

Maternal Mortality in Nepal



Mother and Infant Research Activities

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Abbreviations

ANM	Auxiliary Nurse Midwife
BEOC	Basic Emergency Obstetric Care
BPP	Biophysical Profile
CAC	Comprehensive Abortion Care
CEONC	Comprehensive Emergency Obstetric and New-born Care
DHO	District Health Office
DPHO	District Public Health Office
EMTs	Emergency Medical Technicians
FCHV	Female Community Health Volunteer
FWD	Family Welfare Division
GESI	Gender Equality & Social Inclusion
HFOMC	Health Facility Operation and Management Committee
HMIS	Health Management Information System
ICU	Intensive Care Unit
IEC	Information Education Communication
KII	Key Informant Interview
MBBS	Bachelor of Medicine, Bachelor of Surgery
MMR	Maternal Mortality Ratio
MNM	Maternal Near Miss
MoHP	Ministry of Health and Population
MPDSR	Maternal and Perinatal Death Surveillance and Response
NDHS	Nepal Demographic and Health Survey
NGO	Non-Governmental Organisation
PHC	Primary Health Care
PHCC	Primary Health Care Center
PPH	Postpartum Haemorrhage
SBA	Skilled Birth Attendant
SDG	Sustainable Development Goal
USG	Ultrasonography
WHO	World Health Organisation

Executive Summary

Introduction

Nepal's Maternal Mortality Ratio (MMR) came down from 539 to 239 per one hundred thousand live births between 1996 to 2016. However, there has been marginal improvement since 2006.

Many factors lead to maternal deaths in Nepal – a country of wide variation in geography, culture, religion, literacy, accessibility, financial capacity, and development. With the Sustainable Development Goal of 70 maternal mortalities per one hundred thousand live births looming in 2030, MIRA responded to the need to understand this lack of progress and sought clarifications as to why women are dying due to pregnancy related causes.

This study looks at causes and pathways that lead to maternal death in Nepal. It identifies potential health system reforms and offers recommendations to policy makers pointing out corrective actions that can reduce and prevent maternal death. Achieving an MMR of 70 per 100,000 live births or less by 2030 will be possible only if effective action is taken.

Methodology

A mixed method study was conducted in Province 2, Lumbini Province, and Karnali Province to understand the factors contributing to maternal deaths and near misses. Social autopsy of maternal deaths, maternal near miss (MNM) analysis, policy landscaping review, and interviews of experts were the main approaches used. Social autopsies of 62 maternal deaths that occurred in selected provinces from 15 July 2018 to 31 October 2019 were undertaken. MNM analysis of all maternal near miss cases that occurred between May to October 2019 in the largest tertiary hospital of each of the three provinces took place. In-depth interviews of 36 local to central stakeholders was taken and 13 maternal health-related policy documents analysed. Maternal deaths and near misses were assessed through the three delays method - the delay in time taken to decide to see care - delay in reaching an appropriate obstetric facility, and - delay in receiving appropriate care when obstetric facility was reached.

Key Findings

- Facility based maternal mortality ratio of 76 per 100,000 births and maternal near miss ratio of 7.31 per 1,000 was recorded in the three hospitals where the study took place: much lower than the national average. Considering that complex cases were referred to these hospitals, the likelihood is that the goal of 70 maternal mortality rate per 100,000 live births can be achieved if women at risk reach obstetric centres like these that have skilled medical personnel, adequate equipment, capacity to perform caesarean sections, have intensive care units, blood transfusion facilities, and necessary medication on time.
- A disproportionate number of the Dalit community in both hill and Terai plains and poorer women of the Terai plains died.
- Ninety-two per cent of those who died did not make a cash income.
- The mean age of the 62 women who died was 18 to 31. The rate of death was similar for rural and urban women. The first delay in seeking obstetric care occurred in 76% (47 of 62) of maternal deaths and 63% (42 of 67) of MNM cases. The majority of women (81% of maternal mortality and 90% of MNM cases) had at least one antenatal checkup during pregnancy. However, in 62.5% of maternal mortality cases and 58% of MNM cases women were not able to recognise signs of danger and did not seek care on time. Lack of family support, lack of perceived need, perceived high costs of care, insufficient funds, traditional or superstitious beliefs and perceived long distance to health facilities influenced the first delay.
- Sixty-six per cent of lives were lost postpartum. Haemorrhage caused 43.5% of deaths and 54% maternal near misses. Hypertensive disorders caused 19% of deaths and 43% of near misses. Sixty-nine per cent of women died in health centres (private and government), 14.5% at home and 16% in transit (on the way to an obstetric centre from home or on the way to a referred centre).
- The second delay in reaching an appropriate obstetric facility was experienced by 53% (33 of 62) of maternal deaths and 52% (35 of 67) of MNM cases.

Fifteen minutes to 15 hours was required to reach an obstetric facility. Poor or no roads, long distance to health facilities, unavailability of emergency transport, financial constraints, and weather conditions contributed to the delay.

- The third delay (receiving appropriate care after reaching an obstetric facility) occurred in 69% (43 of 62) of maternal deaths and 55% (37 of 67) of MNM cases. Delay in referral from lower health facilities occurred in 42% of maternal deaths while delay in treatment occurred in 32% of maternal deaths and 12% of MNM cases. Nineteen per cent of maternal deaths were referred to multiple centres. Twenty point five per cent of maternal deaths were referred by health posts while 79.5% were referred by facilities designated to have comprehensive obstetric services. Unavailability of skilled health workers; incompetent service providers; lack of emergency life-saving drugs; inability to provide caesarean sections; lack of ICUs and blood transfusion facilities; administrative delays; late attendance; neglect; and unethical practices like overcharging, demanding bribes, and refusing to treat were said to be the reasons for the delay.
- Key informants said unequal access to maternal health services; remote locations; marginalisation of populations; lack of skilled health workers outside the capital; lack of facilities, equipment and medication; weak referral systems; and lack of monitoring and evaluation of ongoing maternal health programmes were to blame for avoidable maternal death. Accountability and clarification of roles and responsibilities of local level health centres and personnel was required, they added.

Conclusions and Recommendations

- Most maternal deaths that occurred during the study could have been avoided. Problems that started at home became complicated due to long delays in deciding to seek obstetric care. Multiple measures can be taken to reduce the first delay. It is important that women generate income for themselves so they can afford maternity care and make decisions on their own.
- Knowledge, as in ability to recognise danger signs and take preventive action, can save many lives. Maternity calendars, checklists, antenatal visit reminders, birth preparedness lists, indicators of danger, complication readiness, and information on free-delivery and safe-delivery programmes can be shared through mobile phone apps. School curriculum can be expanded so reproductive education can cover lifesaving information.

Representative organisations of disadvantaged, *Dalit, Madhesi*, Muslim, and other people; women, mother, adolescent, and other groups; pharmacists, local leaders, and a broad spectrum of the society can be mobilised to share information on maternal health and the risks involved.

- History-taking, examination, teaching and counselling must be ensured during antenatal visits to obstetric facilities and during postnatal discharge. The Health Facility Operation and Management Committee (HFOMC) can monitor access to services at all levels. Women and families (especially in remote areas) need to know about and access free delivery and other maternity incentive programmes.
- The second delay related to transportation can be reduced by making available community-based options like stretchers, auto rickshaws, and safe motorcycle ambulances. Ambulance services should be free of cost. Maternity waiting homes or hostels can be tested in hill areas to reduce both the first and second delays. Helicopter rescues, or airlifts, of obstetric emergencies should be available in remote areas of Nepal and financial support mechanisms put in place under the President's Women Upliftment Programme, for example. Grassroots level human resource for pre-hospital management, like emergency medical technicians (EMTs), needs to be trained.
- The third delay can be reduced by strengthening emergency obstetric referral systems between health facilities. Risk stratification skills of health workers must be enhanced so timely risk identification, referral and complication management can take place. Capable health workers must be present at all health facilities throughout the year. Health workers must come from local communities so there is continuity and ease of access. They need to have the capacity to deal with maternal risks adequately. Appreciative inquiry training can make health workers more receptive, responsive, and respectful to lessen the unwillingness of women to seek care. Improved infrastructure is required to provide emergency obstetric care. Sufficient supplies, medication and equipment is needed at all levels of obstetric facilities. Blood transfusion facility is required at every primary hospital as this can save the lives of women suffering from haemorrhage. Well-equipped emergency transport with EMTs/paramedics should be available in order to reduce the third delay and health workers should provide care until transportation arrives.
- Nepal can take effective measures and reduce the maternal mortality rate to achieve the SDG of 70 or less mortalities in 100,000 live births by 2030.

1. Context



Graph based on World Bank data.

1.1 Introduction

Nepal reduced its maternal mortality ratio (MMR) from 539 per 100,000 live births in 1996 to 239 per 100,000 live births in 2016¹. Significant policy changes like Safe Motherhood Policy (1998), Safe abortion policy (2002), Skilled Birth Attendants policy (2006) addressed barriers to maternal health service utilisation and made this change possible.

However, there has been marginal reduction in the maternal death ratio since 2006. Since Nepal has committed to reduce MMR to less than 70 per 100,000 live births by 2030, it needs to take timely action to meet this Sustainable Development Goal².

Determining factors influencing maternal deaths are multiple and complex as Nepal has varied cultures, literacy rates, development levels and geographies. The three delays model widely used to analyse the circumstances surrounding access to timely treatment can be used to analyse the situation so action can be taken to reduce maternal mortality and maternal near misses.

1. Ministry of Health and Population (MoHP), Nepal New ERA and ICF International Inc. Nepal Demographic and Health Survey 2016. Ministry of Health and Population. Kathmandu. 2017.

2. National Planning Commission. Nepal: Sustainable development goals, status and roadmap 2016-2030. Government of Nepal, National Planning Commission. Kathmandu. 2017.

Causal factors related to the first delay in deciding to seek care, the second delay in reaching an obstetric facility, and the third delay in receiving care at the obstetric facility have been identified by this study. The interrelation between the delays and important cues and missed opportunities therein have been analysed so effective actions can be taken.

