothing in the environment has changed, except their own participation in SMRC, and they perceived added value through SMRC tools in their clinic practice, they may have perceived their own data accuracy to have improved while simultaneously perceiving it unlikely that other, external data accuracy will have improved. Similarly, if they perceived value lost through SMRC, one might expect to see a self-assessed decrease in data accuracy without any change reflected in perceptions of external facilities' data accuracy. Most (95.6%) MR providers believed that it is worth their time to keep accurate records on MR (Table 18).

At the end of the SMRC project only 14% of respondents reported perceiving that the data on treatment of abortion complications were accurate at their facility, and 7% of respondents reported perceiving that these data are highly accurate in general. These data point to a strong need to encourage increased accuracy of reporting in this area. Providers may be receptive to encouragement to increase accuracy of reporting—during the evaluation, 86% of respondents reported that it is worth their staff time to keep accurate records of treatment of abortion complications.

Results of the semi-structured interviews revealed multiple opportunities for central government or others in a position of authority to greatly enhance recordkeeping around MR and legal abortion. When MR-providing facilities were asked why data were perceived to be generally inaccurate, several issues were commonly cited, including avoidance of possible financial issues which might be incurred through more thorough recordkeeping, possible legal issues, and fear of threats or disapproval by authorities for large numbers of MR performed (Table 19). One respondent described, for example, that "I am performing 60-70 MR services per month but I report 10-20 per month because of [possible financial obligations] and also due to social barriers and the need to maintain client's confidentiality, and, sometimes, warning from higher authority due to the large number of MR performed."

Table 19. Participants' explanations about perception of data's general inaccuracy	
Explanation of general inaccuracy of data (5 most common)	Frequency (%) among free responses (n=32)
Inadequate monitoring, supervision, accountability/honesty, or encouragement	66
To circumvent possible financial issues	63
Lack of training on recordkeeping or monitoring and evaluation	31
To circumvent possible legal issues	16
To maintain client confidentiality; to respect social issues	16

Each of these issues was also addressed in free responses to the request for suggestions to improve data accuracy (Table 20). One service provider argued,

> "We need training and incentives. Almost all FP methods carry an incentive for the service provider, and although MR is a FP method, we are given no incentive for that. We need to be encouraged by our higher officials to keep proper information on MR in the MR register but this does not seem to concern our higher officials. Therefore, our boss should take it as a particularly important service."

Another service provider explained,

> "Our boss needs to make sure that we will not incur financial issues with the MR service. We need more encouragement to keep proper records and correct information. This is very important for our country. We need regular monitoring, supervision, training and incentives. Incentives are needed because if authorities awarded us per MR case, we would keep the proper numbers of MR cases in the register."

In such data, it appears that providers believe that authorities could be very influential in resolving the barriers perceived to persist against accurate recordkeeping.

Table 20. Suggestions of participants for improving data accuracy	
Suggestion for improving data accuracy (4 most common)	Frequency (%) among free responses (n=42)
Close monitoring and supervision; ensure honesty and/or accountability	62
Authorities could encourage recordkeeping and/or service provision	50
Authorities could prevent financial problems	40
Offering of training	29

Interestingly, despite participants' endorsement of the value of time spent recording data and the value of data accuracy (Table 18), the majority (59%) of participating clinic staff did not independently complete the SMRC tools (data not shown). Some providers explained to the SMRC field team that for the sake of accuracy and efficiency they waited to complete the forms during the field team's visit. Of those facilities where the SMRC cards were not completed, the main explanation given was that completing the forms was too time-consuming.

Free responses recorded by the field interviewers revealed several additional issues, including a possible lack of interest indicated by the explanation that the provider 'never tried', 'didn't try to understand' and 'no interest'; problems of inadequate resources for recordkeeping including 'high workload', 'inadequate manpower' and 'inadequate training'. Several respondents clarified that 'duty shifting' within facilities resulted in inadequate training by removing SMRC-trained staff from their posts. In response to these and other questions, participants raised concern that higher authorities or higher officials did not want the information, and explained that 'encouragement' or 'pressure' from these authorities or supervisors would result in better recordkeeping.

