# STATISTICS AND STORIES: IMPROVING THE QUALITY OF MATERNAL AND NEONATAL HEALTH IN EUROPE

UNFPA

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## THE *ENTRE NOUS* EDITORIAL ADVISORY BOARD

# EDITORIAL

**Daisy Mafubelu**

As we near the countdown to 2015 and reflect on the progress made towards the Millennium Development Goals, it will come as no surprise to those who work in the international arena of maternal health that progress has been slow. It is unfortunate that while investing in the health and status of women has long been recognized as essential to sustainable development of societies, that in 2010, of all the human development indicators, the largest gaps in equity are those associated with maternal health.

Pregnancy and childbirth should be a time of celebration, joy and happiness, yet for many women it is also a time of suffering and adverse outcomes. Annually, around the world, just over half a million women die due to complications in pregnancy and childbirth; many more incur significant morbidity such as obstetric fistula. While within the WHO European Region, the overall picture of maternal health is positive, with low maternal mortality rates and good access to skilled care, wide variation exists both among and within countries; 42 fold differences in maternal mortality rates exist among select countries in the Region.

The majority of the time, those of us working in maternal health have a tendency to discuss such events in terms of quantitative numbers, presenting them to governments and funding agencies to advocate for increased investment in maternal health and utilizing them to benchmark and track achievements in this area. Far too often we neglect the underlying stories of individual women, their families and their newborns when focusing on the issue of maternal health, their voices silent not because they are not speaking, but because as a society we forget to listen. Yet it has become increasingly clear to all of us who collect and use the numbers, that this alone is not enough. To eliminate these inequities in maternal health we need to move beyond acknowledging these differences and delve further into why they exist. Beyond the Numbers, a tool developed by WHO's Making Pregnancy Safer Programme provides countries with the framework and skills to do just this. Techniques such as verbal autopsy, confidential inquiries into maternal deaths, near miss case reviews and case audits explore the individual stories that provide us with the social-cultural and contextual insights that simply counting the numbers are unable to do. These insights are what are required if we are serious about improving maternal health.

This year's June meeting in Kazakhstan marks many achievements in accelerating progress towards improving maternal health within the WHO European Region. The lessons learned, successes, challenges and future directions that will be shared at this meeting hold importance not only for those countries involved with this Making Pregnancy Safer initiative in the Region, but for all those involved in the field of maternal health. The WHO Regional Office for Europe, other UN agencies, international organizations, national professional organizations and national governments have worked together to make maternal health a priority in the Region, especially among those countries with the greatest need. Development of evidence based guidelines and standards, implementation of revised maternal health strategies and evolution from a punitive, blame based system of review to one of quality improvement and continual learning and assessment are just a few of the successes to date. Furthermore, the commitment and collaboration of all involved has been instrumental in the overall success of implementing the Beyond the Number's tool, highlighting that where there is a will to make a difference in this field, there is also a way to do so.

On a parting comment I ask that while perusing the articles in this issue of Entre Nous, that as the reader, you take the time to reflect on the role of women, pregnancy and childbirth within your own individual and societal context. Ask yourself if this could happen in your country, or to you or a loved one. Programmes such as Making Pregnancy Safer and initiatives such as Beyond the Numbers, while important, can only accomplish so much. Only when society at large decides and demands that the women behind these numbers are recognized will inequities in maternal health improve. Their stories have been silent for too long.

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# BEYOND THE NUMBERS: METHODOLOGIES FOR REVIEWING MATERNAL DEATHS TO MAKE PREGNANCY SAFER

In response to the apparent woeful lack of progress in reducing maternal deaths worldwide (1), many institutions, regions and countries are starting to count the numbers and causes of their maternal deaths. Whilst this is a welcome first step, merely collecting and counting these numbers, or identifying causes of death from national statistics, does not provide the hard evidence required to really be able to start to develop strategies to overcome the clinical, social and societal barriers to care these mothers face.

In order to develop country or locality based specific safe motherhood strategies there needs to be a more accurate diagnosis of the underlying barriers to care and their root causes. Maternal mortality ratios, the standard international tool widely used for bench marking/measuring improvements in maternal health provide no indication of what clinical conditions individual women are dying from, what factors led to their deaths, how they could be prevented or which specific groups of mothers are dying.

Whilst mothers' clinical causes of death tend to be generally the same, (unsafe abortion, haemorrhage, sepsis, eclampsia and obstructed labour) (1), the real, underlying, reasons why they occur in the first place vary. For example, barriers to care may be due to cultural practice, the poor status of women, a lack of money or transport or local facilities, or poor clinical care. Many of those who work in the field of international women's health use the model of the "Three Delays" to try to explain the barriers pregnant women face in receiving the care they need (2). These barriers may be in the family, the community or the health care system and are often interlinked. For example are women dying because of:

1. A delay associated with the decision to seek care. Were these women or their families unaware of the need for care, of the warning signs of problems, or did financial, family or socio-cultural barriers prevent care from being sought?

Or

2. A delay in arriving at a place of care. Did the services exist in the first place? Was there a lack of transport? Were they too expensive? Or were the facilities inaccessible for other reasons such as poor reputations?

Or

3. A delay in the provision of appropriate care. Was the facility equipped and staffed appropriately and was the care received inadequate or actually harmful?

Experience in a number of countries is emerging which shows that expanding routine data collection into more in depth maternal mortality and morbidity audits is helping answer these underlying questions and providing the backbone for the development to modernized maternity care. The results of these reviews enables the remediable factors and missed opportunities identified to form the basis for national or local guidelines and recommendations for beneficial changes to the health, maternity and neonatal services overall as well as clinical practice (3, 4). Their purpose is to review and learn lessons from mother's deaths occurring during pregnancy, childbirth and in the postnatal period. They review, assess and identify the clinical care the mother received as well as identifying underlying factors which led to mothers' deaths and learn lessons from these in order to develop and promulgate recommendations to overcome the barriers and impediments to safe maternity care in future.

The methodologies to be used can take a number of types as shown in Table 1, depending on the circumstances, the scope and scale of the proposed study and the size of the population to be reviewed. None of them are exercises in just counting numbers of deaths for statistical purposes. Instead, they provide evidence of where the main problems in overcoming maternal mortality lie, an analysis of what can be done in practical terms and highlight the key areas requiring recommendations for health sector and community action, as well as, guidelines for improving clinical outcomes.

These methodologies are discussed and described in depth in "Beyond the Numbers" (BTN) (5), a WHO Making Pregnancy Safer initiative that is also now being promoted by all of the leading international safe motherhood organizations. Box 1 shows the common key points of the various methodologies, and Figure 1 shows the important maternal mortality and morbidity review and action cycle, for without action these reviews are fruitless. So far over 50 countries have attended or held BTN workshops; most countries in the WHO European Region have or are planning to start undertaking their own reviews with more about to follow suit.

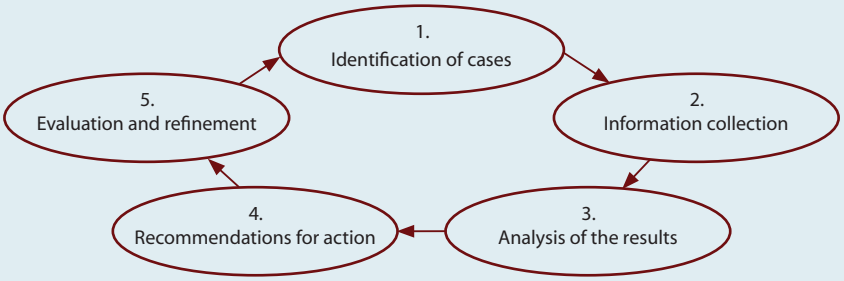
Learning lessons and acting on the results or the review is the whole purpose

**Table 1. Beyond the Numbers; Methodologies for maternal death or morbidity review (5)**

| Approach | Definition |
|---|---|
| Community-based maternal death reviews (verbal autopsies) | A method of finding out the medical causes of death and ascertaining the personal, family or community factors that may have contributed to the deaths in women who died outside of a medical facility. |
| Facility-based maternal deaths review | A qualitative, in-depth investigation of the causes of and circumstances surrounding maternal deaths occurring at health facilities. Deaths are initially identified at the facility level but such reviews are also concerned with identifying the combination of factors at the facility and in the community that contributed to the death, and which ones were avoidable. |
| Confidential enquiries into maternal deaths | A systematic multi-disciplinary anonymous investigation of all or a representative sample of maternal deaths occurring at an area, regional (state) or national level. It identifies the numbers, causes and avoidable or remediable factors associated with them. |
| Surveys of severe morbidity (near misses) | The identification and assessment of cases in which pregnant women survive severe obstetric complications. |

**Gwyneth Lewis**

**Figure 1: Maternal mortality and morbidity review and action cycle**




of using any of these approaches. Any approach designed to investigate maternal mortality, morbidity or clinical practice in order to improve maternal health uses as its guiding principle the surveillance, or audit, cycle. This is the ongoing process of identifying cases, collecting and analyzing information, devising recommendations for action and implementation and then evaluating the outcome and refining the programme, as shown in Figure 1. The ultimate purpose of the surveillance process is action and not to simply count cases and calculate rates. All these steps, identification, data collection and analysis, action and evaluation, are crucial and needed in a continuing fashion in order to justify the effort and to make a difference. Because action is the ultimate goal of these reviews, it is important that those with the ability to implement the recommended changes actively participate in the process.

The results of the reviews will determine what, if any, avoidable or remediable clinical, health system or community based factors were present in the care provided to the women. The lessons derived enable health care practitioners and health planners to identify and address missed opportunities and/or any remediable factors. They will provide evidence of where the problems are, and highlight the areas requiring recommendations for health sector and community action as well as clinical guidelines. The results can also form a baseline against which the success of changing practice can be monitored. What is important is that the recommendations made should be simple, affordable, effective, and widely disseminated.

On a final note, as long ago as 1954, after the start of the United Kingdom Confidential Enquiry into Maternal Deaths, the longest running example in the world, it was recognized that participating in a confidential enquiry had a "powerful secondary effect"(6). This was *"each participant in these enquiries, however experienced he or she may be, and whether his or her work is undertaken in a teaching hospital, a local hospital, in the community or the patient's home must have benefited from their educative effect (7)."* Personal experience is thus recognized as a valuable tool for harnessing beneficial changes in individual practice.

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**Box 1. Common features and key points of all the BTN maternal mortality and morbidity methodologies**

The aims and objectives are:

- to save more women's and newborns lives, to reduce deaths and complications and to improve the quality of maternity services for the benefit of all pregnant women and their babies,
- to develop a confidential or preferably, anonymous, system of case assessments separate from the legal process to enable those completing the forms as well as those reviewing them to have confidence to reveal the real underlying causes which may have contributed to each mothers death without fear of punitive action,
- through the use of guidelines and recommendations derived from the cases assessed, to help ensure that all pregnant and recently delivered women receive the best possible care, delivered in appropriate settings in ways that takes account of, and meets, their individual needs, and
- to identify the wider non-health system barriers to maternity care and to take action or advocate for beneficial changes such as improved status of women, health education programmes and improved community transport.

➢ The approaches can be used at community, health care facility or at regional or national level.

➢ Different approaches are appropriate for different circumstances, different levels of health service provision and can review a number of different outcomes, not just death.

# IMPLEMENTING "BEYOND THE NUMBERS" ACROSS THE WHO EUROPEAN REGION: STEPS ADOPTED, CHALLENGES, SUCCESSES AND CURRENT STATUS

## Background

While motherhood is a positive and fulfilling experience for most women, pregnancy and childbirth can also be associated with suffering, ill health and death. No issue is more central to global well-being than maternal and perinatal health, yet every year women and newborn babies die from complications that could have been prevented.

WHO launched the Making Pregnancy Safer (MPS) programme globally in 2000 to help countries scale up access to essential interventions to reduce maternal and newborn morbidity and mortality and improve health. Among the complex set of interventions and strategic guidance provided by the MPS Regional Office for Europe, in 2004 a new method for maternal mortality and morbidity case review and audit, The WHO Beyond the Numbers (BTN) manual, was introduced and successfully implemented in countries of the WHO European Region, in collaboration with partners and under the leadership of Ministries of Health. This new method focuses on confidential, evidence-based, participatory approaches and avoids blame and punishment that leads to underreporting and lost learning opportunities: it aims at improving quality of care.

## What is BTN?

BTN is a practical guide written by leading international experts that describes five proven approaches for reviewing cases of maternal death or morbidity. The philosophy of BTN is simple: maternal deaths can be avoided in resource-poor countries and effective interventions can be designed and implemented if information on factors that led to the deaths are understood and known. While the main determinants and causes of maternal morbidity and mortality (hemorrhage, hypertensive disorders, sepsis, unsafe abortion and obstructed labour) have been well documented globally these factors differ across regions, countries, districts and communities. Individual approaches specific to each situation are thus required to examine and address the underlying factors that have played a role in these adverse outcomes.

Such approaches can involve all levels of a health system or be solely at facility level. For example, at an individual level case reviews can provide evidence of where the main problems lie, what can be done in practical terms and what key areas require interventions by the health sector and community, all of which help contribute to the development of up-to-date evidence-based clinical guidelines. Additionally, systematically combining findings of individual reviews of women's deaths into wider maternal death or morbidity reviews allows a more robust analysis; outcomes of such reviews have resulted in practical changes in the provision of maternal care with significant improvements to outcomes of care and also provide a baseline against which to monitor the success of interventions. Such a method for monitoring implementation of recommendations is an essential part of the system, providing stimulus for health sector action and reminding review committees that their recommendations need to be evidence-based. The results of case reviews can also have a powerful advocacy role and can be used by Ministry of Health, government and decision-makers to raise awareness and mobilize national and donor resources.

## Steps towards implementation of BTN

In order to achieve effective implementation of maternal morbidity and mortality case reviews and audits a series of activities were organized by the WHO Regional Office for Europe. These activities included the organization of multi-country meetings, national BTN workshops and preparatory activities, pilot implementation, review by teams of international and national experts and development and implementation of plans for dissemination.

