Are abortion procedures by nondoctor providers effective and safe?

Training midlevel providers (midwives, nurses, and other nondoctor providers) to conduct surgical aspiration abortions and manage medical abortions has been proposed as a way of increasing women’s access to safe abortion in developing countries. It is important to know if abortion procedures administered by midlevel providers are more or less effective and safe than those administered by doctors.

Key messages

- Surgical aspiration abortion procedures administered by midlevel providers probably lead to little or no difference in incomplete and failed abortions, compared to doctors.
- Surgical aspiration abortion procedures administered by midlevel providers probably lead to slightly more complications, compared to doctors.
- Medical abortion procedures administered by midlevel providers probably lead to slightly less incomplete and failed abortions, compared to doctors.
- Factors that need to be considered when assessing the transferability of the findings to a low-income setting include the availability of doctors to perform abortion procedures, the availability and training of midlevel providers to perform surgical and medical abortions and the abortion rates and incidence of unsafe abortion procedures.
Background

Unsafe abortion remains a major public health concern in developing countries. Abortions are conventionally administered by trained doctors (gynecologists and obstetricians). In many low-income countries, even in settings where abortion is legal, access to abortion remains limited due to a shortage of trained doctors. Irrespective of legal conditions, in settings where access to safe abortion care is lacking, women often obtain abortions from unqualified or unskilled providers. Therefore, training and authorising midlevel providers (midwives, nurses, and other nondoctor providers) to conduct aspiration abortions and manage medical abortions has been proposed as a way to increase women’s access to safe abortion services.

How this summary was prepared

After searching widely for systematic reviews that can help inform decisions about health systems, we have selected ones that provide information that is relevant to low-income countries. The methods used to assess the reliability of the review and to make judgements about its relevance are described here: www.supportsummaries.org/how-support-summaries-are-prepared/

Knowing what’s not known is important

A reliable review might not find any studies from low-income countries or might not find any well-designed studies. Although that is disappointing, it is important to know what is not known as well as what is known.

A lack of evidence does not mean a lack of effects. It means the effects are uncertain. When there is a lack of evidence, consideration should be given to monitoring and evaluating the effects of the intervention, if it is used.
**About the systematic review underlying this summary**

**Review objective:** To compare the effectiveness and safety of abortion procedures administered by midlevel providers versus procedures administered by doctors

<table>
<thead>
<tr>
<th>What the review authors searched for</th>
<th>What the review authors found</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interventions</strong></td>
<td>Randomised trials, non-randomised trials and comparison studies exploring effectiveness or safety of abortion procedures (surgical or medical) provided by midlevel providers and doctors</td>
</tr>
<tr>
<td><strong>Participants</strong></td>
<td>Women seeking termination of pregnancy</td>
</tr>
<tr>
<td><strong>Settings</strong></td>
<td>Any setting</td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
<td>Effectiveness or efficacy of abortion procedures, provided by midlevel providers versus doctors, measured as <em>incomplete or failed abortion</em>. Safety of abortion procedures administered by midlevel providers versus doctors, measured as <em>adverse events and complications</em>.</td>
</tr>
</tbody>
</table>

**Date of most recent search:** February 2012

**Limitations:** This is a well-conducted review with minor limitations.

Summary of findings

A total of five studies were included in this review. Four studies, one in Vietnam and South Africa, two in the US and one in India, examined surgical aspiration abortion by midlevel providers compared to doctors. These studies looked at effectiveness of abortion procedures, measured as incomplete or failed abortion, and at safety of abortion procedures, measured as complications related to the procedure. The other study was done in Nepal and examined medical abortion by midlevel providers compared to doctors. This study also looked at effectiveness of abortion procedures, measured as incomplete or failed abortion.

1) Surgical aspiration abortion procedures administered by midlevel providers compared to doctors

Five studies examined this comparison but only the findings from two randomised trials are displayed in the table below. Two additional studies with low certainty of evidence also suggested more incomplete or failed abortions by midlevel providers. Three additional studies with low certainty of evidence suggested little or no difference in complications between midlevel providers and doctors.

- Surgical aspiration abortion administered by midlevel providers probably leads to little or no difference in incomplete and failed abortions. The certainty of this evidence is moderate.

- Surgical aspiration abortion administered by midlevel providers probably leads to slightly more complications. The certainty of this evidence is moderate.

### Surgical aspiration abortion by midlevel providers versus doctors

<table>
<thead>
<tr>
<th>People</th>
<th>Women seeking termination of pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settings</td>
<td>Specialist health clinics in South Africa and Vietnam and district hospitals in Nepal</td>
</tr>
<tr>
<td>Intervention</td>
<td>Surgical aspiration abortion by midlevel providers</td>
</tr>
<tr>
<td>Comparison</td>
<td>Surgical aspiration abortion by doctors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Comparative risks*</th>
<th>Difference (95% CI)</th>
<th>Number of participants (studies)</th>
<th>Certainty of the evidence (GRADE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By doctors</td>
<td>By midlevel providers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incomplete or failed abortion</td>
<td>6 per 1000</td>
<td>11 per 1000</td>
<td>5 more per 1000 (9 fewer to 17 more)</td>
<td>2894 (1 study)</td>
</tr>
<tr>
<td>Complications</td>
<td>7 per 1000</td>
<td>13 per 1000</td>
<td>6 more per 1000 (11 fewer to 167 more)</td>
<td>1104 (1 study)</td>
</tr>
</tbody>
</table>

CI: Confidence interval  GRADE: GRADE Working Group grades of evidence (see above and last page)
*Illustrative comparative risks

1 Two additional cohort studies also suggested an increase in the risk of incomplete or failed abortion
2 Three additional cohort studies reported no difference in odds of complications

About the certainty of the evidence (GRADE) *

- **High:** This research provides a very good indication of the likely effect. The likelihood that the effect will be substantially different† is low.
- **Moderate:** This research provides a good indication of the likely effect. The likelihood that the effect will be substantially different† is moderate.
- **Low:** This research provides some indication of the likely effect. However, the likelihood that it will be substantially different† is high.
- **Very low:** This research does not provide a reliable indication of the likely effect. The likelihood that the effect will be substantially different† is very high.

