National Guidelines on
Maternal & Perinatal Death Surveillance and Response
(MPDSR)

Government of Pakistan
Ministry of National Health Services, Regulation & Coordination

CONTENTS

ABBREVIATIONS

ANC	Antenatal care
BHU	Basic Health Unit
BTN	*Beyond the Numbers*
CBR	Crude birth rate
CDC	Centers for Disease Control and Prevention
CHWs	Community health workers
CMWs	Community midwives
CoIA	Commission on Information & Accountability for Women's & Children's Health
CR/VS	Civil registration/vital statistics
DHO	District Health Officer
D-MPDSR –C	District Maternal & Perinatal Death Surveillance and Response Committee
EmOC	Emergency obstetric care
F-MPDSR -C	Facility Maternal & Perinatal Death Surveillance and Response Committee
HMIS	Health Management and Information System
ICD	International Classification of Diseases
ICD-PM	International Classification of Diseases-perinatal mortality
ICD-MM	International Classification of Diseases-maternal mortality
IDSR	Integrated disease surveillance and response
LHV	Lady health visitor
LHW	Lady health worker
MCH	Maternal and child health
MDG	Millennium Development Goal
MDR	Maternal death review
MDSR	Maternal death surveillance and response
MPDSR	Maternal & Perinatal Death Surveillance and Response
MNDSR	Maternal & Neonatal Death Surveillance and Response
MMR	Maternal mortality ratio
MNCH	Maternal neonatal and child health
M/O NHR&C	Ministry of National Health Services Regulations & Coordination
NGO	Nongovernmental organization
N-MPDSR –C	National Maternal & Perinatal Death Surveillance and Response Committee
PHC	Primary health care
PNC	Postnatal care
P-MPDSR –C	Provincial Maternal & Perinatal Death Surveillance and Response Committee
RHC	Rural Health Center
TBAs	Traditional birth attendants
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WMO	Woman Medical Officer
WRA	Women of reproductive age

MESSAGE FROM FEDERAL SECRETARY HEALTH

It is indeed a great pleasure and satisfaction for me to endorse the first edition of the National Guidelines on Maternal and Perinatal Death Surveillance and Response (MPDSR). It is an evidence based tool for quality of care and is direly needed for guiding the healthcare delivery system in Pakistan. As envisaged in the National Health Vision 2016-25 and the following RMNCAH&N strategic costed action plans, quality of care remains a cornerstone of our national efforts for improving health outcomes in general and maternal and newborn health status in particular.

Under the country's global commitments like SDGs, we have pledged ourselves towards achieving significant reductions in maternal and newborn mortalitywhich is not possible without addressing the missing link of quality of care. The World Health Organization has provided global guidelines and tools on quality of care for the countries to adopt and adapt as per their needs. I am pleased to note that the Ministry has developed the National MPDSR Guidelines and training material aligned with the global guidance. I firmly believe that this document will prove to be particularly useful for departments of health in the provinces and areas/regions in their efforts to reduce maternal and newborn mortality.

I highly acknowledge and congratulate my team at the Ministry together with the partners including WHO for their relentless support during the development process of this important guideline document. I would further recommend all concerned to translate these guidelines into practical actions on ground for achieving the desired results of improved quality of care for mothers and newborns at all levels across Pakistan.

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FOREWORD

The demographic and health surveys reported an alarmingly high maternal mortality ratio (276 per 100,000 live births; 2006-07) and neonatal mortality rate (55 per 1000 live births; 2012-13) with the later remaining stagnant over the last few decades. Every 37 minutes, a woman dies in Pakistan while giving birth to a child and almost two thirds of under-five deaths occur in the early neonatal period (first 7 days of life).A major proportion of these deaths could be prevented by timely intervention and by ensuring good quality of care during pregnancy and at the time of delivery.

Despite the tragic status of maternal and perinatal indicators and the fact that Pakistan contributes substantially towards the regional and global maternal and perinatal mortality; the exact magnitude of maternal deaths is not precisely known. Reporting and tracking maternal and perinatal deaths and response to reduce preventable deaths remains the major challenge in Pakistan. Maternal and perinatal death surveillance and response (MPDSR) is a proven tool for improving quality of care and strengthening the health systems to address the critical healthcare needs for mothers and newborns.

In view of this, the Ministry of National Health Services, Regulations and Coordination, Government of Pakistan, in collaboration with World Health Organization, has developed the National Protocols on MPDSR in May 2017. These national protocols include detailed guidelines and tools for implementing MPDSR system at the facility and community levels. Training materials based on these protocols have also been formulated. These are expected to be pivotal in building capacities for routine tracking of all maternal and perinatal deaths with expected results of improved healthcare quality for mothers and their babies in the country. In the wake of 18th Constitutional Amendment, each province will have to spearhead the process of implementing MPDSR. It is important to note that this mortality data is a critical component of any public health information architecture. Ultimately, all deaths, including maternal and perinatal deaths, should be reported to a civil registration/vital statistics system (CR/VS) compiled at the federal level.

I wish to acknowledge and commend on the technical expertise of the lead consultant, Prof. Dr Lubna Hassan, Ex-President of Society of Obstetricians and Gynaecologists of Pakistan (SOGP) and our development partners namely World Health Organization (WHO), United Nations Population Fund (UNFPA), United Nations Children Fund (UNICEF) and other relevant stakeholders. I highly recommend this document for all stakeholders and strongly hope that it will be put to practical use at all levels across the country.

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The Ministry of National Health Services, Regulation and Coordination (Mo/NHSR&C), in collaboration with the UN partners (WHO, UNICEF and UNFPA) has developed the National Guidelines on Maternal and Perinatal Death Surveillance and Response (MPDSR) in May 2017. The development of this document is a major breakthrough in paving the way for reduction of preventable maternal and perinatal deaths in Pakistan.

The Ministry would like to extend its sincere thanks to the organizations and persons who contributed considerable time and efforts in ensuring the development of this guiding document. Special thanks to Prof Dr Lubna Hassan, Ex-President SOGP, who was the lead technical consultant for development of these guidelines and also supported development of the training materials for capacity building on MPDSR in the country. Moreover, the provincial feedback received during the national consultative meeting held in February 2018 has proved to be extremely helpful in finalizing the national guidelines document.

Other key contributors who deserve high gratitude for their hard work and leading the process of institutionalization of MPDSR in Pakistan, include the following:

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OPERATIONAL DEFINITIONS

The following definitions are adapted from the WHO application of the ICD 10 to deaths during pregnancy, childbirth, and the puerperium - *(ICD-Maternal Mortality);* the WHO MDSR technical guidelines and WHO Beyond the numbers (BTN) except where otherwise stated.

a) **A maternal death** is; "The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

b) **Direct obstetric deaths** are maternal deaths resulting from obstetric complications of the pregnancy state (pregnancy, labor, or puerperium); from interventions, omissions, or incorrect treatment; or from a chain of events resulting from any of the above.

c) **Indirect obstetric deaths** are maternal deaths resulting from previously existing disease or disease that developed during pregnancy. These deaths are not due to direct obstetric causes, but are aggravated by the physiological effects of pregnancy.

d) **Surveillance** is the ongoing systematic collection, analysis, and interpretation of health data. It includes the timely dissemination of the resulting information to those who need them for action. Surveillance is also essential for the planning, implementation, and evaluation of public health practice.

e) **Maternal & Perinatal Death Surveillance and Response** (MPDSR) is a type of surveillance and a component of the health information system that permits the identification, the notification, the quantification, and the determination of causes and avoidability of maternal deaths, for a defined time period and geographic location, with the goal of responding through actions that will prevent future deaths. MPDSR is not a time-limited, donor driven project.

f) **Standards** are explicit statements of how a patient should be managed. They facilitate highlighting deficiencies by comparing the care that was given to patients with the care that ought to have been given[1].

g) A **suspected maternal death** is defined in these guidelines as the death of a woman while pregnant or within 42 days of the termination of pregnancy from any cause with the exception of motor vehicle crashes and homicides. Depending on the circumstances surrounding the death, identification of a death as a maternal death is sometimes challenging – particularly for indirect deaths. The maternal death review committee will review the circumstances and confirm whether it is maternal or not i.e. whether the death was "related to or aggravated by the pregnancy and its management."

h) **A facility-based Maternal Deaths Review (MDR)** is a "qualitative, in-depth investigation of the causes of, and circumstances surrounding, maternal deaths which occur in health care facilities." It is particularly concerned with tracing the path of the women who died, through the health care system and within the facility, to identify any avoidable or remediable factors that could be changed to improve maternal care in the future. This information could be supplemented by data from the community, though this may not always be possible.

i) **Confidential Inquiry into Maternal Deaths**, the review is carried out by a group of appointed Independent assessors who will use the same audit guidelines to review selected maternal and perinatal deaths (even if these have already been reviewed by the Facility audit team.

[1] Standards for improving quality of maternal and newborn care in health facilities WHO 2016.

j) **Neonatal Death** is the death of a baby within 28 days of birth.
k) **Perinatal Death**: as defined in ICD-10 encompasses antepartum and intrapartum stillbirths and early neonatal deaths (deaths occurring during the first seven days of life), however, this Protocol uses the extended definition of the term "perinatal", to refer to the perinatal period extending to four weeks after the delivery, as described in the WHO report on Making Every Baby Count (2016).
l) **Still Birth or fetal death**: The ICD-10 defines a fetal death as "death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy. The death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles" For international comparative purposes. ICD classifies late fetal deaths (greater than 1000 g or after 28 weeks) and early fetal deaths (500 to 1000 g or 22-28 weeks).
m) **Zero reporting** is an active process of notifying suspected maternal deaths; if none occurred during a given timeframe that fact must be reported. Zero reporting means there is an active process of notifying suspected maternal deaths, whether or not any occurred. If no maternal deaths occurred, a "zero" is captured in the data collection system rather than nothing at all.
n) **Woman of reproductive age** is a women between the ages of 15 and 49.
o) **Maternal near miss** is defined as a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy.

BACKGROUND

1.1. Global Overview

The global maternal mortality ratio has declined by 2.3% per year between 1990 and 2015, which represented a 44% reduction since the initiation of the Millennium Development Goals (MDGs). However, this was far short of MDG 5 to reduce maternal mortality by 75% from the 1990 levels. Likewise, the global under-five mortality rate has declined by more than half, dropping from 90 to 43 deaths per 1,000 live births between 1990 and 2015. Unfortunately, maternal and newborn mortality remains unacceptably high, mostly in low-resource settings, with the vast majority of deaths being preventable.

The progress in maternal and newborn mortality reduction over the last two decades is well documented; yet in 2015, there were still an estimated 303,000 maternal deaths, 2.6 million stillbirths (with half of these occurring intrapartum) and 2.7 million neonatal deaths, resulting mostly from complications during and following pregnancy and childbirth. **The day of birth is the most dangerous day, when nearly half of maternal and newborn deaths and stillbirths occur**. Newborn deaths now account for at least 44% of deaths among children under the age of five globally. The Every Newborn Action Plan (ENAP), under its fifth objective, calls for counting every newborn through measurement, programme-tracking and accountability.

In 2012, the United Nations Commission on the Status of Women passed a resolution calling for the elimination of preventable maternal mortality, and the Sustainable Development Goals adopted in 2015 call for reducing MMR to 70 per 100,000 live births and to reduce neonatal mortality to below 12 per 1,000 live births by 2030. Likewise the ENAP sets out a vision of a world in which there are no preventable deaths of newborns or stillbirths, where every pregnancy is wanted, every birth celebrated, and where women, babies and children survive, thrive, and reach their full potential.

Effective interventions to prevent and treat maternal and perinatal complications are well known, and most deaths are preventable if life-saving preventive and therapeutic interventions are provided at the right time. To understand how well we are progressing, however, accurate information on **how many** women and newborns died, **where** they died and **why** they died is essential, yet currently inadequate. In the absence of reliable vital registration data, maternal mortality estimates are based on statistical models. While **statistical estimates increase global awareness of the problem, they do not provide information needed for targeted and timely response**. The Commission on Information and Accountability was created to track progress on resources and results towards the goals of the UN Secretary-General's Global Strategy on Women's and Children's Health. It recommended three interconnected processes – **monitoring, reviewing and acting** – aimed at learning and continuous improvement in life-saving interventions.

Maternal and Perinatal death surveillance and response (MPDSR) builds on the principles of public health surveillance and supports the processes called for by the Commission. MPDSR promotes routine identification and timely notification of maternal and perinatal deaths and is a form of continuous surveillance linking health information system and quality improvement processes from local to national level. It helps in quantification and determination of causes and avoidability of maternal and perinatal deaths. Each one of these untimely fatalities provides valuable information, which if acted on, can prevent future deaths. In that regard, MPDSR emphasizes the link between information and response. MPDSR will contribute to strengthening vital registration and better counting of maternal and perinatal deaths, and

provide better information for action and monitoring improvements in maternal and newborn health.

MDSR is now formally embedded in World Health Organization's policy and activity. It is integral to the WHO Quality of Care initiative and to the new Global Strategy for Women's, Children's and Adolescents' Health, and is also part of the Ending Preventable Maternal Mortality (EPMM) and Every Newborn Action Plan (ENAP) initiatives.

1.2. Current Pakistan Situation

Pakistan contributes substantially to regional and global maternal and perinatal mortality figures, but the exact magnitude of maternal death is not precisely known. Notably, Pakistan started out in 1990 with the second lowest MMR in the South Asia region after Sri Lanka. However, due to its comparatively slow rate of progress it now has a higher MMR than most countries in the region. The mortality ratio estimate ranges from 93 to 320 per 100,000 live births, and the WHO estimates that the MMR is *underestimated* by 30% globally and by up to 70% in countries with lacking civil registration systems. According to the DHSS 2012-2013, the neonatal mortality rate in Pakistan remains unchanged for the last 20 years, at 55 deaths per 1,000 live births, whereas infant mortality has decreased by 19% and under-five mortality has decreased by 24% over the same period. Almost two thirds of under-five deaths occur in the early neonatal period i.e. in the first 7 days of life. A major proportion of these deaths could be prevented by timely intervention and good quality care during pregnancy and at the time of delivery.

With the passage of the 18th amendment in 2010, responsibility for health was devolved to the provinces. Therefore, each province will take a lead role in implementing MPDSR. Notably, a District Health Information System/ HMIS is established in all provinces, however it does not currently track maternal or perinatal deaths. Yet this mortality data is a critical component of any public health information infrastructure. Ultimately, all deaths, including maternal and perinatal deaths, should be reported to a civil registration/vital statistics system (CR/VS).

1.3. The State of MPDSR in Pakistan

Although the notification of maternal deaths and the establishment of maternal death reviews have been accepted by the Government of Pakistan as a matter of policy in 2007; however, a situation analysis of the status of the components of MPDSR in Pakistan revealed that apart from sporadic, ad hoc projects in the provinces little has been done. In 2015 with support from UNFPA, Punjab started the process of MPDSR at the community level, in a few districts, which is ongoing.