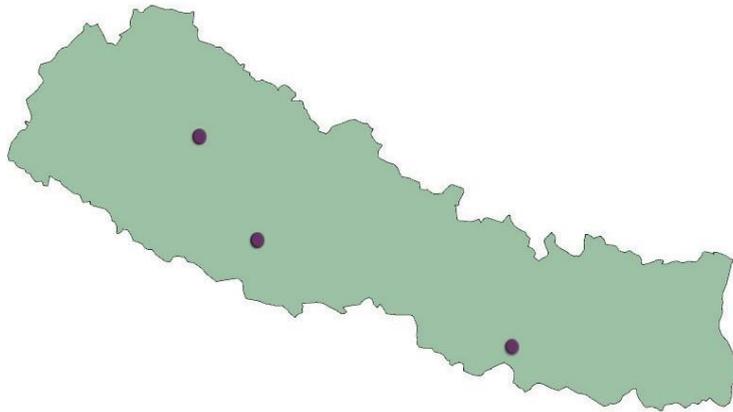
Policy related issues, clinical causes of maternal death, underlying social, behavioural, and health system factors, individual and family barriers, and experiences and opinions of experts must be brought together to understand how the MMR can be decreased.

1.2 Objectives of the study

The objective of this study was to understand the causes and pathways that lead to continued occurrence of maternal deaths in Nepal and to understand and identify corrective policies and actions that are required to prevent avoidable maternal deaths.

Its specific objectives were to:

- Explore in detail social, behavioural, and health system factors associated with maternal deaths that contribute to the 'three delays' in deciding to seek appropriate medical help; reach an appropriate obstetric facility; and receive adequate and timely care when a facility is reached.



The study took place in three of Nepal's seven provinces

- Province 2
- Lumbini Province
- Karnali Province

- Assess measures that enable the health system to address the delays.
- Demonstrate complex interplay between policymaking, supply-side changes, and demand-side responses that affect quality and access to maternal health care.

1.3 Methodology

A mixed method study was conducted from 15 July 2018 to 31 October 2019 in Province 2, Lumbini Province, and Karnali Province. The study covered Terai plains as well as the hills in each province. An area with poor health system infrastructure, low human development index, and weak utilisation of delivery services was studied compared to the other area of the same province studied. Facility-based prospective surveillance was carried out in the largest tertiary level referral hospital in each of the three provinces. Hospitals known to provide better care and equipped with intensive care units (ICUs), maternity wards, blood transfusion services, ability to perform caesarean sections and deliver higher numbers were selected.

1.4 Approach

1.4.1 Social autopsy was undertaken to identify social, behavioural, and health system factors responsible for maternal deaths. Qualitative and quantitative methods were used. Verbal autopsy was used to identify medical and social factors. A Verbal and Social Autopsy (VASA) tool was customised for the Nepal context referring to WHO's verbal autopsy questionnaire³, Maternal and Perinatal Death Inquiry and Response questionnaire⁴,

and Dead Women Talking questionnaire⁵. Altogether 62 maternal deaths were studied. Retrospective review took place from 15 July 2018 to 30 April 2019 covering 41 maternal deaths. Prospective maternal deaths were reviewed from 1 May 2019 to 31 October 2019 over which 21 maternal deaths took place. Maternal deaths were identified through the maternal death registry maintained at the local level, Integrated Health Management Information Section (IHMIS) of Department of Health Services (DoHS), and six field researchers who were onsite in each of the six areas where the study took place. Field researchers coordinated with local level representatives, community leaders, health coordinators, those in charge of local health facilities, and Female Community Health Volunteers (FCHVs) to identify prospective and retrospective maternal deaths. Interviews of family members or relatives of deceased women provided detailed information. Group discussion with community members took place for every maternal death. The discussions identified delays and factors contributing to each of the deaths. Sixty-two group discussions were conducted. Health workers who managed complications before death and ambulance drivers were present in two of the discussions.

1.4.2 MNM analysis featured a mixed method covering prospective cross-sections at a hospital in each of the three provinces. All women admitted over the six-month data collection period for pregnancy related complications and all women within 42 days of termination of pregnancy or delivery were studied if they suffered at least one potentially life-threatening condition listed by the WHO. Three trained field researchers from nursing and public health backgrounds were allocated to each hospital and worked in close coordination with gynaecology and obstetrics departments. Medical records of the participants were reviewed and information on clinical characteristics collected using a near miss identification tool. Participants

3. Campbell On, Ronsmans C, Organisation WH. Verbal autopsies for maternal deaths: World Health Organisation workshop, London, 10-13 January 1994. World Health Organisation. 1995.

4. UNICEF. Maternal and perinatal death inquiry and response: empowering communities to avert maternal deaths in India. UNICEF. New Delhi. 2008.

5. Subha Sri B, Khanna R. Dead women talking: a civil society report on maternal deaths in India. CommonHealth and Jan Swasthya Abhiyan. 2014.

were interviewed once medically stable and family members – including husbands, parents and in-laws – were also interviewed.

1.4.3 Key informant interviews obtained in-depth information on the maternal health care system. Thirty-six central to grassroots level stakeholders were interviewed – including national, provincial, district, and local-level government officials; maternal health experts; and donor and nongovernmental professionals. Interviews focused on skills and competencies, facility level resources and accessibility; equity in service provision and utilisation; effectiveness of interventions; quality of protocols; guidelines and their implementation; and social and health system accountability mechanisms.

1.4.4 Policy landscaping review involved secondary analysis of policies and strategies related to maternal health care in Nepal from 1998 to 2019. Thirteen relevant documents were reviewed and strengths and weaknesses of each policy document assessed.

1.5 Data management and analysis

1.5.1 Primary data management and analysis: Quantitative data from social autopsy was entered into MS Excel and transferred to STATA version 13 while quantitative data from the MNM analysis was entered into EpiData version 3.1 and imported to SPSS version 22 for analysis. Simple descriptive statistics were used to analyse data. Consent was sought for all qualitative data collected and interviews were captured on digital sound recorders. Unique IDs were given to each audio record. After field-based data collection, recorded audio and field notes were transcribed and translated from Nepali to English. Qualitative data from social autopsies was received in the form of in-depth interviews and group discussions and participants' identifiable information was removed to ensure privacy. MNM analysis data was also received in the form of interviews. Information on the three delays and contributing factors was derived from qualitative data and discussed among team members and an analytical framework developed based on the three delays model. Qualitative data analysis was done through familiarisation: all transcripts were read thoroughly and repeatedly and notes prepared. Preliminary coding led to transcripts being transferred to NVIVO 12 plus project for each group discussion and KII. Reasons for the three

delays were coded and themes developed to identify factors contributing to the delays. Patterns and concepts were identified and statements and narratives related to each theme and sub-theme were then summarised.

The health post was very far from her home. It was snowing heavily that day. We could not take her to the health post.

Group discussion, Karnali Province

1.5.2 Secondary data management and analysis:

The policy landscaping review involved the screening of available documents and their selection for further analysis based on relevance to maternal mortality and maternal near misses. Qualitative content analysis (directed approach) was guided by a framework based on insights of Walt and Gilson⁶ and Newman⁷ et al.

Review questions were developed to extract information from documents in terms of context and process (type of document, purpose and focus, formulation process, developers and stakeholders); key values (focus of the policy, key perspectives and approach in improving maternal care, focus on equity); and strategic interventions in providing maternal care; integration with perinatal and continuum of care; inter-sectoral collaboration; and specific target groups. Selected policies were tabulated in chronological order listing key values and strategic interventions. All articles were reviewed thoroughly and information tabulated with particular attention to interventions and their effectiveness.

1.6 Ethical considerations

Ethical clearance was obtained from Nepal Health Research Council (NHRC registration number 89/2019) and written approval obtained from Ministry of Health and Population (MoHP) and Ministries of Social Development (MoSD) in Province 2, Lumbini Province and Karnali Province. Approvals were sought from the three study hospitals and at the local level where maternal deaths occurred. Written consent was obtained from each study participant. All data was stored in MIRA's password protected computers and purged after the report was published.

6. Walt G, Gilson L. Reforming the health sector in developing countries: the central role of policy analysis. *Health policy and planning*. 1994;9(4):353-370.

7. Newman L, Baum F, Harris E. "Federal, state and territory government responses to health inequities and the social determinants of health in Australia." *Health Promotion Journal of Australia*. 2006;17(3):217-225.

2. Findings

2.1 Social Autopsy and MNM Analysis

Sixty-five maternal deaths took place during the study period. Three of them were suicides and were not included in the study. At the three hospitals studied, there were seven maternal deaths and 9,158 live births resulting in a maternal mortality ratio of 76 per 100,000 births. Sixty-seven in 9,158 live births faced MNM at the three study hospitals. This resulted in an MNM ratio of 7.31 per 1,000 live births.

2.1.1 Socio-demographic characteristics of maternal deaths and MNM cases: The mean age of deceased women was 25 and 23 in MNM cases. Deceased women were mostly from the Terai plains (74%). Almost equal numbers of MNM cases occurred in the Terai and the hills. While the number of maternal deaths was equal in rural and urban areas, the number of MNM cases was higher (66%) in urban areas. Dalits were among the top two castes with high maternal deaths and near misses (27% and 34% respectively). Other castes with high maternal mortality were from the Terai plains, the Madhesi and other castes (35.5%). Brahmin-Chhetri-Thakuri castes had the second highest MNM cases at 30%. Very high percentage of women who died (92%) and faced MNMs (79%) did not earn cash incomes. The median monthly household income of maternal mortality cases was NRs. 16,000 and that of the MNM cases was NRs. 15,000, well below the average monthly income of NRs. 30,121 as per a Nepal Rastra Bank survey of 2016.

2.1.2 Obstetric and reproductive characteristics of maternal deaths and MNM cases: Eighty-one per cent of those who died and 89% of MNMs had at least one antenatal check-up during pregnancy. Only 43% of women surviving near death situations knew about the danger signs to watch out for. Although most arranged money (80% maternal mortality cases and 82% MNM cases), more than half had not arranged transportation and more than two thirds had not identified potential blood donors. Complications started at home in 76% of mortality cases and 58% of MNM cases). Most maternal deaths and near misses occurred during the postnatal period (66% and 40% respectively); 40% of maternal deaths and 94% of MNMs occurred at a health facility; and 55% of women who died and 52% of MNMs delivered normally. Illegal abortion had taken place in 5% of maternal mortality and 4.5% of MNM cases. Thirty-nine maternal mortality cases and 35 MNM cases were referred from the first health facility to another health facility. Among the 39 who were referred, 33% were sent on from private hospitals, 31%

from primary hospitals, 20.5% from health posts, and 15% from tertiary hospitals. Forty-six per cent of MNM cases were referred from primary hospitals and 37% from health posts. Referring health facilities were unable to manage complications because they could not perform caesarean sections, did not have intensive care units, were short of life-saving drugs, skilled health workers were unavailable, or lacked blood transfusion facilities.