## Regional workshops

The first regional workshop on BTN was held in Kyrgyzstan in 2004 and involved five countries: Kazakhstan, Kyrgyzstan, the Republic of Moldova, Tajikistan and Uzbekistan.

One year later a second regional workshop was held in Armenia involving seven countries: Armenia, Albania, The former Yugoslav Republic of Macedonia, Romania, the Russian Federation, Turkey and Turkmenistan. Participants were representatives from the Ministries of Health, professional organizations and partners. International experts introduced the five BTN methods, discussion followed and recommendations, including required preparatory steps, were developed by participants regarding introduction of BTN in the countries. The majority of the participating countries requested WHO support for the introduction of BTN and began the preparation for official approval of a legal framework to allow introduction of these new BTN methods such as modification or development of required laws, orders and prikazes (a type of decree).

## Prerequisite: updated key clinical guidelines

According to WHO, updated evidence-based clinical guidelines on major conditions and complications, are a prerequisite for provision of quality health care and for conducting case reviews and audits. Therefore, in several countries as a first step for BTN preparation, the MPS WHO Regional Office prioritized capacity building in this area among a core team of top-level clinicians and guideline makers through workshops on evidence-based mother and newborn care. The final goal was to use scientific evidence in the development and updating of clinical guidelines, standards and regulations, with the ultimate objective of introducing changes in clinical practices.

Over the course of the next few years, this lead to the development of a series of clinical guidelines for major obstetric complications by national working groups. These guidelines were reviewed using WHO expertise and endorsed and disseminated by the Ministries of Health. The process of development, official en-

**Alberta Bacci**

dorsement and dissemination of national clinical guidelines was strengthened and accelerated by the WHO recommendations that updated evidence-based guidelines are a key requirement for improving clinical practice and a basis for the introduction of maternal and perinatal audit. In addition, basing audit sessions on updated clinical guidelines, reinforces their use and adoption in clinical practice.

### National BTN workshops

Following requests from the Ministries of Health, national BTN workshops were organized in Armenia, Kazakhstan, Kyrgyzstan, Romania, Tajikistan, the Republic of Moldova, the Russian Federation, Ukraine and Uzbekistan by WHO with partner support. These were attended by obstetricians and gynaecologists, midwives and representatives from areas of psychology and social services, leading medical and teaching institutions, professionals' associations and Ministries of Health.

During these national level workshops two of the BTN approaches were identified for implementation by the participants to improve the quality and outcome of maternal care: Confidential Enquiry into Maternal Deaths (CEMD) at the national level, and near-miss case review (NMCR) at the facility level. Plans of action were then developed in order to implement these two methods at the country level, including technical workshops that were held in Armenia, Kazakhstan, Kyrgyzstan, Romania, Tajikistan, the Republic of Moldova, the Russian Federation, and Uzbekistan. The aim of these technical workshops was to develop tools and mechanisms for introducing NMCR in three to four pilot institutions (3-4) and to develop tools and a framework to set up CEMD at the national level.

### Piloting

The next step in implementation was piloting of the two selected methods. The NMCRs were piloted in selected maternity hospitals in six countries, with technical support of experts from the WHO. The CEMD was initiated in 6 countries by a national team of experts.

The WHO Regional and Country Offices, together with the national coordinators appointed by the Ministries of Health for NMCR, provided additional technical support and follow-up, visiting the pilot maternities and carrying out observations and technical inputs into both NMCR and CEMD sessions. Additional capacity building activities were organized following findings and recommendations, such as a workshop on "How to conduct interviews" held in Uzbekistan by a local expert.

### Review

The final steps in implementing these new methods were international and national expert missions to observe and review the piloting of BTN approaches. These were followed by a workshop for scaling up BTN approaches, held in the Republic of Moldova and Uzbekistan.

These missions clearly documented that after only a few case reviews it was possible to obtain accurate information about maternal care and develop effective, feasible practical solutions to improve quality of care. The greater challenge was to ensure implementation of these solutions in order to improve quality of maternal and perinatal care. These missions also demonstrated that the professionals involved in the reviews understood the purpose and methodology of these approaches, focusing on detection of missed opportunities and elaboration of solutions to improve practices, rather than finding the guilty person and administering punishment. Of note, these expert missions also found that better achievement was observed in sites were WHO trainings and recommendations, such as Effective Perinatal Care, had been introduced or were already in place.

### BTN challenges, successes and lessons learned

Building on the experience with BTN in the WHO European Region a workshop involving selected countries in the Region was held June 14-19 in Uzbekistan, to understand challenges, achievements and to share lessons learned in the BTN implementation process.

One of the greatest challenges faced when implementing these new methods was the length of time that was required to ensure that appropriate legal frameworks and clinical guidelines were in place. However this also represented an excellent opportunity to foster and develop capacity building in these areas within the participating countries. Currently, with WHO support, five of these countries (Kazakhstan, Kyrgyzstan, the Republic of Moldova, Tajikistan and Uzbekistan) are now using two of the BTN approaches: CEMD at the national level and NMCR at the maternity level. Additional challenges included overcoming reluctance on the part of care providers and managers to accept a new system of performing audits after years of belonging to a system of blame and punishment. At the start fear of severe punishment made obtaining clinical records, presenting facts in a transparent manner and working towards solutions difficult. This improved with time and the realization that a systems change had occurred when dealing with maternal deaths. Throughout the entire process, from implementation to dissemination, a critical key for success was the involvement and commitment of the Ministries of Health, partner organizations and key stakeholders.

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# A NUMBERS GAME: COLLECTING DATA ON MATERNAL AND NEONATAL HEALTH IN THE WHO EUROPEAN REGION

Numbers - they can be referred to in many ways - figures, data and/or statistics and can be interpreted in a variety of ways depending on the user. For those who work in the field of international maternal and child health (MCH) they represent much more; the individuals, particularly mothers, infants, children and families whose lives have been altered because of severe maternal and neonatal (MN) morbidity and in far too many cases, mortality.

## Why collect the numbers

Collecting numbers on MN morbidity and mortality is a required first step in being able to address the issue of adverse MN health outcomes. Before countries and governments are able to move beyond the numbers and look in detail at underlying cultural, socioeconomic or health systems factors that are involved in these adverse outcomes, the magnitude of the problem first needs to be identified.

Maternal mortality ratios, perinatal, neonatal death rates and infant death rates are all internationally accepted indicators used to measure and track the progress of countries and regions working towards improving MN health. These indicators provide governments with an idea as to the situation in their own countries and how they compare globally. This data is a crucial piece of information that, at national level, informs reproductive health planning, research and advocacy efforts and, at an international level informs decision making regarding funding support to countries for improvement in maternal, neonatal and child health. The overall status of women and children has long been used as an indicator of a country's development; a sensitive measure of the overall health of the general population.

## Challenges in collection

Numerous challenges exist in trying to accurately determine these indicators and as a result underestimation of MN deaths is far more often the case than the exception. Many factors contribute to this. Reporting of such outcomes requires a well functioning health system that can correctly identify such adverse events and report them to the required governmental bodies. In low resource countries, where the majority of maternal and neonatal deaths occur, poorly functioning vital statistics departments, high levels of unskilled deliveries at home and weak health systems all contribute to underestimation of the true extent of the problem. Secondly where systems of punishment and blame are used by governments for addressing MN death, many cases may be deliberately misclassified or not reported for fear of legal consequences. In addition early pregnancy deaths and those that occur due to non obstetrical causes remain a challenge to detect and record.

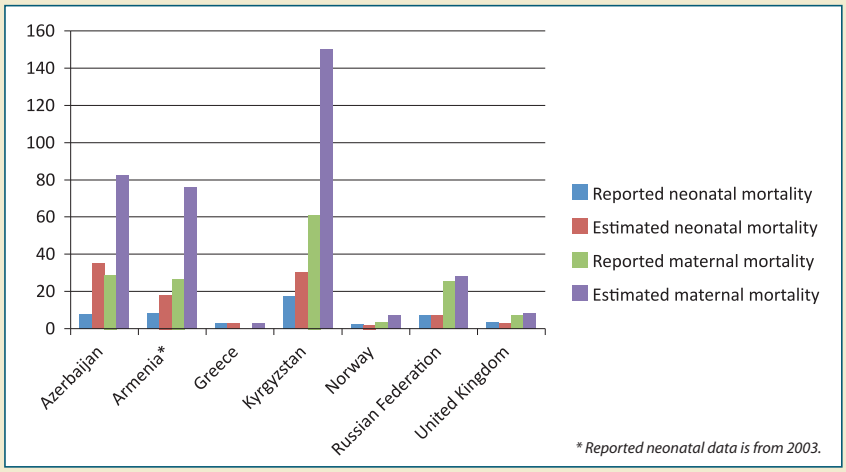
However, under-reporting of MN deaths is not just a phenomenon seen in low resource countries. Middle and high resource countries also struggle to accurately collect these numbers. Within the WHO European Region MN mortality rates vary significantly within and across countries depending on the data source used (figure 1), with official statistics also often missing cases due to misclassification of deaths.

For the reasons outlined above, estimates of maternal mortality (MM) will always have some degree of uncertainty. Different methods for estimating these rates may produce different results, depending on the assumptions used, and this must always be taken into consideration when interpreting the data. The recent Lancet article on MM highlights this issue. Using newly available data sets and geospatial modelling the study predicted MM estimates and trends, reporting a sharper decline in MM than previously identified by UN estimates (387 000 deaths in 2005 compared to 536 000) (1, 4). The difference in estimates is likely a result of both newly available data and different methods used for estimation, with geospatial modelling being a newer advanced methodology. Even with this newer methodology it is important to note that the MM rates still remain unacceptably high and that the discrepancy in MM estimates ultimately reflects the lack of reliable data on maternal deaths.

## What the numbers can and cannot tell us

It is important to be mindful of what these official statistics can and cannot tell us. While they can be used to track progress, compare areas within a country and perform cross country and region comparisons, they are unable to identify what groups of women are dying (i.e. minorities, refugees, poor) or what underlying factors contributed to their deaths. In addition select indicators, particularly those related to perinatal mortality are very sensitive to the definition or terminology used for data

**Figure 1. Reported and estimated maternal (per 100 000 live births) and neonatal (per 1000 live births) mortality for select countries, 2004 (1-3).**



Lisa Avery

collection ( i.e. stillbirth may include intrauterine foetal demise greater than 20 weeks and more than 500 grams or may be restricted to intrauterine foetal demise at greater than 28 weeks). Thus caution must always be taken when attempting to make cross country comparisons, as currently within the European Region many reproductive health indicators are not standardized. It is for this reason that they are limited in terms of developing effective strategies to improve maternal and neonatal health and why relying on these figures alone may not lead to progress in achieving the MDG's. Without an understanding of who is dying, why and where they are dying appropriate strategies that ensure equitable access to quality care and positive maternal and child health outcomes cannot be developed or implemented. For this type of information we need to go beyond the numbers and conduct confidential inquiries into maternal and neonatal deaths, verbal autopsies, facility based audits and near miss case reviews.

## Situation in the European Region

While, since 1994, there has been an overall decline in both MN mortality in the WHO European Region, wide variation is present. Reported data from 2008 ranges from 0 maternal deaths per 100 000 live births in Estonia and The Former Yugoslav Republic of Macedonia to a high of 58.9 maternal deaths per 100 000 live births in Kyrgyzstan and from a low of 1.65 neonatal deaths per 1000 live births in Iceland to a high of 7.89 neonatal deaths per 1000 live births in the Republic of Moldova (1). There also continues to be large differences between reported data and estimated data within countries for these indicators (figure 1).

Recognizing that "better health demands better statistics" in 1999 the EU, as part of its Health Monitoring Programme, created EURO-PERISTAT, a project whose aim was to develop valid, consistent maternal and perinatal health indicators that could be used for monitoring perinatal health throughout the European Union. Clinicians, statisticians and epidemiologists from 25 EU member states and Norway developed and agreed upon a set of 10 core indicators and 24 recommended indicators for monitoring perinatal health (see text box 1). While implementing use of select indicators at country level has proved challenging, in 2009 the project released "The European Perinatal Health Report: comparing the health and care of pregnant women and newborn babies in Europe," the first truly comprehensive report on perinatal health within the European Region, containing a wealth of comparable information on the current status of maternal, neonatal and child health both within and across countries (5).

## Future directions

Any attempts to improve maternal, neonatal and child health are dependent on our knowledge of the present situation. As a result data will always be a prerequisite for improvement. Future attempts at improving the estimation and collection of MN health statistics should focus on:

- Increased collaboration between academic institutions and governments to develop new models and tolls for data estimation and collection;
- Investment in strengthening of health information systems at country level;
- Capacity building at country for collection, analysis and interpretation of data; and
- Standardization and implementation of maternal and perinatal health indicators that allow for comparisons across countries and regions.

Finally, while efforts for improving the robustness of quantitative data should be prioritized at regional, national and global levels, these efforts should be implemented in conjunction with qualitative methods, such as those described in the WHO's Beyond the Numbers tool. This will help to ensure that in addition to recognizing the extent of the problem, the underlying contributing or causal factors are also identified and acted upon.