In order to harmonize the efforts of development partners, WHO, UNICEF and UNFPA agreed to work from one platform. Currently WHO is assisting the effort at the national level and in KPK and Balochistan, and UNICEF is assisting Sindh. In February 2017, recognizing the need for sharing of and learning from experiences of different stakeholders, M/o NHR&C organized a one day workshop to review the MPDSR strategy with the objective of developing guidelines and tools which the provinces could use and implement easily. It was concluded subsequently that a national task force will be created with the objective to establish the MPDSR in a systematic way.

While Maternal Death Reviews (MDR) have been established in most countries for more than a decade, formal MDRs are still not widely conducted in Pakistan. What is currently available is limited data from the teaching hospitals. Maternal deaths are identified in

most teaching facilities, however, they are not reviewed properly: the cause of death is not assigned according to ICD –MM; standards of care are not uniform; contributing causes are not considered, and most importantly systematic response to prevent future deaths is lacking.

1.4. Global Lessons Learned

Although MDSR is a relatively new approach, its components have developed over several decades. MDSR evolved from the established system of maternal death reviews (MDR), which is a core activity in the system. Detailed information about the extent and quality of implementation in each country has been largely unavailable due to the recent origins of MDSR and the lack of systematic data collection. However the combined findings of the MDSR baseline survey (conducted in 2015 by UNFPA & WHO and reported in the document "A time to respond") and the WHO-MNCAH policy indicator database provide a good summary of global implementation status in 2015. They indicate the widespread adoption of important elements of the MDSR system and also highlight the lack of progress towards full implementation in numerous countries.

The disparity between the percentage of countries with a national policy to review all maternal deaths (85%) and those with a national maternal death review committee that met at least biannually (46%) suggests a gap between policy and practice in some countries. Maternal death reviews have been operating in many developed countries for decades, and are in different stages of planning or implementation in middle and low-income countries. The Philippines reported a relatively smooth transition to MDSR after 2013, largely due to its established system of maternal death reporting and review (MDRR)[2]. A significant change was the new emphasis on the response element of MDSR. Although the benefits of well-conducted reviews are clear, poorly conducted ones can be damaging. Without careful planning, preparation and staff training their hasty implementation can result in failure, which not only penalises mothers and babies through a lack of improvement but also results in a decline in professional support. This is especially the case if a culture of blame and punishment exists. This can lead to fear and demoralisation as well as to a lack of transparency, without which it is impossible to determine the real lessons that need to be learnt and acted upon. As the recent report into improving the safety in the National Health Service (NHS) in England says **'fear is toxic to both safety and improvement.'**[3] Evidence for a blame culture has emerged in several instances. The lack of a legal framework was noted as a factor in Kenya.[4] According to studies from Moldova, Kenya and Malawi, the previously used system of investigating maternal deaths 'instilled fear' in the country's health professionals, who were afraid of being prosecuted for perceived mistakes.[5] A study from Malaysia concludes that it is essential for the MDR process to be non-punitive and to avoid "naming, blaming or shaming."[6]

The findings of the studies described above were reflected in the MDSR baseline survey findings and case studies, which also indicated that some countries were hindered from fully

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[2] Dy-Recidoro Z. From maternal death reporting and review (MDRR) to maternal death surveillance and response: the Philippines experience. First published in the April 2014 edition of the MDSR Action Network newsletter. *http://www.who.int/maternal_child_adolescent/epidemiology/maternal-death-surveillance/case-studies/philippines/en/*

[3] National Advisory Group on the Safety of Patients in England. A Promise to Learn-a Commitment to Act. Improving the Safety of Patients in England. London*: Department of Health,* 2013. http://*www.gov.uk/government/publications/berwick-review-into-patient-safety*.

[4] Ameh C, Smith H and van den Broek N. Maternal death surveillance and response in Kenya. Centre for Maternal and Newborn Health at the Liverpool School of Tropical Medicine. *http://www.who.int/maternal_child_adolescent/epidemiology/maternal- death-surveillance/case-studies/kenya/en/*

[5] Konopka SN. Integrating and strengthening maternal death surveillance and response in Malawi. *http://www.who.int/maternal_child_adolescent/epidemiology/maternal- death-surveillance/case-studies/malawi/en/*

[6] Jeganathan R. Malaysia's experience with maternal deaths. First published in the April 2014. edition of the MDSR Action Network newsletter. *http://www.who.int/maternal_child_adolescent/epidemiology/maternal- death-surveillance/case- studies/malaysia/en/*

implementing MDSR by the absence of legal and policy provisions, blame culture, lack of resources and other challenges.
Where reliable **CRVS systems do not exist** – in about 60% of the world[7]– MDSR can provide a cornerstone of a new system, and contribute significantly to a country's 'culture of accountability' by connecting action with results. The scale of the problem is indicated by recent confidential enquiries into maternal deaths (CEMDs) in Kazakhstan and South Africa. Respectively, they identified 29% and 40% more maternal deaths than were initially recorded by those countries' civil registration and vital statistics (CRVS) systems. A recent review of progress on implementing the recommendations of the Commission on Information and Accountability (CoIA) noted that **both MDSR and CRVS systems perform better in countries where both are prioritized.[8]** For example, in **Malawi** the MDSR system is expected to strengthen CRVS by collecting data using the International Classification of Diseases (ICD-10) standard for maternal mortality (ICD-MM).[9] In **Nepal,** the CRVS and MDSR systems will use the same verbal autopsy questionnaires to collect information on suspected maternal death.
One message to emerge clearly from country feedback is the importance of training in MDSR techniques, tailored to specific roles within the system. In future, training will be more focused at country level. For example in Ethiopia, the Federal Ministry of Health instigated an MDSR training programme following the launch of the country's system in May 2013, which was cascaded down from national level to health professionals at the regional, zonal and district levels.[10] By the end of 2014, the MDSR system had been introduced in 17 zones, covering about 40 million people in an estimated national population of 95 million. Tanzania was in the process of rolling out its system of maternal and perinatal deaths surveillance and response following the compilation of national guidelines and accompanying tools in 2015, with assistance from Evidence for Action (E4A). Training and supervision packages will focus on strengthening the quality of maternal death review and the action and response cycle, which will streamline the passage of information.[11]

Lack of financial resources may be a major barrier to implementation. Countries frequently have to rely on external funds and on nongovernmental organizations to progress with MDSR implementation, scale-up and monitoring. Where resources are available, **implementation should be driven by clear leadership, long-term vision, strategy and commitment**. The Cameroon case study shows, sustainable financial and human resources are required to maintain a system of facility-based maternal death reviews.[12] However, as noted in the Malaysia case study, significant improvements can be achieved in settings where resources and funding are scarce.[13] **Malaysia advocated a 'top down approach' backed by strong political wil**l. **Malaysia advocated engaging all the major stakeholders in the system, including from the public and private health services, academia, nongovernmental organizations and politics**. Nigeria noted that enforcement of existing national policies could help to improve reporting of maternal deaths *and* that MDSR implementation relies on the commitment and cooperation of all health professionals.[14] However, **even at relatively low levels of**

[7] World Health Organization. Accountability for women's and children's health: 2015 progress report. Geneva, 2015.
[8] WHO, UNICEF, UNFPA, The World Bank and United Nations Population Division. Trends in Maternal Mortality: 1990 to 2015, Geneva, 2015.
[9] Maternal death in Malawi via facility-based review and application of the ICD-MM classification. *http://www.who.int/maternal_child_adolescent/epidemiology/maternal- death-surveillance/case-studies/malawi-study/en/*
[10] Evidence for Action. Maternal death as a public health emergency: integrating MDSR into existing surveillance in Ethiopia. First published January 2015. *http://www.who.int/maternal_child_adolescent/epidemiology/maternal- death-surveillance/case-studies/ethiopia/en/*
[11] Magoma M, Ferla C and Armstrong C. Strengthening maternal and perinatal deaths surveillance and response in Tanzania. Evidence for Action-MamaYe. *http://www.who.int/maternal_child_adolescent/epidemiology/maternal- death-surveillance/case-studies/tanzania/en/*
[12] Ameh C, Smith H and van den Broek N. Facility-based maternal death reviews in Cameroon. Centre for Maternal and Newborn Health at the Liverpool School of Tropical Medicine (based on a paper originally published in the BJOG Supplementary, September 2014, by De Brouwere V, Delvaux T and Leke RJ). *http://www.who.int/maternal_child_adolescent/epidemiology/maternal- death-surveillance/case-studies/cameroon/en/*
[13] Op. cit. Malaysia's experience with maternal deaths.
[14] Ameh C, Smith H and van den Broek N. Facility-based maternal death reviews in Nigeria. Centre for Maternal and Newborn Health at the Liverpool School of Tropical Medicine (based on a paper originally published in the BJOG Supplementary, September 2014, by Achem FF and Agboghoroma CO). *http://www.who.int/maternal_child_adolescent/epidemiology/maternal- death-surveillance/case-studies/nigeria-study/en/*

implementation, MDSR can work to generate its own budget line by highlighting trends in maternal mortality and providing evidence of the need for specific interventions or improvements. This may lead to budget allocation by the ministry of health or subnational authorities.

A number of studies discussed **factors that facilitated implementation** of recommendations from MDR findings. **Strong political commitment and participation of a multidisciplinary team in the review process, with involvement from senior staff members including obstetricians and heads of departments, was associated with greater success in implementation of recommendations for quality improvement**[15,16,17] This has been the experience in Malawi, Indonesia and Senegal. [9,16,18] Feedback of MDR recommendations to key stakeholders and health care providers is essential for action to be taken; without feedback and an understanding of improvement needs, changes will not be made to improve quality of care. Of the studies and reports reviewed discussing **barriers to acting on recommendations from MDR, the most common were lack of involvement from** senior staff and heads of department and poor quality of data recorded during the MDR process.[17,19,20,21]Other common barriers to improvement include a shortage of human resources, high turnover of staff, inexperienced staff, lack of standardized guidelines for reviewing maternal deaths, and lack of feedback of recommendations to staff responsible for quality of care. These studies show that when recommendations based on MDR findings are implemented, quality of care can improve and avoidable mortality can be reduced.

According to WHOs 'A time to respond,' *as countries strengthen MDSR, and establish the essential elements in good working order, they will wish to extend the scope and quality of their systems so that stillbirths, neonatal deaths and near-miss cases may be considered.* **WHO recent publication 'every baby counts' specifies the introduction of perinatal deaths and their review within an established maternal death review system. The same channels of reporting and review can be used; however, the cause of death, notification and data collection tools will need to be developed.**

There are several models being used to implement MPDSR. In **Uganda** MOH made notification and audit of all maternal deaths mandatory. A National Committee on Maternal and Perinatal Death Reviews was established in 2008. The MPDR seeks in-depth information on a 'small' number of maternal deaths occurring in health facilities which, at a national level, translates into somewhere **between 20-40 deaths.**[22] **Kenya** recently developed comprehensive

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[15] Kongnyuy, Eugene J, Grace Mlava, and Nynke van den Broek. "Facility-based Maternal Death Review in Three Districts in the Central Region of Malawi: An Analysis of Causes and Characteristics of Maternal Deaths." Women's Health Issues: Official Publication of the Jacobs Institute of Women's Health 19, no. 1 (2009): 14–20. *http://www.ncbi.nlm.nih.gov/pubmed/19111783.*

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[17] Dumont, Alexandre, Caroline Tourigny, and Pierre Fournier. 2009. "Improving Obstetric Care in Low-resource Settings: Implementation of Facility-based Maternal Death Reviews in Five Pilot Hospitals in Senegal." Human Resources for Health 7 (January): 61. doi:10.1186/1478- 4491-7-61. *http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2728704&tool=pmcentrez&rendertype=abstract.*

[18] Supratikto, Gunawan, Meg E Wirth, Endang Achadi, Surekha Cohen, and Carine Ronsmans. 2002. "A District-based Audit of the Causes and Circumstances of Maternal Deaths in South Kalimantan, Indonesia." Bulletin of the World Health Organization 80 (3) (January): 228–34. *http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2567753&tool=pmcentrez&rendertype=abstract.*

[19] Bacci, Alberta, Gwyneth Lewis, Valentina Baltag, and Ana P Betrán. 2007. "The Introduction of Confidential Enquiries into Maternal Deaths and Near-miss Case Reviews in the WHO European Region." Reproductive Health Matters 15 (30) (November): 145–52. doi:10.1016/S0968- 8080(07)30334-0. *http://www.ncbi.nlm.nih.gov/pubmed/17938079.*

[20] Bradshaw, Debbie, Mickey Chopra, Kate Kerber, Joy E Lawn, Lesley Bamford, Jack Moodley, Robert Pattinson, Mark Patrick, Cindy Stephen, and Sithembiso Velaphi. 2008. "Every Death Counts: Use of Mortality Audit Data for Decision Making to Save the Lives of Mothers, Babies, and Children in South Africa." Lancet 371 (9620) (April 12): 1294–304. doi:10.1016/S0140-6736(08)60564-4. *http://www.ncbi.nlm.nih.gov/pubmed/18406864.*

[21] Mogobe, Keitshokile Dintle, Wananani Tshiamo, and Motsholathebe Boweloc. 2007. "Monitoring Maternal Mortality in Botswana" Reproductive Health Matters 15 (30): 163–171.

[22] Saving Mothers, Giving Life initiative. Lessons learned from a maternal death surveillance and response system in Uganda. Updated from an article published in the December 2014 edition of the MDSR Action Network newsletter. *http://www.who.int/maternal_child_adolescent/epidemiology/maternal- death-surveillance/case-studies/uganda/en/*

national MPDSR guidelines. MPDSR, however, is not new to the Kenyan health system. In 2004, maternal deaths were declared a notifiable event, which led to the implementation of maternal death reviews at health facilities. Maternal death reviews are the foundation to MPDSR while perinatal death reviews are less developed. **With the launch of the National MPDSR guidelines – 2016, Kenya is taking a phased approach in implementing the "P" in MPDSR. The implementation has recently begun in facilities with a low burden of maternal morbidity and mortality. It is noted that in health facilities with low maternal death occurrence, perinatal deaths remain quite high.**[23]

1.5. Rationale for MPDSR in Pakistan

Global evidence and lessons learned from countries that are succeeding in establishing MDSR demonstrate that MDR is a proven strategy in reducing maternal mortality, and a phased approach which builds on the systems already available in the country is the most efficient and effective. Establishing a comprehensive MPDSR system is the ultimate goal in Pakistan but since our civil and vital registrations systems are weak or nonexistent and even MDR is yet to be initiated, it is reasonable to begin with a phased-in approach to ensure the process can be successfully established and then expanded.

