Commentary

Mental health near miss indicators in maternity care: a missed opportunity? A commentary

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Medical co-morbidities are common among individuals with mental illness. During pregnancy, physical and mental health problems are intrinsically inter-related and can result in serious complications or death. Pregnancy and childbirth represent an optimal opportunity for recognition and response to both physical and mental illness due to increased contact with healthcare professionals. However, in addition to the psychological morbidity associated with mental illness, women with mental illness continue to have an increased risk of obstetric complications and a higher mortality rate during the perinatal period.[1] As such, perinatal mental health has been identified as a priority area for integrated healthcare.[2]

Insights from maternal deaths enquiries

Causes of maternal death vary greatly by country.[3] Over the last five decades, detailed confidential enquiries into maternal mortality have been undertaken globally, providing key insights into the characteristics and situations surrounding maternal mortality and leading to significant improvements in maternity care. Internationally, the maternal death rate remains unacceptably high and in 2015 it was estimated that there were approximately 216 maternal deaths per 100 000 live births.[3] Accordingly, a key Sustainable Development Goal is to reduce the global maternal mortality ratio to less than 70 per 100 000 live births by 2030.

In high income countries (HIC), maternal deaths occur less frequently. The latest MBRRACE-UK enquiry into maternal deaths indicated a mortality rate of nine deaths per 100 000 women giving birth, and 14 per 100 000 women during the period between 6 weeks and 1 year

following birth.[1] This report highlighted a significant reduction in the maternal death rate between 2009–2012 and 2011–2013; this was largely attributable to fewer deaths relating to *direct* pregnancy causes (i.e. pregnancy-specific causes such as pre-eclampsia). By contrast, *indirect* causes of maternal deaths (i.e. related to other medical conditions made worse by pregnancy) remain high, with no significant change in the rate since 2003.

Mental illness is estimated to affect one in ten pregnancies and, in the UK, has persistently been shown to be associated with high levels of maternal morbidity and mortality. The most recent confidential enquiry highlighted that almost one in five women who died during birth had a mental illness and almost a quarter of those who died following birth, died from mental health-related causes.[1]

The UK has a rate of 2.3 deaths by suicide per 100 000 maternities during or up to the first year after pregnancy, and this is therefore considered a leading cause of late maternal death in the UK, which has shown little change over time.[1] During the perinatal period, suicides are more typically of a violent nature, which indicates severe mental illness and serious intent, and are most likely to occur among women with a diagnosis of depression.[1,4] Depression is one of the commonest mental disorders, and severe depression during the perinatal period is associated with an increased risk of maternal death. However, other high-risk disorders, particularly new onset psychosis, are also associated with suicide.[5] Suicide is not the only mental health-related cause of maternal death and women with mental illness also have a higher risk of dying from substance abuse, domestic violence-related deaths including homicide, and obstetric complications, partly due to

diagnostic overshadowing (a process by which physical symptoms are misattributed to mental illness).[1]

While there is great insight to be gained from maternal deaths reviews, basing healthcare improvement strategies solely on mortality reviews has several limitations, particularly within HIC. Maternal deaths in HIC are thankfully relatively rare, and therefore situations surrounding these events may be atypical, difficult to generalise from, and hard to base interventions upon to prevent re-occurrence in the future. Furthermore, UK-based national maternal deaths enquiries have relied largely on maternity and general practitioners' notes to establish factors surrounding death and contain limited information from psychiatric reports,[1] therefore restricting the transferable learning from deaths relating to mental illness.

A near miss approach to maternal morbidity

In countries where maternal deaths are rare, it is becoming increasingly recognised that studying near miss events can provide important information about the processes (or lack of) in place appropriately to assess risk and escalate care when needed. Patient safety approaches to monitoring near miss events asserts that in order to prevent fatalities at the top of the safety pyramid, we need to analyse more common, yet less adverse, events and incidents towards the bottom of the pyramid.

The concept of a near miss has been inconsistently applied within the field of healthcare, with different disciplines focusing on differing levels of the safety pyramid and varying degrees of seriousness of adverse events. Within maternity care the term near miss is becoming well-established and has predominantly been defined as 'a woman who almost died but survived through chance or as a result of good care received' (Figure 1).[6] Six near miss events are thought to occur for every one maternal death, although rates of maternal near miss events vary widely from 0.14 to 14.98% depending on the country of study and the criteria applied.[6]

Several frameworks exist that utilise algorithms of maternal morbidity indicators to identify and monitor near misses in obstetric and maternity care. Most notably, in 2011 the World Health Organization (WHO) published a near miss framework, predominantly using organ dysfunction indicators.[7] The WHO framework has been used globally as an approach to monitoring obstetric near misses and improving care, but it has been subject to criticism for being complex to implement, particularly in low and middle income counties.[8]

In the UK, two further approaches to monitoring severe maternal morbidity or near miss events have been nationally applied. The English Maternal Morbidity Outcome Indicator (EMMOI) was adapted from an Australian tool and has recently been validated in routine hospital data in
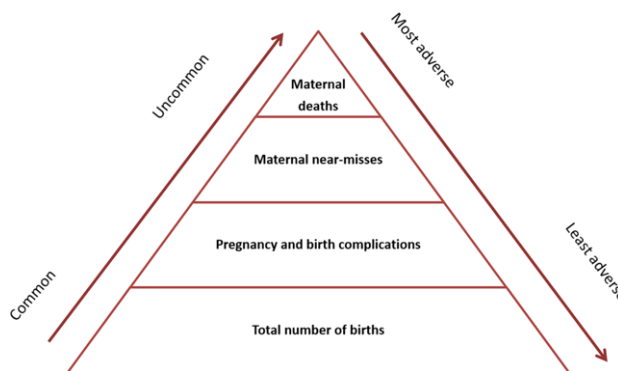
Figure 1. Maternal outcomes pyramid: a near miss approach.