Discussion

Feasibility of implementing the SMRC model

The successful implementation and maintenance of the SMRC model in 69 of 74 facilities speaks to its feasibility. Data analysis and facility-based feedback did, however, raise several caveats to stay wary of in future implementations. First, questions remain about the feasibility of getting accurate records on stigmatized services, such as providing MR and legal abortion and treating complications of unsafe abortion. It may prove very difficult to explore the barriers to accurate recording of these services which arise as consequences of this stigma. Information obtained through free responses in semi-structured interview and through stakeholders' recommendations at the final SMRC Dissemination Workshop has demonstrated that these are politically sensitive issues, especially as participants continue to call upon authorities to help make needed changes.

This project also demonstrates the importance of the private sector in providing post-abortion care in particular and thereby the importance of seeking their input and partnership. In semi-structured interviews, field researchers were told that data collection was 'irrelevant to our business', 'irrelevant to private hospitals', that "we're not interested in this data; our aim is to earn profit" and that "the government doesn't want information from private hospitals, so we don't keep it". Special strategies may need to be developed to engage the private sector in SMRC monitoring. There is evidence to argue that even purely profit-motivated clinics would benefit from SMRC training and tools; participants stated that it was 'helpful', that it could be used 'to maximize profit', that it is 'good for service providers' and that it enables 'taking steps to improve performance'. Participants have also provided valuable suggestions for better inclusion of private facilities in future efforts, including such specific statements as "ICDDRB should meet with directors of private facilities before adapting this card"; from a private facility, "If the government supplies us with some related papers, we will try to do this"; and, most creatively, "a positive competition should be started between government and non-governmental organizations".

Free responses included many practical and logistical suggestions for successful implementation outside the private sector as well. Many participants brought up the problem of 'duty shifting' and how it results in inadequate training as SMRC-trained staff members are rotated out of their position. Some participants suggested more complete training (i.e. of every nurse) to overcome this problem. It may also be worth exploring training-of-trainers; if nurses could be trained both to implement the SMRC monitoring tools and to teach others how to use them, both immediate implementation and longer-term sustainability could be enhanced. Providing materials in Bangla was another very popular suggestion, with the potential to improve uptake of the SMRC card at likely low cost. The theme of encouragement from authorities emerged strongly from both semi-structured interviews and stakeholders' recommendations; although this is less actionable than other suggestions provided, it might have the greatest impact on recordkeeping success.

If SMRC is introduced, it needs to be introduced in a context of supportive supervision, in which facility supervisors work with facility staff on a regular basis to ensure that the forms are completed correctly and regularly. Training may need to be designed to account for and overcome the effects of duty shifting on the duration of SMRC impact. Providing a training-of-trainers for an SMRC 'team' inclusive of staff of all levels at each facility may help protect against loss of training with duty shifting through two mechanisms: (a) training-of-trainers may help empower a successful hand-off of SMRC tools in the context of hand-off of position and (b) training at multiple levels increases the likelihood that at least one individual in a practice environment will be able to continue using and teaching SMRC tools, even if duty shifting removes the majority of trained staff.

Acceptability of implementing the SMRC model

There are several indications from the data that the SMRC model is acceptable to clinicians at facilities that provide MR and post-abortion care. First, the vast majority of facilities remained in the project. Of those that dropped out—4 were from the private sector and one from the NGO sector—had curtailed relevant service delivery. All 44 public sector facilities, 18 private sector facilities, and 7 NGO facilities remained in the project. This suggests that the SMRC model is acceptable at some level.