2.1.3 Place of death: Out of the total of 62 maternal deaths, 39% died in private hospitals, 27% in government hospitals, 14.5% at home, 11% on the way to a higher health facility from the referring health facility, 5% on the way to a health facility from home, and 3% in health posts. Forty-two women died where they delivered or aborted their pregnancy while 20 died at a place different from their place of delivery or abortion.

2.1.4 Clinical causes of maternal deaths and MNMs: Severe haemorrhage was the most prominent cause of maternal deaths and MNMs. Forty-five per cent of maternal deaths and 54% of MNMs were caused by haemorrhage. Hypertensive disorders took 19% of lives and caused 43% of MNMs. Reasons for PPH among MNM cases were atonic uterus (13), retained products of conception (9), trauma (3), and coagulation disorder due to snakebite (1). Sepsis caused by uterine infection, infection of the urinary tract, gastroenteritis, hepatitis, pneumonia, and post-caesarean infection caused 14.5% of maternal deaths and 4.5% of MNMs. Severe complications of abortion like haemorrhage, infection and perforation were the underlying causes in 6.5% of maternal deaths and 7.5% MNMs. Three per cent of the women died due to other obstetric complications like intra-abdominal haemorrhage after caesarean section. Non-obstetric medical complications like cardiopathy, meningitis, cerebrovascular accident, thyroid complications and complications of enteric fever were the underlying causes in 14.5% maternal deaths and 4.5% near miss cases. Four maternal mortality cases and eight MNMs had more than one complication.

2.1.5 Accessibility to healthcare and health care seeking behaviour: The nearest obstetric facility was within 30 minutes from home in 69% of maternal mortality and 90% of MNM cases. The maximum distance to the nearest health facility was 12 hours in maternal mortality cases and 60 minutes in MNMs. Most women who suffered MNMs in the Terai had health facilities within 30 minutes distance. Most women from the hills did not have health facilities within 30 minutes distance and most did not have

I don't think her family knew about places that offer safe abortion.

Group discussion, Province 2

Obstetric and reproductive characteristics of maternal deaths and MNM cases, a table

Characteristics	Maternal Death (n=62)	MNM cases (n=67)
Stage of death/near miss		
Ante-partum (before birth)	13 (21)	22 (32.8)
Intra-partum (during labour)	4 (6.5)	13 (19.4)
Post-partum (after birth)	41 (66.1)	27 (40.3)
Post-abortion	4 (6.5)	5 (7.5)
Gravida		
Primi	26 (41.9)	38 (56.7)
Multi	36 (58.1)	29 (43.3)
Mode of delivery/abortion		
Normal Vaginal delivery	34 (54.8)	35 (52.2)
Assisted Vaginal delivery (Forceps/Vacuum)	2 (3.2)	6 (9)
Caesarean Section	9 (14.5)	15 (22.4)
Laparotomy for ectopic pregnancy and ruptured uterus	0	6 (9)
Complete spontaneous abortion	0	1 (1.5)
Incomplete spontaneous abortion	1 (1.6)	0
Induced legal abortion (medical/surgical)	0	1 (1.5)
Induced illegal abortion (medical/surgical)	3 (4.8)	3 (4.5)
Mother died before delivery or abortion	13 (21)	NA
Place of delivery/abortion		
Home	15 (24.2)	3 (4.5)
Health facility	25 (40.3)	63 (94)
Health post	4 (6.5)	3 (4.5)
Primary hospital	4 (6.5)	4 (6)
Tertiary hospital/study hospital for MNM analysis	2 (3.2)	54 (80.6)
Academic hospital	3 (4.8)	0
Private hospital	12 (19.4)	2 (3)
On the way	7 (11.3)	1 (1.5)
To health facility from home	3 (4.8)	1 (1.5)
From one health facility to another	4 (4.8)	0
Aborted illegally in India (private facility)	2 (3.2)	0
Mother died before delivery or abortion	13 (21)	NA
Place of development of complications		
Home	47 (75.8)	39 (58.2)
Health facility	15 (24.2)	28 (41.8)
Study hospital/Tertiary hospital (for MNM)		17 (25.4)
Another health facility (for MNM)		11 (16.4)
Birth preparedness		
Had arranged money	45 (80.3)	55 (82.1)
Had arranged transportation	27 (48.2)	30 (44.8)
Had identified blood donors	16 (28.6)	13 (19.4)
Had identified health facilities	44 (78.6)	48 (71.6)
Had antenatal check-up at least once	50 (80.6)	60 (89.6)
Knowledge of danger signs	NA	29 (43.3)

access to emergency transportation. The median cost of treatment was NRs. 30,000 in maternal mortality cases and NRs. 5,000 in MNMs. Women in the hills had to pay more for treatment in case of maternal mortality as well as MNM. The median cost of travel was NRs. 5,250 in maternal mortality cases and NRs. 1,500 in MNM cases. Women in the hills incurred higher travel costs compared to women in the Terai. Among 44 maternal mortality cases where complications developed at home, 66% took more than one hour to seek care. The time taken to seek care ranged from 0 minutes to 15 days. Among 39 MNM cases who developed complications at home, 49% took more than one hour to seek care. The time taken to seek care ranged from 5 minutes to 11 days.

2.1.6 Delays in seeking, reaching, and receiving care:

While there was no delay in one maternal death and ten MNMs, at least one type of delay occurred in 98% of maternal deaths and 85% of MNM cases. Among 62 maternal deaths, 12 (19%) cases experienced the first delay and six (10%) experienced third delay while six (10%) faced first and second delays; ten (16%) faced first and third delays; eight (13%) faced second and third delays; and 19 (31%) experienced all three delays.

The first delay occurred in 76% (47 of 62) of cases, second delay occurred in 53% (33 of 62), and third delay occurred in 69% (43 of 62) of maternal deaths. The time taken to reach an obstetric centre ranged from 15 minutes to 14 hours. Out of 67 MNM cases, nine (13%) cases experienced first delay, two (3%) experienced second delay, and 6 (9%) experienced third delay while nine (13%) faced first and second delays; seven (10%) faced first and third delays; seven (10%) faced second and third delays; and 17 (25%) experienced all three delays.

*During the first convulsions,
we thought the gods were
angry so we took her to a
jhankri faith healer. When he
could not cure her, we took
her to a local pharmacy
where we were told that we
would have to take her
to a bigger hospital.*

Family member of MNM case

First delay occurred in 63% (42 of 67), second delay occurred in 52% (35 of 62) and third delay occurred in 55% (37 of 62) of MNM cases. The median time taken to reach the referring health facility was 30 minutes ranging from 1 to 120 minutes. The median time taken to reach the final health facility from the referring facility was 60 minutes and ranged from 15 minutes to 15 hours. The time taken to receive care after reaching the appropriate obstetric facility ranged from 1 to 60 minutes. Forty-three per cent of maternal deaths and 60% of MNMs were attributable to more than one type of delay.

2.2 Factors Contributing to the Three Delays

Qualitative data obtained through group discussions and in-depth interviews was used for this section.

2.2.1 Influences on the first delay

2.2.1.1 Lack of perceived need or benefit and inability to anticipate severity: Family members of deceased women lacked understanding of the need to utilise maternal health services and did not understand the benefits thereof. Family members of MNM cases said they had seen signs of danger but could not identify them as risky or severe. Though most women (81% maternal mortality cases and 90% MNM cases) had at least one antenatal check-up during pregnancy, they lacked understanding of what signs to look for and what indicated severity. They were inadequately prepared for birth, had insufficient antenatal counselling, and did not have decision-making power within the family to take the action necessary to safeguard themselves. Most women and family members (62.5% of maternal mortality cases and 58% of MNM cases) ignored danger signs or were unaware that complications could occur. Nineteen per cent of mortality was due to hypertensive disorders. According to MNM case 38, "My hands and legs were swollen from the seventh month of pregnancy. Staff at the health post told me to go immediately to the hospital for a check-up. I thought the swelling was due to the cold. I learned at the hospital that my blood pressure was very high. ..."

Self-medication or self-medicated abortion was attempted by some women. They sought help after experiencing complications.

2.2.1.2 Fear of institutional delivery: Family members said they did not seek care due to fear of health institutions and previous bad experiences. During a group discussion, a participant said, "She underwent a lot of pain during suturing last time... they did not give her anything for the pain. She refused to go to the hospital this time." Mistreatment, lack of respect, and improper counselling

before check-ups and procedures discourage women from seeking institutional help.

2.2.1.3 Lack of family support: In many cases family members decided when and where to seek care: “Her in-laws abused her because she was from a different caste even though she got along well with her husband. When they found out that she was about to have a baby girl, they put pressure on her to abort. She obtained and consumed medication despite knowing it could risk her life,” was one of the comments at a group discussion. Group discussions also revealed that women who are expecting are often not looked after well as families go about their regular work. By the time they realise something is wrong, the situation is serious.

2.2.1.4 Perceived high cost of health care and lack of funds: Most of the participants at group discussions said the women who died were poor and marginalised. The fear of incurring high cost for health care and lack of money stopped them from seeking treatment at tertiary hospitals. A participant said, “Two days after giving birth, she was taken to the health post. She was referred to a higher health facility but it took her family four days to arrange enough money. She died.”

2.2.1.5 Traditional beliefs and practices: Traditional birth attendants (TBAs) or local health workers, traditional healers (*dhamis*, *jhankris*) and religious leaders (*maulanas*) are still trusted. When complications occur at home, traditional healers were sought in 16% of maternal mortality cases and 4.5% of MNM cases. At a group discussion, a mother-in-law said, “She was with her parents. I was informed only when she was in serious condition. Family members from the maternal side had sought treatment from a *jhankri* faith-healer who sacrificed a goat. She was taken to the hospital too late.”

2.2.1.6 Distance to health facilities: Some households did not have access to working roads and transportation. Therefore, they chose to deliver at home and complications developed. A group discussion participant said, “It was night and we did not have any means of transportation. The condition of our roads is very poor. She had stillbirth and bled a lot.”

2.2.2 Influences on the second delay: Once a decision to seek care was made, women faced difficulty reaching an appropriate health facility.

2.2.2.1 Lack of road networks and poor road conditions stopped women from reaching health facilities on time. Some said their households lacked access to roads, leaving them the only option of using a stretcher. Sometimes the mountain paths were so narrow they could

had difficulty carrying the stretcher. An ambulance driver said, “Around 11 at night her family members called me. The road was hilly and very rough. I reached them around 3 in the morning. I could not take the ambulance near her house. People used a shawl to carry her uphill to where the ambulance was. She had delivered at home and her family said that she had lost a lot of blood. We reached the hospital at 5 am. She died at the hospital.” Poor weather made it difficult for some of the women to reach health facilities as road conditions worsen dramatically when there is rain and snow. “The condition of the road was not good so the cart had to go slowly. It took us more time to reach the hospital,” was a comment shared at a group discussion.