At the outset Pakistan has the benefit of being able to incorporate lessons learned from other country's attempts to eliminate preventable maternal and perinatal mortality. **The key message in MPDSR is "think big, start small and grow slowly.**" In some countries progress suffered when nascent systems where unprepared to properly handle a high volume of cases, lack of adequate training of data collectors (especially in the community), lack of adequate training of reviewers, and inadequate response to recommendations. Given that newborn deaths are a much more frequent occurrence and therefore much more difficult and labour intensive to track and review, it is realistic and advisable to begin with maternal deaths (MDSR) only or with maternal deaths plus a sample of neonatal deaths. **The ideal place to begin is with perinatal deaths that occur along with a maternal death. This approach makes sense because women and their babies share the same period of highest risk,** often with the same health workers present and perinatal deaths that occur with maternal death will be the easiest to identify. The tools included in the appendix of this guideline are designed for that strategy.

Importantly, **reducing maternal mortality is in itself a crucial element of any effort to reduce neonatal mortality**. Evidence shows that strategies that benefit the mother will also save the lives of babies as the underlying causes of mortality are so entwined. Close to one-quarter of all under five deaths are due to intrapartum and immediate post-partum deaths or still births which will reduce automatically as access to and quality of antenatal and emergency obstetric care improve. It is estimated that an elimination of preventable maternal mortality would coincide with a 30 to 40% reduction in neonatal mortality.

Finally, the success of MPDSR depends upon active involvement of a broad range of stakeholders. The necessity of support from health-care providers (obstetricians, other clinicians, LHWs, midwives and nurses) is fairly obvious, particularly for understanding and identifying solutions for the problems that contribute to maternal and neonatal deaths. Additionally, the participation of other first-line specialists (hospital administrators, epidemiologists, information system specialists, health planners, M&E personnel) is very

[23] The national update was prepared and reviewed Dr Wangui Muthigani, Program Manager- Maternal and Newborn Health at Ministry of Health in Kenya. The update for Bungoma county was developed based on feedback from Mr Peter Ken Kaimenyi, Maternal and Newborn Health Technical Advisor at MANI Project funded by UK Aid.

important. However, the support of government entities and policymakers, and local community leaders is also paramount. The engagement of households and communities as partners and beneficiaries of health care enhances the likelihood of success. Thus, all such key stakeholders should be part of the process. **Lack of buy-in or participation from any key group can undermine the entire system and hinder progress.**

1.6. Purpose of this protocol

This protocol is based primarily on the WHO MDSR Technical Guide. This protocol provides practical guidance to establishing the MPDSR system in Pakistan in an efficient and effective way.

- It standardizes the MPDSR approach enabling health authorities in Pakistan to set up MPDSR processes to strengthen surveillance, review, and response activities.
- It emphasizes the enabling environment required for MPDSR implementation by clarifying the required structures and committees to be put in place, their composition, TORs, and modalities of operation at both facility and community levels.
- It informs on standard operating procedures for reporting at each level, including data collection tools, data transmission and channels, frequency, feedback mechanisms, while stressing the need for institutionalizing and mainstreaming within existing reporting mechanisms.
- It provides information of the ethical and legal aspects that need to be taken into consideration.
- This guidance will be periodically reviewed and updated as the MPDSR system expands in Pakistan.

1.7. Who should use this Protocol

The intended readership includes health professionals, health-care planners and managers, those who measure maternal, neonatal and perinatal mortality, and policy makers working in maternal and newborn health. Stakeholders who can drive change should be involved in all aspects and processes of setting up MPDSR to ensure that the recommended changes take place.

1.8. Goals and objectives of MPDSR

The primary goal of MPDSR is to eliminate preventable maternal and perinatal mortality in Pakistan by obtaining and using information on each death to guide public health actions and monitor their impact. MPDSR enhances efforts to provide information that can be used to develop interventions and improve access to and quality of care that women and their babies receive during pregnancy, delivery and the puerperium. MPDSR also aims to provide information that will lead to specific recommendations and actions and improve the evaluation of their effectiveness.

The primary objectives are to provide information that effectively guides actions to eliminate preventable maternal and perinatal mortality at health facilities and in the community. Ultimately, the objective is to count *every maternal and perinatal death*, permitting an assessment of the true magnitude of maternal and perinatal mortality and the impact of actions taken to reduce it

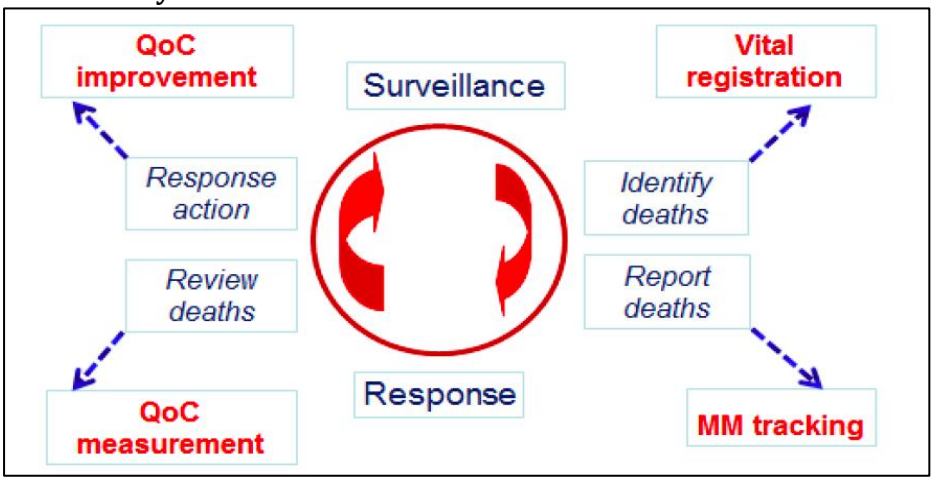
1.9. Overview of MPDSR

The MPDSR system is a continuous-action cycle designed to provide real-time, actionable data on maternal and perinatal mortality levels, causes of death, and contributing factors, with a focus on using the findings to plan appropriate and effective preventive actions. MPDSR is intended to build on established approaches such as Integrated Disease Surveillance and Response (IDSR) and MDR. It aims to identify, notify, and review maternal and perinatal deaths in communities and facilities, thus providing information to develop effective, data-driven interventions that will reduce maternal and perinatal mortality. **It is critical to avoid creating a parallel system, but instead integrate within existing mechanisms to the greatest extent possible**.

MPDSR has eight components:

1. **Identification** – ongoing identification of suspected maternal, stillbirths and neonatal deaths in facilities and/or communities.
2. **Notification** – notification within 24 hours for facility deaths and 48 hours for community deaths to the appropriate authorities.
3. **Review by the relevant committee** - collection of relevant data by trained personal on the prescribed forms is conducted. Review includes an examination of medical and nonmedical contributing factors that led to the death, assessment of avoidability (substandard care) and development of recommendations for preventing future deaths, and immediate implementation of pertinent recommendations. Reviews must be done by a multidisciplinary committee made up of qualified stakeholders including OB/GYNs, pediatricians, hospital administrative staff, anesthetists, and epidemiologists etc.
4. **Analysis and aggregation of data** - Reviews are aggregated at the district level and reported to the provincial level and then onward to the national level.
5. **Recommendations**- recommendations for action can be at facility, district/community, provincial and national levels. National action recommendations are made based on the aggregated data from all the provinces.
6. **Response**- Implement recommendations made by the review committee and those based on aggregated data analyses. Actions can address problems at the community, facility, or multi-sectoral level.
7. **Monitoring and Evaluation of the system**
8. **Dissemination of results**

FIGURE 1. **Maternal Perinatal Death Surveillance and Response (MPDSR) system: a continuous-action cycle**



Source: Adapted from WHO Regional Office for Southeast Asia. 2016.

1.10. Sources of information

For the process to be comprehensive, MPDSR must eventually be implemented at all levels where maternal and perinatal deaths can occur. The two major sources of information for timely reporting of maternal and co-occurring perinatal deaths are **health-care facilities** (where women give birth and are attended to when they have pregnancy complications) and **communities** (when women give birth at home or on the way to a health-care facility or die during pregnancy without receiving medical care).

1.11. MPDSR Administrative, Policy & Legal Elements

An MPDSR system is more likely to be successful if certain regulations and legal protections are in place. The implementation and sustainability of an MPDSR system are influenced by several legal challenges since laws and customs can either help or hinder access to information, the conduct of the investigation, and the way the findings are used. They can also influence the involvement of health care professionals in MPDSR processes.
The protection of the MPDSR system from litigation is important if it is to achieve maximum participation and overall success. The national and provincial MPDSR task forces must strongly advocate for legal protection of the information, received from the maternal death review process, from the possibility of it being accessed for litigation purposes. In addition, mechanisms must be instituted to ensure the removal of identifiers for the women/babies who died, as well as health care providers, to minimize possibility of those involved being identified if the information fell in the wrong hands.

1.11.1. Role of the federal government: ensure an enabling environment

Evidence from countries that have MDSR systems shows the importance of an enabling environment. Implementation of MPDSR requires coordination and collaboration among multiple stakeholders operating within the surveillance system and the health ministry. Support for MPDSR from M/o NHR&C leadership is essential. MPDSR must be recognized as an important component of any M/o NHR&C strategy to reduce or eliminate preventable maternal and perinatal mortality.

The M/o NHR&C should institutionalize MPDSR systems by adopting the following policies for the essential components:

- A national policy to notify and review all maternal deaths (and eventually perinatal death);
- Set up MPDSR committee at the national level to analyze aggregated data from provinces to determine trends in maternal and perinatal mortality in Pakistan and to aggregate the most common causes (both medical and non-medical) of maternal deaths;
- Implement recommendations for improvements to the health system that result from the MPDSR process;
- Create the environment of providing legal protection (indemnity) and confidentiality of all involved cases of maternal or perinatal death i.e. “no name no blame.”

1.11.2. Role of provincial government: provide an enabling environment and lead implementation of MPDSR

Similar to the national level, the provincial government has an essential role in facilitating the coordination, collaboration, and cooperation of key stakeholders:

- Legislate to make maternal death (and eventually perinatal death) a notifiable event
- Set up a provincial MPDSR committee to regularly analyze aggregated data from districts to determine trends;
- mandate that review committees are set up at district levels and at all health facilities with a delivery rate greater than 500 per year;
- Legal protection (indemnity) of all involved including the families, the health personnel and the facilities involved.[24]

1.11.3. Quality assurance

The usefulness of the MPDSR system is dependent on the quality of data gathered and analysed. It is important that data collectors are properly trained to gather accurate data. It is also imperative that members of the committees at all levels are trained and conversant with the skills required to conduct quality death reviews. To ensure this, Pakistan will put in place a system of quality assessments of the reviews and have regular updates for the data collectors and reviewers.

[24] Note: this does not mean no accountability (which, when necessary, can be conducted through usual channels). It simply means that information derived via the MPDSR process cannot be used punitively. In order to encourage informants and health workers to come forward and tell the truth any information derived through the review process must not be used in litigation.

FACILITY REVIEWS

All facilities with the capacity to have an MDR/MPDR committee (usually those with a delivery rate greater than 500 per year or "large facilities") should establish one. This will include tertiary, teaching hospitals, and some DHQ hospitals in both the private and public sector. Smaller hospitals, maternity clinics or health centers (public or private facilities) including all setups that have a labour room to accommodate deliveries should have a coordinator for MPDSR to identify and collect data on all deaths. **Cases of maternal/perinatal death from facilities without an in house MDR committee will be forwarded to the district committee for review**. Depending on the capacity of the district and volume of deaths the district committee may operate within the DHQ hospital.

The process for facility reviews is outlined below (reminder: deaths that occur in small facilities (e.g. fewer than 500 deliveries) or in facilities that have not yet established a review committee will be sent to the district committee for review. The district committee will be notified via form **MDF 1-Notification Form** (appendix 1). The steps of that process will be similar to the process for community based deaths which is covered in section 3).

1.12. Identification, Notification, Registration and Data Collection

All staff in the facility should be alerted to report the death of any woman of reproductive age (WRA) that occurs in any department within 24 hours; in addition the process will include concurrent and eventually all perinatal deaths. An MPDSR register is set up in the facility into which the death is recorded by the MPDSR coordinator(s).[25] The MPDSR coordinator will gather information to determine if a probable maternal death occurred (e.g. any evidence that she could have been pregnant or within 42 days of the end of a pregnancy and the death is not due to incidental or accidental causes). The form **MDF1-Notification Form** (appendix 1) is filled. If it is a probable maternal death it will be notified to the district MPDSR committee for triangulation.

Next, the MPDSR coordinator collects the data about the deceased (ideally within 48 hours). Data from multiple sources, including patient records should be collected: for example, data may be extracted from the Ob/Gyn admission and discharge register, supplemented with information from the labour and delivery ward register, and theatre or minor surgery record books. Case notes, patient records, postoperative notes, and laboratory results, when available, also can be valuable sources of information. This data is needed for the review. The form **MDF2- Facility Maternal Death Data** (appendix 2) is filled in as completely as possible to be used by the review committee. **This form also contains questions about the status of the baby and therefore can be used by the committee to review any concurrent perinatal deaths.** Data should be presented to the review committee in a qualitative fashion that describes the course of the mother's pregnancy and includes descriptions of where and how care was provided.[26]

- Essential interventions that took place at all levels and any problems that may have contributed to the mother's death should be accurately described, that is, from the home to the community and at each point of health care.
- Case summaries should present objective and de-identified information (i.e. without

[25] If a register is already in use for deaths and discharges, it can serve this purpose.
[26] Summary writers should have a strong medical background, particularly concerning pregnancy and neonatal health issues, as well as an appreciation of the roles medical and nonmedical factors may play in maternal deaths. An experienced WMO, Trainee PG or senior obstetrical nurse is the most appropriate person to perform this task.

any identifying data regarding the patient, health care providers, or facilities). De-identification should be performed after data collection is complete. Although the identity of the facility is obvious for single-facility–based reviews and the identity of the patient and health-care workers who provided care may be known, this precept should be adhered to as much as possible.

1.13. Review by the Committee

The death review is the essential component of MPDSR. It is a qualitative, in-depth investigation of the causes, and circumstances surrounding the maternal and/or perinatal deaths. It is an important strategy to improve the quality of obstetric care and reduce maternal and perinatal mortality. Analysis of these deaths can identify the delays that contribute to deaths at various levels and the information used to adopt measures to fill the gaps in service. **The central objective is to find out why the death occurred and what can be done to prevent future deaths.** Achieving this will depend on the type and quality of data that has been collected, the care taken in preparing and reviewing the case summaries, and the insight provided by a brief analysis of each death.