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**EURO-PERISTAT Core perinatal health indicators.**

**FETAL, NEONATAL, AND CHILD HEALTH**
**C: Foetal mortality rate by gestational age, birth weight, plurality**
**C: Neonatal mortality rate by gestational age, birth weight, plurality**
**C: Infant mortality rate by gestational age, birth weight, plurality**
**C: Birth weight distribution by vital status, gestational age, plurality**
**C: Gestational age distribution by vital status, plurality**

**MATERNAL HEALTH**
**C: Maternal mortality ratio by age, mode of delivery**

**POPULATION CHARACTERISTICS/ RISK FACTORS**
**C: Multiple birth rate by number of foetuses**
**C: Distribution of maternal age**
**C: Distribution of parity**

**HEALTH CARE SERVICES**
**C: Mode of delivery by parity, plurality, presentation, previous caesarean section**

The list of recommended indicators can be found at www.europeristat.com

# IMPROVING QUALITY OF PERINATAL CARE THROUGH CONFIDENTIAL ENQUIRIES IN THE REPUBLIC OF MOLDOVA

In 2002, the global WHO Making Pregnancy Safer (MPS) initiative was launched and the Republic of Moldova was chosen as a pilot country in the European Region. An agreed key focus of the MPS initiative was audits in maternal and newborn health to improve quality of care. In the perinatal field, this initiative was supported by the Safe Motherhood and Newborn Health programme of the International Federation of Gynecology and Obstetrics (FIGO), and entitled *"Beyond the numbers: implementation of new approaches for reviewing perinatal deaths in the Republic of Moldova."*

## The Perinatal Audit project

Although the Republic of Moldova has experienced a reduction in perinatal mortality since 2001, there was no change in the rate for fully grown babies, which accounted for about 50% of all perinatal deaths. Examination of cases at facility level was difficult and often failed to find causes. There was also concern about punitive action, and not surprisingly, it was sometimes difficult to get clinicians' co-operation in in-house assessments of adverse perinatal outcomes. In consultation with Professor Jason Gardosi from the Perinatal Institute in Birmingham, United Kingdom, mentor of the FIGO Moldova Perinatal Audit Project, it was decided to establish a programme of confidential enquiries. The programme was implemented with the help of the Moldovan Society of Obstetrics and Gynaecology, the Association of Midwives and the Association of Perinatal Medicine.

## Confidential Enquiries

Confidential enquiries are a special form of perinatal audit by peer review. Anonymized cases are examined by multidisciplinary panels, evaluating the quality of care against locally applicable standards and determining the preventability of the outcome. In various forms, this model has been running in the United Kingdom for the assessment of maternal deaths (CEMD) and perinatal deaths (CESDI). In recent years it has been further developed by the Perinatal Institute in the West Midlands as an ongoing programme that provides continuous feedback to enhance stakeholder engagement and development of best practice.

The key point in this method is that the panellists examining the case have not been involved in the care and do not even know the identity of the patient or clinical staff. As a result, they are able to give an external assessment which is

- independent, objective and unbiased;
- constructive and blame free rather than punitive;
- able to look at individual as well as systems issues such as protocols, processes, staffing and equipment.

Usually 4-5 cases are discussed during a half day panel meeting. The composition of the panel depends on the type of cases being discussed and includes 6-8 members, with one or two family doctors, obstetricians, midwives and pathologists for antepartum stillbirths, as well as neonatologists for intrapartum and neonatal deaths.

Although not all factors pertinent to a case are contained within the case notes, most key issues can be deducted from them. In addition, the quality of record keeping, fundamental to any form of good clinical care, is also under evaluation. An added bonus is that this method is a rich source of learning for the panel members, due to the educational value of mishaps which could have occurred in any of the panellists own care, and the ability to examine the events freely together with peers. In turn, the panellists become agents for change within their own units.

The project started in 2006 with national stakeholder meetings to agree on standards and develop tools for case review and audit. These include:

- evidence based clinical standards for antenatal, intrapartum and neonatal care,
- proformas for confidential enquiry panel assessment of case notes and,
- verbal autopsy questionnaire for interviewing mother/family with perinatal loss.

After an initial pilot at the three largest maternity centres, the programme has since been extended to all units in the Republic of Moldova. The initial focus was on the assessment of antepartum, intrapartum or neonatal deaths of mature babies (37+ weeks gestation or birth weight > 2500 grams).

| Grade | Definition | Number | Percent |
|---|---|---|---|
| 0 | no substandard care | 2 | 0.9 |
| 1 | substandard care, different management would have **made *no* difference** to outcome | 25 | 10.8 |
| 2 | substandard care, different management ***might* have made a difference** to outcome | 121 | 52.4 |
| 3 | substandard care, different management ***would have reasonably been expected* to have made a difference** to outcome | 83 | 35.9 |

**Table 1. Grading of standard of care in confidential enquiries of perinatal deaths.**

## Findings

Up to March 2010, 282 professionals have been involved in confidential case reviews of a total of 231 perinatal deaths. The most striking finding was that most deaths were avoidable. Cases are graded according to the presence of substandard care and whether that was considered responsible for the outcome. As shown in table 1, in 204 of the 231 cases (88.3%), the outcome was considered to have been possibly (Grade 2) or likely (Grade 3) to have been avoided by better care.

The case reviews resulted in a wealth of learning points at each stage of perinatal


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care, relating to the antenatal surveillance of fetal growth and fetal movements, adequate monitoring with a partograph and cardiotocography (electronic monitoring of the fetal heart) during labour, timely intervention for operative delivery, neonatal resuscitation, and the care of newborns on late shifts and weekends. Additional observations related to the need for awareness of social factors, and better information giving and counselling of mothers about when to seek medical help.

## Actions and Benefits

The confidential enquiry programme into perinatal deaths has resulted in a substantially increased level of awareness that many instances of adverse outcome are preventable, and that the standard of care needs to be raised. The overall level of knowledge amongst clinicians has improved, as has the collaboration between health care providers in the hospital and the community. At a concrete level, the programme has led to improvements of the design of the partograph and the obstetric, neonatal and pathology records.

Follow up audits have shown that by 2009, many more cases were managed according to best practice guidelines, with an increase in use of antenatal growth charts by 39% and partographs by 31%, use of admission fetal heart rate monitoring (31%), and improved neonatal resuscitation (40%). Over the period of 2005 to 2009, the proportion of deaths of mature babies has fallen from 49% to 38%.

Addressing perinatal mortality through such confidential case reviews is part of a wider process where 'the whole is greater than the sum of its parts'. All parties are working together, using the evidence gained from examining adverse outcome to improve practice. The process maintains confidentiality for patients and professionals, while providing a rich source of learning and important messages for clinicians, managers and planners of health services. In its independent assessment of the Republic of Moldova perinatal audit programme on behalf of FIGO, the OPTIONS agency in London concluded that *'The success of this project demonstrates that Moldova could be viewed as an international template for good practice in implementing perinatal mortality audit' (1).*

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# CONFIDENTIAL ENQUIRIES INTO MATERNAL DEATH: HOW THEY ARE IMPROVING CARE WITHIN THE WHO EUROPEAN REGION

## Background

Death of a woman during pregnancy or within six weeks of delivery occurs in about 1 in 10 000 pregnancies in western Europe, but rates are up to ten times higher in countries in the east of the WHO European Region. Confidential Enquiries into Maternal Death (CEMD) are carried out in some countries including the United Kingdom, where CEMD has for decades been regarded as an indispensable audit tool for improving care (1). The benefits of CEMD are now being recognized more widely and several countries in the WHO European Region are introducing the method with the aim of making pregnancy safer (2).

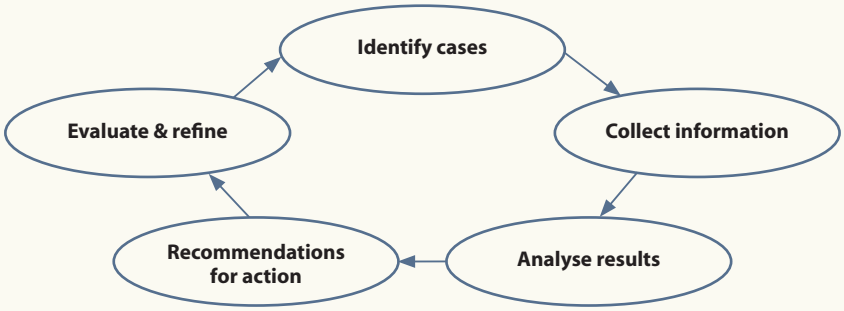
## How CEMD improves outcome

In most countries, a maternal death is followed by local enquiries aimed at finding out whether laws have been broken or identifying failures of clinical care. Civil litigation may also ensue. These processes apportion blame and rarely consider what lessons can be learned at a local or national level. Because maternal death is infrequent, local officials have little experience in conducting such enquiries. Individuals may be unjustly blamed and systemic failures may be missed.

CEMD, by contrast, aims at identifying avoidable factors and making recommendations to eliminate these if possible. It is part of the unending audit cycle (figure 1). Accurate information is requested from those involved in the case, and their written accounts are anonymized before being passed to a national committee of experienced clinicians. The committee analyzes all the deaths throughout the country, looking for patterns that are not obvious from individual cases, including risk factors, early warning signs, and common pitfalls in diagnosis or management.

The committee's remit is wide. Its recommendations may range from improving access to care, to detailed advice on anaesthetic technique. It may call for a new national guideline or for more research when evidence is lacking. It must be free of political bias and may need the courage to point out unpalatable facts. Its recommendations must take account of the best evidence, and must always be realistic, though sometimes challenging.

**Figure 1: The Audit Cycle.**




Is there evidence that CEMD improves care? Randomized controlled trials are impossible, historical trends are hard to interpret and death rates are usually slow to change. Nevertheless in the United Kingdom it is clear that the CEMD has steadily improved the management of pre-eclampsia with the elimination of deaths from fluid overload. United Kingdom guidelines sharply reduced deaths from pulmonary embolism after caesarean section and are expected soon to do the same for antenatal thromboembolism (3).

## Variations across Europe

Maternal mortality rates (MMR), calculated per 100 000 live births, vary widely across Europe but without a CEMD may be unreliable. In the United Kingdom, for example, the MMR is 13.95 according to the CEMD, 7.05 according to death certificate data, and 8 according to WHO estimates (4). CEMDs identify deaths which are otherwise missed, particularly those of socially excluded, homeless or migrant women. Recognizing this, Ireland (whose MMR of "1" is the lowest in Europe) is planning to join the United Kingdom CEMD, which will then cover Britain and the whole of Ireland. There are no similar plans in Spain, Italy, Denmark or Sweden, where the MMR is "3".

Rates are much higher in eastern Europe. For example, the MMR is 22 in the Republic of Moldova, 92 in Albania and 140 in Kazakhstan, according to official statistics. These are unlikely to be over-estimates. They reflect geographical barriers, economic difficulties, and the fact that clinical care is not practiced according to evidence-based medicine. They also reflect past reluctance to learn from adverse events rather than punishing individuals (5).

## Supportive strategies for implementation

The first step in implementing a CEMD is to ensure that the national or regional government has a clear understanding of its benefits. Ministers need to know that confidentiality will not be used to excuse misconduct, and they need to trust the professionals who will run the enquiry. Existing systems do not have to be abolished immediately but the CEMD must be clearly seen to be separate from them and from civil litigation. Legal safeguards are necessary to ensure that lawyers or politicians cannot obtain information submitted in confidence by clinicians. (In the United Kingdom the case papers are burnt or shredded before the final report is published.) Such supportive strategy is vital. CEMD cannot be introduced by external agencies or professional bodies without approval at the highest government level.

## Challenges in implementing CEMD

It takes time to convince ministers and officials that CEMD is an improvement on existing systems. In most countries, politicians change frequently. They must all understand that CEMD is not a

James Drife

"quick fix": indeed, in the short term the MMR will appear to rise because of better ascertainment. Once convinced, a health minister needs to persuade colleagues, particularly in the Ministry of Justice, to give their approval.

Professional bodies, which tend to prefer the status quo, must be enthused. Individual practitioners take a lot of convincing that confidentiality will be respected. Practitioners throughout the country need to understand the principles of CEMD and discuss the methodology in detail so that proposals are acceptable and practical for their own country (image 1). In most countries, doctors' income suffers when they give time for altruistic committee work and this must be recognized. Also, it may be hard to persuade doctors that the committee must include midwives.

## The role of partnerships

CEMD is only one part of the Making Pregnancy Safer initiative. Introduction of evidence-based practice and hospital-based "near miss" reviews usually involves partnerships with other external agencies. When the CEMD committee begins its work it needs input from at least one external advisor. Experience in the Republic of Moldova and elsewhere has shown that without such initial guidance a committee finds it difficult to break free from old ways of thinking.

The need for external help quickly diminishes but there is a continuing need for partnerships within the country – between clinicians, politicians and managers, and between different medical specialists and midwives within the committee. All areas of the country need to be involved to ensure a sense of shared ownership. The committee must foster partnerships with the professional bodies that regulate clinical practice, and with universities which train the next generation of clinicians.

## The role of civil society

Publication of the findings of the CEMD is important. Professions and politicians gain respect by being honest with the public and the media, and recommendations supported by the media are hard for politicians to ignore. Although lay people have little appetite for reading detailed reports they feel reassured to know these are not kept secret. Pressure groups and journalists will inform women of the standards of care they are entitled to expect. At the same time expectations are kept realistic, and the report reminds women of the risks that will always be present in pregnancy. High quality care requires partnership between women and carers, and only by ensuring that women are well-informed will we continue to make pregnancy safer.

