Strengths and weaknesses of national confidential case reviews of maternal and newborn morbidity and mortality

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Abstract (143 words)

Confidential case reviews have been established as a means to improve the quality of maternity care for several decades. Impacts of these programmes, while difficult to demonstrate, have been observed on maternal and neonatal mortality rates, maternity policy and clinical practice. At a national level, maternal and newborn case review programmes identify messages to improve care through multidisciplinary review of medical records of all, or a sample, of mothers and infants who have died or have a specific morbidity. The major strength of such national programmes is that they allow lessons to be identified to improve care at all levels of the health system from national government policy to individual clinical practice. However, strengthening translation of recommendations into action, whether through a more active link with implementation processes or further development of dissemination strategies grounded in implementation science, is an important continuing focus.

Key words

Confidential case review, maternal, neonatal, quality improvement

(Level A) Introduction

Confidential case reviews of maternal deaths, also known as confidential enquiries into maternal deaths, have been established as a means to improve the quality of maternity care for several decades. First instituted in the UK in the 1950s [1], confidential case review programmes investigating deaths of women in association with pregnancy and childbirth are now recommended by the World Health Organisation as a cornerstone of their maternal death surveillance and response (MDSR) programmes [2]. Introduction of such review programmes have been associated with dramatic decreases in maternal mortality rates [3]. Reviews into the deaths of babies who are stillborn or who die in the neonatal period have been introduced more recently [4], but nevertheless now play an established role in improving maternity care in many high resource settings as well as an emerging role in low and middle-income country settings [5].

Some clear impacts of such confidential case review programmes on outcomes of maternity care have been demonstrated. For example, maternal deaths from pre-eclampsia and associated disorders are now at their lowest ever recorded level in the UK – around one death per million women giving birth – following a series of improvements in care identified through confidential enquiries and incorporated into national guidelines for practice [3]. Impact on outcomes following confidential reviews of the care of babies who die is more difficult to demonstrate, possibly because of the greater number of baby deaths [6] and therefore the need for a topic-specific focus in such reviews. Nevertheless, introduction of hospital-based maternal mortality reviews and subsequent quality improvement programmes have been shown to reduce neonatal mortality in low-resource settings [7], and national programmes of perinatal mortality confidential enquiry and surveillance or review of local reviews of perinatal mortality and morbidity have shown changes in process outcomes such as offer of postmortem [6] and parent involvement [8].

(Level A) National confidential case review methods

(Level B) Maternal mortality and morbidity

A full copy of the medical records of all women who have died during pregnancy or in the postpartum period is obtained, including primary or community care records and relevant hospital records, not only maternity care records but also in some instances, general medical and mental health records, to enable examination of the care received by women with co-morbidities in pregnancy. Local clinicians' perspectives on the care women received are also acquired along with the findings of any local review processes. For these purposes the post-pregnancy period is usually considered to be up to six weeks after the end of pregnancy, but some enquiries, notably that in the UK, may examine deaths of women occurring up to one year after the end of pregnancy [9]. These records are anonymised, to address the fundamental tenet of confidentiality, and then reviewed by senior clinical assessors from all relevant specialties, including, for example, midwifery, obstetrics, anaesthetics, obstetric medicine, general practice, pathology, other medical speciality areas and psychiatry. These assessors review care against national guidelines and best practice, and identify areas to improve care in order to prevent women from dying in the future, as well as examples of good care [10].

Particularly in countries where maternal deaths are uncommon, confidential case reviews of the care of women who have died may be supplemented with reviews of the care of women who have had severe morbidities but survived – so called 'near-misses' [11]. These reviews are conducted in the same way as the examination of the care of women who have died, generally only reviewing the care of a representative sample of women who have survived as there are a greater number of women who have a 'near-miss' compared with those who die – an estimated 100 to 1 [12].

(Level B) Newborn mortality and morbidity

In most settings, newborn mortality, including babies who are stillborn and those who die up to four weeks after birth, is substantially higher than maternal mortality. There may be up to a 50-100 fold higher newborn mortality rate compared to the maternal mortality rate in high resource settings which necessitates different approaches. In the UK, therefore, national perinatal confidential

enquiries adopt a topic-based, sampling approach, whereby the care of a stratified, random sample of babies who have died or have morbidity from specific causes is examined [13]. Recent examples include reviews of the care of babies with congenital diaphragmatic hernia, babies who were stillborn or died in the neonatal period due to intrapartum causes, and babies who died at term in the antepartum period prior to the onset of labour [14-16]. The methods used otherwise are very similar to those used in the maternal mortality enquires; a full set of both mother's and baby's medical records are assessed to identify areas where future care can be improved.