All above documentation is reviewed by the facility committee to determine the causes of death, categorize the death as "Avoidable" or "Unavoidable", and make recommendations to prevent future deaths. The committee will utilize the **Committee Worksheet** (appendix 4) to guide the review process and the **Action Plan Template** (appendix 5) to formulate recommendations for response. **The committee must audit the care that has been provided against established standards and protocols to identify any gaps in services and propose remedial action** (as national standards of care are not currently available in Pakistan the review can be conducted and the quality of care can be assessed by using local agreed on standards, initially). The facility committee then reports its completed findings to the provincial MPDSR committee via the **Summary Form for the Provincial Committee MDF 4** (appendix 6).

1.14. Additional considerations for facility based MDR

Suspected maternal deaths occurring in a health facility are usually easier to identify than those in the community. Nevertheless, to ensure that none are missed, the coordinators have the responsibility to check death logs and other records from the previous 24 hours and assess deaths of all WRA in their facility to determine if any were probable maternal deaths. This should include not only the obstetric ward but other areas where WRA may seek care or enter the facility (e.g. other wards or outpatient department).

The facility review process may be complemented by data collected at community level on **MDF 3** (appendix 3) to provide more in-depth information. When used in combination facility based death reviews and community data reconstruct the whole story surrounding the woman's death. (The above two processes can be done independently but both will feed into the national level efforts). This may be recommended by the review committee, and may be undertaken for all or a sample facility deaths.

Importantly, in situations where a woman is brought to the facility in critical condition (death on arrival) a dual investigation is necessary to understand her journey through the community and then the specific quality of care and delay issues impacting her treatment in the hospital. These cases should be recorded in the registry with minimal essential information (name of deceased, husband's name, full address, CNIC and contact number of relatives) to enable further tracking and investigation at community level. A rapid history can be taken to ascertain whether it is a maternal death and its most probable cause. Every

effort should be made to follow these deaths to the community and data collected via the community tool.

In this protocol the term 'review' is used in preference to audit. This is because audit is often described as a systematic process of improving quality through reviewing the care provided against evidence-based criteria. These may include national or local clinical standards and guidelines, which are still not used routinely in many parts of Pakistan. This means that in the majority of the reviews carried out to date the care provided was reviewed against what was considered by local experts to be acceptable in the specific circumstances. One of the positive outcomes of reviews, however, is the production of guidelines that will lead to the opportunity to conduct comprehensive clinical audits in future.

Facilities with advanced review systems and those with fewer maternal deaths can proceed to do individual case reviews of severe morbidity ("near miss"), and criterion-based clinical audit (CBCA) to improve the quality of care. A criterion based audit is carried out as a cycle of a systematic process of establishing best practice, measuring care against standards of care or criteria, taking action to improve care, and monitoring to sustain improvement. The spiral suggests that as the process continues, each cycle aspires to a higher level of quality.

COMMUNITY REVIEWS

Community-based maternal and perinatal death reviews (sometimes referred to as verbal autopsies) are a method of determining the medical causes of death that occur outside a facility as well as the personal, family, or community factors that may have contributed to the death. Given the high proportion of home deliveries in rural parts of Pakistan, a substantial proportion of maternal and perinatal deaths are likely to occur at home/in the community. Therefore processes for reviews at community level need to be set up and standardized. The process for reviews of community based deaths is outlined below.

1.15. Identification, Notification and Registration

The **first step** in identifying maternal deaths in the community is to assess all deaths in WRAs which requires interviewing the family and other community informants. It is important to understand that **identifying and reporting a maternal or perinatal death at the community level can be done by any informant**. This could be the lady health worker, community health workers, village or community midwives, traditional birth attendants, community leaders, religious leaders or Imam Masjid, secretary union councils; vaccinators, or even lay persons willing to take over the reporting role. However, the **second step**: assessing whether it is a probable maternal death and then collecting data on **MDF 3** - the community data tool (appendix 3) **can only be done by properly trained personnel**. The **third step**: reviewing the death to assign a cause, assess avoidability/substandard care, etc. requires special expertise and therefore must be done by the **district MPDSR committee** (not by LHWs, CMWs etc, even if they are trained to collect the data).

Some suspected maternal death cases will be obvious (e.g. the woman died during childbirth or shortly afterwards, or she was in her third trimester and the pregnancy was evident). Other cases may be less obvious (e.g. a death from complications of an abortion, whether spontaneous or induced, an ectopic pregnancy, or a death that occurs many weeks after childbirth). A few screening questions on **MDF 1**- the notification form (appendix 1) will establish whether the family had any knowledge that the woman was pregnant at the time of death or if she had delivered in the past 6 weeks. **Depending on the capability of the informant the district coordinator may either receive a completed notification form MDF1 or may fill it out him/herself if the information is provided by telephone or other medium**. To ensure that all maternal deaths are captured in communities where dates and times may not easily be ascertained, the 42 days can be extended to 2-3 months.

The **report of the death of a WRA should include the name of the woman, her age, where she resided, where she died, when she died, and the name of the person making the report**. Once a maternal or perinatal death is identified, the district MPDSR coordinator is notified (ideally within 48 hours of the death). Registration of deaths can be undertaken by LHS (*Jaiza Karkardagi* report) and Assistant District Coordinator (ADC) for LHW program.

A clearly defined method of communication must be set up that connects informants who will report the death to the district MPDSR committee coordinator. A list of all coordinators at locality level with contact information needs to be generated, distributed to the public and LHVs etc in the area, and regularly updated for ease of communication.

1.16. Community Data Collection

To ensure quality and completeness of data **MDF 3** – the community data tool (appendix 3) should be used by **trained collectors** who are aware of both medical and non medical causes of death. Data collection team members should also be aware from the outset of the extreme care and diplomacy needed in discussing maternal or perinatal deaths in the community, especially with close relatives. The aim is to find out the respondent's personal opinion on the major factors contributing to the death which could have been avoided. The team will endeavor to gather the data two weeks after the death (but no later than 6 weeks). Waiting at least 2 weeks gives mourning time for the bereaved family, but not more than 6 weeks ensures that facts surrounding the death can still be recalled by family members.

Any medical information that can be located (e.g. antenatal care cards, records of hospitalization prior to her death, etc) should also be collected to complement information collected through community MDF 3.

1.17. Barriers to community data collection

The community data collection team members may encounter a number of barriers during the community interviews:

- Relatives, for example, may accept the death as 'God's will' and be reluctant to talk about it in any other terms, particularly if there is superstition about discussing death.
- There could be an unwillingness to talk about abortion-related deaths, especially if abortion is illegal or prohibited for religious reasons.
- Some respondents may feel responsible for the tragedy, such as the TBA who may have delayed referring the woman, or the husband who could not afford to pay for transport. They may be hesitant to provide information out of guilt or fear of blame. Efforts must be made by data collectors to reassure them that the intention of collecting the data is NOT to blame or punish them.

1.18. Review by the Committee

Review of the community data is done by the district committee. This process follows a similar procedure to the facility review and utilizes the same tools: the Committee Worksheet (appendix 4), the Action Plan Template (appendix 5) and **MDF 4**- the Summary Form for the Province (see section 2 above). The district committee reviews the information to determine the causes of death and categorize the death as "Avoidable" or "Unavoidable" and make the necessary recommendations to prevent future deaths.

DATA ANALYSIS

Data analysis and interpretation of results are critical components of any surveillance system. This process entails development of a data management plan with a clear framework for data transmission, aggregation, processing, and storage, along with an analytical plan that includes specified indicators. The process is also expected to document the frequency of medical and non-medical contributing factors in maternal and perinatal deaths. Data analysis is undertaken at district, provincial, or national level. However once the review process is well established large health facilities should also begin performing descriptive analyses of facility-based deaths.

1.19. Data Entry, Quality and Completeness

The district is the hub for data transmission, aggregation, processing, and storage. The district coordinator assigns case registry numbers for all notified deaths and retains files in secured storage/ database. The district coordinator also ensures that all data is properly anonymized so individual families or healthcare providers cannot be identified. This database will be utilized for aggregated analyses of all the deaths that have been reviewed.

The coordinator and district HMIS/DHIS officer will also clean the data by verifying coding and other data-base errors that may need corrections. If necessary, the review committees will be notified of any problems including inconsistencies or inadequate reporting of certain items. The review committees will also be informed of differences encountered in the number of entries and asked to verify the counts or to determine the nature of the inconsistencies.

1.20. Data protection

Access to the database should be password-protected, allowing only appointed personnel access. Back up files will be retained in secured, locked up places. Data from the database and de-identified case summaries will be kept and used in the analysis, while the original notification and review forms will be destroyed after 5 years.

1.21. Interpretation and Prioritization

Findings from reviews are aggregated and coded aiming to identify common causes of death, groups at highest risk, contributing factors, and emerging data patterns, and to accordingly prioritize health problems to guide the public health response. **This is the translation of MPDSR data into information meaningful for decision-makers, the medical community, and the public. Personnel involved in the analysis of aggregated data should have appropriate epidemiological skills.** If these skills are lacking, training or other technical support should be arranged in advance.

Interpretation of the findings should focus on aspects that will lead to prevention. When recommendations are made they should include information on immediate responses, subgroups at highest risk, identifying contributing factors for maternal deaths, assessing the emerging data patterns, and prioritizing the most important health problems to assist the public health response.

1.22. Response based on recommendations

Findings from reviews should lead to actions to prevent similar deaths, both at health facilities and within the community. **This the most crucial part of the process and the one that is quite often lacking**. Importantly, it is not sufficient to count deaths and calculate mortality rates, or even to identify systemic problems contributing to these deaths. A review is only useful if it leads to action based on findings. **Response can be immediate, periodic, or long-term**, and there is **no need to wait for aggregated data to begin implementing immediate actions**. Therefore, a response plan of action (appendix 5) should be developed in each committee to facilitate those actions that can be taken immediately and to streamline the recommendation process for longer-term responses:

Immediate: Findings from reviews of nearly every death can lead to immediate actions to prevent similar deaths by identifying gaps that can be addressed quickly in both health facilities and communities. Deaths in health facilities often indicate that quality-of-care improvements are needed.

Periodic: Monthly, quarterly, or semiannual reviews (depending on numbers) of aggregated findings should take place at the district level. These reviews may show a pattern of problems or highlight geographical areas with higher volumes of deaths. Such findings should lead to a more comprehensive response to address common problems across multiple facilities or communities.

Long-term: At the national or provincial level a longer-term strategic plan should be developed to focus on key priorities identified in the districts or geographical areas where more deaths are occurring.

Guiding Principles for Response:

- Start with avoidable factors identified during the review process;
- Use evidence-based approaches;
- Prioritize response based on prevalence, feasibility, costs, resources, health-system readiness, and impact;
- Establish a timeline;
- Decide how to monitor progress, effectiveness, and impact;
- Integrate recommendations within annual health plans;
- Monitor to ensure recommendations are being implemented;

Implementation of the recommendations generated by MPDSR must be undertaken at the appropriate level. Interventions which call for improvement of the health facility setup, assignment of roles to staff, or adjustments to patient flow within the facility will all fall under the responsibility of the facility director and should be addressed on an immediate basis. Interventions that need action at the district level (such as redistribution of health care workers to facilities) are taken up to the district authorities. Interventions which require major policy change including issuance of orders, reallocation of government resources or drug registration, will need to be taken up at the provincial or national level. The engagement and commitment of authorities at the various levels in the entire MPDSR process ensures their full involvement and willingness to support the recommendations that are generated through MPDSR implementation.

1.23. Dissemination

Reports that summarize results, recommendations, and response actions are a critical component of MPDSR. An MPDSR reports is a critical element of programmatic plans for improvements at the national, provincial, district, and sub-district levels. The two types of

reports from the MPDSR system are annual[27] reports on maternal and perinatal deaths (the primary way to disseminate findings) and reports on the monitoring and evaluations of the system itself. **The objective of disseminating reports is to share findings and highlight positive recommendations or innovations. It is not to apportion blame nor for media coverage.** For dissemination, reports should be tailored to the audience. The main objective is to get the relevant information to the stakeholders who can implement the findings.

The reports should focus on ways to improve the system rather than highlighting particular errors, and contents should be carefully reviewed prior to publication to avoid breaches in confidentiality and misuse of information.

The suggested standard sections for an annual MPDSR report are as follows:

1. Background of geographical area covered by review
2. Characteristics of women of reproductive age in the area
3. Characteristics of births in the area (number, live or stillborn), birth weight, gestational age
4. Maternal and perinatal deaths by area of residence, mother's age, place of death, ethnicity.
5. Proportion of maternal and perinatal deaths by medical cause of death
6. Case fatality rate (for facility deaths)
7. Contributing factors (quality of care and nonmedical) and their frequencies
8. Assessment of avoidability
9. Recommendations for preventing future deaths
10. Review of recommendations from previous years/reports and lessons learned (including implementation challenges)

MONITORING AND EVALUATION

M & E is necessary to ensure that the system is functioning adequately, improving with time, and ultimately achieving the overall objective of reducing maternal and perinatal mortality. M & E entails deciding how to monitor progress, effectiveness, and impact based on established indicators and timelines (immediate, short, medium, and long term). The framework for M&E includes standard indicators based on MPDSR principles: maternal and perinatal death as a notifiable event; timeliness and effectiveness of review processes undertaken at facility, community, district, provincial and national level; data quality; and percentage of recommended responses undertaken. Because the main purpose of MPDSR is to take actions to eliminate preventable maternal and perinatal deaths, the system is failing if this is not happening. See appendix 8 for a sample monitoring and evaluation tool with sample targets.

[27] Although reports are called "annual" the frequency of their publication will depend on the number of deaths/the number of cases reviewed.

IMPLEMENTATION OF MPDSR

In order to achieve the goals and objectives of MPDSR a plan is needed for implementation. Note: Implementation of MPDSR will vary among provinces depending on the types of maternal mortality notification and review guidelines, processes, and systems already in place, if any**. The exact steps will depend on the situation in each province**; for instance, some provinces may prefer to start in urban areas, whereas others may prefer to start with a group of districts or even in a sample of communities. What follows is a general outline based on the WHO MDSR Technical Guide, lessons learned from other countries, and a preliminary situation analysis of the situation in Pakistan.

1.24. Situation Analysis

The decision to select a point of entry should be based on situational analysis at the national level and in each province, or a rapid assessment of the existing setup that can accommodate MPDSR. The current status of each of the MPDSR components in each province (identification and notification, review, analysis and recommendations, response, dissemination and reports, monitoring and evaluation) should be assessed and a plan created to develop those components that are absent, **strengthen those that are already established**, and expand the system over time to achieve complete coverage.

Under the stewardship of the M/o NHR&C and provincial departments of health, roles and responsibilities of various departments and ministries should be identified. Understanding the linkages and interfaces between ministries and their interaction with the private sector is critical to the development of multi-sectoral coordination and response.