* This is sometimes referred to as ‘quality of evidence’ or ‘confidence in the estimate’.
† Substantially different = a large enough difference that it might affect a decision

See last page for more information.
2) Medical abortion procedures administered by midlevel providers compared to doctors

This comparison was examined in only one study.

→ Medical abortion administered by midlevel providers probably leads to fewer incomplete and failed abortions. The certainty of this evidence is moderate.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Comparative risks*</th>
<th>Difference (95% CI)</th>
<th>Number of participants (studies)</th>
<th>Certainty of the evidence (GRADE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incomplete or failed abortion</td>
<td>By doctors: 39 per 1000</td>
<td>By midlevel providers: 27 per 1000</td>
<td>12 fewer per 1000 (200 fewer to 77 more)</td>
<td>1104 (1 study)</td>
</tr>
</tbody>
</table>

CI: Confidence interval  
GRADE: GRADE Working Group grades of evidence (see above and last page)  
*Illustrative comparative risks
Relevance of the review for low-income countries

<table>
<thead>
<tr>
<th>Findings</th>
<th>Interpretation*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APPLICABILITY</strong></td>
<td></td>
</tr>
</tbody>
</table>
| ➤ The two randomised trials were carried out in lower- and upper-middle-income countries and thus the measured effects may be transferable to low-income countries. | ➤ When assessing the transferability of these findings to low-income settings, the following factors need to be considered:  
  - Local epidemiology of abortion rates and incidence of unsafe abortion procedures  
  - The availability of doctors in these settings to perform abortion procedures  
  - The availability and training of midlevel providers to perform surgical and medical abortions, with special attention to providers in public health facilities and rural areas  
  - Accessibility to the necessary pre- to post-abortion care, especially in public facilities and rural areas  
  - The differences in effectiveness and safety of surgical versus medical abortion procedures by midlevel providers  
  - Cost implications of other models of care compared to midlevel provider care |

| **EQUITY**                                                               |                                                                                 |
| ➤ There was no information in the included studies regarding differential effects of the interventions in disadvantaged populations. The trial of surgical abortion procedures was done in private settings in South Africa and Vietnam and participants are likely not representative of disadvantaged populations in these countries. | ➤ Given the scarcity of obstetricians and gynaecologists serving disadvantaged populations in low-income settings, using midlevel providers has the potential to expand women’s access to safe abortion procedures in underserved areas, especially when incidence of unsafe abortion procedures is high, providing the midlevel providers are recruited, trained, supported and retained in underserved communities. Consideration should be given to health system factors and regulations that will encourage this. |

| **ECONOMIC CONSIDERATIONS**                                             |                                                                                 |
| ➤ None of the included studies presented cost data comparing midlevel and doctor providers. | ➤ It is likely that the provision and management of abortion procedures by midlevel providers may be cost-effective in resource-limited settings due to lower salary costs and scarcity of obstetricians and gynaecologists. However, formal economic evaluations are needed to assess whether midlevel providers of abortion procedures are affordable alternatives to doctor providers with comparable outcomes, specifically in relation to infrastructure and training. |

| **MONITORING & EVALUATION**                                             |                                                                                 |
| ➤ High certainty evidence on the effectiveness and safety of abortion procedures administered by midlevel providers versus procedures administered by doctors is lacking. | ➤ Operational research studies are needed to assess the feasibility and acceptability of rolling out midlevel provision, as well as impact evaluations. Evaluations should also consider the structure of the wider healthcare system and availability of personnel to identify which midlevel providers, if any, are best placed to provide abortion procedures, and also consider how the process from pre- to post-abortion care is managed. |

*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-income countries. For additional details about how these judgements were made see: [www.supportsummaries.org/methods](http://www.supportsummaries.org/methods)
Additional information

Related literature


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Conflict of interest
None declared. For details, see: www.supportsummaries.org/coi

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This review should be cited as

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The Centre for Evidence-based Health Care is a coordinating and directive institution for research and training of the Faculty of Medicine and Health Sciences of Stellenbosch University in the field of evidence-based health care. The CEBHC aims to conduct and support relevant systematic reviews and primary research related to evidence-informed health care; enhance evidence-informed healthcare knowledge, skills and practices through teaching healthcare professionals and other stakeholders; and promote the use of best evidence in healthcare decision making and the uptake of current best evidence in healthcare policy and practice. Core activities of the CEBHC include research, teaching and knowledge translation.

About certainty of the evidence (GRADE)
The “certainty of the evidence” is an assessment of how good an indication the research provides of the likely effect; i.e. the likelihood that the effect will be substantially different from what the research found. By “substantially different” we mean a large enough difference that it might affect a decision. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the study design (randomised trials versus observational studies), factors that reduce the certainty (risk of bias, inconsistency, indirectness, imprecision, and publication bias) and factors that increase the certainty (a large effect, a dose response relationship, and plausible confounding). For each outcome, the certainty of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE: www.supportsummaries.org/grade

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The Evidence-Informed Policy Network (EVIPNet) is an initiative to promote the use of health research in policymaking in low- and middle-income countries. www.evipnet.org

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