Second, many facilities began keeping records on post-abortion contraception and several began reporting on legal abortion during the course of the project, suggesting that this type of recordkeeping is desirable. The responses to the close-ended questions suggest that MR recordkeeping is acceptable. However, responses to the open-ended questions and triangulation of caseload data with interview data raise questions about the feasibility of getting accurate MR data. The systems that need to be put into place to facilitate accurate reporting of MR data need to be identified. At the dissemination workshop, stakeholders—both within and outside government structures—acknowledged a clear role for collaboration between health and family planning wings to this end.

And third, to be acceptable SMRC monitoring needs to be introduced as a time-saving practice. As an example, the paramedics at union facilities already have 14 registers to maintain. An additional 'SMRC register' could easily be seen as an added burden. This point might suggest the need for a general review of MoHFW recordkeeping system with the aim of increasing efficiency and reducing bureaucracy.

Utility of implementing the SMRC model

The goal of applying the SMRC model is to examine trends in availability, use and quality of SMRC services. Investigation of service availability demonstrates that, although women in Jessore may have access to numerous facilities, only one facility independently met criteria by the end of the year to be considered a 'basic' facility per SMRC definitions. This is partially due to the division between health and family planning services, and, as discussed above, does affect what services women are offered at the time of any single visit and does have some impact on care. Analyses by SMRC Indicator for the district, however, suggest that Jessore is closer to meeting recommendations for availability of care than is revealed by analysis at the unit of facilities alone. Moreover, if all currently MR-providing facilities (which already use recommended technologies) could also provide treatment of abortion complications, Jessore would easily meet the threshold for basic SMRC service provision. Alternately, the findings may argue for development of an SMRC analytic tool to describe population access to specific elements of care in addition to basic and comprehensive facilities. This tool would be of ideal use, however, in guiding efficient investment towards development of basic and comprehensive facilities, such that distribution of lifesaving care is as effective and equitable as possible. Efficacy measures would be designed to reduce average distance to services while equity measures would be designed to reduce variability in distance to services. Ultimately, the SMRC approach is intended to demonstrate which facilities can provide women access to the care needed to reduce unsafe abortion and its consequences and to provide the data needed by decision makers and stakeholders to guide their communities towards safer and higher quality care for women.

Any trends in service provision or use are difficult to interpret in the context of striking changes in recordkeeping observed over the course of the project, particularly in the private sector. This too, however, speaks to the utility of the SMRC model in its ability to facilitate improved data collection. These changes in recordkeeping, if sustained, would contribute powerfully to evaluation of any future intervention in service delivery.

Results of this project do imply potential benefits to future interventions in service quality. Implementation of the SMRC model revealed an unfortunate disparity between the quality of care received by abortion complication care patients compared to MR clients. While trends in appropriate use of technology are encouraging in the private sector, it is clear that initiatives are needed to achieve wider use of appropriate technologies among facilities treating abortion complications. Because the SMRC model investigates the type of technologies used by facilities in addition to the type of technologies used in different procedures, implementation of the model has revealed a specific focus for potential intervention in addressing facilities that use only D&C, as discussed above. The proportion of women receiving contraception before leaving a facility is also a very important marker of quality; here again, while trends in the private sector and overall are encouraging, the SMRC model has identified a clear disparity between quality of care received by abortion complication patients and by MR clients, and comprises a call to prioritize abortion complication patients in targeting contraceptive counseling and services. SMRC model proved useful over the course of the project in identifying and investigating trends in availability, use and quality of SMRC services.

The SMRC proved useful in identifying and investigating these trends in large part through inspiring and empowering improved documentation and data collection. The SMRC intervention was recognized as useful for tracking quarterly changes in availability of key health and family planning services that with the aim of insuring

that services are in place to reduce morbidity and mortality from unsafe abortion. In particular, this application of the model revealed that at some MR service delivery facilities, when providers are relocated or have to attend training, the MR service may be unavailable for a month or more. Across multiple facilities of diverse care sectors, implementation of the SMRC encouraged providers to maintain records that they had stopped maintaining, for example, records on post-MR contraception and women rejected for MR. In the case of abortion complication care patients, implementation of the SMRC model has helped both prioritize this at-risk group by documenting the relatively lower quality of care they receive, and has inspired or empowered improved documentation; the SMRC intervention encouraged some providers to begin keeping records on contraceptive acceptance among patients who had been hospitalized with complications of abortion.