2.2.2.2 Prohibitive distance to health facilities: Some women had to travel a long distance to reach a health facility. Two families commented that the distance was prohibitive. One of them said that snowfall stopped them from reaching the health centre while the other said, “The hospital is far away and it was night time. We could not make it to the health centre.”

2.2.2.3 Lack of transportation, like an ambulance, was mentioned. Emergency transport or an ambulance should be made available, including airlifts if necessary. At a group discussion, the feedback was, “The health post closest to us does not offer ambulance services. Because of this, we had to call an ambulance from a hospital far away.”

2.2.2.4 Financial limitations: Although money is arranged for delivery, a huge sum is required if there are complications and this sort of money is not normally available and can take time to put together. Treatment at tertiary level government hospitals is cheaper but sometimes women are referred to private hospitals in Nepal and across the border in India where the treatment costs can be quite high. While families put together the funds women die or suffer a near miss. A family member said, “Health workers referred us to Hospital A. From there we were referred to Hospital B and C. Hospital B was big and more money was needed to take her there. She had some money in the bank so we came back home and withdrew the money the next day. She died on the way.”

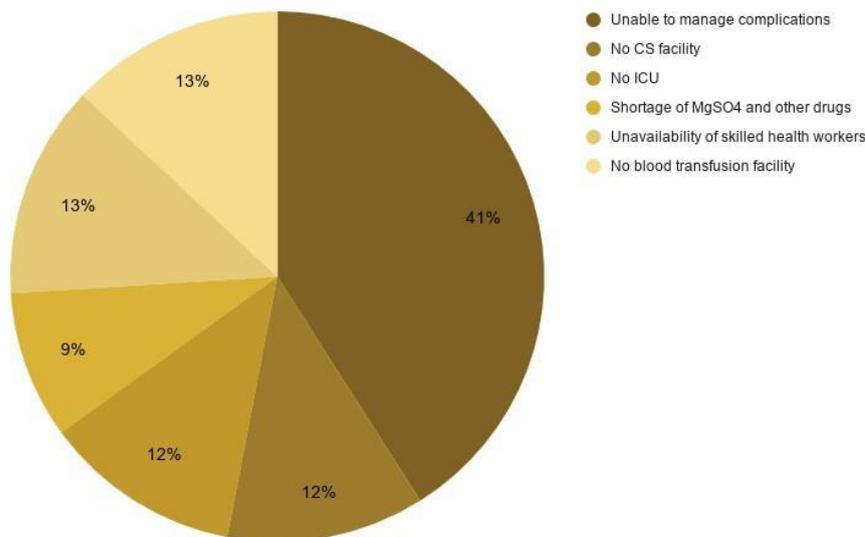
2.2.3 Influences on the third delay

Even when women reach appropriate health facilities they may not be treated on time. Qualitative findings revealed some reasons for delay.

2.2.3.1 Unavailability of skilled health care workers Skilled health care workers should be present in health facilities 24/7 and during festivals. Family members reported that doctors were absent when they took the

Reasons for referring maternal death cases

As this was a multiple response question, per cent total does not add up to 100



women to health facilities at night. Lower and tertiary level health facilities lacked skilled human resource during night time and festival seasons, “The doctor was not there. It was Dashain festival time and all senior doctors were on leave.” said a member of a family.

“We took her to the [tertiary level] hospital on time. It was night when we got there and there were no doctors,” said another family member.

For women with severe haemorrhage, blood transfusion can be lifesaving. In one instance, the lab technician was on leave as it was a Saturday so haemoglobin count could not be taken and blood could not be cross matched for transfusion.

2.2.3.2 Unavailability of caesarean section, intensive care, blood transfusion and lifesaving drugs: Even when health care workers are available they could not provide appropriate treatment due to lack of facilities to perform caesarean sections, lack of intensive care units and blood transfusion facilities. A family member reported, “Doctors at the hospital said she had to be admitted into intensive care and referred her to another hospital. We travelled three hours to reach the hospital. She died.”

“She was taken to the hospital [PHC] on time but referred to another facility because blood transfusion was not available,” said a group discussion participant.

Magnesium sulphate is a lifesaving drug for severe pre-eclampsia and eclampsia and is included in the list of essential drugs by the Government of Nepal thereby making it a must-available drug in every health facility. According to MNM case 12, “I went to the hospital. There

I started having convulsions and since there was no medicine [magnesium sulphate], I was brought to this hospital by helicopter.” MNM 13 faced the same issue at a health post.

2.2.3.3 Incompetent service providers: Participants narrate stories of inappropriate and untimely treatment due to the lack of skills and attitude of doctors and nurses. Nurses were often the actual care providers and unable to recognise complications or manage them. Two family members said: “Primary treatment for bleeding should have been given before referring her to another hospital. When bleeding started, she was given [intravenous] saline water. She went on to have normal delivery and after delivery, the nurse removed the saline water and told us to massage her abdomen. We followed her instructions. The nurse then told us to let the patient rest for 1-2 hours and then take her to home. Heavy bleeding occurred as she rested. She could not be treated on time.”

“The main reason for her death was that the staff available lacked the skills to tackle the situation and those that were skilled were absent. Enough doctors were assigned to the hospital but none of them were there that day. I think the baby was in a breech position. The nurses made a failed attempt to rotate the baby by trying to move her into place from outside the abdomen.”

2.2.3.4 Delay in treatment: Some of the women were attended too late in the health facilities they reached. Some had to undergo lengthy administrative processes and waited too long to get test results even when it was clear that theirs was a case of emergency. This complicated their situation and resulted in death. A family member commented, “The hospital didn’t admit her

quickly enough. Health workers did not show urgency. We had to follow a lengthy administrative procedure submitting papers. Blood test and urine test reports were late as there was no doctor in the lab. They processed the blood sample through the number system rather than giving it emergency priority. The doctor examined her only after all the reports were collected. I think the doctor should have looked at the patient based on her serious situation.”

2.2.3.5 Neglect and unethical practices and behaviour of health workers: Medical misconduct, nursing malpractices, negligence of patients, discrimination, overcharging, demanding bribes, refusing to treat, illegal abortion and concealing malpractices cost maternal lives. Many families talked about the irresponsible behaviour of health workers. “They only started treatment after my son called the local politician. What sort of practice is this?” and “We reached the hospital at around 10 in the morning but the doctor came only at 4 in the evening. Maybe we were not prioritised because we are *dehatis* from the rural Terai,” were comments shared during group discussions.

“Refusal to treat is another unethical practice of health workers [lack of capacity of the institution or its health workers, financial requirements, survival prognosis may be causes: the staff were not able to counsel the patients and their families accordingly].” Deceased women have been asked to go to tertiary level health facilities that are a considerable distance away without obstetric first aid and communication was not handled humanely.

“I took her to the hospital but the nurse refused to admit her. She told us that she would die soon. I told her that I would take her to another public hospital and asked for an ambulance. The nurse told us that she would die on the way. We took her to a private hospital where she lost her life,” commented a family member.

2.2.3.6 Lack of necessary data while referring patients to another obstetric centre: Women have reached health facilities late due to lack of knowledge within referring health facilities as to where they can receive proper care. “She had fluid leakage before going into labour pain so we took her to a health post. The nurse asked us to take her to another health facility. We asked her if we should go to a private hospital or a government hospital. She said we could take her to a facility of our choice so we took her to a private facility which could not perform caesarean sections and referred us to another hospital,” family member of MNM case 1.

We told doctors we would deposit the money in the morning but they did not operate. If we had deposited Rs. 110,000 they'd have operated that night. We brought the money the next day, she was already in the last stage of her life.

Group discussion

2.3 Findings from Policy Landscaping Review

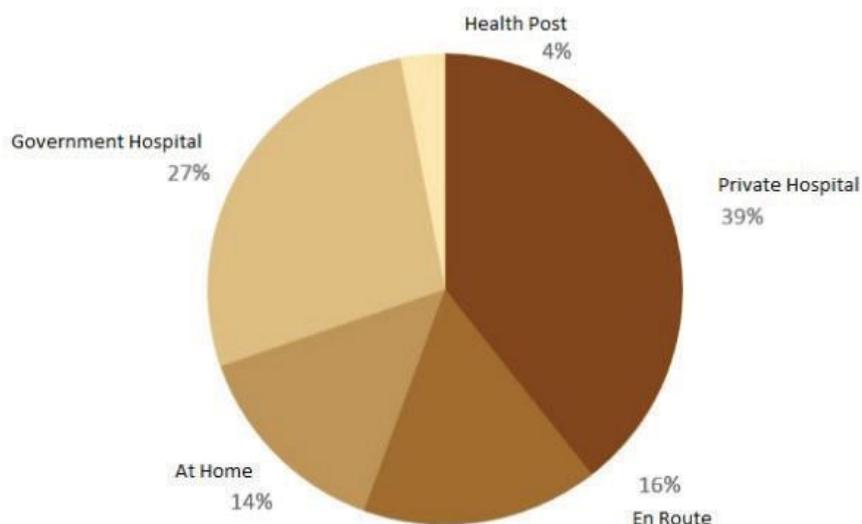
Thirteen policy documents related to safe motherhood and maternal health in Nepal that captured policy directives, implementation plan, competency of health workers, guidelines for incentives, gender and social inclusion, death review, communication strategy, maternal nutrition, respectful maternal care, and other issues were studied. Strengths and gaps of these policies were collected through interviews with key informants and literature review.

The Safer Motherhood Programme, 1998⁸, followed the safe motherhood policy and the national reproductive health strategy. National safe motherhood plan with eight strategic outputs; right to legal abortion services and designated abortion sites; production and deployment of accredited health professionals for delivery; advocacy, awareness and behaviour change programmes for maternal service utilisation; and provision of free delivery with incentives for women and service providers followed in succession.

Strategies were set to improve the health sector, achieve gender equality and reduce maternal under-nutrition. “The Right to Safe Motherhood and Reproductive Health Act” of 2018 ensured women’s right to safe, affordable and accessible maternal and reproductive health services. Safe Motherhood Information Education Communication (IEC) strategy, 2003-2008; IEC/BCC strategy for Safe Motherhood and New-born Health 2008-2013; and the National Communication Strategy for Maternal, New-born and Child Health 2011-2016 were formed.

8. Ministry of Health. “Maternal and Perinatal Death Surveillance and Response (MPDSR) Guidelines 2015.” Teku, Kathmandu. 2015.

