



January 2011 – SUPPORT Summary of a systematic review

Do lay or community health workers in primary health care 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 health care 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 health care.

! This summary includes:

- **Key findings** from research based on a systematic review
- **Considerations about the relevance of this research** for low- and middle-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, Daniels K, Bosch-Capblanch X, van Wyk BE, Odgaard-Jensen J, Johansen M, Aja GN, Zwarenstein M, Scheel IB. 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

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 – an international collaboration funded by the EU 6th Framework Programme to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries. www.support-collaboration.org

Glossary of terms used in this report: www.support-collaboration.org/summaries/explanations.htm

Background references on this topic: See back page.

Background

Growing concern regarding the human resource crisis in health care has renewed interest in the role of lay health workers in primary and community care delivery. This summary is based on an update of a Cochrane systematic review published in 2010 by Lewin et al. The 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- and middle-income countries. The methods used to assess the quality of the review and to make judgements about its relevance are described here: www.support-collaboration.org/summaries/methods.htm

Knowing what's not known is important

A good quality review might not find any studies from low- and middle-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.

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.

	What the review authors searched for	What the review authors found
Interventions	Randomised controlled trials of lay health worker (paid or voluntary) interventions in maternal and child health and infectious diseases	82 trials
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 health care 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 good quality systematic review with only minor limitations.

Lewin S, Munabi-Babigumira S, Glenton C, Daniels K, Bosch-Capblanch X, van Wyk BE, Odgaard-Jensen J, Johansen M, Aja GN, Zwarenstein M, Scheel IB. 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. DOI: 10.1002/14651858.CD004015.pub3

Summary of findings

The review included 82 studies relevant to maternal and child health care 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.

1) Immunisation uptake in children under two years

The review summarised four studies that took place in urban settings in the United States of America (USA) and Ireland, in populations that were described as economically disadvantaged. Lay health workers made home visits to parents, gave them information about the importance of routine childhood immunisations, and encouraged them to visit clinics for child immunisation. The studies showed the following:

➔ **Lay health worker-based promotion strategies probably increase immunisation uptake in children, compared to usual health care services**

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

Immunisation uptake in children under two years					
Patients or population: Children less than two years Settings: Formal or informal low-income communities in the USA (3 studies) and Ireland (1 study) Intervention: Lay health worker interventions to promote immunisation uptake Comparison: Usual health care services					
Outcomes	Comparative risks*		Relative effect (95% CI)	Number of participants (studies)	Quality 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 (544 to 678 per 1,000)	RR 1.22 (1.1 to 1.37)	3,568 (4 studies)	⊕⊕⊕○ Moderate

CI: Confidence interval RR: Risk ratio GRADE: GRADE Working Group grades of evidence (see above and last page)
 *Illustrative comparative risks. The assumed risk WITHOUT the intervention is based on the risk in the control group in the systematic review. The corresponding risk WITH the intervention (and its 95% confidence interval) are based on the overall relative effect (and its 95% confidence interval).

2) Breastfeeding

The review summarised 18 studies, ten from high-income countries and eight from low- or middle-income countries. The lay health workers carried out a number of activities, including postnatal counselling to promote exclusive breastfeeding and to address barriers to breastfeeding, observation of mother-child interaction, and health education. These studies showed the following:

Lay health worker interventions, compared to usual health care services:

- Probably increase the number of mothers who initiate breastfeeding
- Probably increase the number of mothers who breastfeed their child at all, and
- Probably increase the number of mothers who breastfeed exclusively for up to six months

Breastfeeding					
Patients or population: Breastfeeding mothers Settings: United Kingdom (UK) (5 studies); USA (4 studies); Canada; (Bangladesh (3 studies); Brazil (2 studies); India; Mexico; Phillipines Intervention: Lay health worker support for breastfeeding Comparison: Usual health care services					
Outcomes	Comparative risks*		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence (GRADE)
	Without lay health workers	With lay health workers			
Initiation of breastfeeding	540 per 1,000	734 per 1,000 (616 to 839 per 1,000)	RR 1.36 (1.14 to 1.61)	17,159 (12 studies)	⊕⊕⊕○ Moderate
Any breastfeeding, 3 weeks to 12 months	320 per 1,000	397 per 1,000 (352 to 445 per 1,000)	RR 1.24 (1.1 to 1.39)	8,104 (12 studies)	⊕⊕⊕○ Moderate
Exclusive breastfeeding, 3 to 6 months	70 per 1,000	195 per 1,000 (122 to 311 per 1,000)	RR 2.78 (1.74 to 4.44)	4,334 (10 studies)	⊕⊕⊕○ Moderate

CI: Confidence interval RR: Risk ratio GRADE: GRADE Working Group grades of evidence (see above and last page)
 *Illustrative comparative risks. The assumed risk WITHOUT the intervention is based on the risk in the control group in the systematic review. The corresponding risk WITH the intervention (and its 95% confidence interval) are based on the overall relative effect (and its 95% confidence interval).

