Bangladesh J Obstet Gynaecol, 2009; Vol. 24(1) : 18-21

Facility and Community Based Maternal Death Review in Bangladesh

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Abstract:

Objective: *This study was conducted to develop a system of maternal death review in hospital of each level and in the community with a system of giving feedback and to take corrective action from the central level to periphery.*

Methods: *It was a descriptive study with a cross sectional design. Study area were – 2 medical college hospitals, 4 district hospitals, 4 Upazilla hospitals and 12 unions. Study period was January 2007 to November 2007. The number of maternal death has occurred in that selected sites during the survey period was the sample size. Maternal death review committee has been formed at each hospital. In addition, OGSB Technical committee and National Technical committee had also been formed. To collect the information about the deceased in detail a structured pre-tested quetionairre has been used. In the community – community skilled birth attendants were assigned for collecting the data. In hospitals assigned persons were doctors working in Obstetrics & Gynaecology departments.*

Result: *During the project period 101 maternal deaths were reported. One mother brought dead. So, she was excluded from the study. Among others, 97 forms were filled properly. Almost all (95%) mothers were housewife, 55% were primi gravida, 90% woman died within 3 hours of admission, 77% were critically ill during admission. PIH is the major killer (40%), next is haemorrhage (38%).*

Conclusion: *Maternal death review provided information about the situation of care provided at hospitals of different level. This uncovered the causes of maternal deaths and identified the laps and gaps in the health care system.*

Introduction :

The journey to motherhood is not a sweet dream for Bangladeshi women. Till now maternal mortality ratio is 320/100,000 live births. There is no inbuilt system of maternal death review and giving feedback to the particular institute.[1] Still institutional deliveries are only 18% and 20% women had postnatal care.[2] When a maternal death occurs in the community every body believes that such deaths are unavoidable, and are a matter of fate. Maternal deaths represent low status of women of that country.

The present effort is to review the maternal death in the tertiary, secondary and primary level hospital and in the community by using tools and implement a system of reporting maternal deaths from community to central level and to make the health system accountable.

Objectives :

This study was conducted as a pilot project to develop a system of maternal death review in hospital of each level and in the community with a system of giving feedback and to take corrective action from the central level to periphery.

Methods :

It was a descriptive study with a cross sectional design. Study area for piloting were – 2 medical college hospitals, 4 district hospitals, 4 Upazilla hospitals and 12 unions.

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Study period was January 2007 to November 2007. The number of maternal deaths that has occurred in that selected sites during the survey period were the sample size. Maternal and perinatal death review committee was formed at each level of hospital. In addition, OGSB Technical committee and National Technical committee had also been formed.

To collect the information about the deceased in detail a structured pre tested questionnaire has been used. English questionnaire was used in the hospitals and for community it was developed in a relatively concise form in Bangla. Community Skilled Birth Attendants were assigned for collecting the data. In hospitals assigned persons were doctors working in Obstetrics and Gynaecology departments.

During study period all the maternal deaths were immediately recorded in detail. Deaths were discussed locally in the institute through weekly mortality review meeting. Deaths recorded in the community were reported and discussed in Upazilla Health Complex (UHC). Deaths in the UHC also reviewed in that centre. After discussion a comment on each death was made in a prepared format. Forms of UHC and union were sent to civil surgeon for further review and deaths in district hospitals were also reviewed in the district. After making comments along with forms received from UHC and union sent to OGSB technical committee. From Medical College Hospital after reviewed locally, with comments forms were sent to OGSB technical committee for further review. After review a final recommendation has been made by OGSB technical committee and sent to National Technical committee in DGHS. National Technical Committee took the necessary action by responding in a proper way.

Observation and Results :

During the project period 101 maternal deaths were reported. One mother brought dead and the party was not willing to talk and give all the details about death. So, she was excluded from the study. Among others, 97 forms were filled almost properly. In 3 cases information were not clear and these were excluded, so 97 cases were analyzed.