A figure of mortality by location



Components included were (i) political advocacy to achieve commitments and the use of media; (ii) social mobilisation and inclusion of community groups; (iii) behaviour change communication that included entertainment based education, individualised group interactions, and literacy programmes.

The national blood transfusion policy that followed improved availability of blood and blood products in hospitals while the Human Resource Strategy 2009 covered safe delivery through (i) improvement of human resource planning and management; (ii) improvement in quantity of safe delivery staff in lower health facilities; (iii) improvement of supervision of safe delivery staff in lower health facilities; (iv) improvement of quantity and quality of safe delivery staff in hospitals; (v) improvement of safe delivery staff in first-referral hospitals; (vi) and staff retention.

The Nepal Health Sector Programme Implementation Plan II, 2010-2015, and Nepal Health Sector Strategy Implementation Plan, 2016-2021, focused on accountable and equitable health service delivery systems, sector-wide approach and partnership through infrastructure development (birthing centres, maternity waiting homes, private counselling room); availability of health workers; improved procurement and management; improved referral systems; improved accessibility for people not reached; improved governance and accountability; promotion of healthy behaviours; and multi-sectoral coordination including community groups. Right to safe motherhood and reproductive health act, 2018, emphasised women's right to qualitative, accessible and respectful safe motherhood and reproductive health services.

Key values and strategies of policy documents on safe motherhood in Nepal from 1998 to 2019:

2.3.1 *Safe Motherhood Policy, 1998*, was developed upon the recommendation of the Safe Motherhood Task Force established in 1993 to tackle high maternal mortality in Nepal. Its key values were gender equality, improved social attitudes, reproductive rights, and provisions of maternity services. The strategy of the policy was to launch the Nepal Safer Motherhood Programme (i) providing maternity care and family planning via Primary Health Care Network with referral of high-risk cases; (ii) empowering women and their families with information and education related to safe motherhood; (iii) promoting inter sectoral collaboration; and (iv) promoting research on safe motherhood.

It established and scaled up CEONC sites across the country to provide emergency obstetric services. It faces a lack of adequate number of anaesthesiologists, gynaecologists and MDGPs in CEONC sites.

2.3.2 *Maternal and Perinatal Death Surveillance and Response (MPDSR) Guidelines, 1997/2003/2014⁹*, has initiated substantial efforts to overcome poor systematic collection of maternal death related data and review in Nepal. The guidelines were last updated in 2014 to cover the shift of the burden of reducing maternal deaths to health facilities. Every death can provide information that can help prevent future maternal and perinatal deaths.

9. Ministry of Health, Department of Health Services, Family Health Division. "Maternal and Perinatal Death Surveillance and Response (MPDSR) Guidelines 2015." Teku, Kathmandu. 2015.

Strategies include linking the information system to quality improvement at the health facility level with focus on i) notification of every death and ii) review of further action to prevent future deaths.

The endorsed MPDSR guidelines are being implemented in 77 hospitals and community-based health facilities in 11 districts; MPDSR committees have been formed in FWD, hospitals and municipalities; hospitals covered by the guidelines have been counting maternal and perinatal deaths and making action plans to avoid repetition of similar type of deaths; and stakeholders, hospital and community level health workers, and FCHVs have been trained or oriented. The limitations of the guidelines have been that it has been implemented only in limited places; its death review is not effective in some places as people and health workers hesitate to fully participate in the review to avoid blame; there is under reporting and improper reporting of suspected maternal deaths; the number of community leaders in the committees are inadequate; and trained health workers have been transferred to other locations leading to the loss of knowledge base and experience.

2.3.3 National Safe Motherhood Plan, 2002-2017^{10, 11}, was updated as National Safe Motherhood and New-born Health Long Term Plan 2006-2017 in the context of Millennium Development Goals; Nepal government's focus on neonatal health, and poor and vulnerable population; and the need for partnership with private sector and non-governmental organisations. Women-centred care through (i) equity in access and utilisation of health services by pregnant women; (ii) positive and welcoming service provider attitudes, trust, honesty, responsiveness, and accountability; (iii) multi-sectoral approach to address safe motherhood and maternal and new-born health (SMNH); and (iv) the understanding of women as individuals and as members of families and communities with complex social relationships.

Eight strategic outputs were formed to ensure progress in the health of mother and babies: (i) equity and access through empowerment of individuals, groups and networks using the maternal and new-born care related behaviour change communication and promotion of birth preparedness and non-discriminatory interpersonal communication between providers and clients; (ii) delivery of quality maternal and new-born care with 24-hour

10. Health Mo, Population. "National Safe Motherhood and New-born Health Long-Term Plan, 2006–2017." MOHP. Kathman- du. 2006.

11. His Majesty's Government of Nepal, Department of Health Services, Family Health Division. "National Safe Motherhood Plan (2002-2017)." 2002.

The auto driver didn't receive our call in the night. We took her to the health post on a cart.

Group discussion

availability of skilled staff, essential drugs and equipment, good community and inter-facility linkage and feedback systems; (iii) public private partnership; (iv) decentralisation by improving planning and supervising capacity of the Health Office; (v) SBA training; (vi) information management by collecting and using data by ethnicity, caste and wealth and by supplementing quantitative data with qualitative information; (vii) physical asset management and procurement; and (viii) financial safety nets for the poor and the socially excluded.

The plan established and strengthened CEONC sites in 63 districts and set up and strengthened BEOC facilities in 137 PHCs and health posts. It upgraded and accredited SBA training sites and provided SBA training to service providers increasing SBA and institutional delivery.

MBBS doctors were trained to perform caesarean sections and ANM and nurse were trained to perform normal vaginal delivery. The challenges faced by the plan are the lack of human resource to fill sanctioned positions at all levels of hospitals. Only 52% of MDGPs and 57% of MOs have been filed at the level.

2.3.4 National Safe Abortion Policy, 2002¹², was advocated by civil society, NGOs and women's right activists because unsafe abortion (especially covert and carried out by unskilled workers) was a major cause of high maternal mortality in Nepal. Safe, accessible and legal abortion services allowed for women's rights to life and good health. Comprehensive Abortion Care (CAC) was provided through designated service providers including public and private institutions. Appropriate training was offered. IEC and social mobilisation distributed messaging on prevention of unwanted pregnancy and dangers of unsafe abortion. Women can access safe abortion free of cost from certified sites; CAC services are available in all provinces and 50% of PHCs; second trimester abortion services have been expanded to 30 hospitals; medical abortion is being expanded to health posts; and health workers like ANMs, staff nurses and doctors have been trained in safe abortion.

12. His Majesty's Government, Ministry of Health, Department of Health Services, Family Health Division. "National Safe Abortion Policy Final Draft." August 7, 2003. Kathmandu. 2002.

She was taken to the hospital on time but sent to another centre because they couldn't transfuse blood.

Group discussion

However, certified safe abortion sites and number of trained health workers are not enough; a majority of women still do not know about legal abortion and certified abortion sites and only 40% of women know abortion is legal. Of these, only 48% know a site where safe abortion can take place and 21% of abortion took place at home according to NDHS, 2016.

*2.3.5 National Policy on Skilled Birth Attendants, 2006*¹³, was formulated as a majority of births were attended by unskilled health workers and it supplemented the Nepal Safe Motherhood Policy, 1998. Skilled birth attendants are necessary in order to prevent maternal deaths. The policy prepared accredited health professionals such as midwives, doctors and nurses as skilled birth attendants (SBAs). The policy focused on (i) production of SBAs through in-service training and incorporation of SBAskills in pre-service nursing and doctors' training curricula; (ii) it deployed SBAs to health facilities; (iii) made 24-hour emergency obstetric care available; (iv) encouraged NGOs and civil society organisations to establish community based birthing units; and (v) supported SBAs through a strong referral back-up through the health team. SBA policy led to the training of more than 10,000 nursing staff from central to local health facilities and deployed them. The policy strengthened SBA training centres and expanded birthing centres thereby reducing maternal deaths. The challenges related to the policy are retention of skills and retention of trained staff; lack of midwife skills among SBAs; inadequate SBA training to deal with complications; inability to implement SBA strategies properly; location of birthing centres in accessible places; lack of monitoring and supervision; too much focus on the short-term and inadequate focus on the long-term.

*2.3.6 Free Delivery Care or Aama Programme Guidelines 2009 and 2016*¹⁴, Ministry of Health first introduced maternity incentive programme in 2005, renamed as Safe Delivery Incentive Programme in 2006, to increase institutional delivery. In 2009 it was renamed again as

the Free Delivery Care or Aama [mother's] Programme. It offered financial incentives to increase health service utilisation. Promotion of institution-based birth allocated incentives to women so they would come to health facilities for pregnancy check-ups and birthing. It also allocated incentives to service providers to motivate them to provide birthing care at health facilities and strengthen birthing and emergency obstetric care. The guidelines specified the concept of birthing units by setting specific criteria such as separate birthing room, living apartment for SBAs, equipment, 24-hour presence of an SBA and support staff, good referral network, friendly and respectful behaviour towards women and her visitors, and respect for her privacy. The guidelines also required reporting of new-born deaths, stillbirths and babies resuscitated for asphyxia by each health facility. Delivery was free as an incentive with four visits by an ANC. Birthing facilities were reimbursed by the government and recruitment of ANMs, staff nurses, office helpers, medicines, and commodities would be paid for by the Aama Programme. The policy increased the number of institutional deliveries and ANC visits, however, delays in receiving budget allocations by local level health facilities means that women are still paying to receive normal, complicated and CS registration; laboratory services; medicines; service delivery management; and blood transfusion. Transportation cost offered to women is not sufficient and incentives are provided at the time of discharge, not during ANC visits. The challenges faced by the Aama Programme are timely disbursement of incentives and inability to include better-known nursing homes and health academies in the incentive programme.

2.3.7 Birth Preparedness Package Programme. Ministry of Health conducted a district-wide field trial of the package in Siraha between 2002 and 2004 and the package was rolled out in all provinces of Nepal by 2009. Provision of misoprostol was integrated in 2010 and BPP guidelines released on preventing PPH through the use of misoprostol during home delivery. FCHVs were given the responsibility of distributing tablets to pregnant women who were to take the tablet during delivery if required. Community mobilisation was added to address the three delays with BPP guidelines recommending that each family save money for emergencies, arrange transportation suitable to local conditions beforehand, identify persons eligible to donate blood, identify health facilities and health workers to reach out to and have a safe delivery kit available at home. Flip charts for community education and the preparedness care were updated; training of trainers sessions held to update the skills of FCHVs; training on BPP and Matri Surakshya Chakki (misoprostol) distribution provided to community health workers and FCHVs in all provinces. The programme saw an increase in the percentage of women

13. Ministry of Health and Population, Department of Health Services, Family Health Division. National Policy on Skilled Birth Attendants (supplementary to safe motherhood policy 1998); July 2006.

