January 2017 – SUPPORT Summary of a systematic review

Can community-based intervention packages reduce maternal and neonatal morbidity and mortality?

In the last three decades, rates of neonatal mortality in low-income countries have declined much more slowly than the rates of infant and maternal mortality. A significant proportion of these deaths could potentially be addressed by community-based intervention packages, which are defined as delivering more than one intervention via different sets of strategies that include additional training of outreach workers, building community-support, community mobilization, antenatal and postnatal home visitation, training of traditional birth attendants, antenatal and delivery home visitation, and home-based neonatal care and treatment; usually supplemented by strengthening linkages with local health systems.

Key messages

➔ **Community mobilisation and antenatal and postnatal home visitation decreases neonatal mortality.**

➔ **The following community-based intervention packages probably reduce neonatal mortality:**
- Community-support groups or women's groups
- Community mobilisation and home-based neonatal treatment

➔ **The following community-based intervention packages may reduce neonatal mortality:**
- Training traditional birth attendants who make antenatal and intrapartum home visits
- Home-based neonatal care and treatment
- Education of mothers and antenatal and postnatal visitation

➔ **The following community-based intervention packages may reduce maternal mortality:**
- Community mobilisation and antenatal and postnatal home visitation
- Community-support groups or women's groups
- Community mobilisation and home-based neonatal treatment
- Training traditional birth attendants who make antenatal and intrapartum home visits

Who is this summary for?

People making decisions concerning maternal and neonatal health in low-income countries

This summary includes:

- **Key findings** from research based on a systematic review
- **Considerations about the relevance of this research** for low-income countries

Not included:

- Recommendations
- Additional evidence not included in the systematic review
- Detailed descriptions of interventions or their implementation

This summary is based on the following systematic review:

Lassi ZS, Bhutta ZA. Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes. Cochrane Database of Systematic Reviews 2015, Issue 3.

What is a systematic review?

A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from the included studies

SUPPORT was an international project to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries, funded by the European Commission (FP6) and the Canadian Institutes of Health Research.

Glossary of terms used in this report:
www.supportsummaries.org/glossary-of-terms

Background references on this topic:
See back page

Background

Maternal and neonatal mortality remain high in low-income countries. Strategies to improve maternal and newborn survival include a variety of community-based intervention packages that can have multiple components, including:

- Additional training of outreach workers
- Building community support
- Community mobilization
- Antenatal and intrapartum home visitation
- Home-based care

Additional training of outreach workers can include training of lay health workers, traditional birth attendants, or community midwives in maternal care during pregnancy, delivery and the postpartum period, and routine newborn care. Training sessions can comprise lectures, supervised hands-on training in a healthcare facility or within the community.

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 assess the effectiveness of community-based intervention packages in reducing maternal and neonatal morbidity and mortality

Types of	What the review authors searched for	What the review authors found
Study designs & Interventions	Randomised or nonrandomised trials evaluating the effectiveness of community-based intervention packages in reducing maternal and neonatal mortality	24 randomised and 2 nonrandomised trials of intervention packages, including mainly: building community-support or women's groups (9 studies), community mobilisation and antenatal and postnatal home visitation (7), community mobilisation and home-based neonatal treatment (1), training traditional birth attendants who made antenatal and intrapartum home visits (2), home-based neonatal care and treatment (2), and education of mothers and antenatal and postnatal visitation (2)
Participants	Women of reproductive age, pregnant women at any period of gestation	Women of reproductive age, newborns and other family members, support groups, traditional birth attendants, community health workers, and midwives
Settings	Communities	Bangladesh (6 studies), India (6), Pakistan (4), Malawi (2), Tanzania (1), Ghana (1), Nepal (1), Zambia (1), China (1), South Africa (1), Vietnam (1), and Greece (1)
Outcomes	Primary: maternal mortality, neonatal mortality, early neonatal mortality, and late neonatal mortality. Secondary outcomes included: perinatal mortality, stillbirths, measures of morbidity, quality of care, and institutional deliveries	Maternal mortality (11 studies), neonatal mortality (21), early (11) and late (11) neonatal mortality, perinatal mortality (17), stillbirths (15), institutional deliveries (16), and measures of morbidity, and quality of care

Date of most recent search: May 2014

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

Lassi ZS, Bhutta ZA. Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes. Cochrane Database of Systematic Reviews 2015, Issue 3. Art. No.: CD007754. DOI.