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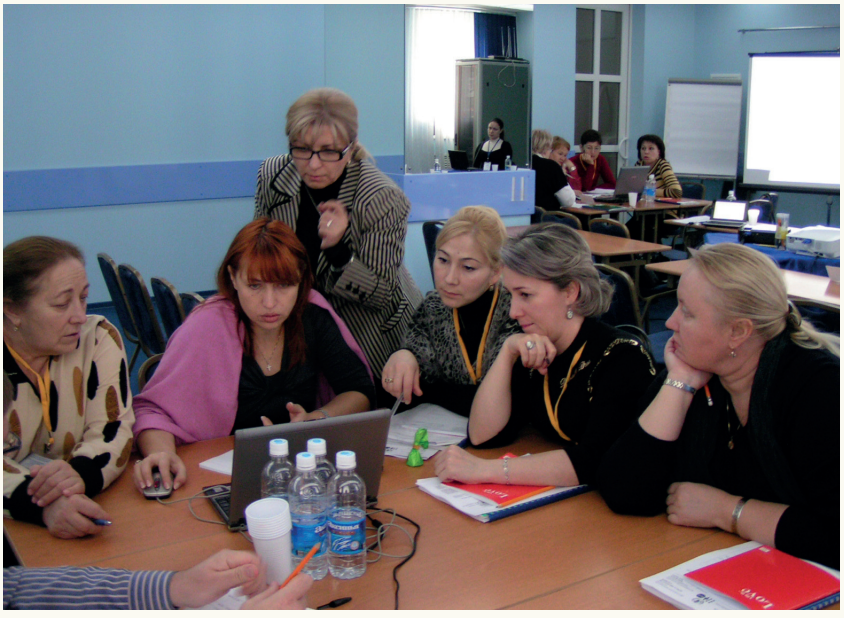

**Image 1:**
**CEMD workshop in Rostov-on–Don.**

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# PLEDGING ACTION TO REDUCE MATERNAL MORTALITY IN EASTERN EUROPE AND CENTRAL ASIA: A REGIONAL CONFERENCE ON MILLENNIUM DEVELOPMENT GOAL (MDG) 5

The importance of maternal health and universal access to sexual and reproductive health (SRH) was highlighted in the International Conference on Population and Development (ICPD) Programme of Action in 1994. At that Conference, 179 governments agreed that every person has the right to SRH and that empowering women is both a priority in its own right, as well as critical to advancing the social and economic development of nations. Six years later, in September of 2000, improving maternal health became the fifth MDG, as adopted by Member States. Reducing maternal mortality (MM) and achieving universal access to SRH care are critical components of meeting this goal.

Much progress has been made to advance SRH and reproductive rights since 1994. Compared to other regions of the world, the eastern Europe and central Asia (EECA) Region has made relatively good progress in reducing MM. There has been an overall decline in MM in this Region, despite the potential for underreporting maternal deaths in a number of countries (Figure1). Today, the countries of EECA have almost universal antenatal coverage, and nearly every birth is assisted by skilled health workers. In several countries MM has been reduced in half.

However, progress in reducing MM rates in the Region has not been universal or consistent despite these positive trends. Even in countries such as Georgia, the former Yugoslav Republic of Macedonia, Ukraine, Bulgaria and Belarus, that have made good progress in achieving the 2015 targets for reducing MM, focus on sustaining these achievements and improving the quality of SRH services is needed. In 2008, the Republic of Moldova, Serbia and Kyrgyzstan recorded a higher level of MM than in 2000 and the Russian Federation, Kyrgyzstan, Turkmenistan and Armenia also reported higher MM ratio in 2008 than they had in 1990 (1). Although this increase in MM in part may be due to improved, more accurate monitoring and reporting of the data there remain a number of reasons why MM gains have not been universally felt through the Region.

Unequal provision of maternal health care services and information and lack of access to quality services are felt in many countries; there are known disparities in the distribution of service providers between rural and urban areas and barriers to access to family planning. Family planning services are critical to lowering the number of unsafe abortions and thus reducing the risk of women to maternal death.

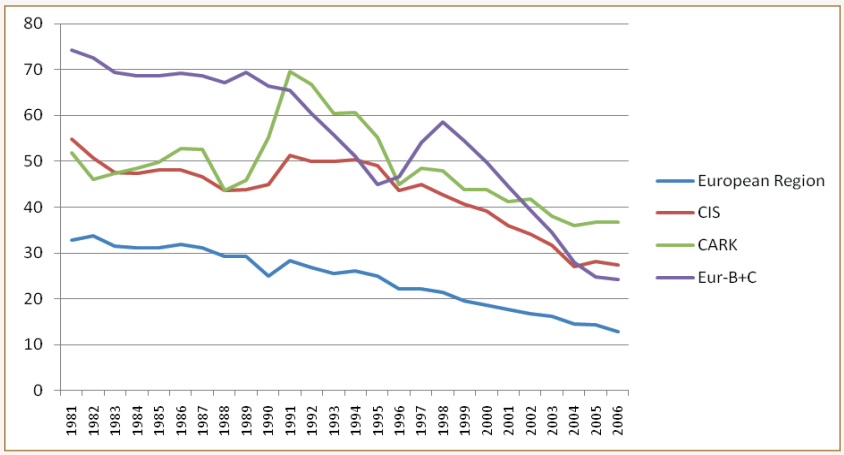
Inequities in the distribution of qualified service providers; cost of services; lack of public awareness; gender inequality and poor infrastructure including lack of transportation to services are all contributing factors to limited access to maternal health services. Although no particular group is officially excluded from accessing services and/or information in any country of the Region there is some evidence that in practice some groups such as young people, refugees, ethnic minorities and migrants feel excluded and are less likely to use such services. In general the impact of the range of barriers to care is well understood but may not be evidence-based. Barriers to access quality maternal care services and information is an important area of future research within the Region (text box 1).

Although contraceptive use of all methods is comparatively high in some countries in the Region, the use of modern methods is very low in countries such as 5% in Albania (2), 9% in Azerbaijan (3) and 12% in Armenia (4). At the same time the unmet need for modern contraception is 37% in Ukraine, 29% in Romania, 34% in Armenia, 16% in Kazakhstan and 13% in Uzbekistan (5). The high rates of induced abortions in many countries of the Region confirm that the need for effective methods of family planning is not being met.

In the last fifteen years, the abortion rate dropped from 1049 per 1000 live births to 493 and the number of women who are using contraceptives has increased (1). However, throughout the Region some women still use abortion as a means to control fertility. Access to modern contraceptives and family planning counselling is essential to reduce abortion rates particularly among youth.

It is equally important to decrease the age of first sexual experience and the age in which childbearing begins. The adolescent fertility rate of women aged 15-19 in the Region is 29 per 1000 women with the highest rates in Bulgaria, Turkey,

**Figure 1: Trends in maternal mortality rates 1981- 2006, WHO European Region.**




*Source: WHO/Europe Health for All database 2009*
*CIS = Commonwealth of Independent States*
*CARK = Central Asian Republics*
*Eur – B+C = Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Montenegro, Poland, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Tajikistan, TFYR Macedonia, Turkey, Turkmenistan, Ukraine*

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Uzbekistan, Romania, and the Republic of Moldova with fertility of young people often highest among the poorest groups (6). Young people generally want to have more information about family planning, and services. Addressing the needs of youth could reduce SRH risks, save lives and empower young women in the Region.

To take a stock of the situation on maternal health and access to SRH services, on 11 November 2009, a Regional Conference on MDG 5 convened by UNFPA was held in Istanbul, Turkey brought together representatives of 20 governments of the Region as well as IPPF, WHO, UNECE, and UNICEF. The parties jointly drafted a Statement of Commitment and Key Actions to Achieve MDG 5 by 2015 in eastern Europe and central Asia which concretized consensus to work with governments of the Region on key actions to ensure universal access to SRH services, which include:

- Increase allocation of domestic and donor resources at all levels, ensure adequate deployment of financial and human resources for health and develop innovative and targeted health funding mechanisms to strengthen SRH services including SRH health commodity security and improve monitoring of these financial flows;
- Review policies and legislation related to SRH, rights and choice, to eliminate barriers to service delivery and commodities especially for youth and vulnerable populations, and to develop mechanisms to implement and enforce the laws;
- Ensure that linkages and referrals are established between SRH and HIV/AIDS prevention, treatment , care and support programmes including access to harm reduction programmes where appropriate, and family planning information and services to further decrease HIV affected populations in the Region;
- Ensure gender equality and women's empowerment and make SRH services gender sensitive;
- Guarantee universal access to comprehensive SRH information, education and services for youth and ensure that they are youth-friendly, confidential, non-judgmental, accessible, and based on recognition and respect for diversity;
- Strengthen research and data collection on maternal health, family planning and reproductive behavior and needs of vulnerable populations to ensure that decision making and policy formulation are evidence based;
- Improve accountability for results by strengthening monitoring and evaluation systems for national SRH programmes; and
- Partner with civil society organizations to educate communities and vulnerable populations about SRH, including maternal care; increase demand for SRH services, especially family planning; and promote health seeking behavior particularly among youth, migrants, minorities and poor.

It is our expectation that these commitments and actions will be used to advance maternal health and universal access to SRH and reinforce the political commitment to SRH and rights in the EECA Region.

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**ACCESS OF ROMA WOMEN TO HEALTH SERVICES**

The Roma comprise 2.2% of the population of the former Yugoslav Republic of Macedonia. Most Roma have little access to official institutions, as 76% do not have passports, almost half (48%) do not have marriage certificates, and one-tenth do not have citizenship status. The fertility rates among Roma women are high, the average age of first pregnancy for Roma women is 15-18 years of age, and contraceptive rates are low. Roma women have been subject to discrimination by health care professions. The disadvantaged status of Roma women is further reflected in their use of health services, as antenatal care rates among Roma are lower than the general population, as are hospital delivery rates.
(Source: EECARO MDG 5 Report)

# VOICES OF MOTHERS: WHAT WE CAN LEARN FROM FAMILIES AND MOTHERS WITH NEAR MISSES OR LOSSES. CAN THIS HAPPEN IN YOUR COUNTRY?

**Since 2004 WHO's Making Pregnancy Safer programme has introduced various Beyond the Numbers (BTN) approaches and methods in a number of countries in the WHO European Region, including near miss case reviews (NMCR).**

NMCR offers the possibility to listen to the voices of women through interviews performed and summarized by trained professionals. This component of the NMCR sessions, initially perceived as less important by care providers, revealed great potential to provide insight from the part of the people who use services, their great dignity and endurance, and striking information about the difficult road that women and families often face during childbirth that sometimes may lead to death of the mother and/or of the infant. The voices of mothers have been proven useful to stimulate improving quality and organization of care, and access to basic care during pregnancy and childbirth.

As the Regional Coordinator for Europe for MPS, I could easily compose an article that highlights inequities in maternal health care and outcomes, however, in order to illustrate the power that lies behind each voice associated with NMCR, nothing is more compelling than hearing the story in the words of the mother herself. The following story will do just that; enable you, the reader to go beyond the numbers and hear the voice of the mother. What follows is a real story, told in the woman's own words, that has been collected during the WHO Regional Office for Europe's work in a country of the WHO European Region. It has been anonymized to ensure that confidentiality of places and people involved is maintained. The background details are as follows: a pregnant woman coming from a rural area to the capital city develops severe hypertensive complications during pregnancy. During this pilgrimage her baby dies, and she nearly loses her life due to severe complications. Your challenge as the reader is to move beyond the mere facts and actually see her story: how she seeks care in different outpatient clinics and hospital departments, the challenges she faced, the long waiting times, the coming and going, the fees she paid and the overwhelming feeling of grief that she and her family suffers.

After 7 years of work in the specific area of BTN and NMCR we recognize that cases like these can happen every day in many parts of this Region. As you read ask yourself: **Can this happen in your country?**

## The voice of a mother

"I rent a house in the newly constructed district of the capital. We came with my family from a small town to earn money: my husband, two daughters and myself. I used to work at the knit garments producing factory. I received temporary residency permit. At the end of November I have been for ultrasound testing in the policlinics where they put a gestation of 8 weeks. I reached the registration office at policlinic where before the pregnancy I used to have outpatient card and based on the temporary residency permit I was eligible for sick leave and outpatient treatment. I was told to turn to the family physician.

The doctor initially refused to get me registered despite my reasoning (temporary residence permit, outpatient card). Then she told that I have to pay money (that is equivalent to 5.6 dollars) and to be examined by the internist. I did not have money with me at that moment and I came in 4 days, and paid requested amount of money. I passed all the tests and for each of them I paid 1.2-1.4 dollars.

During the first visit the obstetrician told me that the vaginal smear tests results are not so good and I had to go for syringing, for which I had to pay too. However because of lack of money and time I asked if it was possible to do irrigation at home. I was referred to the internist for examination who filled out another card and requested money for this. I told the internist that in 2002 when I was in Xx (another country) I was sick with pulmonary TB and received full treatment.

I kept visiting the gynecologist though she never appointed the next visit and did not provide any counseling. She never measured blood pressure during my visits. Once I got fever, influenza, cold. I sought care of FGP gynecologist who refused to issue a sick leave certificate to present to my employer, reasoning

**Alberta Bacci**

that only internists are entitled to issue sick leaves. I turned to the internist who initially also refused, but then said if I pay 5.6 dollars she will issue a sick leave certificate. At that time I did not have any money available (my daughter needed money for schooling) and then I left home. I kept working having cold.

During my visits to the doctor I would notice swearing and grudging during my visits, ignoring my complaints about edema and gained weight which I indicated myself. During my last visit when I returned with headaches and edema, the doctor measured blood pressure for the first time which was 145/100. They have done IM magnesium sulphate and called the flying squad. When the ambulance arrived the doctor made wrong statements saying that she has done IV magnesium sulphate, measured weight.

In order to make my relatives aware I asked to call my sister and notify them, but unfortunately no one was helpful. The relatives learnt about my admission only in the evening after I called them from the admission section of the Maternity Home. My sister got very anxious about me and my daughters, who would stay with her after schooling and also were very anxious.

They examined me at the maternity home unit, done tests, the results appear to be bad, got treatment. They talked to me, saying that the baby in the womb is not growing, keeps remaining quite small. My husband bought the drug Actovegin. For some reason they referred me to a private lab to get my smear tested. I had to get to the laboratory on foot, I paid the fee, got my tests done. Based on tests results it was necessary to counsel the urologist and the doctor referred me to the urologist at large hospital, but because of the distance I walked to the hospital nearby. They did ultrasound, did not find anything. To my question about why then I have edema, there was no answer. I paid for the counseling and ultrasound test.

Then I felt bad: vomiting, headaches. They measured blood pressure, it appeared to be high, made an injection, I don't know which one and then took me to the intensive therapy unit. There they examined me for 2 days quite thoroughly. The Chief of the unit told me about bad signs and transferred me to the pathology unit. The same evening I got abdominal pains as if I had labor pains. I had nausea and vomiting, slight head ache. The doctor on duty examined me, told me that fetal heart is normal. In the morning the ward doctor and chief of unit examined me and told me that the fetal heart is not good, poor. They referred me to Ultrasound-doppler testing at some private clinic. I did not know how expensive the examination is there and asked my room mate if I join her when the taxi arrives. On the way there I got quite severe abdominal pains it was hard to endure. At the private clinic there was a waiting list and they can examine me only in 4 days. If it was urgent I had to pay more but I did not have enough money (approximately 8.5 dollars) and I felt more severe abdominal pains.