14. Ministry of Health and Population. Health Sector Gender Equality and Social Inclusion Strategy: Nepal. December 2009.

saving money for delivery from 36% in 2011 to 62% in 2016 (NDHS). The challenges faced by the programme are limited participation by pregnant women in mothers' groups in the remote areas; women who still do not prepare for delivery (16%); challenges in management of transportation; lack of access to misoprostol (only 14% received the medication and 13% took it according to data released by NDHS in 2016).

2.3.8 Health Sector Gender Equality and Social Inclusion Strategy, 2009¹⁵, was adopted to address geographic, economic, social and cultural barriers to health services, especially among marginalised groups. Social inclusion, equality, equity and access had to be addressed so every citizen could access the right to free basic health care services as provisioned by the state. The strategy (i) identified target groups; (ii) addressed equitable access, especially among people of remote mountain regions; (iii) developed initiatives such as financial and higher education opportunities for doctors and health workers working in rural and remote areas; (iv) addressed local languages; and (v) offered medical education opportunities for poor and marginalised communities. The programme operation guidelines were approved by MoHP and a GESI Section setup within MoHP. A focal person was established in all DHO/DPHO to mainstream GESI in planning, review, annual plans and budgets in the health sector. Budget was allocated to conduct GESI training and activities. Trained staff in HMIS operationalised a disaggregated data reporting system. However, a separate budget was not allocated to form the GESI Section and make its networks functional. Lack of time and funding meant that staff did not have the competencies required to plan, implement, monitor and evaluate the programme from the GESI perspective.

2.3.9 Rural Ultrasound Programme focused on access to USG services for early detection and management of complications and foetal abnormalities among women in remote hills and mountains. ANMs and nurses trained in using portable USG machines scanned pregnant women at PHCs and HPs and referred them to higher referral centres. The programme was piloted in rural Dhading and Mugu in 2011/2012 and scaled up to 26 hill and mountain districts in 2018. Doctors, nurses and ANMs were trained in USG operation and USG machines were supplied to health facilities. ANC visits increased, pregnant women facing complications were referred to the higher centres and the programme was appreciated. Problems facing the programme are related to recharging the machines where there is no electricity and transfer of trained staff to other areas.

2.4 Findings from Key Informant Interviews

Thirty-six in-depth interviews were conducted with stakeholders at the federal, provincial and local levels. Prominent issues raised by the interviewees follow.

2.4.1 Human resource:

2.4.1.1 Inadequate numbers: The number of health workers is not enough to fulfil the needs of health centres nationwide. The problem is compounded as they too often do not go where they have been deployed. There is a lack of human resource in referral level health facilities in urban as well as rural areas. Staff in tertiary level hospitals and CEONC sites are overworked. "This hospital does not have enough staff. Sanctioned positions remain vacant. Four staff nurses and two ANMs are sanctioned but both ANMs are being transferred to another health facility and their replacements have not been recruited. Since this is a CEONC centre, a lot of patients are referred here. The general ward and maternity ward are the same with the same staff providing care to general patients as well as maternity patients," commented a nurse in charge at a district level hospital.

"We do not have enough anaesthesiologists to cover all CEONC sites so anaesthetic assistants are doing their work instead," said a maternal health expert.

2.4.1.2 Lack of skills and competencies: SBAs do not have the training to manage all complications and this has hampered the utilisation of maternal health services. A few maternal health experts indicated that health workers are not updated and highlighted the need for refresher training, revision of ANM curriculum, increased exposure, and practical training. Staff also felt that they do not get enough on-the-job training or refresher training.

The main reason for her death was that the staff lacked skill. Enough doctors are assigned to the hospital but none of them were there that day. I think the baby was in a breech position. The nurses made a failed attempt to rotate the baby by trying to move her into place from outside the abdomen.

15. Ministry of Health and Population. Health Sector Gender Equality and Social Inclusion Strategy: Nepal. December 2009.

Accessibility to health facilities and health care in %, a table

Characteristics	Maternal Death (n=62)			MNM cases (n=67)		
	Terai districts (n=46)	Hill districts (n=16)	Overall (n=62)	Terai districts (n=33)	Hill districts (n=34)	Overall (n=67)
Distance to nearest obstetric facility by vehicle (in minutes)						
30 mins or less	80	37.5	69	94	85	90
More than 30 mins	20	62.5	31	6	15	10
Median	20	60	20	15	15	15
Min	5	5	5	2	0	0
Max	120	720	720	60	60	60
Access to emergency transportation/ambulance						
Yes	70	37.5	61	18	53	26
No	30	62.5	39	82	47	64

“There are gaps in ANM training curriculum and it should be revised. We found that most teachers were recently graduated nursing students without practical knowledge. ANMs need adequate exposure to near practical delivery and drug administration. They work in remote areas and rural birthing centres so they must have adequate pre-service training before deployment,” said a representative of a donor organisation.

“Some birthing centres conduct 10 to 12 deliveries in a year so ANMs working in those centres cannot utilise their skills properly, neither can they retain their skills,” said a maternal health expert and a representative from a donor organisation repeated the concern.

“I have to look after the maternity ward but I haven’t received SBA, maternal, or neonatal health refresher training,” nurse in charge of a hospital commented.

2.4.2 Accessibility

2.4.2.1 Inadequate infrastructure, equipment and services:

Many health posts and primary health centres have birthing facilities. However, many of these do not function properly due to a lack of medical supplies, equipment, skilled nurses and other professionals. They are not maintained and many do not have ambulances. This restricts their capacity to recognise complications and refer cases. “We have birthing centres but I don’t know if they have SBAs, medical supplies, and equipment,” said a representative from a donor organisation. “Establishing CEONCs is not enough. They should be functional and be able to provide all services so complications can be managed on time. They have problems like lack of

running water and soap to wash hands. Lack of beds means that services are provided on the floor of health facilities when they are crowded.”

2.4.2.2 Geographic barriers and placement of health facilities:

Key informants said that women in hilly and mountainous regions of Nepal have difficulty gaining access to maternal health services due to geographic barriers. Transportation issues arise from the lack of roads, weather conditions, damage to existing roads and unavailability of vehicles in remote areas. “It takes hours even to reach local birthing centres in some villages in the Karnali Province and it’s almost impossible to access CEONC centres,” commented a representative of a donor organisation. “We have established and increased the birthing centres rampantly. Are all the birthing centres really necessary? And are there deliveries taking place in all birthing centres? I have learned that there are less than 20 deliveries a year in 50% of birthing centres.”

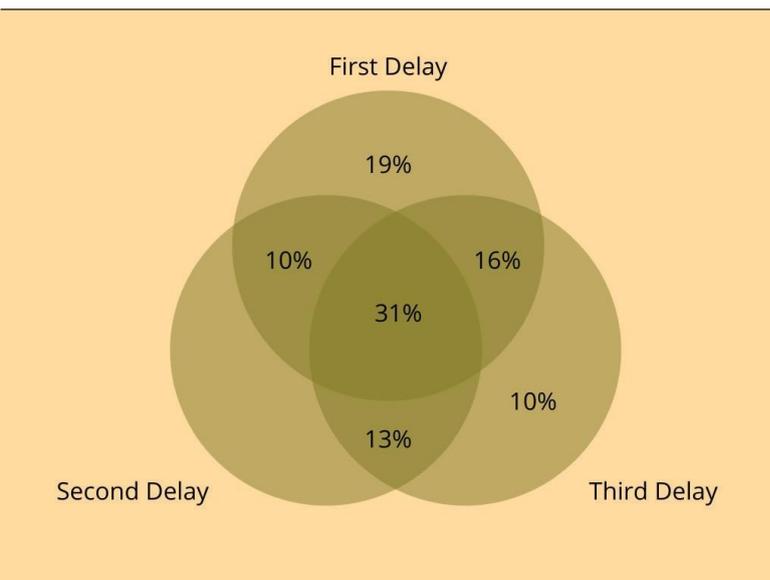
Key informants mentioned that some health facilities are not strategically located. “There are few stretchers and vehicles can’t get to many places as they cannot operate during the rainy season so women give birth at home,” said a health coordinator. “Since the municipality itself is located in a remote area, health facilities are far away from villages.”

2.5 Equity and social inclusion

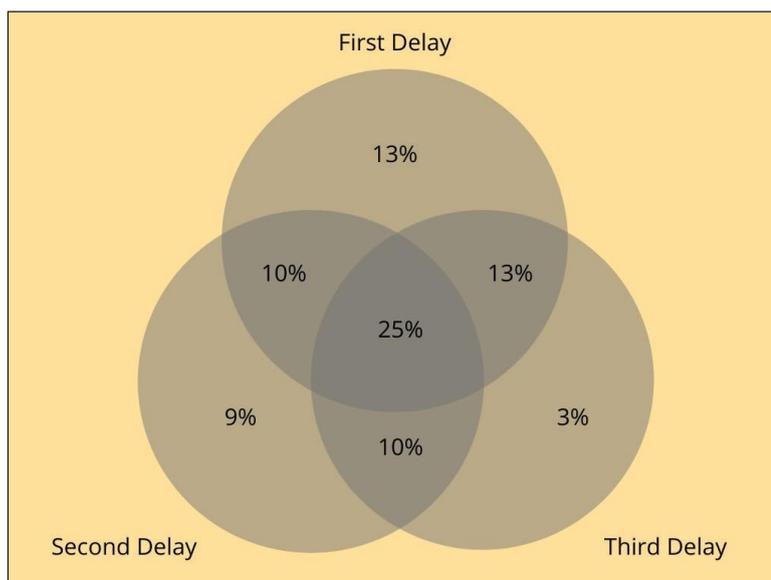
2.5.1.1 Need to improve utilisation of facilities by the poor and the disadvantaged:

Key informants said that women from lower socio-economic backgrounds, marginalised households, and religious minorities were not utilising

Maternal mortality related delays



MNM related delays



maternal care facilities adequately. This was due to poverty, lack of education, social discrimination and low social status, they said. They need to be brought into the mainstream through effective policies and programmes. “*Dalit* and uneducated women are deprived of health services,” commented a health coordinator. “Women from marginalised groups don’t go to health posts. Muslim women may not be allowed to go outside their homes and communities and they hesitate to speak to male doctors.”