Assembling and examining all relevant, available data or other sources of information (such as demographic health surveys) on maternal events and health-care services in the proposed surveillance areas is useful. Types of information that could be helpful include the approximate number of deliveries and maternal and perinatal deaths, their distribution by place of occurrence (home; health centre; public, private, or other type of hospital - including level), and estimates of distribution of deaths by cause. These resources will assist in the analysis phase.

Key questions include:

- What components of MPDSR are already in place and where?
- Is maternal death a notifiable event?
- What percentage of deaths is estimated to be notified from health facilities and from the community?
- If more than one system that reports maternal or perinatal deaths is currently in place, how do these systems interact?
- What is the status of the vital registration system and how does it interact with MPDSR?
- Does the death certificate include a checkbox for pregnancy?
- Is Integrated Disease Surveillance & Response (IDSR) in place and, if so, does it report the number of maternal deaths?
- Is maternal death and perinatal mortality data routinely collected?
- What is the quality of the available data?
- Are reviews of maternal and/or perinatal death done?

1.25. General steps and structures for MPDSR Implementation

MPDSR stresses the concept of a maternal death as a notifiable event and the country

incorporates maternal deaths into the system of notifiable disease reporting. The system takes concrete steps to ensure timely notification, review/audit, reporting on all maternal deaths and response as indicated in the following 8 steps for MPDSR implementation:

1. **Establish task forces at the national and provincial levels** to oversee the design and launch of MPDSR. Once the MPDSR process is successfully established the task forces will disband and responsibilities for MPDSR will rest with the committees.
2. **Each task force will undertake the following:**
    a. map the health facilities/communities which are eligible for MPDSR with feasibility to review maternal deaths
    b. set up MPDSR committees at national and provincial levels and in selected districts and facilities.
    c. sensitize/orient committee members on roles and responsibilities
    d. advocate for policy/legal aspects
3. **Implementation of reviews**
    a. train health workers and introduce MPDSR to the facility
    b. determine facility readiness
    c. identify coordinators and data collectors (district, facility, and community)
    d. identify sources of data
    e. report, identify, notify maternal deaths
    f. collect data and de-identify /code
    g. make standards of good practice available
    h. assess cause of death using ICD-MM/ICD-PM as required.
    i. focal person /coordinator prepares file and sets up committee meeting
4. **MPDSR committee meeting at district /facility level**
    a. summary of case presented
    b. case reviewed : avoidability ascertained
    c. recommendations /response plan of action developed
    d. MDR 4 form filled and sent to Provincial MPDSR committee
5. **Implement recommendation/response plan at relevant level**
6. **Aggregate and analyze the data at provincial level and compile reports to inform policy and programs.**
7. **Provide feedback to facilities and districts and follow up on recommendations**
8. **Follow-up and technical support from the national MPDSR committee.**

There are three levels at which these steps listed above are conducted:

1. National – the first two (1-2) and last steps (5-8)
2. Provincial the first two (1-2) and last steps (5-8)
3. District, health facility and community- all steps (3 -7) will apply

At each level, there should be a committee responsible for tracing, reviewing, reporting and responding to maternal deaths.

1.26. Committees

MPDSR committees need to be set up at the various levels- facility, district, province, and national. The composition and sample terms of reference of each committee is set out below.

1.26.1. Large Facility Committee

The frequency of committee reviews will depend on the number of deaths. In large facilities where maternal deaths are frequent, the committee will ideally meet at least weekly to review, analyze and discuss all deaths that have been reported in the facility. If deaths are

less frequent, the committee conducts meeting within 24 hours of every reported death. The recommendations of the committee may require immediate actions to be implemented through adoption of clinical audit and best practices to promptly address the 3rd delay. Lower level PHC facilities may link to existing MPDSR community structures or liaise with tertiary facilities in their catchment areas.

Sample Committee Composition: Chaired by the Facility Director, the committee includes M/S, facility-in-charge, gynecologist/pediatrician/neonatologist, blood bank manager, anesthetist, pharmacist etc. The committee composition can be adapted according to mode of governance in each province and level of facility. The **MPDSR coordinator** assigned in the facility is responsible for confirming a maternal death, filling MDF1 to notify to the district coordinator, filling out MDR2 tool for data collection, organizing the meetings, and presenting the case to a **secretary** who will fill out the MDF4 for onward transmission and follow the response plan of action.

Sample TORs:

- Convene meetings to review all maternal deaths reported in the facility;
- Assign a cause of death, using ICD –MM;
- Discuss identified service delivery gaps and propose remedial actions within the facility;
- Identify facility deaths that require further investigation at community level through data collection tool MDF3(visit to household of the deceased);
- Record keeping, monitoring and feedback to facilities;
- Develop facility action plans to address identified gaps;
- Mobilize internal and external resources to ensure implementation of recommended actions;
- Share reported death (including zero reporting) and recommendations to district/ provincial committee and follow up implementation as required.

1.26.2. District Committee

The frequency of committee reviews will depend on the number of deaths. The District MPDSR committee meets in a timely manner to analyze and discuss all deaths that have been reported in the district, by both the facilities and communities.

Sample Composition: Chaired by the Executive District officer, the Committee includes DHO, DC MNCH, LHW coordinator, HMIS coordinator, gynecologist, pediatrician/neonatologist, LHS/LHV, and representation of the private sector and/or NGO run maternity facilities. Other relevant program representatives, as well as in-charge of DHQs, nazims/naib nazims can been included as deemed appropriate. The DC MNCH acts as secretariat to the committee and is responsible for organizing the monthly meetings.

Sample TORs:

- Convene meetings to review all maternal and perinatal deaths reported in the district, and analyze trends;
- Discuss identified service delivery gaps and propose remedial actions;
- Record keeping, monitoring and feedback to facilities;
- Develop district level action plans to address identified gaps;
- Mobilize district level resources to ensure implementation of recommended actions;

- Share reported death (including zero reporting) and recommendations to provincial committee and follow up implementation as required.

1.26.3. Provincial Committee

The Provincial MPDSR Committee meets at least on a **quarterly** basis to review, analyze and discuss all deaths that have been reported in the entire province.

Sample Composition: Chaired by the Provincial Director General Health Services, the Committee includes a larger representation of all concerned stakeholders at provincial level- MNCH Program; DHO, LHW, HMIS, DC MNCH from all districts, obstetricians/gynecologists and pediatricians/neonatologists from implementing facilities including private sector. The MNCH/IRMNCH director at provincial level acts as secretariat to the committee and is responsible for organizing the quarterly meetings.

Sample TORs:

- Convene quarterly meetings to review all maternal and perinatal neonatal deaths reported in the province and analyze trends;
- Discuss identified service delivery gaps, propose remedial actions and follow up implementation as required;
- Record keeping, monitoring and feedback to districts;
- Develop provincial level action plans to address identified gaps;
- Mobilize provincial level resources to ensure implementation of recommended actions;
- Share reported death (including zero reporting) and recommendations to national committee and follow up implementation as required;
- Publish annual provincial report of deaths, recommendations & responses;
- Disseminates to relevant stakeholders and provides feedback to concerned partners.

1.26.4. National Committee

The National MPDSR Committee meets at least **bi-annually** to review, analyze and discuss all deaths that have been reported in the entire country. MPDSR reporting can be added as a regular agenda point in the meetings of the National RMNCH Task force. In addition the national level is responsible for developing the Standards of Care and ensuring that MPDR is included into the basic training of health professionals.

Sample Composition: Chaired by the National Director General Health, the Committee includes a larger representation of all concerned stakeholders at provincial level- Provincial DGs, MNCH/IRMNCH director; representatives of associations (obstetricians/ gynecologists and pediatricians/neonatologists), partners, academia, relevant national programs, related sectors (Planning, Population Welfare, Education, Nutrition & Food security, Information, Roads & infra-structure etc) including private sector epidemiologist . The MNCH director at national level acts as secretariat to the committee and is responsible for organizing the bi-annual meetings.

Sample TORs:

- Convene bi-annual meetings to review all maternal and neonatal deaths reported in the country and analyze trends;
- Record keeping, monitoring and feedback to provinces;
- Discuss identified service delivery gaps, propose policy level remedial actions and follow up implementation as required;

- Develop national level action plans to address identified gaps;
- Mobilize national and global resources to ensure implementation of recommended actions;
- Publish annual national report of deaths, recommendations & responses;
- Disseminates to relevant stakeholders and provides feedback to concerned partners.

1.27. Key considerations for implementation of MPDSR

1.27.1. Communications Plan

The channels for communication and reporting must be clearly understood. A communications plan should be prepared at the start that includes how results will be communicated, how crises communications will be managed (e.g. to avoid unintended consequences such as rebuttal, denial or denigration for political reasons), and how communications to promote advocacy and resource mobilisation for the system will be conducted.

1.27.2. Logistics and technology

Notifiable events should be reported quickly, ideally within 48 hours. Determining if this is feasible will require an assessment of the communications technology available in communities and at health facilities. Cellular telephones are increasingly permitting communication with previously isolated communities. At health facilities, cellular telephones, radios, land-line telephones, or e-mail can be used. Likewise, data collection benefits from using computers, tablets, or other hand-held digital devices. This can shape the communication mechanisms used for reporting deaths as well as the responses designed for intervention.

1.27.3. Resource considerations

The scope of MPDSR will depend on the availability of resources. Information about the number of births and deaths, where the women received care, and where the deliveries and deaths occurred will help determine the costs involved; influence whether all, or only a subset of the cases, can be reviewed; and determine where the review should concentrate. Identifying the current state of resources (human, financial, and technological) that are available for use and anticipated changes in resources is important. This approach will not only avail evidence for corrective action, but will also facilitate better understanding of the existing situation; the information generated plays a major role in ensuring appropriate allocation of resources for maternal and perinatal health and defining responsibility for actions that will ultimately serve the goal of preventing avoidable deaths.

For MPDSR to be successful, specific people must be assigned to supervise the work and ensure the processes are working smoothly, data are of adequate quality, recommendations are being implemented, and reports are disseminated to the appropriate authorities, civil society, professional organizations, etc. In time **hiring an adequate number of people to carry out the required tasks is essential.**

1.28. Phased approach to MPDSR implementation

Implementing an MPDSR system can seem daunting. Using a phased approach that breaks the process into more manageable pieces is useful. In the context of Pakistan where vital registration systems are lacking and even basic MDR has not been widely implemented, it is advisable to begin with a phased approach. For example, **facility-based deaths are usually easier to capture than community- based deaths, and serve as an appropriate entry point for initiating MPDSR processes.**

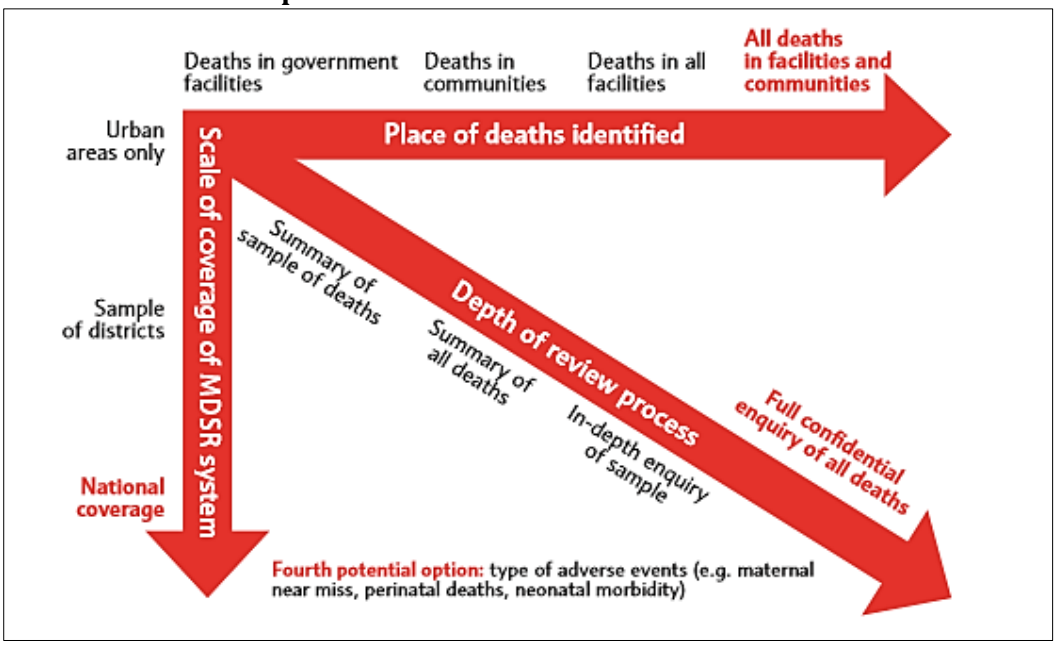
Beginning by notifying and reviewing facility based maternal deaths and a sample of perinatal deaths (those that happen concurrently with the maternal death) will ensure the process is properly established and perfected before endeavoring to achieve the far more

difficult and labour intensive task of notifying and investigating community based deaths and all perinatal deaths. Importantly, this approach will automatically address a large percentage of perinatal deaths since, as mentioned earlier, the day of birth is the time of greatest risk to both mothers and babies.

Additionally, provinces could choose to start in urban areas in those facilities which have already been collecting some data on maternal deaths. When this is established, the process could expand to all health units including private hospitals. Later it could expand to include all districts and lastly to communities.

Figure 2 provides an example of such a phased approach that has been successfully utilized in several countries. It shows a typical progression when scaling up a national system. The horizontal arrow shows the expansion of the places where deaths are identified: from only government or other selected facilities to all facilities, and finally to complete coverage. The vertical arrow show the progression in geographic coverage, and the diagonal arrow shows the progression in the depth of reviews.

FIGURE 2: Phased Implementation of MPDSR



Source: A Time to Respond

The final structure and scope of MPDSR will differ according to the provincial context and challenges. Implementation strategies therefore should be adaptable and easily customized to ensure the feasibility of the MPDSR system. Planning efforts must consider local capabilities, limitations, logistical issues, budgetary realities, and legal requirements. It is recommended that we develop national plans for a comprehensive MDSR system, but are aware that growth in the system is unlikely to be linear and may not occur rapidly. The starting point in Pakistan varies from province to province, processes will vary and elements of the system will be introduced at different times and develop at different rates. The rate of implementation may be limited by lack of resources and other factors; therefore we must begin with projects in specific localities or facilities, which can be scaled up and replicated elsewhere when they prove successful. No one size fits all, and hence this national protocol has intentionally been kept generic enough that it will be applicable for all provinces of Pakistan to accommodate their various implementation strategies.

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APPENDICES

1. Appendix 1. MDF 1- Sample of maternal death notification form

MDF 1: Standard Maternal Death Notification Form for Community and Facility
To be filled out for ALL deaths to women of reproductive age (15-49)
(To be sent to the district MDR Coordinator)

1. Notification

a. Name of Deceased…….. CNIC……..
b. Name of Husband…….. CNIC……..
c. Address……
d. Date of death……..
e. Who informed the death of the woman

Name: ……..……..
Designation: ……..
f. Date of notification……..
g. Name of the Health Worker (if applicable)……..
h. Telephone No ……..……..
i. Signature ……..

