



August 2016 – SUPPORT Summary of a systematic review

Do lay or community health workers in primary healthcare improve maternal, child health and tuberculosis outcomes?

Lay health workers have no formal professional education, but are usually given job-related training, and can be involved in either paid or voluntary care. They perform diverse functions related to healthcare delivery and have a range of titles, including village health workers, community volunteers and peer counsellors.

Key messages

- **The use of lay health workers in maternal and child health programmes:**
 - Probably leads to an increase in the number of women who breastfeed
 - Probably leads to an increase in the number of children with up-to-date immunisation schedules
 - May lead to fewer deaths among children under five years
 - May lead to fewer children who suffer from fever, diarrhoea and pneumonia
 - May increase the number of parents who seek help for their sick child
 - No studies looked at the impact of lay health workers on maternal mortality
- **The use of lay health workers in tuberculosis programmes:**
 - Probably leads to an increase in the number of people with tuberculosis who are cured
 - Probably makes little or no difference to the number of people who complete preventive treatment for tuberculosis
- **Little evidence is available regarding the effectiveness of substituting lay health workers for health professionals or the effectiveness of alternative strategies for training, supporting and sustaining lay health workers**
- **Factors that need to be considered when assessing whether intervention effects are likely to be transferable to other settings include:**
 - The availability of routine data on who might benefit from the intervention
 - The availability of resources for the lay health worker programme, for clinical and managerial support, and for supplies

Who is this summary for?

People making decisions about the use of lay health workers in primary and community healthcare

! This summary includes:

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

X 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:

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, Issue 3. Art. No.: CD004015.

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

Growing concern regarding the human resource crisis in healthcare has renewed interest in the role of lay health workers in primary and community care delivery. This summary focuses on the effects of lay health worker interventions in improving maternal, child health and tuberculosis outcomes.

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 effects of lay health worker interventions in improving maternal and child health and tuberculosis outcomes

Types of	What the review authors searched for	What the review authors found
Study designs & Interventions	Randomised trials of lay health worker (paid or voluntary) interventions in maternal and child health and infectious diseases	82 trials were found. 73 trials evaluated interventions in maternal and child health, and nine trials evaluated interventions related to tuberculosis.
Participants	Lay health workers: any health worker without formal professional certification who was trained in some way in the context of the intervention. No restriction on types of patients	Considerable differences in numbers, recruitment methods and training of lay health workers. Different recipients were targeted
Settings	All primary care and community health settings globally	54 studies were conducted in 6 high-income countries: Australia (1), Canada (3), Ireland (1), New Zealand (1), UK (8), and USA (40). 12 studies were conducted in 8 middle-income countries: Brazil (2), China (1), India (2), Mexico (1), Philippines (1), Thailand (1), Turkey (1), South Africa (3). 16 trials were from 10 low-income countries: Bangladesh (4), Burkina Faso (1), Ecuador (1), Ethiopia (1), Ghana (1), Iraq (1), Jamaica (1), Nepal (1), Pakistan (2), Tanzania (2), Vietnam (1)
Outcomes	Primary outcomes: health behaviours and healthcare outcomes, including harms Secondary outcomes: utilisation of lay health worker services, consultation processes, satisfaction with care, costs, social development measures	Most studies reported multiple effect measures and many did not specify a primary outcome

Date of most recent search: February 2009

Limitations: This is a well-conducted systematic review with only minor limitations, but studies were only included up to February 2009.

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Summary of findings

The review included 82 studies relevant to maternal and child healthcare and tuberculosis outcomes. A substantial proportion of the included studies (33%) were conducted in low- and middle-income countries or were directed at low-income groups in high-income countries.

Lay health worker interventions probably:

- Increase immunisation uptake in children, compared to usual healthcare services
- Increase the number of mothers who initiate breastfeeding
- Increase the number of mothers who breastfeed their child at all, and
- Increase the number of mothers who breastfeed exclusively for up to six months
- Increase the number of smear positive TB patients who are cured
- Make little or no difference to the number of people who complete preventive TB treatment

The certainty of this evidence is moderate.