Summary of findings

Sixteen of the 26 included studies were conducted in low and middle-income countries.

1) Intervention packages consisting mainly of building community-support or women's groups

Interventions consisted of monthly meetings of mothers' groups to identify maternal and neonatal health problems, prioritization of problems and implementation and monitoring strategies. Some also implemented a participatory learning cycle, where they identified and prioritised maternal and newborn health problems in their community, selected relevant strategies to address these problems, implemented the strategies, and evaluated the results.

➔ **Community-support groups or women's groups probably decrease neonatal mortality. The certainty of this evidence is moderate.**

➔ **Community-support groups or women's groups may decrease maternal mortality. The certainty of this evidence is low.**

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.

Intervention packages consisting mainly of building community-support groups or women's groups

People Pregnant women at any period of gestation
Settings Communities in low and middle-income countries
Intervention Building community-support groups or women's groups
Comparison Usual maternal and newborn care services provided by local government and non-government facilities

Outcomes	Absolute effect* Without support or women's groups	Absolute effect* With support or women's groups	Relative effect (95% CI)	Certainty of the evidence (GRADE)
	Difference (Margin of error)			
Maternal mortality	239 per 100 000	198 per 100 000	RR 0.84 (0.56 to 1.22)	⊕⊕◯◯ Low
	Difference: 41 fewer deaths per 100 000 live births (Margin of error: 105 fewer to 53 more)			
Neonatal mortality	28 per 1000	24 per 1000	RR 0.84 (0.73 to 0.96)	⊕⊕⊕◯ Moderate
	Difference: 4 fewer deaths per 1000 newborns (Margin of error: 8 to 1 fewer)			

Margin of error = Confidence interval (95% CI) RR: Risk ratio GRADE: GRADE Working Group grades of evidence (see above and last page)

* The risk WITHOUT the intervention is based on maternal mortality rate for developing countries in 2015 (http://www.who.int/mediacentre/fact-sheets/fs348/en/), neonatal mortality rate for Africa in 2015 (http://apps.who.int/gho/data/node.wrapper.MORT-1?lang=en&menu=hide). The corresponding risk WITH the intervention (and the 95% confidence interval for the difference) is based on the overall relative effect (and its 95% confidence interval).

2) Intervention packages consisting mainly of community mobilisation and antenatal and postnatal home visitation

These interventions included home visits and promotion of antenatal care, iron and folate use during pregnancy, immediate newborn care, promotion of exclusive breastfeeding, promotion of maternal nutrition and rest, recognition of danger signs and lay health worker visits to pregnant women during pregnancy and in the postnatal month.

➔ **Community mobilisation and antenatal and postnatal home visitation decreases neonatal mortality. The certainty of this evidence is high.**

➔ **Community mobilisation and antenatal and postnatal home visitation may decrease maternal mortality. The certainty of this evidence is low.**

Intervention package consisting mainly of community mobilisation and antenatal and postnatal home visitation

People Pregnant women at any period of gestation
Settings Low and middle-income countries
Intervention Building community-support or women's groups
Comparison Usual maternal and newborn care services provided by local government and non-government facilities

Outcomes	Absolute effect* Without mobilisation & visitation	Absolute effect* With mobilisation & visitation	Relative effect (95% CI)	Certainty of the evidence (GRADE)
	Difference (Margin of error)			
Maternal mortality	239 per 100 000	**172** per 100 000	RR 0.72 (0.49 to 1.06)	⊕⊕◯◯ Low
	Difference: 67 fewer deaths per 100 000 live births (Margin of error: 122 fewer to 14 more)			
Neonatal mortality	28 per 1000	**17** per 1000	RR 0.60 (0.49 to 0.72)	⊕⊕⊕⊕ High
	Difference: 11 fewer deaths per 1000 newborns (Margin of error: 14 to 8 fewer)			

Margin of error = Confidence interval (95% CI) RR: Risk ratio GRADE: GRADE Working Group grades of evidence (see above and last page)

* The risk WITHOUT the intervention is based on maternal mortality rate for developing countries in 2015 (http://www.who.int/mediacentre/factsheets/fs348/en/), neonatal mortality rate for Africa in 2015 (http://apps.who.int/gho/data/node.wrapper.MORT-1?lang=en&menu=hide). The corresponding risk WITH the intervention (and the 95% confidence interval for the difference) is based on the overall relative effect (and its 95% confidence interval).

