Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes

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RHL summary

Recent community-based studies on interventions aimed at women of reproductive age have raised doubts whether these strategies provide consistent benefit across the continuum of maternal and newborn care. This review sought to evaluate the effectiveness of community-based intervention packages in reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes. The review included 18 cluster-randomized/quasi-randomized trials, covering a wide range of interventional packages. While implementation of community-based interventional care packages was not associated with reductions in maternal mortality, significant reductions were recorded in maternal illnesses and pregnancy complications, stillbirths, and perinatal and neonatal deaths. The review provides sound evidence for integrating maternal and newborn care in community settings through a range of interventions. The review authors believe that there is sufficient evidence to scale up community-based care through packages which can be delivered by a range of community-based workers.

Cochrane review

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Abstract

While maternal, infant and under-five child mortality rates in developing countries have declined significantly in the past two to three decades, newborn mortality rates have reduced much more slowly. While it is recognised that almost half of the newborn deaths can be prevented by scaling up evidence-based available interventions such as tetanus toxoid immunisation to mothers; clean and skilled care at delivery; newborn resuscitation; exclusive breastfeeding; clean umbilical cord care; management of infections in newborns, many require facility based and outreach services. It has also been stated that a significant proportion of these mortalities and morbidities could also be potentially addressed by developing community-based packages interventions which should also be supplemented by developing and strengthening linkages with the local health systems. Some of the recent community-based studies of interventions targeting women of reproductive age have shown variable impacts on maternal outcomes and hence it is uncertain if these strategies have consistent benefit across the continuum of maternal and newborn
To assess the effectiveness of community-based intervention packages in reducing maternal and neonatal morbidity and mortality; and improving neonatal outcomes.

We searched The Cochrane Pregnancy and Childbirth Group’s Trials Register (January 2010), World Bank’s JOLIS (12 January 2010), BLDS at IDS and IDEAS database of unpublished working papers (12 January 2010), Google and Google Scholar (12 January 2010).

All prospective randomised and quasi-experimental trials evaluating the effectiveness of community-based intervention packages in reducing maternal and neonatal mortality and morbidities; and improving neonatal outcomes.

Two review authors independently assessed trial quality and extracted the data.

The review included 18 cluster-randomised/quasi-randomised trials, covering a wide range of interventional packages, including two subsets from one trial. We incorporated data from these trials using generic inverse variance method in which logarithms of risk ratio estimates were used along with the standard error of the logarithms of risk ratio estimates. Our review did not show any reduction in maternal mortality (risk ratio (RR) 0.77; 95% confidence interval (CI) 0.59 to 1.02, random-effects (10 studies, n = 144,956), I² 39%, P value 0.10. However, significant reduction was observed in maternal morbidity (RR 0.75; 95% CI 0.61 to 0.92, random-effects (four studies, n = 138,290), I² 28%; neonatal mortality (RR 0.76; 95% CI 0.68 to 0.84, random-effects (12 studies, n = 136,425), I² 69%, P value < 0.001), stillbirths (RR 0.84; 95% CI 0.74 to 0.97, random-effects (11 studies, n = 113,821), I² 66%, P value 0.001) and perinatal mortality (RR 0.80; 95% CI 0.71 to 0.91, random-effects (10 studies, n = 110,291), I² 82%, P value < 0.001) as a consequence of implementation of community-based interventional care packages. It also increased the referrals to health facility for pregnancy related complication by 40% (RR 1.40; 95% CI 1.19 to 1.65, fixed-effect (two studies, n = 22,800), I² 0%, P value 0.76), and improved the rates of early breastfeeding by 94% (RR 1.94; 95% CI 1.56 to 2.42, random-effects (six studies, n = 20,627), I² 97%, P value < 0.001). We assessed our primary outcomes for publication bias, but observed no such asymmetry on the funnel plot.

Our review offers encouraging evidence of the value of integrating maternal and newborn care in community settings through a range of interventions which can be packaged effectively for delivery through a range of community health workers and health promotion groups. While the importance of skilled delivery and facility-based services for maternal and newborn care cannot be denied, there is sufficient evidence to scale up community-based care through packages which can be delivered by a range of community-based workers.