November 2015 – SUPPORT Summary of a systematic review

Can community-based interventions increase uptake of treatment modalities for diarrhea and pneumonia and reduce childhood mortality?

Few children in low-income countries receive appropriate treatment for diarrhea and pneumonia, which are the leading causes of under-five child deaths. Community-based interventions can increase the uptake of specific treatments for diarrhea and pneumonia, potentially leading to a decrease in under five child mortality.

Key messages

➔ **Community-based interventions probably increase care seeking for diarrhea in children, increase use of oral rehydration solution, and reduce mortality due to diarrhea among children age 0-4 years.**

➔ **Community-based interventions probably increase care seeking for pneumonia in children, increase use of antibiotics, and reduce mortality due to acute pneumonia among children age 0-4 years.**

Who is this summary for?

People making decisions concerning child 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

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:

Das JK, Lassi ZS, Salam RA, Bhutta ZA. Effect of community based interventions on childhood diarrhea and pneumonia: uptake of treatment modalities and impact on mortality. BMC Public Health 2013 13(Suppl 3):S29.

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

Few children in low-income countries receive appropriate treatment for diarrhea and pneumonia. Poor access to clinics and shortages of trained primary health workers are the major reasons for this situation. Community-based interventions include provision of health services at the community and household level with the help of lay health workers. This review assessed whether community-based interventions can increase the uptake of specific treatments (such as oral rehydration solution and zinc for diarrhea, and antibiotics for pneumonia) for childhood diarrhea and pneumonia, and decrease under five child mortality.

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 estimate the effect of community-based interventions including community case management on the coverage of various commodities and on mortality due to diarrhea and pneumonia

Types of	What the review authors searched for	What the review authors found
Study designs & Interventions	Randomised trials, quasi-experimental and observational studies of community-based interventions	24 studies were found, including randomised trials, quasi-experimental and observational studies.
Participants	Impacts on children under 5 years	Children under 5 years
Settings	Community-based settings in any country	Asia and Africa: India, Bangladesh, Pakistan, Malaysia, Nepal, Tanzania, China, Fiji, Zambia, Mali, Mozambique, Thailand, Uganda
Outcomes	Care seeking rates, use of oral rehydration solutions and zinc for diarrhea, antibiotics use and treatment failure rates for diarrhea and pneumonia; and for case management studies: incidence of moderate or severe episodes of acute lower respiratory infection, diarrhea-specific mortality, pneumonia-specific mortality, and all-cause mortality	Use of oral rehydration solution in childhood diarrhea, use of zinc in childhood diarrhea, care seeking rates for diarrhea, care seeking rates for pneumonia (12 studies); pneumonia case management outcomes (12 studies); diarrhea case management outcomes (2 studies)
Date of most recent search: November 2012		
Limitations: This review has important limitations. It does not provide any information on risk of bias. In addition, it does not report how studies were weighted in the analysis.		

Das JK, Lassi ZS, Salam RA, Bhutta ZA. Effect of community based interventions on childhood diarrhea and pneumonia: uptake of treatment modalities and impact on mortality. BMC Public Health 2013 13(Suppl 3):S29.

Summary of findings

This review included 24 studies mainly from low- and middle-income countries. Interventions delivered at community level through lay health workers and health staff which are not based at clinics were considered community-based interventions. Most community-based interventions used WHO defined criteria for diarrhea and pneumonia case management.

1) Community-based interventions compared with routine care

➔ **Community-based interventions in addition to usual care practices probably increase care seeking for diarrhea in children. The certainty of this evidence is moderate.**

➔ **Community-based interventions probably increase use of oral rehydration solutions and zinc for childhood diarrhea. The certainty of this evidence is moderate.**

➔ **Community-based interventions probably reduce diarrhea specific mortality among children age 0-4 years. The certainty of this evidence is moderate.**

➔ **Community-based interventions probably increase care seeking rates for pneumonia in children. The certainty of this evidence is moderate.**

➔ **Community-based interventions may increase use of antibiotics for pneumonia in children. The certainty of this evidence is moderate.**

➔ **Community-based interventions probably reduce pneumonia-specific mortality among children age 0-4 years. The certainty of this evidence is moderate.**

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.