“*Dalit* and other marginalised communities such as Musahar and religious minorities like the Muslims lack awareness, may be uneducated and are discriminated against. So they mostly deliver their babies at home,” commented a provincial government representative.

2.5.1.2 Low status of women: As women are not often decision makers in their households, they rely on their husbands or in-laws when it comes to seeking health care. Key informants stressed that women need to be empowered so they can decide for themselves. “They depend on fathers-in-law or mothers-in-law or husbands when it comes to visiting a health institution and this can lead to delays. In province 2, there are roads and transportation facilities, but the percentage of institutional delivery remains low,” said a donor representative.

2.6 Social and health system accountability

2.6.1.1 Inadequate social audit: Transparency, sharing of information, and accountability can be achieved through social audit meetings. However, key informants at the local level said they are not conducting social

audits frequently due to insufficient budgeting. “I feel that participation by the community in decision-making will give them a sense of ownership of the health facilities in their community while making health workers accountable,” said a maternal health expert. “Health workers must not be harassed and health facilities cannot be vandalised when things go wrong. Social audits are not being conducted because health workers feel that they are being watched.”

“We used to do social audits in the past at higher levels of health institutions such as the health directorate. Even the local level is doing social audits now,” shared a provincial government representative.

2.6.1.2 Inadequate monitoring and supervision: Effective monitoring and supervision of programmes is one way to make maternal health services transparent and accountable. Key informants said that maternal health programmes are not being monitored regularly. “We have not had many monitoring visits this year... monitoring is not carried out on a regular basis,” reported a provincial

We went to the hospital but the doctors were not there. It was Dasain festival time and they were on leave.

Group discussion

representative, "This was due to a lack of human resource and heavy workloads," explained a health coordinator.

2.6.1.3 Lack of knowledge and management skill at the local level: The current federal structure of government has decentralised power to the local level. Local governments are responsible for the management of their health systems. However, key informants said that they do not have knowledge or management skills to take on this responsibility. "We don't have any knowledge of health system management. It'd be easier for us to manage our health system at the local level if we had some training. I strongly feel that training is necessary for HFOMC members as well as local representatives," commented a member of a health management committee.

A donor representative explained, "In the past, the Health Office monitored and supervised the programmes. Now the responsibility has been transferred to the local level with limited responsibility assigned to the provincial level. Health coordinators who provided health services are being asked to plan and prepare budgets. They need technical support to identify needs, prioritise interventions, identify strengths and weaknesses, and make plans and budgets."

2.7 Awareness

2.7.1.1 Socio-cultural issues: Counterproductive traditional practices, norms, and belief systems still exist in communities and these are deep rooted, key informants said. They prevent women from using maternal health services as soon as problems arise. "Culture is a factor affecting demand. Some people still believe mothers should not be touched postpartum. This is why there are some pockets in the community where institutional delivery is very low," reported a donor organisation representative.

"Use of traditional faith healers and religious leaders by the community has been affecting the utilisation of maternal health services," said a health coordinator. "Some women feel humiliated visiting birthing centres as they are checked by health workers both male and female. I have heard that women in some villages don't take off their clothes even while they are giving birth to a baby. They do not want to be examined by health workers," said a member of a health management committee.

2.7.1.2 Lack of health awareness and negligence: Key informants believe that women in the remote places do not know how to recognise danger signs during pregnancy, delivery, and postpartum. This leads to delay in seeking maternal health services and treatment.

"Traditional customs are also a leading cause of delay. Women and their family members wait until complications such as prolonged labour, bleeding, breech presentation of the baby and other problems manifest. Only when things are serious do they go to a health facility. This is the main cause of maternal death," said a district government representative.

"Teenage pregnancy is high mainly due to child marriage and they are at high risk," said a health management committee member. "Women living in remote areas lack awareness regarding maternal health and follow traditional practices. They argue that there is no need for ANC and institutional delivery as they have delivered babies at home or in the fields for centuries."

2.8 Financial

Key informants said that local level health facilities don't have enough funds in their budgets to manage maternal health services. The amount allocated is not enough to purchase logistics and supplies, they said. Additionally, they said local political representatives do not prioritise health. "Investment in the health sector is low. Local level representatives have not seen health sector development as a part of development and feel that this sector is not their responsibility," a health management committee representative said. "We don't have internal resources and the amount we receive from the federal government is not enough. I would like to request financial help."

2.9 Policy implementation

Existing health policies are quite comprehensive, experts felt. Instead of developing new ones, there is need for proper implementation and monitoring of existing policies, they said. They pointed out three policies as most effective: Safe Motherhood Policy; Skilled Birth Attendant Policy; and Safe Abortion Policy. They felt these policies helped reduce MMR in Nepal to the present levels.

3. Discussion

Research into the three delays using quantitative and qualitative information resulted in answers that can help reduce maternal deaths in Nepal. Women who survived severe maternal complications and experienced near death situations had similar characteristics to the women who lost their lives.

Postpartum haemorrhage was the leading cause of maternal deaths and maternal near misses during the study period followed by hypertensive disorders. Nepal Maternal Mortality and Morbidity Study (2008-2009) also obtained similar results. Other studies have also identified severe postpartum haemorrhage as the major underlying cause behind maternal mortality and morbidity followed by hypertensive disorders. Sepsis and other non-obstetric medical complications contributed to more than one fourth of maternal deaths with non-obstetric infections like pneumonia, gastroenteritis, hepatitis and urinary tract infections resulting in death.

Social Autopsy of 62 maternal deaths and analysis of 67 maternal near miss cases have identified social, behavioural and health system factors that contribute to complications. Collating social autopsy results and maternal near miss analysis with key informant interviews and reviewing maternal health policies, strategies, guidelines, and plans, the study explored issues in maternal health care and identified effective interventions that can reduce maternal deaths.

This study identified that there are more maternal deaths in the Terai plains than in the hills. This may be because the population of the Terai is higher than that of hills. Notable is that the *Dalit*, the most disadvantaged group of Nepal, had among the highest maternal deaths and near misses in rural hill areas. Maternal deaths and near misses were higher among women of the Terai plains in urban areas.

Almost all maternal health policies placed emphasis on rural, marginalised, and disadvantaged women. However, the policies are not explicit as to who these groups are and how they are to be prioritised. The three delays model was used to identify substantial and modifiable delays among maternal near miss and maternal death cases. All delays occurred in maternal death and near miss cases but delay in deciding to seek care (the first delay) was found to be more significant as it preceded the two delays in more than half of the cases. The complications that started at home were aggravated as a long time was taken to reach appropriate health care facilities and, when there, there was delay in receiving treatment.

Women who experienced danger signs early ignored them and did not seek appropriate care. Almost two thirds of maternal deaths in this study could have been prevented if appropriate action had been taken promptly. Therefore, it is mandatory that women and their family members know the danger signs to look out for. More than half of MNM cases did not have sufficient knowledge and understanding of danger signs despite having visited health facilities for antenatal check-ups.

Therefore, questions regarding the quality of antenatal consultations during antenatal visits can be raised. It was recommended that women save money for emergencies, arrange transportation beforehand, identify potential blood donors, and identify health facilities where they can give birth. These birth preparedness actions reduce delays in accessing obstetric care services. Though most of the women had saved money and identified a health facility where they could give birth in advance, more than half of women who died and suffered MNM had not made arrangements for transportation or identified potential blood donors. Although safe abortion services are readily available in Nepal, some opted to self-medicate which resulted in life-threatening situations.

The national policy of Nepal is to promote institutional delivery. Families used traditional birth attendants or local untrained health workers at home to help with delivery in many cases. Since traditional birth attendants are locally available as are traditional healers – families felt that giving birth at home is more convenient, a better traditional and cultural fit, and the costs incurred are more easily managed and comprehended.

Distance, poor road conditions, lack of emergency transport were factors that caused the second delay. Though health posts and primary health care centres and primary hospitals offered basic emergency obstetric service and were physically accessible within an average hour of the homes of the women who died, hospitals providing comprehensive emergency obstetric services were further away. Non-existent roads, roads unpassable due to snow or rain, and unavailability of ambulances or public vehicles made it difficult for the women to reach obstetric facilities where they could have received proper treatment. The majority of deaths occurred in health facilities, more in private hospitals than in public hospitals.

Since hospitals with comprehensive emergency obstetric services can manage near miss maternal cases much better rather than health posts and lower level health centres that only have basic emergency obstetric

I went to the hospital but it did not have the medicine [magnesium sulphate] which I needed. I was having convulsions so I was brought here by helicopter.

MNM 13 also faced the same issue at a health post and had to be referred to another health facility

services, most cases were referred to them by lower health facilities. Lack of equipment, medication, and skilled nurses and doctors were cited as causes for maternal deaths.

It is of utmost importance to increase service readiness and quality of maternity care in referral hospitals where severe maternal complications are sent rather than concentrating on establishing many birth centres. Designated CEONC sites should have sufficient beds, essential drugs, medical equipment, robust infrastructure, skilled care, access to blood supply from blood banks or other options, and consistent hours with necessary skilled staff available at all times and during holidays. It is important to note that the three tertiary hospitals where the study took place maintained the maternal death ratio at 76 per 100,000 live births.

Since complications started at homes or in lower facilities in most cases and there was difficulty in transporting patients to the appropriate obstetric facility, many cases arrived very late at the final hospital. Very late arrival with severe problems posed risks and challenges to referred hospitals especially when they had limited human and logistic resources. This led to multiple referrals to higher facilities costing time and, in many cases, lives.

The referral mechanism is very important as time is precious. Lower health facilities need to be connected to tertiary obstetric care hospitals. Operational and context specific guidelines are needed so clear communication can take place and case arrivals can be anticipated and prepared for. It is important to screen pregnancies for risk and place them close to the referral hospitals. This can be done by dedicating emergency transport, improving health care at all levels, referral systems, or arranging accommodation near capable obstetric facilities.

Key informant interviews resulted in recommendations that were supported by the review of existing interventions in Nepal. Key informants valued birth preparedness, free maternal services with financial incentives for patients and

professionals, better management and training of human resource, strategic location of delivery sites, functional delivery sites, maternity waiting homes, maternal death reviews, quality postpartum care, enhancement of local capacities and context specific planning and programme implementation.

Birth preparedness programmes with community mobilisation are needed for disadvantaged women. Mobilisation of community volunteers for awareness building and involvement of husbands and mothers-in-law can have a positive impact. Social accountability of maternal health service can be improved through social audits, community health score boards, and health facility operation and management committees.