Many—but not all—clinicians included in the intervention appreciated SMRC monitoring as a means of collecting information that could be used for service delivery improvement. Over one-fourth of respondents did not perceive SMRC monitoring as a means of informing service delivery improvement at the facility level. Training and refresher training on SMRC monitoring might emphasize the potential to use SMRC service delivery statistics in this way. In addition, barriers for facilities using service delivery statistics for service delivery improvement should be explored.

Implementation of the SMRC model very likely improved recordkeeping of important data on a stigmatized topic. Between the baseline and the evaluation, the number of respondents who reported that their MR service delivery statistics were highly accurate and more than double, suggesting that the introduction of SMRC reporting is associated with increased data accuracy. Still, there are problems with accuracy of reporting data on treatment of complications of unsafe abortion, and the reasons need to be explored. Discussion with stakeholders through both semi-structured interviews during implementation of the project and through the SMRC dissemination workshop at the close of the project reveal the value of stakeholders' suggestions and recommendations in addressing data accuracy and reporting.

There remains a perception by some respondents that, in general, MR recordkeeping and abortion-related service delivery statistics are inaccurate. To better implement and track MR and abortion-related service delivery and to facilitate evidence-based service delivery decision making—for example, about distribution of supplies and equipment, and placement of service providers—there is a need for continued improvement in recordkeeping. Implementation of SMRC monitoring carefully and on a large scale could contribute substantially to these important goals.

Free responses within semi-structured interviews allowed participants to openly discuss the value they placed on MR and abortion-related data and to discuss in as much detail as they desired the barriers to achieving accurate recordkeeping. Broadly, we observed interplay of four factors determining the ultimate acceptability and utility of the SMRC model:

1. **Internal motivation** (or 'push'): Participants who perceived benefit from the SMRC programme discussed learning the importance of data and of MR and D&C-related data in particular. They discussed the power of now being able to review their own performance 'at a glance' and to take their own initiatives to intervene as needed according to their data. SMRC does have the potential to increase internal motivation, as witnessed with increased documentation of contraceptive delivery to patients hospitalized with abortion complications.

2. **External motivation** (or 'pull'): Need for greater encouragement from authorities emerged as a major theme from the free responses given. Several argued for providing incentives for MR. Participants also suggested using the SMRC tools to compare facilities and performers, with a mind to rewarding the best performers, and one facility suggested setting up a competition between public and private or NGO facilities based on the data collected. While SMRC may not currently provide a mechanism directly addressing external motivation, it is clear from these responses that participants believe that it generates comparable and generalizable data, which is an encouraging finding.

3. **Intrinsic capacity**: Participants spoke to several important limitations in implementation of SMRC tools, including high workload and high register numbers, low manpower, time constraints, duty shifting resulting in decreased training, and lack of needed materials. SMRC does speak to intrinsic capacity by attempting to streamline data collection into an efficient monitoring and evaluation system. Several participants noted that

the SMRC card served as a 'helpful guideline', others noted that 'it helps us maintain our MR registers', some spoke to the ease it will bring to regular reporting, and several described it as being 'helpful for planning' and for improving performance. Others, though, stated persistent concern over the workload that it would or did add. Several participants made the suggestion that the SMRC card be kept 'in brief/briefly' to this end. By continuing to work with stakeholders, SMRC could provide an increasingly capacity-building tool set for these providers.

4. **External barriers**: Free responses from participants uncovered several difficult barriers to effective recordkeeping which may prove impossible to address, given the political weight and social taboo in which they are smothered. Many participants cited possible financial issues as a reason to avoid accurate reporting; others cited possible legal issues with advanced LMPs; and social issues with a fear of stigma driving confidentiality into anonymity. These problems will not be solved overnight or with one intervention; SMRC alone cannot solve them at all. Our stakeholders may have to lead this charge but hopefully, improved data will empower improved advocacy.