I came back to the maternity home and the ward doctor referred me to Ultrasound testing at other private office. During the ultrasound they told me the fetal heart is poor, the fetus position is not right, in a transverse way. The doctor sent me to another Ultrasound testing at other medical center after such a test result. My husband and daughter already arrived by then, took a cab and I had to walk to the car. My daughter when she saw me got frightened: I looked as a "cupboard". When we arrived at the medical center the Ultrasound doctor was not in, she left somewhere, so I had to wait. Then the doctor examined and said that I had internal bleeding, and the fetal heart is weak. She checked whether I had external vaginal bleeding and how I am enduring. I responded that I had quite severe abdominal pains. The Ultrasound physician talked to another consultant on the phone, we paid the fee and went back to the maternity home by a taxi. It was hard to endure, abdominal pains never ceased.

We arrived at 11.30. The ward doctor and chief of unit checked when I had food. I told them that in the morning I had porridge and at 10.00 I had water and 100 ml of juice. They told me that because I had food and therefore the operation will take place at 16.00 or 17.00. I stayed in my ward, the relatives start coming. Around 16.00 I felt real bad: the abdominal pains became massive and worse, the eyesight got blurred. My sister wanted to come and support me but she was not let in, because of the sleeping hour. Despite this she managed to enter the unit and looked for the doctor. The staff told that the operation theatre is occupied; my sister brought a Russian woman in the ward, who examined me and told that there was no fetal heart beating. The same lady told that the operation theatre was free and they had only two operations in the morning.

I was taken to the operation theatre. They said that I had severe hemorrhage, Professor arrived. At night I got blood transfusion. At the beginning my husband would buy and bring blood, then they transfused blood for free. They took care of me pretty well, examined every day. I would like to thank the chief of intensive therapy unit and professor.

My husband refused from autopsy of deceased daughter whose name was Amina. The employer provided humanitarian aid worth of 28 dollars. I do not know who will issue a sick leave which entitles for maternity leave, may be they will do it here."

**Can this happen in your country?**

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# SEEKING REPRODUCTIVE HEALTH CARE IN UKRAINE: WHAT WE LEARNED FROM SERVICE PROVIDERS

Care providers have a central role to play in promoting women's sexual and reproductive health and rights (SRHR) and their awareness about obstacles and detrimental practices should be a first step to improve SRHR, including maternal health.

The ALARM International Program (AIP) training is a 5-day initiative designed by the Society of Obstetricians and Gynaecologists of Canada (SOGC) for health professionals involved in the delivery of essential obstetrical care. The AIP further aims to sensitize participants to the social, economic, cultural, and legal factors that impede women's access to sexual and reproductive health (SRH) services and information, and advocates for the improvement of women's SRH as a matter of social justice.

In Ukraine, the AIP was offered as a project which aimed to upgrade the knowledge and skills of obstetricians and midwives within an initiative supported by FIGO between 2006 and 2009. During the training, a full day workshop was dedicated to sensitizing participating providers to the importance of the SRH approach in the provision of maternal and newborn health care. Providers completed a self-assessment on what they perceived to be the main obstacles women experience when seeking SRH services and what harmful practices they have observed within health care facilities that negatively affect women's SRH in Ukraine. Data from 16 trainings, with more than 800 participants, were collected and analyzed. These factors were then considered using the three delay model as a means to gain greater understanding of the barriers to care and what potentially needs to be done to reduce these barriers.

**Table 1. Factors affecting decision to seek SRH care in Ukraine**

| |
|---|
| **Inadequate health education** |
| • General lack of health education, including content on healthy lifestyle<br>• Lack of sexual education both in a family and in a school<br>• Poor knowledge and lack of information on SRHR including inadequate information about STIs, abortions and contraception |
| **Poor quality of information and counseling** |
| • Lack of pre- and post- abortion counselling<br>• Poor quality of information related to choice of treatment |
| **Lack of information** |
| • as to where to seek appropriate medical assistance if needed and lack of opportunity to choose a physician |
| **Issues related to time** |
| • Lack of time to visit a physician because of heavy work load and long working hours<br>• Long waiting time at the antenatal and women's clinics<br>• Opening hours of medical facilities are the same as working hours of clients<br>• Long wait to obtain the results of investigations before treatment will be prescribed<br>• Short amount of time with providers (limited to 12 minutes) |
| **Cost of services** |
| • High cost of contraceptives, infertility treatment, diagnostic procedures and other medication<br>• Additional costs of services even when these are suppose to be free |
| **Religious barriers** |
| • related to sexual education, contraception, abortion, blood transfusion in critically ill patients |
| **Cultural factors, such as gender inequality** |
| • Economic power imbalance in marriage with full dependence on men<br>• Inability to make decision because of low status within the family<br>• Gender inequality at the job (e.g. low salary, no paid maternity leave, non-equal job opportunities for pregnant women)<br>• Violence against women (e.g. sexual violence, domestic violence, trafficking of women, lack of State programme to support victims of violence) |

**Table 2. Psychosocial barriers associated with seeking SRH services in Ukraine**

| |
|---|
| **Women's Autonomy and Confidentiality is often not respected in Ukraine** |
| Providers do not support a decision-making process which allows women to make informed choices regarding their SRH:<br>• Inadequate information and education with regard to the nature, management implications, options and outcomes of choices<br>• Concept of informed consent not well understood<br>• Providers' refusal to provide counseling to patient<br>• Patients choice not respected |
| Confidentiality is not ensured/respected:<br>• Privacy is an issue (e.g. women coming for delivery as well as coming for abortion often are placed in the same room).<br>• Women especially poor women, are afraid of being blamed or viewed negatively<br>• There is no opportunity to receive services anonymously |
| No adherence to the principle of non-discrimination:<br>• Several categories of women face discrimination (e.g. multigravida, teenagers, single mothers, women with STIs, HIV positive, disabled, sexual and religious minorities).<br>• Those with severe common diseases can be refused access to antenatal care in order to decrease complications. |
| **Poor counselling skills:** |
| • Lack of empathy in physicians (e.g. providers' attitude toward patients can be negative, judgemental and non supportive)<br>• Lack of counselling skills (e.g. lack of skills to engage client in conversation, listens actively) |

## Considering the factor within the Three Delays lens

### Delay 1: Seeking care

When complications arise, the decision to seek care is the first step that must be taken by the women, her family, and/or her attendant(s) to ensure access to the appropriate medical care needed. Providers underlined several factors which can influence this decision in Ukraine (Table 1 and Table 2). These factors act to create an environment where there is a lack of trust of medical professionals, fear of being misunderstood, disappoint-


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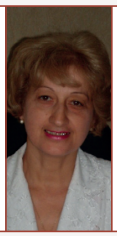
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**Table 3. Factors affecting access to SRH services in Ukraine**

| |
|---|
| **Geographical barriers** |
| • Long distances, including to secondary and tertiary medical facilities<br>• Remote rural areas with lack of medical facilities<br>• Geographic organization of health where official registration, address is needed to access care in the region |
| **Transportation problems** |
| • Lack of any transportation in some rural areas<br>• Poor road infrastructure<br>• Lack of emergency vehicles at the medical facilities to provide patients transportation if needed |
| **Communication problems** |
| • Lack of communication means |

**Table 4. Factors affecting access to quality care in Ukraine**

| |
|---|
| **Availability and qualification of staff** |
| • Number of staff often insufficient especially in rural areas<br>• Low level of providers' knowledge and skills (i.e. limited knowledge/skills of family physicians, medical staff has insufficient expertise/technical ability to perform certain tasks, lack of standards in medical training) |
| **Case management problems** |
| • No team approach<br>• Communications and interaction among medical staff is often ineffective<br>• Practices may not conform to the most current and best available medical evidence<br>• There is lack of decisional algorithms in emergency care<br>• Audit culture non-existent |

ment in the quality of care received and ultimately delays in seeking medical care.

**Delay 2: Accessing the proper medical services**

Once the decision has been made to seek medical care, appropriate services must also be available in an accessible manner. Key factors identified as barriers to accessing care included geographic location, transportation issues and communication difficulties (Table 3).

**Delay 3: Accessing quality care at a health care facility**

Once the woman arrives at the health care facility, it is just as important that she accesses the required emergency care services. Access to care delay is usually dependent on a number of factors, such as the number and skill level of staff, availability of medical supplies and the general condition of the facility (Table 4).

## Harmful practices

Providers also cited several harmful **practices** which, from their point of view, have a negative effect on women's SRH in Ukraine including:

- o early admission to maternity department before delivery leading to increased interventions;
- o aggressive labour management such as, early amniotomy, labour induction without adequate indication and frequent intrapartum vaginal examinations intrapartum;
- o partographs are completed after delivery (not ongoing intrapartum);
- o routine uterine curettage after delivery;
- o procedures are performed without women's consent such as sterilization during cesarean-section and intrauterine device insertion after induced abortion; and
- o polypragmasia.

Thus, women in Ukraine have urgent needs for the improved protection of their SRHR.

## Summary

All health professionals involved in SRH services have a responsibility to understand the underlying barriers to SRH services and outcomes and to take action to develop effective strategies to overcome these barriers. These strategies need to correspond to professional responsibilities identified by FIGO's Code of Ethics and cover three specific areas: professional competency; women's autonomy and confidentiality; and responsibility to the community (1). Those involved in the provision of SRH services, should advocate and promote women's SRHR based on their commitment to assuring human rights and ethical principles in the SRH care of women. Through partnership with FIGO and SOGC, as providers, we are working towards making this a reality for all women in Ukraine.

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# WHY IS MATERNAL MORTALITY "RELATIVELY LOW" IN THE REPUBLIC OF MOLDOVA? MOVING BEYOND THE NUMBERS TO HEALTH SEEKING BEHAVIOUR

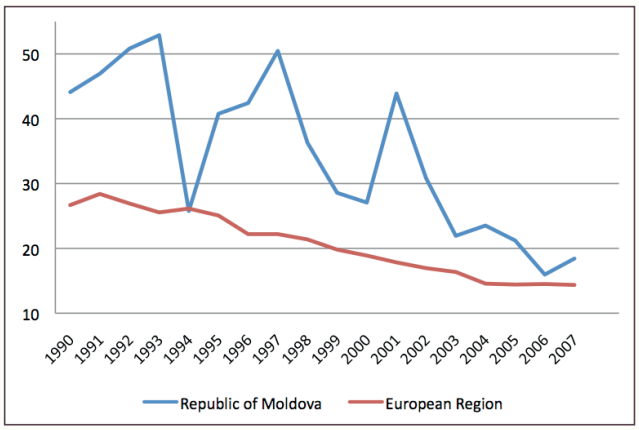
## Background

Statistics show that the Republic of Moldova is the poorest country in Europe, with a vulnerable economy that relies heavily on remittances from citizens working abroad. Since its emergence, after the collapse of the Soviet Union, this small landlocked country in eastern Europe went through a long transition, which brought a sudden rise in poverty, and disrupted social security and health care systems when they were most needed. In 2007, Moldova's Gross National Income (GNI) per capita amounted to only 2,930 USD (PPP int $), which represents a little more than one tenth of the average GNI per capita of the European Region (i.e. 21,612 USD (PPP int $)) (1).

However, despite the economic challenges, poverty and social inequity, the Republic of Moldova has made significant progress in improving maternal health. The maternal mortality ratio has fluctuated between 1990 and 2007, with a high of 52.89 deaths per 100 000 live births in 1993 and a low of 15.96 in 2006 (figure 1).

Therefore this article is a brief attempt to understand how the Republic of Moldova managed to improve maternal health and to keep the maternal mortality ratio in a downward trend despite harsh economic and social conditions.

**Figure 1: Trends in maternal mortality Republic of Moldova (1990-2007).**




*Data source: European Health for All database [online database]. Copenhagen, WHO Regional Office for Europe (http://data.euro.who.int/hfadb/ accessed February 2010)*

## The Government System

One of the obvious explanations concerns the high commitment and continuous efforts of the government of the Republic of Moldova to guarantee better health care services. Since the 1990s, when the country became independent, the Moldovan government has spent between nine and twelve percent of the total budget on improving the health care system in the country. Overall, the country spends 9.4% of its GDP on health (2006 statistics), which in nominal terms amounts to 242 USD per capita (1). That is not so much considering neighboring countries such as Romania and Ukraine spend at least twice as much. However, despite the limited resources, the Republic of Moldova has undertaken a series of reforms to rationalize its health service delivery system. A basic package of services is provided through the compulsory health insurance scheme. Additionally, the state provides a minimum package of medical assistance for the uninsured (informal sector). Pregnant women are automatically covered by the health insurance scheme from the formal sector as well as the informal sector. Moreover, by law, women who are pregnant, delivering, or post-partum have services paid for by the government.

Health care for mothers and children in the Republic of Moldova is provided by means of outpatient health facilities at the primary health care level and, for more complicated medical needs, a network of consultative and specialized hospitals are established. Since 1997, antenatal care has shifted from services provided by obstetrician-gynecologists to services provided by a general practitioner (family doctor). Pregnant women typically access antenatal care through primary health care facilities, namely, family doctor centres, health centres and family doctor's offices. Delivery care is provided by obstetrics-gynecology units and maternities located in district and municipal hospitals, as well as specialized (tertiary) health care establishments, such as the Institute for Scientific Research in the field of Mother and Child Health Care. Moreover, the pregnant women are not confined to their geographical area and can choose which maternity services to use.

The 2005 Demographic and Health survey (DHS) confirmed that virtually every delivery in the Republic of Moldova is attended to by a trained health professional. According to the survey data, almost 91 percent of deliveries were attended to by a medical doctor, while the rest were attended to by a nurse or midwife (2).