Health services are provided under the leadership of municipalities in the federal structure in Nepal. But the capacity of municipalities to undertake this responsibility needs to be strengthened and monitored. Policy review shows that policies, plans and strategies are in place to reduce maternal deaths in Nepal. Key informants highlighted the importance of three main policies active today: The Safe Motherhood Policy, the Skilled Birth Attendant Policy, and the Safe Abortion Policy. They mostly agreed that policies, plans and strategies for reduction of maternal deaths and maternal near miss cases are adequate and agree that the government has given priority to maternal health programmes, and that new policies or strategies are not required.

Concern was raised regarding the adoption and implementation of these strategies and policies in the local context and the revision of plans, strategies, and guidelines as required. With diverse geography, ethnicity and unequal human development index, national strategies need to be customised to work in local contexts. With local bodies empowered to make their own work-plans and activities, context specific strategies were suggested by the key informants to get the best out national policies.

4. Recommendations

4.1 First delay: the time taken to decide to seek care

Not knowing the signs that indicate danger, not anticipating the severity of the situation, not recognising the need to seek help.

4.1.1 Raise awareness

- Culturally appropriate audio-visual methods like street drama and television programmes can provide health education. Entertainment based health education coupled with behaviour change approaches can be effective.
- Mobilise mothers' groups, schoolteachers, students, the civil society, FCHVs, medicine shop owners, and other local leaders.
- Work with representative organisations of the disadvantaged such as Dalits, Madhesis, and Muslims to communicate key maternal health messages addressing issues specific to those communities.

4.1.2 Communicate key signs of danger

- Monitor the quality of antenatal care regularly and provide counselling especially in lower health facilities such as health posts through the use of mechanisms such as antenatal cards, exit client interviews and observation of counselling sessions.
- Include family members and key decision-makers of the household in counselling sessions.
- Mobilise female community health volunteers to disseminate information on the danger signs and overall maternal health care.
- Arrange regular home visits of pregnant and postnatal mothers by local health workers, FCHVs and ANMs so danger signs can be identified early and managed.
- Effectively communicate signs that indicate postnatal danger during discharge so death by secondary postpartum haemorrhage can be avoided.

4.1.3 Involve HFOMC in monitoring who is accessing services and who is not.

4.1.4 Use mobile phone technology and apps to inform women about antenatal visits, danger signs and birth preparedness.

4.1.5 Expand school curriculum so adolescent groups can increase knowledge of unwanted pregnancy prevention, safe abortion and maternity care.

4.1.6 Address perceived cost, insufficient funds, perceived distance to health facilities, and lack of understanding of where health facilities are located.

4.1.7 Promote birth preparedness for possible complications.

- Inform people about basic and comprehensive obstetric care centres near their homes.
- Emphasise preparation and pre-planning to minimise delay in decision making. (Female community health volunteers, mother's groups, community users' groups, students, teachers and local representatives can be utilised to spread this information.)
- Make women and families aware of free delivery incentive programmes and how to access them.

4.1.8 Address lack of family support.

- i. Enhance women's health related decision-making capacity
 - Involve women (especially from rural areas) in income generating activities.
 - Give examples of women leaders in the community (like health workers, FCHVs and teachers) or arrange interactions with them for the family.
- ii. Conduct dialogue with men and key decision-makers in the family to increase family support and discuss gender based discrimination.
- iii. Include husbands, mothers-in-law and fathers-in-laws during counselling sessions.

4.1.9 Minimise counterproductive traditional beliefs and practices by developing linkages between traditional healers and health facilities by

- Orienting traditional healers on key dangers signs.
- Including them in awareness-raising activities and mother's group meetings.
- Inviting them in problem identification, prioritisation, planning and implementation meetings.
- Mobilising FCHVs and HFOMC members.

4.2 Second delay: delay in reaching an appropriate obstetric facility

4.2.1 Obstetric facilities can be inaccessible due to remoteness, lack of roads, poor road conditions, long distance, unavailability of comprehensive emergency obstetric care nearby.

- Helicopter rescue or airlifting obstetric emergencies under the President's Women Upliftment Programme should be available in remote areas.
- Maternity waiting homes in the hills should be tested as it can help women seek care early and reduce first and second delays.

4.2.2 Lack of emergency transportation

- Support community based options like stretchers, auto rickshaws, and motorcycle ambulances to reduce transportation barriers.

Sub-categorisation of delays, a table

Sub-categorisation		Maternal deaths (n=62)	MNM cases (n=67)
First delay	Delay in seeking care after development of complications at home	47	28
	No care seeking for danger signs/ignored danger signs	62.5	58
	Sought care from traditional healers instead of going to health facility	16	4.5
Second delay	Delay in reaching to lower/first health facility from home	24	21
	Delay in reaching final health facility from home	8	25
	Delay in reaching final health facility from lower/referring health facility	31	22
Third delay	Delay in referral	42	30
	Late/no treatment at final health facility	32	12
	Multiple referral	19	7.5

4.2.3 High cost of transportation

- Provision free referral, transport or free ambulance services at each local level through interaction with local bodies, leaders and local level health workers.
- Redirect free child-birth incentive scheme to those in need. Not every woman delivering at a health facility requires a travel incentive. Redirecting the travel incentive to women from inaccessible and hard to reach areas can help reduce transportation related financial burden.

4.3 Third delay: delay in receiving appropriate care

Unavailability of skilled healthcare workers: Ensure availability of skilled health workers as sanctioned by health facilities.

- Make it mandatory to work at deployed health facility: provide additional incentives to health workers.
- Train and recruit health workers from local communities to solve retention problems.
- Utilise minimum human resource carefully designing duty rotation rosters to ensure skilled doctors and nurses are available all the time.
- Arrange incentives for those working during festival seasons.

Incompetent service providers

- Carry out regular skill enhancement activities like on-site mentoring and training.

- Postpartum uterine tone assessment for early identification of uterine atony in order to prevent primary postpartum haemorrhage is necessary.
- Early identification of other complications will reduce maternal mortality.
- Identification of risk factors like anaemia, comorbid conditions, previous PPH, eclampsia, and birth complications during antenatal examination will allow health workers to communicate with women and family members regarding the need for timely care at comprehensive emergency obstetric facilities.

Unethical behaviour of health facility staff and lack of respectful care

- Appreciative inquiry training could make the staff more receptive, responsive, energetic and service effective.
- Training on communication and counselling would be helpful in bringing about behaviour change.

Unavailability of medicines, supplies, equipment, and facilities

- Regular evaluation of logistics systems (procurement and distribution chain) can help ensure essential medicines are available 24/7.
- Making blood transfusion facilities available at every primary hospital and PHCC can solve the problem of deaths due to lack of blood transfusion.

- Use of mobile technology and reliable 24/7 transportation for rapid transfer of blood and blood products from the nearest health facility can save lives.
- All designated hospitals (primary, secondary, tertiary) must have facilities to manage complications.

Lack of urgency and immediate treatment, lengthy administrative processes and lack of money for treatment or costly treatment

- Monitoring and regulation of public and private facilities providing comprehensive emergency obstetric care is required.
- Use mobile technology to provide prior information to health facilities regarding emergency and urgent care.

Delay in referral to higher facilities from lower health facilities, multiple referrals and inadequate information provided to patient and families on referral

- Risk stratification skills of health workers must be enhanced for the timely identification, referral and management of complications. Emergency obstetric referral systems from primary or lower level health facilities to tertiary level health facilities must be strengthened and proper documentation must take place. Delays can be reduced if there is collaboration and communication between different levels of health facilities. Adequate referral information and detailed referral slips are important to ensure timely continuity of care at referred facilities.
- Well-equipped emergency transport should be available 24/7 in order to reduce delay and there should be a continuum of care until arrival at the referral centre.

4.4 Overall improvement of the health system

Public private partnership: Most maternal deaths occur in tertiary health facilities, both private and public. Deaths were high in these facilities because of referrals of complicated cases, poor quality of care, and absence of transfer facilities. Improving the quality of public and private tertiary health facilities and placing a proper regulatory system, including for proper emergency transfer could reduce maternal deaths in these health facilities. Implementing Aama Programme in private hospitals will increase access to maternal health services by the poor.

Improve sector governance: Orient, sensitise and capacitate local level health representatives to make them more receptive towards maternal health issues of their communities. Enhance capacity of health coordinators by providing training on prioritising local health problems, planning, budgeting, implementation, monitoring,

reporting and evaluation of maternal health programmes. There is a need for better coordination between federal, provincial and local bodies. Interaction between levels of government and clarity of roles and responsibilities would help better plan, allocate human resource, monitor and evaluate, budget and strengthen obstetric facilities.

Social accountability: Social auditing should be mandatory at all levels of health facilities. Local communities and their representatives should understand the importance of social audits. Health facility operation and management committees (HFOMCs) should be strengthened. Central and local level health workers should help HFOMCs articulate issues related to service availability, quality, customer satisfaction and logistics to health facilities so they can be addressed and resolved.

Strengthen monitoring and supervision of maternal health programmes so there is periodic monitoring and supervision. Budgets should be allocated for this purpose.

Equity based context specific planning and programme implementation should be done prioritising the most disadvantaged. Focus on the issues of these groups and their presence in the process should be mandatory during problem identification, prioritisation, planning, implementation and evaluation.

Incident review of near miss cases can help identify gaps. Lessons learned from management of cases that survived can be used to prevent mortalities in the future and improve the overall quality of obstetric care.

Limitations of the study

Information surrounding maternal mortality and maternal near misses were collected through interviews with family members, MNM cases, community members and through audits of hospital records.

The study covered the view of the demand side. View of health workers (supply side) was not studied. Health workers might have different views on the third delay, particularly the late arrival of cases in health facilities.

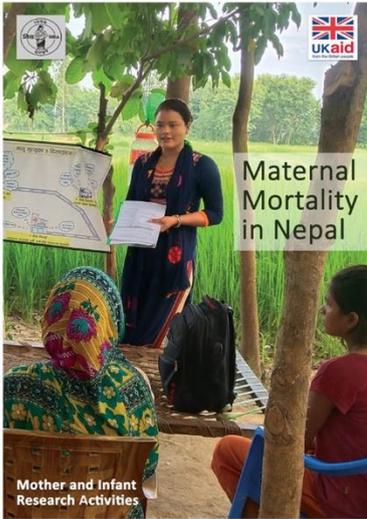
Type of care received by women in referring facilities and reasons for referral could not be identified as referral slips and records from referring health facilities were not documented or made available.

Information, including time calculation for the three delays were collected through recall by women and family members, therefore, there may be recall bias.

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Annex and additional material available at:
www.mira.org.np/docs/maternalhealth



Maternal Mortality in Nepal

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