Above all, this implementation of the SMRC model focused attention on the need to act on the issues of unsafe, legal abortion, and MR in Jessore district. In a district where between one-quarter and one-half of all hospitalizations for obstetric complications are abortion-related—despite a decentralized MR programme—this renewed focus, and evidence-based action is critical for reducing pointless abortion-related morbidity and mortality.

Recommendations for future work in Bangladesh

1. **Work towards improved post-procedure contraception delivery**: Contraception is every women's fundamental right. Receiving contraception before leaving a treatment facility is particularly needed among women receiving care for abortion complications. Stakeholders' recommendations should be further pursued and implemented towards thorough coverage of post-procedure care for abortion complications and MR clients alike. As identified by stakeholders, it is likely that enhanced collaboration between the Health Services and Family Planning Directorates of the MoHFW in Bangladesh could be very productive towards this goal.

2. **Work towards evidence-based, appropriate technology use for all procedures**: Data have demonstrated that abortion complication patients are unlikely to receive service with appropriate technology. Triangulation with SMRC signal function data demonstrates that some facilities may have institutional preferences for D&C which work against evidence-based practice. These institutional preferences could be addressed through interventions to improve provider skill and institutional capacity for vacuum aspiration.

3. **Work towards improved reporting and data analysis**: Stronger supervision, monitoring and evaluation of activities relating to MR and treatment of abortion complications is encouraged; supportive supervision is key to the successful implementation of programme efforts. This would help in the timely updating of records, analysis of records, and the implementation of evidence-based service delivery. Practical challenges to data collection and analysis may also be addressed through practical, low cost solutions such as providing monitoring and evaluation tools in Bangla, or introduction of consent forms for the benefit of patients and providers. The most formidable barriers to accurate reporting—including prevalent financial, legal, and social disincentives—arise as the consequences of persistent stigma enshrouding MR and abortion. Stakeholders do believe that these barriers can be overcome through multi-level leadership both within and outside the government, and starting with the dedication of facility managers and 'fourth class' employees.

4. **Work towards enhanced collaboration**: Women need ready access to both preventive and medical services if unsafe abortion and maternal mortality are to be reduced. The SMRC indicator and signal function analysis pointed out serious gaps in care and missed opportunities to link women to services they need, such as contraceptive services following treatment of abortion complications to prevent repeat unwanted pregnancy. In addition, interviews and discussion with stakeholders reinforced multiple potential benefits of enhanced collaboration between the Health Services and Family Planning Directorates of the MoHFW in Bangladesh. Similarly, the analysis and discussions reinforced the importance of collaboration with the private and NGO sectors as well to fully meet patients' needs and for documenting outcomes. Reviving use of a common universal Management Information System (MIS) form may also facilitate both collaboration and data collection.

5. **Work towards increased facility-based service delivery:** Exploration with government stakeholders of the potential to modify legal limits on LMP may help towards this end, particularly if it carries the results predicted by participants in semi-structured interviews and stakeholders' discussions: (a) reductions in client rejection, averting subsequent unsafe service use, and (b) increases in reporting. Following the lead of stakeholders' recommendations to achieve licensing and reporting of MR provision by staff of health services facilities may also prove particularly helpful.

6. **Achieve recommended service coverage through selective facility enhancement:** Signal function analysis indicates that Jessore district is closer to achieving recommended service coverage than is initially implied by facility-unit analysis. Addressing selective gaps through highly targeted, resource-efficient interventions could positively impact access to care at relatively low cost while additionally providing the emergency obstetric care services to achieve the Millennium Development Goals. Recommended service coverage can also be ensured in part through addressing stakeholders' concerns over inadequate provision of MR-related supplies and medications; these logistics should be further explored to identify potential interventions to guarantee access to safe care.

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