Does critical incident audit and feedback improve perinatal and maternal mortality and morbidity?

Audit and feedback of critical incidents has become an established part of obstetric practice in many settings. Longitudinal data in some settings has suggested that the practice may improve maternal and perinatal mortality. This review sought to establish whether there is evidence of an effect on maternal and perinatal mortality, or any potential harmful effects and costs. Critical incidents refer to mortality and severe morbidity. The authors searched for randomised controlled trials of “any summary of clinical performance over a specified period of time” and “method of feeding that information back to the clinicians”, that reported objectively measured professional practice in a healthcare setting or healthcare outcomes.

Key messages

- There are currently no randomised controlled trials that assess the effect of audit and feedback of critical incidents on perinatal and maternal mortality and morbidity.

- Observational serial data suggest that critical incident audit and feedback could result in more benefit than harm. Therefore, maternal and perinatal death reviews should continue to be held, until further information is available.

- Good quality studies are required to evaluate the effectiveness of different feedback mechanisms to clinicians. Such studies should also include economic evaluations of critical incident audit and feedback systems.
Background

Audits of maternal and perinatal mortality are commonly undertaken to establish numbers of deaths, causes of deaths, and potential modifiable factors. Longitudinal data from the UK suggests that such maternal mortality audits have contributed to a decline in maternal mortality in the UK over several decades. Serial data from Mozambique have also shown audit and feedback to have a significant positive impact on intrapartum foetal mortality and perinatal mortality (Bugalho 1993). However, other countries which routinely report maternal and perinatal mortality have not experienced similar improvements in outcomes.

A systematic review of the effects of audit and feedback on professional practice found that audit and feedback can be effective in improving professional practice (Jamvedt 2006). The effects were typically small to moderate (a 4% median increase in compliance with desired practice for audit and feedback alone).

This summary is based on a systematic review published in 2005 by Pattinson and colleagues, which sought to assess the evidence of the effectiveness of critical incident audit and feedback in improving maternal and perinatal mortality and morbidity.

About the systematic review underlying this summary

**Review objective:** To assess whether critical incident audit and feedback improves maternal and perinatal mortality and morbidity.

<table>
<thead>
<tr>
<th>Interventions</th>
<th>RCTs of audit and feedback of maternal and perinatal morbidity and mortality</th>
<th>No trials were identified which met the review’s inclusion criteria.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Maternity units</td>
<td>None</td>
</tr>
<tr>
<td>Settings</td>
<td>Not specified</td>
<td>None</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Primary outcomes:</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Perinatal mortality and morbidity rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal mortality and morbidity rates</td>
<td></td>
</tr>
</tbody>
</table>

**Date of most recent search:** January 2005

**Limitations:** This is a good quality systematic review with only minor limitations.

Summary of findings

The review did not find randomised controlled trials that assessed the effect of critical incident audit and feedback on perinatal mortality rate, maternal mortality ratio, or severe neonatal and maternal morbidity.

The authors of the review argue that collecting data to monitor perinatal and maternal mortality is vital, and that evidence from serial data suggests more benefit than harm.

Randomised controlled trials are required to evaluate the effectiveness of feedback mechanism to clinicians and other people, and the inclusion of data on suboptimal care. Such studies should also include economic evaluations of critical incident audit and feedback systems.

About the quality of evidence (GRADE)

High: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

Very low: We are very uncertain about the estimate.

For more information, see last page
## Relevance of the review for low- and middle-income countries

<table>
<thead>
<tr>
<th>Findings</th>
<th>Interpretation*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APPLICABILITY</strong></td>
<td></td>
</tr>
<tr>
<td>➤ No data were available for any country (low, middle or high-income).</td>
<td>➤ The collection and use of maternal and perinatal morbidity and mortality data is important in all settings. However, it is uncertain whether, and what type of, feedback to clinicians is effective, and whether including indicators of suboptimal care results in improvements in morbidity and mortality.</td>
</tr>
</tbody>
</table>

### EQUITY

| ➤ No data were provided. Critical incident audits have been used in high-income countries such as the UK over a relatively long period. The review does not however indicate whether it has promoted equity in such settings. | ➤ Critical incident audit and feedback can be implemented in most health care settings with sufficient clinical and data management capacity. However, a lack of resources to address system constraints which may underly suboptimal care could limit its effectiveness in resource constrained settings. |

### ECONOMIC CONSIDERATIONS

| ➤ No data were available. | ➤ There will be financial and human resource requirements associated with collecting additional data, and ensuring feedback to clinicians and other service providers. The effectiveness as well as the cost-effectiveness of critical incident audit and feedback should be assessed. |

### MONITORING & EVALUATION

| ➤ No data were available. | ➤ A critical incident audit is a form of monitoring and evaluation. However, the use of critical incident audit and feedback should include indicators to assess its impact and costs. Ideally, this should be done in the context of randomised trials. |

*Judgements made by the authors of this summary, not necessarily those of the review authors, based on the findings of the review and consultation with researchers and policymakers in low- and middle-income countries. For additional details about how these judgements were made see: [http://www.support-collaboration.org/summaries/methods.htm](http://www.support-collaboration.org/summaries/methods.htm)
Additional information

Related literature
Flottorp S. Does providing healthcare professionals with data about their performance improve their practice?
Perinatal Education Program. Unit 49 maternal and perinatal mortality audits. Available at: http://pepcourse.co.za/index.php?option=com_content&task=view&id=42&Itemid=32

Saving Mothers – Report on Confidential Enquiries into Maternal Deaths in South Africa

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Conflict of interest
None declared. For details, see: www.support-collaboration.org/summaries/coi.htm

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The South African Cochrane Centre, the only centre of the international Cochrane Collaboration in Africa, aims to ensure that health care decision making in Africa is informed by high quality, timely and relevant research evidence. www.mrc.ac.za/cochrane/cochrane.htm

About quality of evidence (GRADE)
The quality of the evidence is a judgement about the extent to which we can be confident that the estimates of effect are correct. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the type of study design (randomised trials versus observational studies), the risk of bias, the consistency of the results across studies, and the precision of the overall estimate across studies. For each outcome, the quality of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE: www.support-collaboration.org/summaries/grade.htm

SUPPORT collaborators:
The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration aiming to promote the generation and use of health policy and systems research as a means to improve the health systems of developing countries. www.who.int/alliance-hpsr

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is a Collaborative Review Group of the Cochrane Collaboration: an international organisation that aims to help people make well informed decisions about health care by preparing, maintaining and ensuring the accessibility of systematic reviews of the effects of health care interventions. www.epocoslo.cochrane.org

The Evidence-Informed Policy Network (EVIPNet) is an initiative to promote the use of health research in policymaking. Focusing on low- and middle-income countries, EVIPNet promotes partnerships at the country level between policy-makers, researchers and civil society in order to facilitate both policy development and policy implementation through the use of the best scientific evidence available. www.evipnet.org

For more information: www.support-collaboration.org

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