On the national level, the long term priorities for improving maternal health have been formulated in the National Reproductive Health Strategy for 2005-2015. This strategic document contains a set of tasks and measures that commits healthcare providers and decision-makers to cooperate towards improving maternal and reproductive health.

In addition, since 2001, the Republic of Moldova benefited from participating, as a pilot country, in the WHO Making Pregnancy Safer Initiative in the WHO European Region. As part of this initiative, a number of interventions, at the policy and health service delivery levels, were accomplished such as updating policies, norms and regulations, and development of human resources. Additionally, the initiative has also contributed to equipping health care providers with updated knowledge about appropriate technologies (3). Beyond the Numbers has been one of the interventions implemented in the country and has provided important information about maternal health care and outcomes. Part of the information gathered has helped identify

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cultural factors that have played a role in improving maternal health.

### The Heath Seeking Behavior

Besides the government's commitment and support, an important factor in mantaining maternal mortality at relatively low levels relates to the health seeking behavior of the Moldovan society at large. The culture of the country stresses the essence of the family as the cornerstone of the society. However, the latest DHS survey from 2005 shows that Moldovan women and men generally want small families. Nevertheless every young family is expected to have at least one child. Childless couples are perceived as anomalies and stand outside the accustomed norms and values. Therefore young families are encouraged, by their parents and relatives, to have kids. It is part of the formula of success and prosperity for a Moldovan family. Consequently, when the couple expects a baby, it is normally an outstanding event and they will do their outmost to secure adequate health care, even if it implies to pay informally or make gifts. Actually, as part of the health seeking behavior, the people of Moldova, as in many other countries from the former Soviet Bloc, are willing to pay informally in order to get the best services (4), especially when it comes to childbirth. The whole extended family will save in order to pay for the safety and health of the mother and the baby. Anecdotal evidence suggests that in most of the cases the patient, in this case the pregnant woman, finds alternative ways to finance health care related to the childbirth (from out of pocket payments). One of these is the intra-family or inter-family borrowing.

Moreover, currently almost everybody pays directly for health, formally and/or informally, and this has, unfortunately, become by and large socially acceptable. There is a common belief that quality of care depends upon a patient's ability to provide gratitude money. However, this will often be at the cost of the principle of equity and equality in access to health care, e.g. the well off receive better service than the poor and vulnerable people. This fact also explains why most of maternal deaths (58%) occur in the rural areas (5), where the poverty is more acute.

### The Conclusion

The relatively low maternal morbidity and mortality in the Republic of Moldova are a combination of the government's efforts and the health seeking behavior of the society. Maternal health is definitely high on the government's agenda; this fact is evident from the Republic of Moldova's participation in the various international initiatives, such as the ICPD Programme of Action and the WHO's projects like Making Pregnancy Safer, including Beyond the Numbers. Along with other countries, the Republic of Moldova is committed to the attainment of the Millennium Development Goals (MDG). In this regard, the target for MDG 5 on improving maternal health was defined nationally as reducing maternal mortality by three quarters by 2015. This initially implied reducing maternal mortality from 28 (per 100 000 live births) in 2002 down to 23 in 2006, 21 in 2010 and 13.3 in 2015. The intermediary target for 2006 was successfully achieved, which made the government revise the target of reducing maternal mortality to 15.5 in 2010 and 13.3 in 2015. Additionally, improving maternal health is prioritized in the national strategies, such as the National Reproductive Health Strategy and the National Health Policy. Moreover, the government's attitude towards the quality of care, regarding pregnancy and childbirth, are very strict. Cases of mistreatment and fatalities are punished formally as well as informally by perpetuating a poor reputation amongst colleagues and the general public.

Furthermore, the government's high level of responsibility and continuous efforts are complemented by the health seeking patterns of the Moldovan society, when it comes to pregnancy and childbirth. The people of the Republic of Moldova do care about maternal health. Motherhood is a precious and fulfilling experience and represents one of the highest achievements in the private life. Pregnancy has a high social meaning. Therefore, men and women alike would gladly part with their meager resources to provide the best for the pregnant women, future mothers and their new-born babies.

Finally, maternal mortality is such a complex phenomenon that, in order to have an in depth understanding of it, more research in this field is required in particular of an anthropological and social nature.

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# SEVERE MATERNAL MORBIDITY: THE NORWEGIAN EXPERIENCE WITH NEAR MISS CASE REVIEWS

## Background

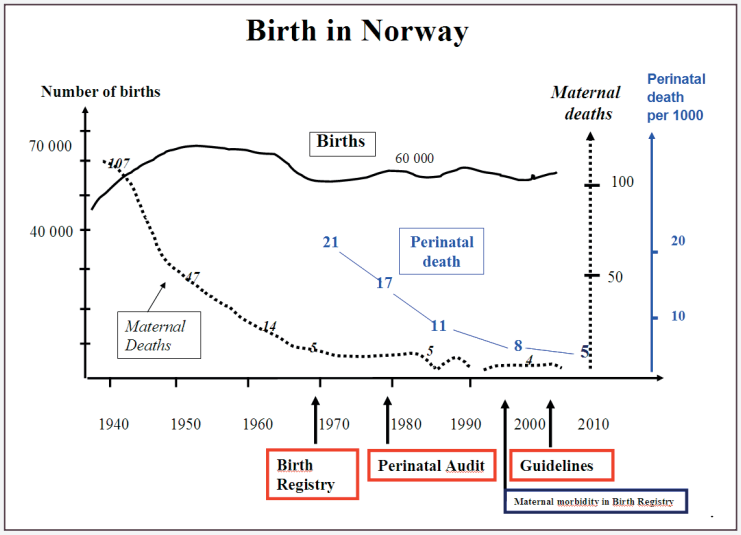
According to the 2009 UNDP's Human Development Index, that evaluated 182 countries globally, the people living in Norway enjoy the world's highest quality of life. With a population of 4.8 million inhabitants and approximately 60 000 births annually, Norway has experienced a dramatic reduction in maternal mortality (MM) since the second World War. For the last three decades direct MM has stabilized at a very low rate of 4-6 maternal deaths /100 000 live births (figure 1) (1, 2). The perinatal mortality has also decreased over the last two decades and in 2008 was 4.3 per 1000 births (for those births of 28 weeks gestational age and above) and 5.8 per 1000 births (for those births of 22 gestational weeks and above); lower for girls than boys in both instances.

Norway also has a complete medical birth registry with consecutive registration of all births after 16 weeks of gestation, containing information on the mother, her pregnancy, delivery and the neonate. The registry was established in 1967 for surveillance of perinatal health. Since 1999 severe maternal morbidities have been included with registration of maternal haemorrhage greater than 1500 milliliters, sepsis, severe preeclampsia, HELLP (Hemolysis elevated liver function low platelet) syndrome and admittance to the intensive care unit during pregnancy or within 42 days postpartum.

## What has influenced the decline in maternal and perinatal deaths?

The decline in mortality has been related to several factors, mostly the universal access to modern obstetric and neonatal medicine and the introduction of "Perinatal audit" of death cases in the late 1970's (Figure 1). Today the audit also includes severe morbidity of mother and neonate. Other important factors are the reduction of small maternity units with less than 500 deliveries and a switch to state run maternities, of which just fewer than 50 exist, including 4 university clinics. In Norway there are no private hospitals, only the public system. The

**Figure 1. Maternal and perinatal mortality in Norway since World War II. (1,2)**




antenatal and maternity care in Norway is free of charge and is used by over 99% of the pregnant population. Most of the care for low risk women is midwifery led and every community has at least one midwife. Every pregnant woman usually has 2-3 visits with her general practitioner and 4-7 with her midwife. Women are expected to choose the geographically nearest maternity unit. The home birth rate is very low (<0.6%), of which half are not planned.

Improved referral systems and emergency care are also important factors that have improved maternal health in Norway. High risk cases are moved to the main hospitals before delivery and there is close partnership between the general practitioners and obstetricians. The intervention rates are approximately 25% (caesarean section and instrumental delivery) and breastfeeding rates are over 99%.

The quality of care has constantly been improved and focused on through the production of National Clinical Guidelines that have been revised by the Norwegian Society of Obstetrics and Gynecology every 3-5 year since 1992. A new revision is always discussed at the annual meeting of the society. Now the guidelines are available on the web, and every hospital makes their own local version.

## Near misses

In Norway the safety of the mothers is taken for granted. It is a paradox that in an era where many women request elective cesarean section, more and more mothers also ask for home deliveries and natural birth as is the case in the Netherlands. The women want to experience the physiological process of delivery without any medical interaction. We have introduced "home delivery units" in hospitals, alternative birthing clinics and midwifery led clinics for low risk pregnancies in an attempt to meet this desire for non medicalization of birth.

Despite this paradigm shift, however, there is still little knowledge about the extent and risk factors of severe maternal morbidity during pregnancy or at the time of birth. Severe maternal morbidity or "near misses" are defined as pregnant women with severe life-threatening conditions who nearly die, but survive due to luck and access to high quality emergency obstetric care. Severe maternal morbidity including severe haemorrhage, sepsis and hypertensive disorders of pregnancy are a major concern in maternal health not only for low resource countries but also in developed and high resource countries like Norway. Such morbidity even tends to occur in healthy, low risk women. In countries, like Norway, given that access to emergency obstetrical care now makes

maternal death a rare event, focusing only on maternal death audits may miss important opportunities to improve care. While maternal death audits have played a key role in ensuring quality of care and helping to decrease the number of maternal deaths, this does not however mean that we should become complacent; there is still much to be learned about our obstetrical practices and how to improve maternal health, especially in the case of severe maternal morbidity and near misses.

Severe maternal morbidity and near miss case reviews have been suggested as an alternative measure of the quality of maternity services, particularly in the European countries where maternal deaths are rare (3,6). In addition interviews with the "near misses" can provide valuable information on risk factors and substandard care.

Norway's experience with near miss case reviews began in the 1990's with "The MOthers' Mortality and Severe Morbidity" (MOMS) project. This was a European initiative, composed of an international team, which covered 9 European countries, including Norway, which aimed to improve maternal health by increasing our knowledge and understanding of severe maternal morbidity and mortality. Common definitions were used for maternal mortality and three severe obstetrics conditions: preeclampsia, postpartum haemorrhage (identified as blood loss ≥1500 ml or in need of blood/plasma transfusion) and sepsis (4, 5). Collecting population based data the direct maternal mortality rate for the 9 participating countries was 8.7 per 100 000 live births (4). In Norway the rate was 3.3 per 100 000.

From a severe maternal morbidity perspective the study identified 1734 women in the 9 countries with at least one of the three severe conditions; 48% experienced severe haemorrhage, 46% severe preeclampsia and 8% severe sepsis. The frequency of the most common severe complication in the European study was severe haemorrhage at 4. 6 per 1000 deliveries, but the frequency varied between the countries from 0.8% to almost 9% (5). There was also wide variation in the incidence of the three conditions combined (a composite measure of severe maternal morbidity), ranging from 15 per 1000 deliveries in Brussels, Belgium to 6 per 1000 deliveries in Upper Austria. In Oslo, Norway the incidence was almost 1 out of 100 deliveries (5). Furthermore we found that in Norway two thirds of these complications were not predictable upon admission to the maternity ward and thus one mother out of one hundred and fifty normal pregnancies was at high risk for severe complications. Without access to emergency obstetric care, such mothers may end up with severe maternal health complications such as organ failure or, in the worst case, death.

Based on our experience with the MOMS initiative, we continued to conduct reveiws of severe maternal morbidity leading to near miss events in Norway. In our most recent study (6) including 300 000 mothers from the Norwegian Birth Registry severe obstetric haemorrhage occurred in 1.1% of all mothers and uterine atony was the main cause. The mode of delivery was the most important risk factor, with emergency caesarean section, followed by elective caeserean section confering the greatest risk. This high prevalence of severe obstetric haemorrhage indicated that there was a need to review our labor management procedures and provided guidance for revision of relevant protocols and trainings in this area. Thus data from both the MOMS study and our own reviews allowed us to compare our outcomes to other countries and ask why the differences exist and what contributing factors are involved in these near miss events. By expanding our focus beyond only maternal death audits we have been able to document that although women may not be dying there is still room for improvement with regards to quality of care – something we as care providers should never lose sight of.

## Conclusion

Studies of the lethality, management, risk factors and outcome of near miss cases can provide essential information about the health care system and, in countries where maternal deaths are rare, may function as a more direct measure of the quality of maternal care. In order to continue to improve maternal health outcomes "near misses" should be incorporated into the maternal death audits at the local level and/ or the confidential enquiry of maternal deaths at the national level.

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# INTRODUCING CONFIDENTIAL ENQUIRIES INTO MATERNAL DEATHS IN THE REPUBLIC OF KAZAKHSTAN: PRELIMINARY RESULTS

The Republic of Kazakhstan introduced the WHO tool "Beyond the Numbers" in January 2009. Of the different five BTN approaches available to improve maternal and perinatal outcomes the country has chosen two - confidential enquiries into maternal deaths (CEMD) and near miss case review (NMCR) - to implement. This article will focus on the implementation of the CEMD approach and focus on the results after the first year of using this approach.

## Country context

Within the WHO European Region, the Republic of Kazakhstan is characterized as a country with relatively high maternal and perinatal mortality. Awareness and political commitment towards improving maternal and child health (MCH) and decreasing mortality is strong.

One of the country's peculiarities lies in the fact that maternal and neonatal mortality occurs in a health system with sound infrastructure, a high level of coverage of health personnel, government guaranteed basic benefits package (free essential package of health services) and high access to MCH services. According to the latest Multiple Indicator Cluster Survey results (2006), 99.8% of all deliveries in the country are conducted in the maternities and are assisted by skilled attendants (99%). There is also high antenatal care coverage of pregnant women (99.9%) (1).

Thus, inadequate perinatal care and high maternal and infant mortality are the results of low quality health services stipulated by irrational use of existing resources and inefficient organization of MCH services in the country. The existing maternal mortality audit mechanism is not perfect and does not comprehend all clinical and managerial errors. Therefore recommendations from the analysis are formal and generic with no practical application, and measures for improving the situation are ineffective and are often directed to finding out and punishing the guilty. Punitive management principles and inadequate analysis of quality of health services have lead to wide variation in interpretations of statistical data and have also limited the health system's ability to identify and resolve the existing MCH problems and challenges.