Lay health worker interventions may:

- Reduce neonatal mortality and mortality in children under five years
- Reduce morbidity from common illnesses in children under five years
- Increase the number of parents seeking help for their sick child

The certainty of this evidence is low.

It is uncertain whether lay health worker interventions have an impact on

- Maternal mortality

The review did not identify any eligible studies that looked at this.

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.

Lay health worker interventions				
People	Mothers, children under five, or patients with tuberculosis			
Settings	Mixed			
Intervention	Lay health worker interventions			
Comparison	Usual healthcare services			
Outcomes	Absolute effect*		Relative effect (95% CI)	Certainty of the evidence (GRADE)
	Without lay health workers	With lay health workers		
Vaccination complete according to schedule	495 per 1,000	604 per 1,000	RR 1.22 (1.1 to 1.37)	⊕⊕⊕○ Moderate
	Difference: 109 more vaccinations completed according to schedule per 1,000 children under 2 years (Margin of error: 49 to 183 more)			
Initiation of breastfeeding	540 per 1,000	734 per 1,000	RR 1.36 (1.14 to 1.61)	⊕⊕⊕○ Moderate
	Difference: 194 more more mothers initiating breastfeeding per 1,000 breastfeeding mothers (Margin of error: 76 to 299 more)			
Any breastfeeding, 3 weeks to 12 months	320 per 1,000	397 per 1,000	RR 1.24 (1.1 to 1.39)	⊕⊕⊕○ Moderate
	Difference: 77 more more mothers breastfeeding at 3 weeks to 12 months per 1,000 breastfeeding mothers (Margin of error: 32 to 125 more)			
Exclusive breastfeeding, 3 to 6 months	70 per 1,000	195 per 1,000	RR 2.78 (1.74 to 4.44)	⊕⊕⊕○ Moderate
	Difference: 125 more mothers breastfeeding exclusively at 3 to 6 months per 1,000 breastfeeding mothers (Margin of error: 52 to 241 more)			
Mortality among children less than 5 years	50 per 1,000	38 per 1,000	RR 0.75 (0.55 to 1.03)	⊕⊕○○ Low
	Difference: 12 fewer deaths per 1,000 children under 5 years old (Margin of error: 22 fewer to 1 more)			
Neonatal mortality	45 per 1,000	34 per 1,000	RR 0.76 (0.57 to 1.02)	⊕⊕○○ Low
	Difference: 11 fewer deaths per 1,000 newborns (Margin of error: 19 fewer to 1 more)			

Outcomes	Absolute effect*		Relative effect (95% CI)	Certainty of the evi- dence (GRADE)
	Without lay health workers	With lay health workers		
Morbidity (from fever, acute respiratory infection or diarrhoea)	398 per 1,000	342 per 1,000	RR 0.86 (0.75 to 0.99)	⊕⊕○○ Low
	Difference: 56 fewer cases of illness per 1,000 children under 5 years old (Margin of error: 4 to 100 fewer)			
Care seeing practice for sick children	131 per 1,000	174 per 1,000	RR 1.33 (0.86 to 2.05)	⊕⊕○○ Low
	Difference: 43 more parents seeking care for their sick child per 1,000 sick children (Margin of error: 18 fewer to 138 more)			
Maternal mortality	The review did not identify any eligible studies that looked at the impact of lay health worker programmes on maternal mortality.		-	-
Cure for smear positive TB patients	526 per 1,000	642 per 1,000	RR 1.22 (1.13 to 1.31)	⊕⊕⊕○ Moderate
	Difference: 116 more cured patients per 1,000 smear positive TB patients (Margin of error: 68 to 163 more)			
Completed preventive TB therapy	766 per 1,000	766 per 1,000	RR 1.0 (0.92 to 1.09)	⊕⊕⊕○ Moderate
	Difference: No more completed preventive TB therapy per 1,000 TB patients (Margin of error: 61 fewer to 69 more)			
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 the risk in the control group in the systematic review. 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).				