2. Screening (to be filled by trained data collector)

a. Age of the woman ……..
b. Did she die while pregnant? Yes No
c. Did she die within 42 days of termination of pregnancy? Yes No
d. Did she miss a period before she died? Yes No
e. Place of death:
   i. Home
   ii. On the way
   iii. Hospital
   iv. Managed at facility

If answer to ANY of questions b-d is Yes than the case is a probable maternal death and requires an MDR to be conducted.

f. Suspected Maternal Death Yes No
g. Name of investigator ……
h. Date ……..……..
i. Signature ……..……..

2. Appendix 2. MDF 2- Sample form for data collection in facility

MDF 2 Facility based Maternal Death Data Collection Form
CONFIDENTIAL

A. Administrative

Case number:_____ Primary cause of death (ICD-MM):_____

District where death occurred:_____ Final cause of death (ICD-MM):_____

Hospital where death occurred:_____

Date received:_____

Contributory/Antecedent causes of death (ICD-MM):

1:_____

2:_____

3:_____

Preventable death: Yes ☐ No ☐

Form Filled by: _____ Designation _____

B. Identification/ Back ground information

No.	Question	Response
1	Medical Record Number of the deceased	
2	Age of deceased	
3	Ethnicity	
4	When did the death occur?	1. In transit 2. While waiting for treatment 3. Following start of treatment
5	Place of usual residence City_____ Village_____ Tehsil_____ District_____ House number_____	
6	Educational status of the deceased	1.Illiterate 2. No formal education, but can read and write 3. Grade completed _____ 4. Don't know
7	Marital status of the deceased	1. Single 3. Divorced 2. Married 4. Widowed
8	Attendant/Husband Telephone #	
9	Attendant/Husband CNIC #	
10	Level of education of the husband	1.Illiterate 2. No formal education, but can read and write 3. Grade completed _____ 4. Don't know
11	Occupation of the deceased	1. Farmer 5. Unemployed 2. Merchant/tradesperson 6. Public employee 3. House wife 7. Others (specify) _____ 4. Daily labourer
12	Occupation of the husband	1. Farmer 4. Daily labourer 2. Merchant/tradesperson 5. Public employee

		3. Unemployed 6. Others _____
13	Monthly income, if possible	_____Rupees
C. Death and admission information		
1	Date of admission	
2	Date of delivery	
3	Date of death	
4	Day of death	1. Monday 5. Friday 2. Tuesday 6. Saturday 3. Wednesday 7. Sunday 4. Thursday
5	Did death occur on a holiday?	
6	Status of pregnancy on admission	1. Antepartum undelivered 2. Intra-partum 3. Postpartum 4. Abortion 5. Ectopic
7	Condition on admission	1.Stable 3. Critical 2.Serious 4. Dead on arrival
8	Other condition specify	
9	Status of pregnancy at death	1. Antepartum undelivered 2. Intra-partum 3. Postpartum 4. Abortion 5. Ectopic
10	Gestation at death or at delivery (weeks) if died after delivery	
11	Days since pregnancy ended (either by delivery, miscarriage, ectopic)	
12	Reasons for admission	
13	If admission due to abortion complications fill in next section	
14	POG	
15	Who provided care	
16	Method used	1.Misoprostol 3. Foleys 2. Oxytocin 4. D&C others
D. Referral		
1	Is it a referred case? *If "No" go to next section.*	☐ Yes ☐ No
2	Referred from (type of health facility)	☐ BHU ☐ RHC ☐ THQ ☐ DHQ ☐ Tertiary hospital ☐ Private hospital ☐ CMW Home ☐ Clinic ☐ Other (specify) _____

3	Who provided care? (Tick ALL that apply)	☐ Dai/TBA ☐ CMW ☐ LHV ☐ Nurse ☐ Doctor ☐ Don't know
4	Reason for referral	
5	Comment on referral	• Accompanied by health worker • Appropriate management
6	Summary of management at referring hospital	
E.	**Antenatal Care**	
1	Attended ANC? If "NO "go to next section	☐ Yes ☐ No ☐ Not known
2	If yes, gestational age in months at the first visit	
3	If yes type of facility?	☐ BHU ☐ RHC ☐ THQ ☐ DHQ ☐ Tertiary hospital ☐ Private hospital ☐ CMW Home ☐ Clinic ☐ Other (specify) _____
4	Number of visits	
5	who provided care (Tick ALL that apply)	☐ Dai/TBA ☐ CMW ☐ LHV ☐ Nurse ☐ Doctor ☐ Don't know
6	Basic package of services provided in ANC (Tick ALL that apply)	☐ Hep B,C follow up ☐ BP measurement during the ☐ Hgb supplementation ☐ Iron, folic acid ☐ Blood group, ☐ TT immunization ☐ HIV status, ☐ Other (Specify) _____ ☐ Urine analysis
F. Relevant history of the deceased woman		
1	Gravidity	
2	Parity	

3	Outcome of previous pregnancies	• No. of living children:_____
		• No. of live births: _____
		• No. of ectopics:_____
		• No.of still births:_____
		• No of abortions:
		  ○ Induced:_____
		  ○ Spontaneous:_____

4	Antenatal risk factors	☐ Pre-eclampsia / eclampsia ☐ Anemia ☐ Placenta praevia ☐ Malaria ☐ Previous Caesarean Section ☐ UTI/pyelonephritis

		☐ Multiple gestation ☐ Unintended pregnancy ☐ Abnormal lie/presentation ☐ PPROM ☐ Pre-term labour ☐ Other (specify)
5	Pre-existing medical conditions	☐ Hypertension ☐ Tuberculosis ☐ Diabetes ☐ Anemia ☐ Hepatitis ☐ Heart Problem ☐ Others _____
G. Physical examination on admission		
1	Vital signs/General physical examination	1. Height _____ 2. Weight_____ 3. Blood Pressure_____ 4. Respiration rate_____ 5. Jaundice_____ 6. Cyanosis_____ 7. Anaemia _____ 8. Temperature 9. Pulse_____ 10. Odema_____
2	Systemic examination (any abnormality)	
H. Abdominal examination		
1	Fundal height	
2	Fundal height to gestational age discrepancies	
3	Presentation	
4	Fetal heart	
5	Other abdominal findings	
I. Laboratory work		
1	Blood group	
2	RH	
3	Haemoglobin	
4	Haematocrit	
5	WBC count	
6	Platelets	
7	CRP	
8	RBS	

9	Other blood chemistry	
10	Urine analysis	
11	Liver Function Tests	ALT:_____ ALP:_____ Bil:_____
12	Renal Function Tests	Creatinine:_____ Urea:_____
13	Coagulation Profile	PT:_____ APTT:_____ INR:_____
14	Hep B	1. Positive 2. Negative 3. Not done
15	Hep C	1. Positive 2. Negative 3. Not done
16	HIV	1. Positive 2. Negative 3. Not done
17	Rubella	1. Positive 2. Negative 3. Not done
J. Delivery perpurium and neonatal information		
1	Date of delivery	
2	Place of delivery	1 Home 2. On transit 3. H/post 4. H/center 5. Hospital 6. Clinic
3	If delivered, what is the outcome?	1. Live birth 2. Stillbirth
4	If yes, duration of labour	
5	Was a partogram used?	☐ Yes ☐ No ☐ Not applicable
6	Length of ruptured membranes	
7	Estimated gestational age at delivery	
8	Was active management of the third stage of labour done?	☐ Yes ☐ No
9	If she has delivered, what was the mode of delivery?	1. Spontaneous vaginal delivery, 2. Operative vaginal delivery (vacuum or forceps) 3. Destructive vaginal delivery for dead fetal outcome 4. Operative Abdominal delivery (caesarean section or Hysterectomy)
10	Intrapartum events (Tick ALL that apply)	☐ Intrapartum hemorrhage ☐ Intrapartum infection ☐ Pre-eclapmsia/ Eclampsia ☐ Obstructed labour
11	Comments on labour and delivery	
12	Postpartum events (Tick ALL that apply)	☐ Retained Placenta ☐ Postpartum hemorrhage ☐ Postpartum infection ☐ Pre-eclapmsia/ Eclampsia

13	Comments on puerperium	
K. Neonate		
1	Gestational age	_____ weeks
2	Attendant at the time of delivery	1. Midwife 2. Nurse 3. House officer 4. Medical officer 5. Consultant
3	Did the paediatrician receive the baby?	☐ Yes ☐ No
4	Choose the applicable option.	1. Singleton 2. Twins 3. Higher multiples
5	Sex of baby	1. Male 2. Female 3. Ambigious
6	Outcome of birth	1. Alive 2. Still birth a. Fresh b. Maserated
7	Birth weight	
8	Apgar at one minute	
9	Apgar at five minutes	
10	Was vaccination received by the new-born?	1. Polio 2. Bcg 3. No 4. Don't know
11	Did baby receive vitamin K injection?	☐ Yes ☐ No ☐ Don't know
12	Was breastfeeding initiated?	☐ Yes ☐ No ☐ Don't know
13	Was baby resuscitated?	☐ Yes ☐ No ☐ Don't know
L. Interventions		
1	Early pregnancy (Tick ALL that apply)	☐ Evacuation ☐ Laprotomy ☐ Hysterotomy ☐ Transfusion
2	Anterpartum (Tick ALL that apply)	☐ Transfusion ☐ Version ☐ Labour induction oxytocin, misoprostol ,prostaglandin ☐ Magnesium Sulphate ☐ Antibiotics

3	Intrapartum (Tick ALL that apply)	☐ Instrumental delivery ☐ Symphysiotomy ☐ Cesarean ☐ Hysterectomy ☐ Transfusion ☐ Magnesium Sulphate ☐ Antiobitics
4	Postpartum (Tick ALL that apply)	☐ Evacuation ☐ Laprotomy ☐ Hysteretomy ☐ Hysterectomy ☐ Transfusion ☐ Magnisium Sulphate ☐ Antibiotics ☐ Oxytocin ☐ Misoprostol
5	Other Interventions	☐ General Anesthesia ☐ Epidural ☐ Spinal ☐ Local ☐ ICU Ventilation ☐ Invasive mentoring
6	Other interventions:	
M. Cause of death		
1	Case Summary (supply a short summary of the events surrounding the death):	
N. Barriers to Care and Remedial Factors		
1	Did women or family recognize there was a problem?	☐ Yes ☐ No
2	Did the health provider recognize there was a problem?	☐ Yes ☐ No
3	Was there a delay by the women seeking care?	☐ Yes ☐ No
4	If delay, why? Include personal, family oriented, and community oriented problems including social and financial:	
5	Was there a delay in transport care or between health facilities?	☐ Yes ☐ No
6	If the delay why? Include communication,	

	access, transport to facility and between facility problems:		
7	Was there a problem in the medical care received at the facility?	☐ Yes	☐ No
8	If yes, was the problem antenatal?	☐ Yes	☐ No
9	If yes, was the problem intrapartum?	☐ Yes	☐ No
10	If yes, was the problem postpartum?	☐ Yes	☐ No
11	If yes, was the problem resuscitation?	☐ Yes	☐ No
12	If yes, was the problem anesthesia?	☐ Yes	☐ No
13	If yes, was the problem unprofessional conduct?	☐ Yes	☐ No
14	Comments on potential avoidable factors, missed opportunities and substandard care:		
O. Action items			
1	Preventable death	☐ Yes	☐ No
2	What have you and your facility learned from this case?		
3	How will what you learned change your practice?		
4	What recommendations and actions will you take in the future?		

3. Appendix 3. MDF 3- Sample form for maternal and neonatal death data collection in community (from Punjab experience)

جائزہ فارم برائے اموات زچہ

تاریخ: ____

سیکشن اے: فارم بھرنے والے کی معلومات

فارم بھرنے والے کا نام: ____ فارم بھرنے والے کا عہدہ: ____

گاؤں / محلہ: ____ یوسی، تحصیل، ضلع: ____

کیس نمبر: ____ کیا زچہ کی وفات کی اطلاع صحیح تھی؟ ☐ ہاں ☐ نہیں

معلومات فراہم کرنے والے کا نام: ____ معلومات فراہم کرنے والے کا مرحومہ سے رشتہ: ____
[illegible]

معلومات فراہم کرنے والے کا شناختی کارڈ نمبر: ____ رابطہ نمبر: ____

سیکشن بی: زچہ کی ذاتی معلومات

زچہ کا نام: ____ عمر: ____ سال (مکمل شدہ) مرحومہ کی تعلیم: ____ سال (مکمل شدہ):

شوہر کا نام: ____ شناختی کارڈ نمبر: ____ خاندان کی ماہانہ آمدنی: ____

زچہ کی وفات کی تاریخ: دن: ____ مہینہ: ____ سال: ____

سیکشن سی: زچگی کی معلومات

مرحومہ کی شادی کی تاریخ: دن ____ مہینہ ____ سال ____ شادی کے وقت مرحومہ کی عمر: ____ سال

کیا یہ مرحومہ کا پہلا حمل تھا؟ ☐ ہاں

☐ نہیں اگر نہیں تو حمل کی تعداد: کل زندہ پیدائش ____ کل مردہ پیدائش ____ ضائع ہوئے ____

مرحومہ کے کل زندہ بچوں کی تعداد: ____ لڑکے ____ لڑکیاں

مرحومہ کے متعلقہ حمل اور اس سے پچھلے حمل کے درمیان کتنا وقفہ تھا: ____ سال ____ ماہ

کیا اس حمل سے پہلے کوئی بڑا آپریشن ہوا تھا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

اس سے پچھلے کسی بھی حمل کے دوران کوئی پیچیدگی ہوئی: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

آخری حمل کے دوران معائنہ کروایا (ANC): ☐ ہاں ☐ نہیں ☐ معلوم نہیں

آخری حمل کے دوران کتنی دفعہ معائنہ کروایا: ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ >4 ☐ معلوم نہیں

آخری حمل کے دوران کس سے معائنہ کروایا: ☐ دائی ☐ CMW ☐ LHV ☐ نرس ☐ ڈاکٹر ☐ دیگر ☐ معلوم نہیں

آخری حمل کے دوران LHW / CMW نے وزٹ کیا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

کیا مرحومہ کو حمل کے دوران ANC میں خون کی کمی کا شکار بتایا گیا تھا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

مرحومہ کو حاملہ ہونے سے پہلے کیا ان میں سے کوئی بیماری تھی: ☐ بلڈ پریشر ☐ Diabetes ☐ دل کی بیماری ☐ کینسر ☐ کوئی ذہنی بیماری ☐ کوئی نہیں