## Implementation of CEMD

Bearing in mind the acuteness of the topic, since January 2009 the Ministry of Health of the Republic of Kazakhstan has implemented CEMD based on the WHO's "Beyond the Numbers" methodology. The CEMD has been implemented at the national level within the Ministry of Health programme entitled "On decreasing maternal and infant mortality in Kazakhstan for 2008-2010". This implementation has been carried out with the technical support of the WHO Regional Office for Europe, UNFPA and UNICEF.

The CEMD implementation process was preceded by a substantial amount of preparatory work. The process began with introduction to and selection of the audit approaches at the WHO Regional Meeting (Kyrgyzstan, 2004), and was followed by conducting relevant technical workshops on introducing conceptually new maternal mortality audits based on the expertise and technical knowledge of the WHO Regional Office for Europe. During 2007-2008 the Republic of Kazakhstan conducted national workshops involving international experts with the aim to train audit coordinators, develop an action plan, adopt audit tools and develop essential evidence based national protocols on major obstetric and neonatal care and complications.

## Achieved results

All 134 maternal deaths in the Republic of Kazakhstan during the period of 1 January - 31 December 2009 underwent CEMD analysis. After an official investigation of each case specially trained regional coordinators conducted confidential enquiries. They sent filled in questionnaires with participants' interview results and copies of impersonal medical documentation to a special confidential audit committee established by the National Mother and Child Health centre in Astana. The committee was able to work in an efficient manner, analyzing all 134 cases in 10 sessions that occurred during a one year time frame. An assigned secretary ensured confidentiality and thorough analysis of the results provided by the committee experts. According to the agreed format, audit results will be published every three years and presented to the medical society.

CEMD preliminary results showed that of the 134 maternal deaths 85.4% could have been prevented using the existing resources, 12.6% may have been prevented and 2% could not have been prevented (2). Thus, the CEMD review substantially differed from the official statistics. The major discrepancies were found in the areas of deaths from obstetrical haemorrhages, deaths due to non obstetrical medical complications during pregnancy, and underestimation of sepsis (figure 1).

## Etiologies of deaths

The CEMD revealed that the etiologies of deaths from haemorrhage were the following: uterine rupture (25.8%), abruptio placenta before 37 weeks (22.6%), during or after cesarean section (19.3%), delayed postpartum haemorrhage in the late postnatal period (19%), placenta previa (9.7%) and uterine inversion (6%) (2). Data from the CEMD also revealed that when it came to deaths from haemorrhage every fouth woman died as the result of a ruptured uterus and every fifth from abruptio placenta. This data differed significantly from official statisitics which listed etiologies of maternal deaths due to haemorrhage as: delayed postpartum haemorrhage in the late post natal period (51.9%), abruptio placenta before 37 weeks (37%), placenta previa (11.1%) and uterine rupture (4.5%) (3). The offical reported proportion of deaths due to uterine rupture was greatly underestimated – 5.4 times less than what was identifed in the CEMD process (3). Maternal mortality from non obstetrical medical conditions identified two major causes: respiratory diseases (58.1%) and cardiovascular diseases (41.9%). CEMD also revealed that every fifth woman died from sepsis.

Gaukhar Abuova

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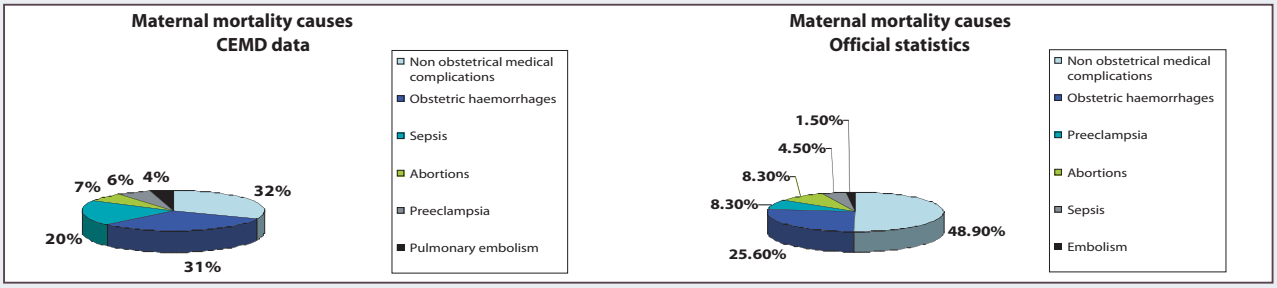
Assel Mussa-galiyeva

**Figure 1. Maternal mortality causes by CEMD and official data.**




## Gaps in quality of care

Implementation of CEMD at the national level allowed for a better understanding of significant gaps in the quality of maternal care currently being provided in the Republic of Kazakhstan. Noncompliance with national protocols (72%), untimely surgical hemostasis (38%), lack of blood components (23%), poor knowledge on the use of surgical hemostasis technique (40%), insufficient experience with emergency situations and inadequacy of emergency care provided (20%) as well as delayed approporiate diagnosis (23%) were identified as the main factors which contributed to the deaths from haemorrhage, highlighting significant gaps and issues in the quality of care provided and recieved. These deficiencies in providing quality, evidence based care were also highighted upon analysis of deaths due to uterine rupture. Analysis of these cases revealed 100% of the deaths to be a result of iatrogenic causes, caused by unjustified induced labour (100%), incompliance with clinical guidelines and protocols (100%) and low quality of health personnel (100%). Missed opportunities to provide quality obstetric care were also found when further examining deaths due to sepsis and non obstetrical medical complications. According to the data from CEMD of deaths due to sepsis inadequate provision and quality of surgical operations (10%), late diagnosis/screening (60%), delay in treatment (40%), non-compliance with protocols (35%), and late hospitalization (20%) were the main factors leading to mortality. In cases where deaths occurred due to non obstetrical medical complications contraindications to pregnancy (42%), late diagnosis of non obstetrical medical complications (60%), late hospitalization (20%) and lack of health personnel's coordination and competency during labour and delivery (19.8%) were found to be underlying contributing factors in the deaths.

## Feedback and conclusions

First year CEMD results were reported at the Ministry of Health meeting on February 1, 2010 involving leading Mother and Child Health Centres and heads of the Regional Health Departments. The reported data received positive feedback and the participants highlighted CEMD advantages in working towards reducing maternal mortality in the Republic of Kazakhstan. Key conclusions arrived at during the meeting were:

1. CEMD proved to be a highly informative method allowing decision makers to see the real picture of maternal mortality and take necessary actions.
2. The confidentiality of the audit methodology allowed impartial and comprehensive information to be gathered from different sources.
3. For health personnel CEMD became seen as a source of self-expression. This is why the audit received positive feedback from both decision makers and health providers in the country.
4. Reported data could be used as additional evidence in support of promoting and adopting effective maternal and perinatal technologies recommended by the WHO.

Steps are also currently being taken to address the key gaps in quality of care, skills and competencies that were identified in the CEMD in keeping with the Government's commitment to improve maternal health outcomes. Overall our experience has shown that the introduction of CEMD has proven to be an extremely beneficial tool in working towards the goal of decreasing maternal mortality in the Republic of Kazakhstan.

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# IMPLEMENTATION OF NEAR MISS CASE REVIEWS IN UZBEKISTAN: THE ROLE OF PRIKAZES

The Government of Republic of Uzbekistan is committed to prioritizing maternal and child health (MCH) and achieving the Millennium Development Goals. Tangible progress on improving MCH has been made since independence in 1991; the maternal mortality rate in Uzbekistan declined from 65.3 in 1991 to 25.0 deaths per 100 000 live births in 2007 (1). Implementation of several comprehensive National programmes focused on raising the population's awareness on family planning, prevention of unwanted pregnancies, increase of birth spacing and reducing the number of abortions have all contributed to the improved reproductive health indicators of women in Uzbekistan. Despite these achievements significant gaps in comparison to other countries in the European Region exist. As a result, improvement of quality of MCH services is one of the priorities of the ongoing Government programme on healthcare sector reform.

## Making Pregnancy Safer Programme (MPS) and other Partnerships

The WHO MPS initiative has been implemented in Uzbekistan since 2002. This initiative has focused on strengthening health system functions, including stewardship, service delivery and resource generation.

In order to implement MPS programmes effective partnerships were established with development organizations, donors and the Ministry of Health (MoH), including two large loan based health projects financed by the World Bank and Asian Development Bank (ADB), to support strategies aimed at reduction of MCH morbidity and mortality and improvement of system based approaches. In the framework of the ADB loan project "Woman and child healthcare development" all maternities countrywide are provided with modern medical equipment for obstetric and neonatal care. These projects emphasize optimization of MCH services, upgrading medical and paramedical skills of medical staff on essential and emergency obstetric and neonatal care to meet international standards and quality of care.

## Creating an enabling environment through the adoption of legislative documents

The Uzbekistan Government and MoH provided strong stewardship to support improvement of MCH through the revision and development of a series of legal documents known as prikazes.

In 2003 the MoH was the first among central Asian countries to revise its policy on maternal and newborn care and adopt a National policy that reorganized services and care of maternity hospitals in line with WHO recommendations on effective perinatal technologies. The main changes in the National policy were the promotion and integration of family friendly approaches and evidence based medicine into clinical practice. Family friendly approaches included opening maternities to the relatives of pregnant women, allowing rooming in for partners, promoting exclusive breastfeeding and demedicalizing labour and delivery with free positioning during labour and delivery. Evidence based approaches mandated by the policy included use of the partograph, standard procedures for prevention of nosocomial infections and guidelines for newborn resuscitation and essential newborn care. The document also dealt with prevention of HIV (for mother, child and health providers) in maternities and stipulated that hepatitis and HIV positive women deliver in normal maternities and not be discriminated against.

In the following years the MoH issued a series of legal documents, prikazes, which endorsed and promoted dissemination of evidence-based practices and WHO recommendations. These included:

- " Introduction of evidence based technologies to enhance the efficiency of antenatal care in the primary health care facilities in the Republic of Uzbekistan";
- " Programme of further reduction of infant mortality";
- " Introduction and Implementation of Confidential Enquiries into Near Miss Case Reviews and Confidential Enquiry into Maternal Deaths in healthcare system of Uzbekistan "; and
- "Integrating Prevention of Maternal to Child Transmission of HIV into Effective Perinatal Care".

This history of using prikazes to create a supportive environment to implement changes and improvements in MCH would prove to be an essential component of implementing the WHO MPS's Beyond the Numbers programme (3) in Uzbekistan.

## Implementation of Beyond the Numbers (BTN)

Representatives of the MoH of Uzbekistan participated in the first regional BTN workshop held in Issyk Kul in 2004 (4). Due to interest from this initial workshop a national BTN workshop organized by the MoH, the WHO Regional Office for Europe and UNFPA was held in Uzbekistan in 2005. It was attended by MoH staff, leading medical teaching professionals, health care providers (including obstetrician/ gynaecologists and midwives) and representatives from the areas of psychology, social services and representatives of UN Agencies, international organizations and donors involved in MCH programmes. During the national workshop the participants reviewed the various approaches and recommended that near-miss case reviews (NMCR) at the facility level and confidential enquiries into maternal deaths (CEMD) at the national level be introduced and implemented in Uzbekistan. A technical BTN workshop on NMCR was then held in June 2007, and a plan of action developed for pilot implementation.

The introduction of NMCR evolved in two phases: preparatory and introductory. Very important prerequisites for the implementation of this approach were the adaptation of Uzbekistan's legal framework and the development of national guidelines for the management

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of obstetric complications. Adaptation of the legal framework was necessary to prevent disciplinary action and legal prosecution of health personnel involved in case management reviewed at NMCR meetings. Guidelines were essential as a key element of NMCR is comparison of management of reviewed cases with nationally agreed, evidence-based clinical standards.

Preparatory activities progressed quickly and the MoH endorsed the decree (prikaz) on the introduction of NMCR in 4 pilot maternities of Uzbekistan: Republican Perinatal Center, Karshi branch of the Republican Specialized Practical Medical Centre of Obstetrics and Gynecology, Andijan and Fergana oblast maternities. This prikaz approved the National NMCR Committee, including its terms of reference and mandate. It also identified the criteria to be used for NMCR, set the local standards for management of the most frequent obstetrical complications and set the procedures for the documentation/regulations, reporting of and carrying out of the NMCR meetings.

During the introductory phase it was stressed that the MoH would have a very important coordinating role, being involved in all aspects of NMCR including collection of data from pilot facilities, identification of main deficiencies or barriers and proposed solutions and recommendations, including potential development of strategies for reducing maternal and perinatal mortality in the country.

NMCRs started in 2007 in the 4 pilot maternity facilities. Mock NMCR were carried out at each facility, to test all instruments and build personal capacity to conduct and facilitate NMCR meetings. During these mock sessions the importance of respecting the principles of confidentiality and non-punishment was highlighted. In addition participants in these reviews were reminded that a crucial element in carrying out NMCR is considering the woman's perspective and experience. Key to the successful piloting in these facilities was the involvement of the administration in the process of implementation of proposed solutions/recommendations, as well as in the supervision of the implementation process.

To date teams in the 4 facilities have carried out 46 audit meetings and discussed 46 cases (25-obstetric haemorrhage, 17-preeclampsia, 4-sepsis) using a comprehensive door to door approach. Involvement of international experts and provision of follow-up visits were important in terms of facilitation and timely identification of gaps. Good performances and missed opportunities were noted, underlined and documented in all discussed cases: good examples were shared with all staff to assure effective management in the future. Simple, affordable and effective recommendations were made. Preliminary results of the recent assessment of quality of care in maternities has shown that there is improvement in the organization of emergency obstetric care, management of complicated cases and monitoring in facilities involved in NMCR in comparison with non involved facilities (4).