Thirty eight percent of the mothers in the study population were 21-25 years age group, 30% of 26-30 years, 16.5% were of less than 20 years and 15.5% were more than 30 years of age.

Most of the women were illiterate, only 4% were educated beyond 11th grade and 16% had primary education.

Almost all (95%) mothers were housewife and 55% were primi gravida, 40% were 4th gravida and 5% were more than 5th gravida.

Maternal death review in the health facility:

In health facilities in 90% cases junior doctors attended the patient on arrival. In 46% cases due to lack of blood, initiation of actual treatment was delayed. Almost 96% cases were admitted in hospital as emergency case. In 25% cases patient were in hospital for more than 72 hours before death, 19% died within 3 hours, 12.4% died in between 3-6 hours, 11.3% deaths occurred within12-24 hours.

Thirty two percent women were admitted for ante partuml 27% for postpartum and 22.7% for intra-partum complications. During admission 77% women were critically ill.

Table-I

Provisional diagnosis at admission

Diagnosis	No of cases	Percent
APH	5	5.2
PPH	9	9.3
Ectopic pregnancy	4	4.1
Prolonged/Obstructed Labour	7	7.2
Ruptured Uterus	6	6.2
Pre-Eclampsia	6	6.2
Eclampsia	18	18.6
Retained Placenta	7	7.2
Postpartum Sepsis	3	3.1
Abortion complication	11	11.3
(Jaundice, heart disease, severe anaemia, anaesthetic hazard operation complication, etc.)	21	21.7
Total	97	100.0

Highest number of admission were due to eclampsia and next were due to abortion related complications.

Among 97 deaths - PIH (Eclampsia, HELLP, PE) was the cause of death in 40% cases and next cause was haemorrhage (38%) (Fig.-1).

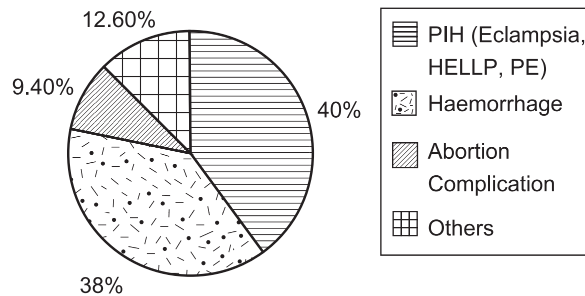

Fig.-1: *Primary cause of maternal deaths.*

Table II shows that 22.7% death were due to inadequate blood transfusion, which is absolutely an avoidable factor. Among others almost all death were due to inadequate management, due to lack of senior doctors and anaesthesiologist, shortage of OT, lab facilities and logisties, lack of ICU support and lack of close supervision. These factors are also avoidable.

Table-II

Avoidable factors of maternal deaths in health facilities

Sl #	No.	Percent
1. Lack of adequate supervision (over hydration and transfusion reaction)	6	6.2
2. Surgical intervention by junior doctors	8	8.2
3. Shortage of OT facilities	8	8.2
4. Shortage of blood	22	22.7
5. Shortage of senior anaesthesiologist	5	5.2
6. Lack of ICU support	11	11.3
7. Shortage of lab. facility	9	9.3
8. Shortage of logistics	13	13.4
9. Others	15	15.5

Maternal Death Review in the community:

Three mothers died in UHC. Among them 2 arrived very late in a moribund condition and died immediately after arrival. One mother admitted in non critical condition but arrangement for caesarian section was late which led her to death.

Delay in taking decision and financial problem was active in 33.3% cases, in 33.3% cases delay was in arranging transport and in 33.3% cases delay was in receiving treatment. Among antenatal deaths 50% had no ANC.

General Observation on facility based maternal death review :

As all forms were not properly filled up, adequate/ sufficient information was not available for identification of all laps in the hospital in patient care. A number of deaths could be avoided if support was available at optimum time with adequate facility e.g. ICU support, fresh blood, fresh frozen plasma, all laboratory investigations, etc. In duty shifting period senior anaesthetists were not available for critically ill patients. More surgically skilled doctors did not perform the operation on critical patients at emergency hours. Timely intervention and frequent follow up is utmost important to save mothers lives in the health care centre which has not always happened.