مرحومہ کو ANC کے دوران ان میں سے کوئی پیچیدگی تشخیص ہوئی تھی: ☐ ہائی بلڈ پریشر ☐ سوجن ☐ جھٹکے لگنا / دورے پڑنا ☐ بخار / انفیکشن ☐ کوئی نہیں ☐ معلوم نہیں

کیا LHW نے مرحومہ کو زچگی کے لیے ہسپتال / کلینک refer کیا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

کیا حاملہ کو ہسپتال / کلینک میں treatment ملی تھی: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

زچگی کس نے کروائی: ☐ دائی ☐ CMW ☐ LHV ☐ نرس ☐ ڈاکٹر ☐ دیگر ☐ معلوم نہیں

زچگی کا طریقہ: ☐ Normal ☐ Assisted Delivery ☐ Episiotomy (چھوٹا آپریشن) ☐ C-Section (بڑا آپریشن)

اگر Assisted Delivery ہوئی تو کیا Forcsep (آلات) استعمال ہوئے: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

زچگی کی جگہ: ☐ گھر ☐ BHU ☐ RHC ☐ THQ ☐ DHQ ☐ دیگر سرکاری ہسپتال ☐ پرائیویٹ ہسپتال/کلینک ☐ دیگر

فوتگی کی جگہ: ☐ گھر ☐ BHU ☐ RHC ☐ THQ ☐ DHQ ☐ دیگر سرکاری ہسپتال ☐ پرائیویٹ ہسپتال/کلینک ☐ دورانِ سفر ☐ دیگر

اگر فوتگی دورانِ سفر ہوئی تو کیا ☐ گھر سے ہسپتال/کلینک لے جاتے ہوئے ☐ دیگر

آخری حمل کا نتیجہ: ☐ زندہ بچہ ☐ مردہ بچہ ☐ حمل ضائع ہوگیا ☐ زچگی نہیں ہوئی

آخری حمل کا دورانیہ: _____ (مکمل شدہ ماہ) ☐ معلوم نہیں

فوتگی کے وقت عورت: ☐ کا حمل ضائع ہو چکا تھا ☐ فوتگی زچگی سے پہلے ہوئی ☐ فوتگی زچگی کے دوران ہوئی ☐ فوتگی زچگی کے 24 گھنٹے کے اندر ہوئی ☐ فوتگی زچگی کے بعد 42 دن کے اندر ہوئی

سیکشن ڈی: زچہ کی وفات کی وجہ

کیا مرحومہ کا فوتگی سے پہلے خون بہا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں اگر ہاں: ☐ زچگی سے پہلے ☐ زچگی کے بعد

کیا خون معمول سے زیادہ بہا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

کیا زچگی میں معمول سے زیادہ تاخیر ہوئی: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

کیا بدبودار مواد کا اخراج ہوا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

کیا پیٹ میں شدید درد ہوا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

سیکشن ای:

فوتگی سے پہلے مرحومہ کو سرکاری ہسپتال لے جایا گیا تو درج ذیل سوالات کے جوابات دیں۔

ہسپتال کا نام: _____ 2. DHIS CODE: _____

کیا ہسپتال پہنچنے میں تاخیر ہوئی تھی؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

اگر ہاں تو تاخیر کس وجہ سے ہوئی؟

☐ ہسپتال جانے کا فیصلہ کرنے میں تاخیر ☐ ایمبولینس ملنے میں تاخیر ☐ ہسپتال کافی دور تھا ☐ دیگر (وضاحت) _____

کیا ہسپتال میں عملہ موجود تھا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

اگر ہاں تو کیا عملے نے تعاون کیا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

اگر نہیں تو؟

☐ عملہ بدسلوکی سے پیش آیا ☐ عملے نے Treatment دینے میں بے جا وقت لیا ☐ دیگر (وضاحت) _____

کیا ہسپتال میں ڈاکٹر موجود تھا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

اگر ہاں تو کیا آپ کو Treatment ملا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

اگر نہیں تو کیا؟

☐ ہسپتال میں ادویات کی عدم موجودگی تھی ☐ میڈیکل ٹیسٹ کی سہولت میسر نہیں تھی ☐ ہسپتال میں آلات موجود نہیں تھے / کام نہیں کر رہے تھے

☐ عملے کی قابلیت اطمینان بخش نہیں تھی ☐ دیگر (وضاحت) _____

سیکشن ایف:

آپ کے خیال میں کس وجہ سے فوتگی واقع ہوئی: _____

☐ میڈیکل معاونت حاصل کرنے کا فیصلہ لینے میں تاخیر (Delay 1) ☐ ہسپتال پہنچنے میں تاخیر (Delay 2)

☐ ہسپتال میں treatment کی عدم دستیابی (Delay 3) ☐ کوئی تاخیر نہیں (No Delay)

کیا Death Certificate موجود ہے ☐ ہاں ☐ نہیں ☐ معلوم نہیں

اگر ہاں، کیا میں دیکھ سکتی ہوں ☐ ہاں ☐ نہیں

اگر ہاں تو Certificate پر موجود وجہ نوٹ کی: _____

سیکشن بی:

To be filled by the Gynecologist

Medical Cause of Death

Probable Cause of Death: _____

Date: _____ Signature:_____

تصدیق/وجوہات فارم برائے اموات بچہ

(نوزائیدہ)

SECTION A

1a. فارم بھرنے والے کا نام: _____ 1b. فارم بھرنے والے کا عہدہ: _____

1c. فارم بھرنے کی تاریخ: _____ 1d. BHU –U/C _____

1f. گاؤں/محلّہ _____ 1g. ضلع: _____

2. کیس نمبر#: _____

3. کیا فوتگی کی اطلاع صحیح تھی؟ ☐ ہاں ☐ نہیں

4a. معلومات فراہم کنندہ کا مرحوم بچے سے رشتہ (ترجیحاً وہ شخص جو موت کے وقت موجود ہو): _____ 4b. فون نمبر: _____

SECTION B

1a. بچہ کا نام (اگر دیا گیا ہے): _____ 1b. جنس: ☐ لڑکا ☐ لڑکی

1c. مرحوم بچے کی تاریخ پیدائش: دن _____ مہینہ _____ سال _____ 1d. عمر: _____ دن _____ گھنٹے _____ منٹ

2. فوتگی کی تاریخ: دن _____ مہینہ _____ سال _____

3a. ماں کا نام: _____ 3b. ماں زندہ ہے؟ ☐ ہاں ☐ نہیں

SECTION C

1a. کیا یہ ماں کا پہلا حمل تھا؟ ☐ ہاں

☐ نہیں 1b. اگر نہیں تو نتیجہ حمل: کل زندہ پیدائش _____ کل مردہ پیدائش _____ ضائع ہوئے _____

1c. کل زندہ بچوں کی تعداد: _____ لڑکے _____ لڑکیاں

1d. ماں کے موجودہ حمل اور اس سے پچھلے حمل کے درمیان کتنا وقفہ تھا: _____ سال _____ ماہ ☐ معلوم نہیں

1e. کیا ماں کا حمل سے پہلے کوئی بڑا آپریشن ہوا تھا: ☐ ہاں ☐ نہیں

1f. کیا ماں کے اس سے پچھلے کسی بھی حمل کے دوران کوئی پیچیدگی ہوئی: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

1g. مرحوم بچے کی وفات سے پہلے کتنے بچے ایک سال سے کم عمر میں وفات پائے: _____

2a. اس حمل کے دوران ماں نے معائنہ (ANC) کروایا تھا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

2b. اگر ہاں، تو اس حمل کے دوران کتنی دفعہ معائنہ کروایا: ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ >4 ☐ معلوم نہیں

2c. آخری حمل کے دوران کس سے معائنہ کروایا: ☐ دائی ☐ CMW ☐ LHV ☐ نرس ☐ ڈاکٹر ☐ معلوم نہیں

3a. کیا ماں نے اس حمل میں ٹی ٹی کے انجکشن لگوائے تھے: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

3b. اگر ہاں، تو کتنے حفاظتی ٹیکے لگوائے تھے: ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ >4 ☐ معلوم نہیں

4. متعلقہ حمل کا دورانیہ: ☐ 37 ہفتے سے کم ☐ 37 ہفتے سے زیادہ

4a. متعلقہ زچگی کی جگہ: ☐ گھر ☐ BHU ☐ RHC ☐ THQ ☐ DHQ ☐ Tertiary Care
☐ پرائیویٹ ہسپتال/کلینک ☐ دیگر ☐ CMW Home

4b. متعلقہ زچگی کس سے کروائی: ☐ دائی ☐ CMW ☐ LHV ☐ نرس ☐ ڈاکٹر ☐ دیگر ☐ معلوم نہیں

4c. متعلقہ زچگی کا دورانیہ:

Primi Gravida 4ci ☐ 12 گھنٹے سے کم ☐ 12 گھنٹے سے زیادہ

Multi Gravida 4cii ☐ 8 گھنٹے سے کم ☐ 8 گھنٹے سے زیادہ

5a. پیدائش کے وقت بچے کی پوزیشن نارمل تھی: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

5b. پیدائش کا طریقہ: ☐ Normal ☐ Assisted Delivery ☐ Episotomy (چھوٹا آپریشن) ☐ C-Section (بڑا آپریشن)

6a. کیا ہسپتال میں جانے کی وجہ پانی پڑنا تھی؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں 7b. اگر ہاں، تو پانی سے بدبو آرہی تھی: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

SECTION D

1a. پیدائش کے وقت بچے کا وزن: ☐ 2.5 کلوگرام سے کم ☐ 2.5/2.5 کلوگرام یا زیادہ ☐ وزن نہیں کیا/معلوم نہیں

1b. کیا (مرحوم) بچہ پیدائش کے فوراً بعد رویا تھا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں 1c. اگر ہاں، تو کتنی دیر کے بعد: _____ منٹ

1d. مرحوم بچے میں پیدائشی نقائص کی موجودگی: ☐ ہاں ☐ نہیں ☐ معلوم نہیں 1e. کیا ناڑو گردن کے گرد ایک سے زیادہ بار لپٹا ہوا تھا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

2a. پیدائش کے وقت (مرحوم) بچے کی جلد کی رنگت: ☐ نارمل ☐ نیلا ☐ پیلا ☐ معلوم نہیں

2b. پیدائش کے وقت بچے کے کسی عضو سے خون تو نہیں بہہ رہا تھا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

2c. اگر ہاں، تو کوئی چوٹ تو نہیں لگی: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

3a. کیا CMW نے پیدائش کے بعد (مرحوم) بچے کا معائنہ کیا تھا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

3b. اگر ہاں، تو کتنے دن میں: ☐ 24 گھنٹے ☐ 24 – 48 گھنٹے ☐ 3 سے 7 دن ☐ 7 دن سے زیادہ ☐ معلوم نہیں

3c. کیا ماں بچے کی پیدائش کے بعد PNC کیلئے مرکز صحت آئی تھی؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

3d. اگر ہاں، تو کیا بچے کو ساتھ لائی تھی؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

3e. بچے کا معائنہ کس نے کیا؟ ☐ CMW ☐ LHV ☐ نرس ☐ ڈاکٹر ☐ دیگر ☐ معلوم نہیں

f. کیا (مرحوم) بچے کو مندرجہ ذیل پولیو احتیاطی ٹیکے لگے تھے؟ (a) بی سی جی ☐ ہاں ☐ نہیں ☐ معلوم نہیں

(b) پولیو قطرے ☐ ہاں ☐ نہیں ☐ معلوم نہیں

g. کیا ماں نے بچے کو پیدائش کے فوراً بعد اپنا دودھ شروع کروایا تھا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

SECTION E فوتگی کی وجوہات (تفصیلی وضاحت)

1. کیا فوتگی سے پہلے بچے کو ان میں سے کوئی بیماری لاحق تھی: ☐ پیدائشی یرقان ☐ دورے/جھٹکے (تشنج) ☐ ناڑو کی سوزش/انفیکشن ☐ سانس کی بیماری
☐ اسہال ☐ تیز بخار ☐ غذا کی کمی ☐ کوئی نہیں ☐ دیگر (وضاحت) _____

2. فوتگی کی جگہ: ☐ گھر ☐ BHU ☐ RHC ☐ THQ ☐ DHQ ☐ سرکاری ہسپتال ☐ پرائیویٹ ہسپتال/کلینک ☐ دورانِ سفر ☐ دیگر

3. ماں کو حاملہ ہونے سے پہلے کون سی بیماریاں تھیں؟ ☐ بلڈ پریشر ☐ Diabetes ☐ دل کی بیماری ☐ کینسر ☐ خون کی کمی ☐ دیگر

4. حمل کے دوران ماں کو خون کی کمی کا شکار بتایا گیا: ☐ ہاں ☐ نہیں ☐ معلوم نہیں

SECTION F فوتگی سے پہلے مرحوم بچے کو سرکاری ہسپتال لے جایا گیا تو درج ذیل سوالات کے جوابات دیں۔

1. ہسپتال کا نام: _____ 2. DHIS CODE: _____

3. کیا ہسپتال پہنچنے میں تاخیر ہوئی تھی؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

3a. اگر ہاں تو تاخیر کس وجہ سے ہوئی؟

☐ ہسپتال جانے کا فیصلہ کرنے میں تاخیر ☐ ایمبولینس ملنے میں تاخیر ☐ ہسپتال کافی دور تھا ☐ دیگر (وضاحت) _____

3b. کیا ہسپتال میں عملہ موجود تھا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

3c. اگر ہاں تو کیا عملے نے تعاون کیا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

3d. اگر نہیں تو؟

☐ عملہ بدسلوکی سے پیش آیا ☐ عملے نے Treatment دینے میں بے جا وقت لیا ☐ دیگر (وضاحت) _____

3e. کیا ہسپتال میں ڈاکٹر موجود تھا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

اگر ہاں تو کیا آپ کو Treatment ملا؟ ☐ ہاں ☐ نہیں ☐ معلوم نہیں

اگر نہیں تو کیا؟

☐ ہسپتال میں ادویات کی عدم موجودگی تھی ☐ میڈیکل ٹیسٹ کی سہولت میسر نہیں تھی ☐ ہسپتال میں آلات موجود نہیں تھے / کام نہیں کر رہے تھے

☐ عملے کی قابلیت اطمینان بخش نہیں تھی ☐ دیگر (وضاحت) _____

SECTION G

1. آپ کے خیال میں کس وجہ سے فوتگی واقع ہوئی _____

2a. کیا Death Certificate موجود ہے ☐ ہاں ☐ نہیں ☐ معلوم نہیں

2b. اگر ہاں، کیا میں دیکھ سکتی ہوں ☐ ہاں ☐ نہیں

2c. اگر ہاں تو Certificate پر موجود وجہ فوتگی: _____

To be filled by the Pediatrician

SECTION E

Medical Cause of Death

a) Obvious Cause of Death: _____ b) Underlying Cause of Death, if any: _____

☐ Can't be determined

Was the death caused by gaps in service delivery at the hospital Yes ☐ No ☐

Date: _____ Signature: _____

4. Appendix 4. Example of a Committee Worksheet

Committee worksheet

Case number ……
CASE SUMMARY

1. Age……..
2. gravidity parity pregnancy outcome gestational age

   …… …… …… ……

3. Date of admission ……..
4. Date of death ……..
5. Summary of events leading to death.

……

……

QUESTIONS TO CONSIDER
Prior to pregnancy

6. Did the mother have a serious pre-existing condition? ……..
7. Was the pregnancy planned? ……..
8. Was she using birth control? ……..If not, why not?