3) Other community-based intervention packages

Other community-based intervention packages that were evaluated included training traditional birth attendants who made antenatal and intrapartum home visits (2 studies), home-based neonatal care and treatment (2 studies), education of mothers and antenatal and postnatal visitation (2 studies), and community mobilisation and home-based neonatal treatment (1 study).

➔ **Community mobilisation and home-based neonatal treatment probably reduces neonatal mortality. The certainty of this evidence is moderate.**

➔ **Training traditional birth attendants who make antenatal and intrapartum home visits may decrease neonatal and maternal mortality. The certainty of this evidence is low.**

➔ **Home-based neonatal care and treatment may decrease neonatal mortality. The certainty of this evidence is low.**

➔ **Education of mothers and antenatal and postnatal visitation may decrease neonatal mortality. The certainty of this evidence is low.**

Relevance of the review for low-income countries

➔ Findings	▷ Interpretation*
APPLICABILITY	
➔ **All but one of the studies were conducted in low- and middle-income countries.** ➔ **The study populations included women in urban and rural areas with diverse socioeconomic conditions.**	▷ *The effects of community-based intervention packages might vary in different low-income countries due to the availability of trained health professionals and health system infrastructure.*
EQUITY	
➔ **The review did not provide data about differential effects of the interventions in disadvantaged populations.**	▷ *To the extent that community-based intervention packages are targeted at disadvantaged populations, they are likely to decrease inequities.* ▷ *Community-based intervention packages might require more resources to implement in underserviced areas. Interventions that are targeted at populations with different levels of access to health services could increase inequities, if additional resources are not invested in underserviced areas.*
ECONOMIC CONSIDERATIONS	
➔ **The review did not provide data about costs.**	▷ *Resources available for implementing the packages and training health workers, supervision and support need to be considered when assessing whether the interventions can be implemented.* ▷ *Resources for increased use of healthcare resources also need to be considered, including resources for transportation, social services, human resources (time), and facility admissions.*
MONITORING & EVALUATION	
➔ **Although the certainty of the evidence is moderate to high for neonatal mortality for some community-based intervention packages, there is uncertainty about the effects for other important outcomes and for some intervention packages. There may also be uncertainty about the transferability of the findings to some settings.**	▷ *Process measures (quality of care), outcomes and costs should be monitored if community-based intervention packages are implemented, due to uncertainty about the effects and costs of different packages across different settings.* ▷ *Consideration should be given to conducting randomized trials and economic studies to evaluate the effects and cost-effectiveness of packages of interventions for which there is important uncertainty.*

*Judgments 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 judgments were made see:
www.supportsummaries.org/methods

Additional information

Related literature

Sibley LM, Sipe TA, Barry D. Traditional birth attendant training for improving health behaviours and pregnancy outcomes. Cochrane Database of Systematic Reviews 2012; 8:CD005460.

Lewin S, Munabi-Babigumira S, Glenton C, et al. Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases. Cochrane Database of Systematic Reviews 2010 Mar 17; 3:CD004015.

Bhutta ZA, Darmstadt GL, Haws RA, et al. Delivering interventions to reduce the global burden of stillbirths: improving service supply and community demand. BMC Pregnancy Childbirth 2009; 9 Suppl 1:S7.

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Conflict of interest

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

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This summary has been peer reviewed by: Josh Vogel and Zohra Lassi.

This review should be cited as

Lassi ZS, Bhutta ZA. Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes. Cochrane Database of Systematic Reviews 2015, Issue 3. Art. No.: CD007754. DOI.

The summary should be cited as

Zamorano N, Herrera CA. Can community-based intervention packages reduce maternal and neonatal morbidity and mortality? A SUPPORT Summary of a systematic review. January 2017. www.supportsummaries.org

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

SUPPORT collaborators:

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is part of the Cochrane Collaboration. The Norwegian EPOC satellite supports the production of Cochrane reviews relevant to health systems in low- and middle-income countries . www.epocoslo.cochrane.org

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

The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration that promotes the generation and use of health policy and systems research in low- and middle-income countries. www.who.int/alliance-hpsr

Norad, the Norwegian Agency for Development Cooperation, supports the Norwegian EPOC satellite and the production of SUPPORT Summaries. www.norad.no

The Effective Health Care Research Consortium is an international partnership that prepares Cochrane reviews relevant to low-income countries. www.evidence4health.org

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