Discussion :

Although efforts to provide high level EOC services and behavior change communication activities are enforced to overcome the obstacles of three delays but the utilization of EOC services is poor because of functional problems, improper referral linkages and lack of corrective action for the laps and gaps.[3]

Facility Based Maternal Death review at the Medical College Hospital and district hospitals, provided the opportunity to identify substandard of care at the facility with supplemented information from the community. So there had the opportunity to compare the care given with an agreed standard.

Verbal autopsy done in the community had analyzed the factors contributing (directly and indirectly) to maternal deaths in the community. It had assessed the entire progression of pregnancy period, process of maternal care seeking and sequence of events immediately prior to maternal death in the community (outside of formal facility).[4, 5]

Critical analysis with honesty and confidentiality of each maternal death can improve the care and prevent further death from similar causes. Sincerity and dedication of care providers about their duties is very important. Accountability should be ensured, as critically ill patients usually are admitted beyond office hours and death occurred at duty shifting hours. In few cases there was lack of close monitoring of critically ill patients – which contributed to maternal death, which indicates need for training of concern care providers and monitoring by the seniors. Few patients died due to lack of ICU support which indicates separate ICU for maternity units is very necessary in tertiary care centre. Adequate blood/blood products is not always available at the time of emergency but it is the key issue during management of haemorrahge cases.

Over hydration due to lack of supervision in post operative period, mismatched blood transfusion in tertiary care hospital, cardiac arrest during manual removal of placenta without resuscitation, death due to lack of blood transfusion (Rh negative blood of same group was not available), surgical incompetence needed reopening of abdomen again and again, uncontrolled BP in eclampsia cases and impending eclampsia leading to CVD or pulmonary oedema, delay in starting treatment, anaesthetic problems, lack of cardiac monitoring equipment in critical patients and non availability of ICU care are very much preventable factors.

Senior doctors attended the patients at office hours only but at off hours junior doctors mainly attended the patients which contributes to deaths due to less surgical competence. During the study period 8 patients died due to post surgical complication. All patients were attended by doctors within 15 minutes of arrival but complete management needed much time which led to deaths.

In 2004 a facility based maternal death review was done in Dhaka Medical College Hospital to find out the laps and gaps in the facility and to identify the cases of maternal death in the institution. In that study 64% admission were as emergency after office hours. About 86% cases caesarean section was the main surgical intervention and was done in 52% cases. Eclampsia was the cause of death in 38% cases, next was haemorrhage (25%), sepsis 19% and anesthetic hazards 5%. That study was conducted in only one facility on pilot basis for the first time in Bangladesh.[6]

In Nepal there is Maternal and Perinatal death review system existing only in the hospitals but not in the community. After review the deaths are included in the national management information system. Feedback has been given to the respective hospital by the national maternal and perinatal death review committee.[7] Same system is working in Myanmar.[8] But in Sri Lanka, all maternal deaths are reviewed whether it occurs in the community or in the hospital, reported to the central level and due feedback is given to the respective hospital with corrective actions.[9]

Conclusion :

All the deaths were reviewed locally and centrally and primary and contributory causes were identified. Significant number of deaths were due to PIH, heamorrhage, septicaemia, which indicate not following the protocol. Late arrival contributed to many deaths. Quick arrangement for blood and other support for critically ill patient is on utmost necessity. A system of linkage between national level and other hospital up to community has been established through this study.

Recommendation :

Maternal and perinatal death review should be a continuous process and should be incorporated in Govt. process and implemented at all hospitals and in the community. Reports should be sent to the National level and system for regular feed back to the hospital with corrective action should be available and health system should be accountable for all deaths.

Acknowledgement :

This study has conducted with the technical and financial support from WHO, Bangladesh, OGSB and DGHS.

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