England.[8] More recently, the Royal College of Obstetricians and Gynaecologists (RCOG), in partnership with the Royal College of Midwives, the Royal College of Paediatrics and Child Health and the London School of Hygiene and Tropical Medicine, have been commissioned by the Healthcare Quality Improvement Partnership to undertake a new National Maternity and Perinatal Audit, and are developing a national monitoring system including severe morbidity in maternity care.[9]

What about mental health near miss indicators?

Despite the high rate of obstetric complications and maternal deaths among women with mental illness, severe morbidity indicators specifically relating to psychiatric near miss events are largely absent from these frameworks. Whereas the WHO framework and RCOG maternity indicators do not contain any morbidity indicators relating to women's mental health, the EMMOI includes an indicator of an ICD-10 diagnosis of acute psychosis during the perinatal period. Symptoms of puerperal psychosis include periods of mania, depression, confusion, hallucinations and delusions. The psychosis is characterised by an acute and rapid onset that generally requires emergency intervention and hospitalisation. However, maternal deaths are not limited to women with psychosis; indeed, psychotic symptoms were only reported to be present in 14% of women who died from a mental health-related cause in the UK.[1] Therefore, a diagnosis of acute psychosis during the perinatal period is an insufficient morbidity indicator to capture all psychiatric near miss events.

There is limited research into psychiatric near misses, and where literature does exist, it tends to focus on more frequent and potentially less adverse near miss events, such as medication and handover errors.[10] To improve the care and safety of women with perinatal mental illness it is imperative that appropriate psychiatric near miss indicators are developed and incorporated into national monitoring programmes. Candidate indicators may include attempted suicide with potentially life-threatening injuries; however,

in light of the current paucity of research, systematic research is first needed to improve the evidence base. Consistent with the WHO approach to monitoring obstetric maternal near misses, it is essential that these indicators aim to measure severe maternal morbidity rather than the burden of individual psychiatric illnesses (such as puerperal psychosis) and therefore include symptoms, signs, clinical tests and management strategies associated with relevant conditions and events.[7]

Concluding remarks

Indicators of maternal near miss events are useful outcome measures for healthcare quality improvement programmes. The ultimate purpose of the near miss approach is to improve clinical practice and reduce morbidity and mortality, and it is rapidly becoming a promising strategy for improving maternity and obstetric care. However, a lack of focus on mental health means that this approach is unlikely to result in safer pregnancies for all women and may only increase existing inequalities for those with mental illness.

Mental illness is now a leading cause of maternal deaths in HIC. In recent years a number of national and international initiatives have been launched to improve pregnancy and childbirth safety and ultimately reduce maternal morbidity and mortality. Recognition that maternity safety is not just about physical health and parity of esteem for perinatal mental health is essential to ensure that these initiatives result in safer pregnancies for all women. In the UK, recent commitments to increased funding for specialist perinatal mental health services and greater implementation of NICE guidelines for antenatal and postnatal mental health are welcomed and will go some way to achieving this aim.[11] However, safer pregnancy initiatives using a near miss approach to monitoring maternal morbidity and implementing quality improvement changes are likely to fall short if psychiatric maternal morbidity indicators are overlooked.

Disclosure of interests

Full disclosure of interests form available to view online as supporting information.

Contribution to authorship

AE was responsible for the original conceptualisation of this article and wrote the first draft. LMH and JS contributed to drafting and revising the commentary for important intellectual content. All authors approved the final version to be published and agree to be accountable for all aspects of the work.

Details of ethics approval

Not applicable. ∎

References

1 Knight MNM, Tuffnell D, Kenyon S, Shakespeare J, Brocklehurst P, Kurinczuk JJ. *Saving Lives, Improving Mothers' Care— Surveillance of Maternal Deaths in the UK 2012–14 and Lessons Learned to Inform Maternity Care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009–14*. Oxford: National Perinatal Epidemiology Unit, University of Oxford 2016. 2016.

2 Howard LM, Piot P, Stein A. No health without perinatal mental health. *Lancet* 2014;384:1723.

3 Alkema L, Chou D, Hogan D, Zhang S, Moller A-B, Gemmill A, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *Lancet* 2016;387:462–74.

4 Khalifeh H, Hunt IM, Appleby L, Howard LM. Suicide in perinatal and non-perinatal women in contact with psychiatric services: 15 year findings from a UK national inquiry. *Lancet Psychiatry* 2016;3:233–42.

5 Johannsen BMW, Larsen JT, Laursen TM, Bergink V, Meltzer-Brody S, Munk-Olsen T. All-cause mortality in women with severe postpartum psychiatric disorders. *Am J Psychiatry* 2016;173:635–42.

6 Tunçalp Ö, Hindin MJ, Souza J, Chou D, Say L. The prevalence of maternal near miss: a systematic review. *BJOG* 2012;119:653–61.

7 World Health Organization. *Evaluating the Quality of Care for Severe Pregnancy Complications: The WHO Near-miss Approach for Maternal Health*. Geneva: WHO, 2011.

8 Nair M, Kurinczuk JJ, Knight M. Establishing a National maternal morbidity outcome indicator in england: a population-based study using routine hospital data. *PLoS ONE* 2016;11:e0153370.

9 Department of Health. *Safer Maternity Care: Next Steps Towards the National Maternity Ambition*. London: Department of Health, 2016.

10 Wright M, Parker G. Incident monitoring in psychiatry. *J Qual Clin Pract* 1998;18:249–61.

11 Howard LM, Megnin-Viggars O, Symington I, Group GD. Antenatal and postnatal mental health: summary of updated NICE guidance. *BMJ* 2014;349:g7394.