Other national confidential enquiry programmes outside of the maternity sphere do not review a full set of medical records but assess care through a specifically designed structured clinical assessment form completed locally, a process more akin to structured clinical audit [10,17]. This allows for a more rapid assessment of a larger number of cases, but does involve some pre-judgement of the issues likely to be identified. A novel approach with a similar aim, allowing more rapid review of a larger number of cases but without any prior assumption of the likely areas of care which need improvement, has recently has been introduced in the UK, the Each Baby Counts programme [18]. This programme uses national 'review of local reviews' of the care of term babies who were stillborn or died in the neonatal period or who have had a suspected brain injury as a result of intrapartum causes. The documented local review of care is anonymised and assessed by senior midwives, obstetricians, neonatologists and anaesthetists to identify factors underlying the death or brain injury. Overall messages to improve further care are extracted and published in the same way [8].

(Level A) Strengths and Weaknesses of National Confidential Case Review programmes

The strengths and weaknesses of national confidential case review programmes are summarised in Table 1.

(Level B) Strengths

The principal strengths of national maternal and newborn mortality and morbidity confidential case review programmes can be summarised in three areas: coverage, methods and added value.

(Level C) Coverage

A major strength of such national programmes is that they allow lessons to be identified to improve care at all levels of the health system from national government policy to individual clinical practice. The national level process not only allows for a comprehensive assessment of areas where improvements are required, but also allows for prioritisation of key recommendations focussed on the actions to improve care most commonly identified [14,19]. The national and population-based approach enhances the generalisability of the messages but also ensures that the importance of the findings is recognised and acted on at both national and local levels, thus strengthening their impact. National confidential case review programmes are widely cited in evidence underlying recent maternity policy changes in the UK [20,21]; new legislation in the US also recognises the importance of such programmes to address ethnic disparities in outcomes of maternity care [22].

(Level C) Methods

The review processes are strictly confidential, such that there is no link to individual disciplinary procedures, with an overall aim to identify messages to improve future care rather than attribute blame for past events. This gives clinicians' confidence to participate honestly and openly to ensure continuing improvement in maternity and newborn care. The multi-disciplinary assessment approach allows for capture of messages relating to all areas of specialty practice, not only within maternity care itself but also in other areas of the health care system such as within Emergency Departments or Intensive Care Units. The involvement of senior clinicians from a variety of disciplines and professional backgrounds ensures that learning opportunities are maximised and that findings are used to drive guidance across a wide range of specialities, as evidenced by their use to evidence guidelines from multiple professional organisations.

(Level C) Added value

The conduct of both morbidity as well as mortality reviews adds significantly to the ability to identify messages for improvement by such confidential case review programmes. The perspectives of women and families may be included which adds an important additional perspective to identify improvements in care [23]. In situations where deaths are rare, messages obtained from morbidity or 'near-miss' reviews may be more generalisable and hence of greater impact [11]. Additionally, and particularly in settings where legislation dictates that criminal procedures follow death of either a mother or baby, morbidity reviews may be considered less threatening and therefore encourage participation by clinicians who may be less certain of the confidentiality and independence of the process. However, it is important to recognise that this positive motivator may act in the opposite way when considering newborn programmes. There is a substantial burden of litigation associated with suspected intrapartum asphyxia, due to long term impacts on the child's neurodevelopment and this may act as a disincentive to participation in review programmes examining neonatal morbidity.

(Level B) Weaknesses

Although these programmes have an established place in driving improvement in maternity care, three areas of weakness merit further discussion, namely generalisability, implementation of recommendations and impact.