Impact of community-based interventions on childhood diarhea and pneumonia

People Parents and children
Settings Asia and Africa: India, Bangladesh, Pakistan, Malaysia, Nepal, Tanzania, China, Fiji, Zambia, Mali, Mozambique, Thailand, Uganda
Intervention Community-based interventions delivered through lay health workers
Comparison Usual care practices for childhood diarrhea

Outcomes	Relative effect (95% CI)	Certainty of the evidence (GRADE)
Care seeking rates for diarrhea	RR 1.09 (1.06 to 1.12)	⨁⨁⨁◯ Moderate
Use of oral rehydration solution for diarrhea	RR 2.60 (1.59 to 4.27)	⨁⨁⨁◯ Moderate
Use of zinc for diarrhea	RR 29.79 (12.33 to 71.97)	⨁⨁⨁◯ Moderate
Diarrhea-specific mortality 0-4 years	RR 0.37 (0.15 to 0.93)	⨁⨁⨁◯ Moderate
Care seeking rates for pneumonia	RR 1.13 (1.08 to 1.18)	⨁⨁⨁◯ Moderate
Use of antibiotics for pneumonia	RR 1.13 (0.99 to 1.30)	⨁⨁◯◯ Moderate
Pneumonia-specific mortality 0-4 years	RR 0.68 (0.53 to 0.88)	⨁⨁⨁◯ Moderate

GRADE: GRADE Working Group grades of evidence (see above and last page)
RR: risk ratio CI: confidence interval

Relevance of the review for low-income countries

➔ Findings	▷ Interpretation*
APPLICABILITY	
➔ **All studies included in this review were carried out in low- and middle-income countries.** ➔ **Most studies reported using lay health workers in addition to existing systems of health service delivery.**	▷ *Since findings are consistent in most low- and middle-income settings, it is likely that the findings are broadly applicable.* ▷ *The types of incentives provided to lay health workers in different settings might modify the effects. In addition, formal healthcare systems can affect the applicability of interventions.* ▷*Coverage of lay health workers in remote rural areas might vary.*
EQUITY	
➔ **This review does not provide any information on the effect of community-based interventions between disadvantaged and less disadvantaged populations.**	▷ *Because the interventions are targeted at underserved populations, they likely reduce inequities. However, differences in the availability of lay health workers might have impacts on equity within those underserved populations.*
ECONOMIC CONSIDERATIONS	
➔ **This review does not provide any information on costs of community-based interventions.**	▷ *Resources required for implementing the community-based interventions and training of lay health workers need to be considered when assessing whether the interventions can be implemented in low-income countries.* ▷ *Changes in use of healthcare resources include increased use of transportation, human resources, and material resources.*
MONITORING & EVALUATION	
➔**No evidence on monitoring of community-based interventions was reported in this review.**	▷ *Monitoring of community-based interventions might influence their success, as well as ensuring that the interventions are performing as expected.* ▷ *Context-specific economic evaluations might help inform policy decisions regarding scaling up and continuing investments in community-based interventions.*

*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

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 Syst Rev 2010; (3):CD004015.

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 Syst Rev 2013; (10):CD010414

Druetz T, Siekmans K, Goossens S, et al. The community case management of pneumonia in Africa: a review of the evidence. Health Policy Plan 2015; 30:253–66.

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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

Das JK, Lassi ZS, Salam RA, Bhutta ZA. Effect of community based interventions on childhood diarrhea and pneumonia: uptake of treatment modalities and impact on mortality. BMC Public Health 2013 13(Suppl 3): S29.

The summary should be cited as

Atif Riaz. Can community-based interventions increase uptake of treatment modalities for diarrhea and pneumonia and reduce childhood mortality? A SUPPORT Summary of a systematic review. May 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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