3) Mortality and morbidity in children under five years

The review summarised 11 studies from nine low- or middle-income countries. Lay health workers promoted health, and in some cases managed or treated common childhood illness, including acute respiratory infections, malaria, diarrhoea and malnutrition. In five studies, lay health worker tasks included visiting homes to educate mothers about specific health issues and referrals to health facilities. In six studies, lay health workers promoted birth preparedness and essential newborn care. These 11 studies showed the following:

Lay health worker interventions, compared to usual health care services:

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

Mortality and morbidity in children under five years					
Patients or population: Children under five years Settings: Bangladesh (3 studies), Burkina Faso, Ethiopia, Ghana, India, Nepal, Tanzania, Thailand, Vietnam Intervention: Lay health worker interventions to reduce mortality and morbidity in children Comparison: Usual health care services					
Outcomes	Comparative risks*		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence (GRADE)
	Without lay health workers	With lay health workers			
Mortality among children less than 5 years	50 per 1,000	38 per 1,000 (28 to 51 per 1,000)	RR 0.75 (0.55 to 1.03)	56,378 (3 studies)	⊕⊕○○ Low
Neonatal mortality	45 per 1,000	34 per 1,000 (26 to 46 per 1,000)	RR 0.76 (0.57 to 1.02)	29,217 (4 studies)	⊕⊕○○ Low
Morbidity (from fever, acute respiratory infection or diarrhoea)	398 per 1,000	342 per 1,000 (298 to 394 per 1,000)	RR 0.86 (0.75 to 0.99)	17,408 (7 studies)	⊕⊕○○ Low
Care seeing practice for sick children	131 per 1,000	174 per 1,000 (113 to 269 per 1,000)	1.33 (0.86 – 2.05)	11,195 (3 studies)	⊕⊕○○ Low

CI: Confidence interval RR: Risk ratio GRADE: GRADE Working Group grades of evidence (see above and last page)
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4) Maternal mortality

The review did not identify any eligible studies that looked at the impact of lay health worker programmes on maternal mortality

5) Tuberculosis outcomes

The review summarised six studies from both high-, middle- and low-income countries. In these studies, lay health workers gave some form of adherence support to people with tuberculosis. These studies showed the following:

Lay health worker interventions, compared to self-supervision or clinic-based supervision:

- Probably increase the number of smear positive TB patients who are cured
- Probably make little or no difference to the number of people who complete preventive TB treatment

Tuberculosis outcomes					
Patients or population: People with tuberculosis (TB) or requiring preventive TB treatment Settings: USA (2 studies); South Africa (2 studies); Tanzania; Iraq Intervention: Lay health worker support for adherence to TB treatment Comparison: Self-supervision or clinic-based supervision					
Outcomes	Comparative risks*		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence (GRADE)
	Without lay health workers	With lay health workers			
Cure for smear positive TB patients	526 per 1,000	642 per 1,000 (594 to 689 per 1,000)	RR 1.22 (1.13 to 1.31)	1,203 (4 studies)	⊕⊕⊕○ Moderate
Completed preventive TB therapy	766 per 1,000	766 per 1,000 (705 to 835 per 1,000)	RR 1.0 (0.92 to 1.09)	595 (2 studies)	⊕⊕⊕○ Moderate

CI: Confidence interval RR: Risk ratio GRADE: GRADE Working Group grades of evidence (see above and last page)
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Relevance of the review for low- and middle-income countries

→ Findings

▷ Interpretation*

APPLICABILITY

→ 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.

→ 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.

→ Few of the studies described how lay health worker provided services were linked to other health system components.

→ Community participation in lay health worker programmes was generally poorly described.

▷ In general, if the health outcomes in your local context are worse than the median reported in these studies, the absolute effects (i.e. the numbers benefiting) of introducing lay health worker programmes are likely to be greater. Similarly, if health outcomes in your local context are better, the absolute effects of introducing lay health workers are likely to be less

▷ Factors that should be considered when assessing whether the intervention effects are likely to be transferable to your local context include:

- 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

▷ Consider how lay health workers can be integrated into the primary health care team

▷ If such participation is seen as important to programme success, considerable effort may need to be invested in this process

EQUITY

→ Overall, the included studies provided little data regarding differential effects of the interventions for disadvantaged populations.

▷ 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

▷ Some interventions used systems (e.g. vaccination registers, mobile phones) that might exclude the most disadvantaged, thereby worsening inequities

ECONOMIC CONSIDERATIONS

→ There is little information regarding the cost-effectiveness of lay health worker interventions.

▷ 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

▷ 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 intervention to be delivered and the use of lay health workers as a delivery mechanism

MONITORING & EVALUATION

→ Lay health workers in this review generally focused on specific health issues. The review found little evidence regarding lay health workers who delivered a range of health care interventions.

▷ If decision makers choose to implement lay health worker programmes in areas where good evidence of effectiveness is 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- and middle-income countries. For additional details about how these judgements were made see:

<http://www.support-collaboration.org/summaries/methods.htm>

Additional information

Related literature

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.

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Bhattacharyya K, Winch P, LeBan K, Thien M. Community health worker incentives and disincentives: How they affect motivation, retention and sustainability. 2001. Published by BASICS II for the United States Agency for International Development. Arlington, Virginia, October 2001.

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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.support-collaboration.org/summaries/coi.htm

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Keywords

All Summaries: evidence-informed health policy, evidence-based, systematic review, health systems research, health care, low- and middle-income countries, developing countries, primary health care

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, EVIP-Net 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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