## Next steps

International experts reviewed the process in 2008 and the lessons learnt were discussed at a national workshop where dissemination of NMCRs to other hospitals, and the introduction of CEMD at national level, was recommended. In 2009 NMCRs were implemented in 5 additional facilities and the National Committee on CEMD was established. The experience from these additional 5 facilities will be used to further refine the review process prior to scaling up NMCR at the national level.

Existing challenges include improving the confidence and capacity of health care providers in the process of NMCR and ensuring long term technical and financial support of partners for scaling up the project.

## Conclusion

In order to improve quality of MCH care it is crucial that a supportive, enabling environment is present. The Government of Uzbekistan has helped to create such an environment through decrees (prikaz). As a result the health system of Uzbekistan is in a state of transition, moving from a punitive system to one based on open discussion and confidentiality. The MoH is leading the collaborative efforts of several partners to implement, disseminate and document the comprehensive strategic approach to improve MCH, supported by WHO technical expertise.

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# PILOTING NEAR MISS CASE REVIEWS IN KAZAKHSTAN: IMPROVING QUALITY OF MATERNAL CARE

## Overview

The term "near-miss" is used to define women who have survived severe, life - threatening obstetrical complications by chance or by receiving timely and appropriate health care (1). Local, facility based review of what happened to these women and of the care they received can be used as an efficient tool for changing clinician's attitudes and practice, improving clinical management and outcomes of care (1). Kazakhstan is one of the 12 countries in transition in the WHO European Region implementing facility-based near-miss case reviews (NMCR) in pilot institutions, with the possibility of expanding this methodology to other maternity centres and regions in the country. It is expected that this provider friendly, participative, "non blame", confidential approach will replace the old and dysfunctional ex-Soviet system of quality control.

## Punitive system

In Kazakhstan, traditionally, one of the major and, unfortunately, almost obligatory outcomes from mortality and severe morbidity case investigations was punishment of the administration of health institutions and staff that cared for pregnant woman. Penalties, including dismissal, were imposed in most cases of maternal death and many cases of perinatal mortality and severe obstetrical complications, regardless of whether the standard of care provided was acceptable or not. In addition the enquiries and number of punished healthcare providers were considered as proof of the efficiency of the system and its supervisors.

Participants at the Beyond the Numbers (BTN) Workshops, organized by the WHO Regional Office for Europe with the purpose of introducing BTN approaches in Kazakhstan, unanimously mentioned that the existing practice of punishment of health workers did not help identify the real problems but did obstruct the efficient implementation of maternal mortality enquiries and NMCRs. Taking this into consideration, the Ministry of Health of Kazakhstan agreed to a moratorium on punishment after maternal deaths and pledged to support health staff and administration of facilities in piloting NMCRs.

## Preparatory activities

During the BTN Technical Workshops, it was decided to implement NMCRs in 6 pilot maternity hospitals from 3 regions of Kazakhstan: Almaty Maternity N1, Almaty Perinatal Centre, National Mother and Child Health Centre in Astana, Chimkent Oblasti Perinatal Centre, Chimkent Maternity N4 and Turkistan Maternity. All of these centres have had a long history of implementing Safe Motherhood technologies such as the WHO's Essential Antenatal, Perinatal and Postpartum Care course and development and use of local protocols on normal delivery and management of obstetrical complications. Most importantly these centres are also staffed with enthusiastic staff with excellent local leadership. Five of the facilities are referral centres and, in most of them, a substantial improvement in perinatal outcomes and number of severe complications had already been observed over the course of the previous years (2).

Teams from each of the maternity centres, composed of the head of the institution, an obstetrician, a midwife and a social worker or psychologist, participated in the Technical BTN Workshop, where they learned about the advantages and methodology of NMCR. In preparation for piloting the NMCR audit process, evidence-based national clinical guidelines on management of obstetrical haemorrhage and severe preeclampsia/eclampsia, the two main causes of maternal mortality and near misses, were developed and endorsed by the Ministry of Health.

## Achievements of NMCR implementation in pilot facilities

A very important achievement of the NMCR implementation in these pilot facilities was the active involvement in case discussions and increased role of mid level staff: midwives and nurses. In some facilities they are now the ones leading the review process, being nominated as local coordinators of the NMCR groups. Traditionally, only physicians participated in the case reviews. The role of midwives and nurses was limited to execution of prescriptions of doctors by giving injections, monitoring blood pressure, uterine contractions and fetal heart rate. During the NMCR sessions midwives offered additional information on management of analyzed cases, proposed recommendations on how to improve quality of care and, as did other health professionals, learned from the discussed cases. As a result, they became active and important members of the health care teams. For example, in most of the pilot facilities midwives are the key individuals involved in the management of normal delivery and the pueriperum. Due to their involvement and learning in the NMCR sessions, obstetrical haemorrhages are being diagnosed at earlier stages and necessary treatment is offered immediately. Before obstetrician involvement, midwives start resuscitation and bleeding control measures such as administration of uterotonics and fluid replacement, checking of vital signs and collection of blood for laboratory testing. This is also the case when a woman is admitted with severe preeclampsia or eclampsia. The mid level staff ensure that all necessary measures are started immediately (administration of magnesium sulfate and antihypertensive drugs, monitoring of blood pressure and other necessary parameters) while waiting for the physician to arrive.

Another important outcome of implementation of NMCRs has been the systematic development and use of protocols and standards in the review process. The staff of all facilities were educated about the protocols and standards and the critical role they play in ensuring high quality medical care that, ultimately, improves chances of survival in women with severe obstetrical complications. Moreover, during case review, staff are praised when the care provided was done according to the protocols. As a result, the majority of physicians, midwives and nurses, are familiar

with the protocols and do their best to adhere to their content. In many pilot facilities, staff also proposed and developed new protocols that had not previously been developed at the national level, such as protocols for epidural analgesia, management of miscarriage in the second trimester and a check list for postpartum monitoring following normal delivery and/or cesarean section.

During the NMCR, staff also began to consider and accept the utilization and integration of technologies promoted by the national guidelines. This has lead to an increase in health care providers who: practice the simple and effective alternatives to hysterectomy, such as uterine artery ligation or uterine compression sutures; found bimanual uterine compression a safer and more effective procedure than internal massage of the uterus; and who opt for manual vacuum evacuation instead of curettage in cases of late first trimester abortions. Audit teams also learned how to propose realistic and efficient solutions to solve existing problems and prevent severe obstetrical complications in the future. Periodic drills on the management of obstetrical haemorrhage and eclampsia are regularly organized to maintain facility preparedness for caring of women with life-threatening complications.

Finally, the incorporation of women's perspectives into the discussion of NMCRs is one of the advantages of this method over traditional forms of case review (1). In many of the pilot facilities, information from women and their family not only offered new details on the management, but was also used as an efficient tool to improve quality of care and to increase patient satisfaction - the most important criteria of quality of medical services.

## Creating a supportive environment

During piloting of the NMCRs, significant effort was made to create and maintain an open and friendly environment during audit sessions and to respect principles of confidentiality and non-punishment, considered by local audit team members as the main prerequisites for success of the review process. Avoiding a culture of blame and encouraging a positive attitude enabled staff to offer information about sensitive details of the care provided, helping to identify problems and to develop the recommendations for improvement. A key element in promoting this safe, friendly confidential environment was the facilities' administrative staff's support of the NMCR audit process and its commitment to the importance of a non punitive system. This support was crucial to the success of the NMCRs; many recommendations and solutions proposed from the reviews relate directly to health systems and the organization of care. Without the involvement and continual ongoing monitoring from facility managers it is difficult to implement and maintain changes.

## Barriers and challenges

Shifting from a culture of blame to one of support remains a challenging process. Despite an initial commitment to support the NMCR implementation process, some local health authorities continue to routinely request information on every adverse maternal or perinatal outcome and react by punishing the health care workers involved in the management. Such "supportive" supervision and methods makes providers uncomfortable in reporting the true circumstances of the cases and discussing frankly during the audit session. In certain circumstances it has also had the undesirable effect of halting the NMCR audit process for indefinite time periods for fear of punitive action.

Building the capacity of health care providers from peripheral centres also remains a challenge. Many of these providers still lack the skills and experience required to define essential management deficiencies or to propose realistic and efficient remedial actions to solve existing problems and adverse outcomes in the future. One of the proposed solutions to overcome this barrier is to partner a health care provider from one of the tertiary level maternities with the staff of the peripheral centres in order to provide guidance and support throughout the review process, especially in the formulation of new effective recommendations / solutions.

## Conclusions

The development of evidence based standards and protocols, staff enthusiasm, motivation and willingness to participate in the NMCR audit cycle, previous experience in implementing evidence based perinatal technologies and local leadership were all essential components of Kazakhstan's successful piloting of NMCRs. Persistence of punitive supervision, looking for "guilty" professionals and practicing disciplinary actions against them will only hinder rolling out NMCRs to other, less motivated and prepared facilities.

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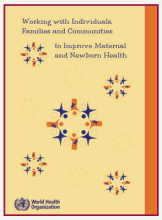
# RESOURCES


**Beyond the numbers: reviewing maternal deaths and complications to make pregnancy safer, WHO, 2004.**

An excellent toolkit directed at health care providers, policy makers and managers working in maternal and neonatal health that provides approaches for examining reasons behind maternal deaths and complications as a means to improve quality of care. Available in English, French, Russian and Spanish at:
**http://www.who.int/making_pregnancy_safer/documents/9241591838/en/index.html.**

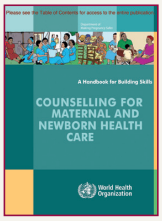



**Working with individuals, families and communities to improve maternal and newborn health, WHO, 2010.**

A new publication from the WHO's Making Pregnancy Safer Initiative that proposes a framework for use at the individual, family and community level to improve maternal and newborn health through focusing on 4 key areas: developing capacities, increasing awareness, strengthening linkages and improving quality of care/services. Available in Arabic, English, French, Russian and Spanish at:
**http://www.who.int/making_pregnancy_safer/documents/who_fch_rhr_0311/en/index.html**

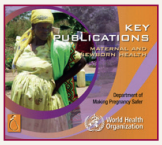

**WHO recommended interventions for improving maternal and newborn health, WHO, 2007.**

This short pamphlet provides a quick reference in tabular format for the key interventions that have an impact on maternal and newborn health at individual, family, community and health services levels. Available in Arabic, English and French at:
**http://www.who.int/making_pregnancy_safer/documents/who_mps_0705/en/index.html**




**Counselling for maternal and newborn health care: a handbook for building skills, WHO, 2009.**

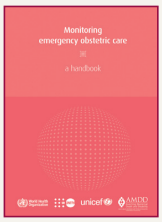
A valuable tool that takes a self directed learning approach to help health providers strengthen counselling and communication skills to improve maternal and newborn health. Available in English at:
**http://www.who.int/making_pregnancy_safer/documents/9789241547628/en/index.html**




**Key publications: maternal and newborn health, WHO, 2009.**

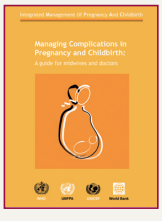
A useful CD compilation of all the latest technical guidelines, strategies and frameworks, monitoring and evaluation and advocacy publications related to improving maternal and newborn health. Available for order, in English, online at:
**http://www.who.int/making_pregnancy_safer/documents/key_publications_cd/en/index.html**






**Monitoring emergency obstetrical care: a handbook, WHO, UNFPA, UNICEF and AMDD, 2009.**

This updated version provides useful tools and key indicators for monitoring the accessibility, availability, utilization and quality of emergency obstetrical care. Available online in English at:
**http://www.who.int/reproductivehealth/publications/monitoring/9789241547734/en/index.html**




**Managing complications in pregnancy and childbirth: a guide for midwives and doctors, WHO, UNFPA, UNICEF and The World Bank, 2003.**

An extremely useful, easy to use, manual that can be used in a variety of clinical settings in both high and low resource environments. Available in Arabic, English, French, Indonesian, Italian, Russian and Spanish at:
**http://www.who.int/making_pregnancy_safer/documents/9241545879/en/index.html**


**The European Perinatal health Report: comparing the health and care of pregnant women and newborn babies in Europe, EURO-PERISTAT, 2009.**

An excellent comprehensive report on perinatal health within and across 26 countries in Europe. Available in English at:
**http://www.europeristat.com/publications/european-perinatal-health-report.shtml**

**European strategic approach for making pregnancy safer: improving maternal and perinatal health, WHO Regional Office for Europe, 2008.**

This document identifies a regional strategy for improving maternal and perinatal in the WHO European Region. Available in English at:
**http://www.euro.who.int/__data/assets/pdf_file/0012/98796/E90771.pdf**

**Making Pregnancy Safer: Tool for assessing the performance of the health system in improving maternal, newborn, child and adolescent health, WHO Regional Office for Europe, 2009.**

Aimed at health professionals, policy makers and managers this document provides tools for assessing and identifying health systems areas for improvement to strengthen maternal, newborn child and adolescent health. Available in English at:
**http://www.euro.who.int/__data/assets/pdf_file/0011/98795/E93132.pdf**

**Making pregnancy safer: assessment tool for the quality of hospital care for mothers and newborn babies, WHO Regional Office for Europe, 2009.**

A useful semi quantitative tool that can be used as a component of quality improvement strategies to improve perinatal health. Available in English and Russian at
**http://www.euro.who.int/en/what-we-do/health-topics/Life-stages/maternal-and-newborn-health/publications2.html**

## Useful websites

**WHO Maternal Health:**
**http://www.who.int/topics/maternal_health/en/**

**WHO Regional Office for Europe Maternal and Newborn health:**
**http://www.euro.who.int/en/what-we-do/health-topics/Life-stages/maternal-and-newborn-health**

**EURO-PERISTAT:**
**www.europeristat.com**

**UNICEF:**
**www.unicef.org**

**JHPIEGO:**
**http://www.jhpiego.jhu.edu/**

**UNFPA:**
**www.unfpa.org**

**Engender health:**
**www.Engenderhealth.org**

**FIGO:**
**www.figo.org**

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