(Level C) Generalisability

As previously discussed, when deaths are more common, such as with baby deaths, it is impossible to review at a national level the care of every baby that dies. A sampling process therefore has to be undertaken [14], which may mean that some important messages for care which occur only in a small subset of infants could be missed. The topic-based approach partially mitigates this risk, but this

means a prioritisation process has to take place to identify which topics are of the most importance for review. The validity of this prioritisation process, and the participation of those directly responsible for critical care in identifying topics, is critical to ensure the value of confidential case review programmes which adopt a topic-based approach. The process of 'review of local reviews' [18] does allows for national review of the care of all babies eligible for the programme, but the main drawback of this programme is that it is reliant on a high quality local review. Previous work has identified the limitations of local reviews in both high profile individual cases as well as national programmes [14,24]. The introduction of structured national tools to allow for high quality local review, such as the perinatal mortality review tool and the national mortality case record review programme (NMCRR) in the UK should ensure that local reviews are of sufficiently high quality to identify all the relevant messages for care which can then be drawn together at a national level to determine key policy recommendations. It is, nevertheless, still difficult to capture fully local factors which are impacting on care, in particular staffing levels, simultaneous emergencies and geographical or access factors; including specific reports from local clinicians in any review process is essential to identify these issues.

(Level C) Implementation of recommendations

Perhaps one of the most significant weaknesses of such national case review programmes is that the majority have no direct link to implementation. Most programmes rely on third parties to take forward the messages for clinical care, whether these be government departments, professional organisations such as the Royal Colleges in the UK, hospitals, individual doctors, nurses and midwives. This passive implementation may mean that the impact of such programmes on outcomes are potentially delayed or attenuated and therefore there has been an increase in focus recently on more active means of implementation, linking directly to implementation science approaches. The South African National Confidential Enquiry into Maternal Death has used a more direct approach to implementation of recommendations, with named responsible individuals and

specific monitoring of indicators since the 2008-10 report [25], contributing to a sustained fall in maternal deaths since 2011.

(Level C) Impact

Linked with this potentially less than ideal connection to implementation, impacts may be difficult to demonstrate. In particular, in the context of complex health care systems where many changes to not only services, but also population demographics are occurring, linking a change in outcomes directly to a single programme of work can be very difficult. Assessment of impact frequently relies on process outcomes as an indicator of effect rather than being able to demonstrate directly a change in either mortality or morbidity (ref Donabedian).

At a national level, confidential case reviews can identify a large number of areas where care could be improved. This may make the task of implementation of the recommendations appear overwhelming, which is a potential disincentive. This has led to suggestions that national confidential case review programmes should only identify 10 to 15 recommendations for improvement in care. Whether limiting the number of recommendations also limits the impact of such programmes is yet to be seen, taking into account the complexity of maternal and newborn care where multiple professionals will be involved at multiple stages of the care pathway.

(Level A) Conclusions

Developing an understanding of the factors underlying maternal and newborn mortality and morbidity underpins quality improvement initiatives in maternity and neonatal care which aim to reduce adverse outcomes. National confidential case review programmes allow for these factors to be identified, and key areas to be prioritised for actions at both national and local level. National confidential case review programmes in maternal or newborn care have clearly led to major improvements in maternity and neonatal care. Nevertheless, in order to capture the messages for

care robustly, there is a need for continued active local engagement in the process and high quality local reviews as well as a national process. Strengthening translation of recommendations into action, whether through a more active link with implementation processes or further development of dissemination strategies grounded in implementation science, is an important continuing focus.

Conflict of interest

Marian Knight leads the UK Confidential Enquiry into Maternal Deaths and Morbidity as part of the MBRRACE-UK collaboration.

Table 1: Strengths and weaknesses of national maternal and newborn confidential case review programmes

Strengths	Weaknesses
Comprehensive, ensuring that the importance of the findings is recognised and acted on at both national and local levels	If deaths or morbidities are uncommon, messages may be considered less generalisable
Confidential and anonymous	If deaths or morbidities are common, either only a sample can be reviewed, or processes to review a more limited amount of information have to be used
Not associated with individual disciplinary processes, do not attribute individual blame	Generate many messages to improve care, which may seem overwhelming
Allow identification of improvements at all levels of the health system	No direct link to implementation of recommendations
Multidisciplinary	Implementation science approaches not always incorporated in dissemination activities
Learning opportunity (identifies good practice as well as areas for improvement)	May be difficult to demonstrate impact
Include women's/parents' and clinician perspectives on care received	May not comprehensively capture local factors affecting care
Morbidity reviews may be seen as less threatening than reviews of the care of mothers or babies who have died	Resource intensive; often rely on volunteer roles for senior clinical staff

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