Relevance of the review for low-income countries

→ Findings	▷ Interpretation*
APPLICABILITY	
<p>→ The studies reviewed covered an extensive range of settings, including several different low- and middle-income countries as well as low-income groups in high-income countries.</p> <p>→ The findings summarised here are based on studies in which the levels of organisation and support were potentially higher than those available outside of research settings.</p> <p>→ Few of the studies described how lay health worker provided services were linked to other health system components.</p> <p>→ Community participation in lay health worker programmes was generally poorly described.</p>	<p>▷ In general, if the health outcomes in a specific context are worse than the median reported in these studies, the absolute effects (i.e. the numbers benefiting) from introducing lay health worker programmes are likely to be greater. Similarly, if health outcomes are better, the absolute effects of introducing lay health workers are likely to be less</p> <p>▷ Factors that should be considered when assessing whether the intervention effects are likely to be transferable to a specific context include:</p> <ul style="list-style-type: none">– The availability of routine data on who might benefit from the intervention (e.g. population immunisation status records)– The financial and organisational resources to provide clinical and managerial support for lay health workers, and the capacity of other health professionals to collaborate with lay health workers– The supplies necessary for lay health workers to deliver services. Widespread programme implementation may increase demand for services such as immunisations. If these services are not available, lay health worker activities may be undermined <p>▷ How lay health workers can be integrated into the primary healthcare team should be considered.</p> <p>▷ If such participation is seen as important to programme success, considerable effort may need to be invested in this process</p>
EQUITY	
<p>→ Overall, the included studies provided little data regarding differential effects of the interventions for disadvantaged populations.</p>	<p>▷ Many lay health worker programmes aim to address inequity by extending services to underserved communities. Community involvement in programme decisions, such as lay health worker selection, may aid this.</p> <p>▷ Some interventions used systems (e.g. vaccination registers, mobile phones) that might exclude the most disadvantaged, thereby worsening inequities.</p>
ECONOMIC CONSIDERATIONS	
<p>→ There is little information regarding the cost-effectiveness of lay health worker interventions.</p>	<p>▷ The cost of lay health worker programmes is likely to be highly variable and must be estimated based on specific local conditions outside research settings.</p> <p>▷ Lay health workers are most likely to be useful when they have a cost-effective intervention to deliver. Before these programmes are scaled up, robust evidence is needed regarding the cost-effectiveness of the interventions to be delivered and the use of lay health workers as a delivery mechanism.</p>
MONITORING & EVALUATION	
<p>→ Lay health workers in this review generally focused on specific health issues. The review found</p>	<p>▷ If decision makers choose to implement lay health worker programmes in areas where good evidence of effectiveness is</p>

little evidence regarding lay health workers who delivered a range of healthcare interventions.

still unavailable, they should ensure that these programmes include robust evaluation. The effect of lay health workers on child morbidity and mortality is an example of one such area.

▷ *The acceptability of lay health worker programmes to service users and to health professionals may need to be evaluated before such programmes are taken to scale.*

*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

Additional information

Related literature

Glenton C, Colvin CJ, Carlsen B, et al. Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: qualitative evidence synthesis. *Cochrane Database of Systematic Reviews* 2013, Issue 10. Art. No.: CD010414.

Daniels K, Odendaal WA, Nkonki L, et al. Incentives for lay health workers to improve recruitment, retention in service and performance (Protocol). *Cochrane Database of Systematic Reviews* 2014, Issue 7. Art. No.: CD011201.

World Health Organization. WHO recommendations: Optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting. Geneva: WHO, 2012. <http://optimizemnh.org/>

Lehmann U, Sanders D. Community health workers: what do we know about them? The state of the evidence on programmes, activities, costs and impact of health outcomes of using community health workers. World Health Organization, 2007.

Walt G. Community health workers in national programmes: just another pair of hands? Milton Keynes: Open University Press, 1990.

Swider S, M. Outcome effectiveness of community health workers: an integrative literature review. *Public Health Nurs.* 2002; 19:11–20.

Corluka A, Walker DG, Lewin S, Glenton C, Scheel IB. Are vaccination programmes delivered by lay health workers cost-effective? A systematic review. *Hum Resourc Health*, 2009; Nov 3;7:81.

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Conflict of interest

Claire Glenton and Simon Lewin are authors of the Cochrane review on which this summary is based. For details, see: www.supportsummaries.org/coi

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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](http://www.cochrane.org). 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 (EVIPOC) 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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