……

During pregnancy

9. Did the mother receive appropriate & timely antenatal care? ……..

   If she had problems were they appropriately treated? ……..

   Did she comply with medical advice? …….. If not, why not?

……**……**

Intrapartum

10. Was the mother's labour monitored? Prolonged? ……..
11. If she had any problems in labour or delivery did she receive correct care in a timely fashion? ……..
12. Did she deliver with a skilled birth attendant? At a facility? ……..
13. Did she need to be transferred before labour? During labour? After labour?

    ……

Postnatal

15. Was the mother appropriately resuscitated? ……..
16. Was she appropriately cared for in the post natal period? ……..
17. Did she need to be transferred to appropriate level of care? ……..If yes was she transferred? ……..
18. When she became ill was she taken given care in a timely fashion? …….. Was she treated? ……..

COMMITTEE OPINION Action items

19. PRINCIPLE MEDICAL CAUSE OF DEATH:

……

20. Was the death avoidable? ……

21. What factors could have been changed to decrease the risk of death from occurring?

……

……

……

22. Recommendations to reduce deaths from similar causes or circumstances:

……

……

……

5. Appendix 5. Action Plan Template

Action Plan Template Following a Facility Committee Meeting

Case ID (Medical Record Number):

Date of meeting:

Date of Death:

Death preventable yes no

What actions will you take as a result of this case?

Avoidable Factor	Action to be taken as a result of the case	Person responsible for the action to be taken	Timescale	Comment and challenges to completeness of action	Action completed- date	Remark

6. Appendix 6. MDF 4 - Sample summary form for Provincial Committee

Confidential For Review Purposes Only		
MDF 4 Maternal Death Summary Form for Provincial Committee		
The form must be completed for all deaths, including abortions and ectopic gestation related deaths, in pregnant women or within 42 days after termination of pregnancy irrespective of duration or site of pregnancy.		
Questions/Variables		Answers
1	District	
2	Reporting Site	
3	How many of such maternal deaths occurred cumulatively this year at this site?	
4	Date this maternal death occurred (day/month/year)	
5	Maternal death locality (village or town)	
6	Record's unique identifier (year-province - code –district-site-maternal death rank)	
7	Maternal death place (community, health facility, district hospital, referral hospital or private hospital, on the way to a facility)	
8	Age (in years) of the deceased	
9	Gravida: how many times was the deceased pregnant?	
10	Parity: how many times did the deceased deliver a baby of 28 weeks, dead or alive?	
11	Time of death (specify: during pregnancy, during delivery, during the immediate post partum period, long after delivery, abortion, ectopic).	
12	If abortion: was it spontaneous or induced?	
Maternal Death History and Risk Factors		
13	Was the deceased receiving any antenatal care? (Yes or No)	
14	Did she have Malaria? (Yes or No)	
15	Did she have Hypertension? (Yes or No)	
16	Did she have Anaemia? (Yes or No)	
17	Did she Abnormal Lie? (Yes or No)	
18	Did she undergo any previous Caesarean Section? (Yes or No)	
19	What was her HIV ,hepatitis ,Status? (+, – or Unknown)	
Delivery, Puerperium and Neonatal Information		
20	How long (hours) was the duration of labor?	
21	What type of delivery was it? (choose from 1 = vaginal non assisted, 2 = vaginal assisted (vacuum or forceps), 3 = caesarean section	
22	What was the baby's status at birth (Alive or Stillborn)	
23	In case of live birth, was the baby still alive within 28 days of birth? (choose 1 = still alive, 2= neonatal death, 3= died beyond 28 days of age)	
24	Was the deceased referred to any health facility or hospital? (Yes, No, or Don't Know)	
If yes, how long did it take to get there? (hours)		

25	Did the deceased receive any medical care or obstetric/surgical interventions for what led to her death? (Yes, No, or Don't Know)	
	If yes, specify where and the treatment received*	
26	Primary (underlying) Cause of the Maternal Death	
27	Secondary Cause of the Maternal Death	
28	Analysis and Interpretation of the information collected so far (investigators opinion on this death)	
29	Remarks	
30	Maternal Death Notification Date (day/month/year)	

* Treatment Received: I.V. Fluids; Plasma; Blood Transfusion; Antibiotics; Oxytocin; Anti-seizure drugs; Oxygen; Anti-malarial drugs; Surgery; Manual removal of placenta; Manual intra uterine aspiration; Curettage; Laparotomy; Hysterectomy; Instrumental Delivery (Forceps, Vacuum); Caesarean section; Anesthesia (general, spinal, epidural , local)

Definitions:
Gravida: The number of times the woman was pregnant.
Parity: The number of times the woman delivered a baby of 22 weeks/500g or more, whether alive or dead

7. Appendix 7. Sample Implementation planning tool

	PHASED IMPLEMENTATION				
COMPONENT	SITUATION ANALYSIS	YEAR 1	YEAR 2	YEAR 3	PROPOSED FINAL TARGETS
OVERALL SYSTEM INDICATORS					
MDSR policy in place					Yes
Maternal death is a notifiable event (24 hours) / national policy requires notification					Yes
MDSR guidelines, standards developed or updated, and implemented					Yes
Financial resources available					Yes
National maternal mortality report published annually					Yes
Designated lead person responsible for MDSR identified at all levels					Yes
National maternal death review committee meets regularly					Yes
– multi-disciplinary representation					yes
% of districts with maternal death review committees					100%
% of districts with someone responsible for MDSR					100%
IDENTIFICATION AND NOTIFICATION					
Guidelines to enhance detection					Yes
– Guidelines define information channels and flow					Yes
Facility:					
All maternal deaths are notified					Yes
% within 24 hours					>90%
Community:					
All maternal deaths are notified					Yes
% within 24 hours					>90%
% of communities with "zero reporting monthly"					100%
Electronic devices are used to get faster and more complete notification from communities					Yes
District					
% of expected maternal deaths that are notified					>90%
Electronic devices are used to get faster and more complete notification from communities					Yes
Review					
District					
District maternal mortality review committee exists					Yes
– and meets regularly to review facility and community deaths					At least quarterly
– % of reviews that included community participation and feedback					100%
Electronic devices are used to get faster and more complete notification from communities					Yes
DATA QUALITY					
Guidelines on Cause of Death (COD) exist					yes
– Guidelines use ICD10 coding					Yes
Completeness of data collection					yes
Cross check data from facility and community on same maternal death					5% of deaths cross-checked
Sample of WRA deaths checked to ensure they are correctly identified as not maternal					1% of WRA rechecked
ANALYSIS					
Analysis plan developed					Yes
Calculate hospital maternal mortality ratio (usually for high volume deliveries)					yes
Calculate hospital case fatality rates (may be done at facility level or district level)					Yes
Analysis can produce district maternal mortality ratios					yes
Analysis provides data for action for all stakeholders					Yes

RESPONSE					
Plan for response developed					Yes
Facility					
% of committee recommendations that are implemented					>80%
– quality of care recommendations					>80%
– other recommendations					>80%
District					
% of committee recommendations that are implemented					>80%
REPORTS					
National Committee produces annual report					Yes
– Annual report available publically					Yes
District committee produces annual report					Yes
– Discusses with key stakeholders including communities					Yes
REVIEW OF THE SYSTEM					
The maternal death surveillance and response system is reviewed annually in terms of completeness of surveillance and quality of the response, including actions to improve quality of care					Yes
QUALITY OF CARE					
Quality of care assessments are conducted in a sample of maternity facilities on a regular basis					Yes
– Indicators are used to measure quality of care					Yes

8. Appendix 8. Sample monitoring and evaluation tool

Monitoring and Evaluation Tool	
Indicator	**Sample target**
Overall system indicators	
Maternal death is a notifiable event	Yes
Perinatal death is a notifiable event	Yes
National MPDSR Committee exists	Yes
- that meets regularly	At least quarterly
National maternal and perinatal mortality report published	Yes, annually
% of districts with maternal death review committees	100%
% of districts with perinatal death review committees	100%
Identification and notification	
Heath Facility:	
% of facilities with 'zero reporting' monthly	100%
All maternal deaths are notified	Yes
- % within 24 hours	>90%
All perinatal deaths are notified	Yes
- % within 24 hours	>90%
Community:	
- % of communities with 'zero reporting' monthly	>90%
- % of community maternal deaths notified within 48 hours	>90%
- % of community perinatal deaths notified within 48 hours	>90%
Review	
Health facility:	
- % of hospitals (> 500 births) with a review committee	100%
- % of health facility maternal deaths reviewed	100%
- % of health facility perinatal deaths reviewed	100%
- % of reviews that include recommendations	100%
Community:	
- % of notified maternal deaths that are reviewed by district	>90%
- % of perinatal deaths that are reviewed by district	>90%
District:	
District maternal mortality review committee exists	Yes
District perinatal mortality review committee exists	Yes
- Meets regularly to review deaths	At least quarterly
- % of reviews that included community participation and feedback	100%
Data quality indicators	
Cross-checks from facility and community on same maternal death	5% of deaths
Sample of WRA deaths checked to ensure they are correctly identified as not maternal	1% of WRA rechecked
Response	
Facility:	
- % of committee recommendations that are implemented	>80%
- Quality of care recommendations	>80%
- Other recommendations	>80%
District:	
- % of committee recommendations that are implemented	>80%
Province:	

- % of committee recommendations that are implemented	>80%
Reports National committee produces annual report Provincial committee produces annual report District committee produces annual report	 Yes Yes Yes
Impact Quality of care (requires specific indicators) Province maternal mortality ratio District maternal mortality ratio Hospital maternal mortality ratio	 Reduced by 10% annually Reduced by 10% annually Reduced by 10% annually

9. Appendix 9. Sample Coding System

Sample Coding system

The following system will be used in coding a maternal death:

- Three letters for the province
- Three letters for the District
- Three letters for the Tehsil
- Three letters for the HF
- Year in calendar on which the death occurred :last 2 digits
- Month number in on which the death occurred: 2 digits
- Serial number for the individual death in the HF in the month of investigation 2 digits

10. Appendix 10. Sample of Perinatal Death Review Form

Note: this form is not referenced above since details of perinatal death are collected on the maternal death form. However, it is being provided here as a sample for use once a facility is ready to begin reviewing perinatal deaths that occur independently of maternal death.

FACILITY DEATH REVIEW FORM - PERINATAL

CONFIDENTIAL

For official use only

Form filled by (Name) _____ Designation _____

Section A: General Information

Name of health facility _____

DHIS code _____

District _____

Tehsil_____

UC _____

Date of death _____ Time of death _____

Section B: Details of Infant

1	Name of baby	
2	Medical record number	
3	Name of mother	CNIC:
4	Name of father	CNIC:
5	Complete Address	_____ _____
6	Date of birth	
7	Time of birth	
8	Age of baby	Days: _____ Hours: _____ Minutes: _____
9	Gender	*Please tick the correct response* Male Female Undetermined
10	Weight at birth	*Please tick the correct response* <2.5 kg 2.5- 4 kg >4 kg Don't Know
11	Gestational age	Please tick the correct response Preterm Term Post term Don't Know

12	Place of Birth	Please tick the correct response Home / MCH Center / BHU RHC / THQ / DHQ Tertiary hospital / Private hospital In-transit / Other: _____
13	Place of Death	*Please tick the correct response* Home / MCH Center / BHU RHC / THQ / DHQ Tertiary hospital / Private hospital In-transit / Other: _____
14	Verified as neonatal death *(death within 28 days after birth)*	*Please tick the correct response* Yes / No / Don't know
Section C: Parents Information		
Mother		
15	Is the mother formally educated	*Please tick the correct response* Yes / No / Don't know If YES: Primary / Middle / Matric / Higher

Father		
16	Is the father formally educated	*Please tick the correct response* Yes / No / Don't know If YES: Primary / Middle / Matric / Higher
Section D: Details of admission at reporting health facility		
17	Time of Admission	Hours (Use 24 hours clock time)

	Was baby referred from another health facility	*Please tick the correct response* Yes / No / Don't know IF YES, tick the type of facility from where referred: MCH Center / BHU / RHC / THQ DHQ / Tertiary hospital / Private hospital Other: _____
19	Reason for admission/diagnosis at admission	*Please tick the correct response* Feeding problem / Loose stools / Vomiting Dehydration / Fast breathing / Cyanosis Abdominal distension / Anuria / Cough Small baby / Excessive crying / Jaundice Fever / Fits / Lethargy / Malformation Physical injury / Skin rashes / Skin pustules Any other medical condition: None of above / Umbilical cord infection
20	Condition at Admission	*Please tick the correct response* Stable / Sick / Critical
21	Spontaneous cry at birth	*Please tick the correct response* Yes / No / Don't know If YES, when did the baby cry after birth? Immediately / Delayed / Don't know
22	Early breast feeding started (Within one hour of birth)	*Please tick the correct response* Yes / No / Don't know
23	Anything given to baby to drink other than breast milk	*Please tick the correct response* Yes / No / Don't know

24	Congenital deformity at birth	*Please tick the correct response* Yes No Don't know
25	Number of babies delivered in current delivery	*Please tick the correct response* Single Twin Multiple Don't Know

Section E: Pregnancy and delivery details		
26	Antenatal care received during current pregnancy	*Please tick the correct response* Yes No Don't know If YES, who provided ANC: Dai CMW LHW LHV Nurse Doctor Other:
27	Number of times the mother received antenatal care during the pregnancy	*Please tick the correct response* 1 2 3 4 >4
28	Risk factors identified during ANC	*Please tick the correct response* Yes No Don't know If YES, tick the risk factors identified: Multiple pregnancy Previous C-section Large baby Small baby Pre-term labor Abnormal presentation Anemia Diabetes Mental illness Tuberculosis Heart disease Any other medical condition:
29	Reasons if ANC not received	*Please tick all the appropriate choices* Lack of awareness Lack of accessibility Lack of funds Lack of family support Family problems Lack of staff to provide ANC Others: Not applicable
30	How long was the labor?	_____ hrs

31	Nature of delivery	*Please tick the correct response* Normal vaginal delivery Assisted vaginal delivery Episiotomy performed C-section

Probable cause of death: _____

Name of HCP who attended patient with designation: _____

Date: _____

Comments by specialist:

_____

_____

_

Name of specialist and designation: _____

Date: _____