RESEARCH BRIEF
AUGUST 2014

What strategies are cost-effective in improving health care for women and their newborns?

Findings from a systematic review, conducted by Dr Lindsay Mangham-Jefferies and colleagues for the IDEAS project at the London School of Hygiene & Tropical Medicine. Funded by the Bill & Melinda Gates Foundation.

Key messages

- **Cost-effective strategies are needed** to improve the use and provision of maternal and newborn health care, and increase the coverage of maternal and newborn health interventions.
- **Demand and supply-side strategies can be cost-effective**, and there is strong evidence in certain contexts for:
  - Women's groups to encourage uptake of maternal and newborn health care and promote health practices
  - Providing newborn care at home through community health workers and traditional birth attendants
  - Extending routine antenatal care to deliver life-saving interventions, such as mosquito nets for malaria control
  - Encouraging and supporting breastfeeding through adapted hospital-based maternity care
  - Facility-based quality improvement initiatives to enhance compliance with care standards
- **Questions remain** about the extent to which both costs and effects vary by implementation, context and scale
- **Evidence is limited** by the number of studies on different types of demand and supply strategies and the lack of high quality studies using comparable cost-effectiveness measures.
- **More attention should be given to the design and reporting of cost-effectiveness studies.**

Cost-effective strategies are needed to improve the use and provision of maternal and newborn health care, and increase the coverage of life-saving interventions

Each year 3 million newborns die, 2.6 million babies are stillborn, and 287,000 women die from complications of pregnancy and childbirth. The vast majority of these deaths occur in Africa and Asia, and could be prevented by improving access to life-saving interventions. Substantial evidence exists on maternal and newborn health interventions and behaviours that are effective and suitable for implementation in resource-constrained settings. Examples include iron supplements to prevent anaemia, tetanus toxoid immunization, magnesium sulphate for eclampsia, uterotonics to prevent and manage post-partum haemorrhage, hygienic cord care, immediate thermal care, exclusive breastfeeding, and antibiotics for the treatment of severe bacterial infections.

Despite efforts to identify priority life-saving interventions, coverage remains inadequate in many low and middle income countries. Demand and supply side strategies are needed to address delays in making the decision to seek care, difficulties in reaching care, and problems with the range and quality of care available. Moreover, as there are limited resources available, it is important to identify which strategies will be cost-effective and should be prioritised.

Image: Rani at home with her newborn baby in Uttar Pradesh, India.

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www.biomedcentral.com/1471-2393/14/243/abstract

IDEAS
Evidence to improve maternal & newborn health

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

Findings

Strategies to improve maternal and newborn health care can be cost-effective

We found strong evidence from specific settings that the following strategies were cost-effective in improving maternal and newborn health:

- **Women's groups** to encourage uptake of maternal and newborn health care and promote health practices
- **Providing newborn care at home** through community health workers and traditional birth attendants
- **Extending routine antenatal care** to deliver life-saving interventions, such as mosquito nets
- **Encouraging and supporting breastfeeding** through adapted hospital-based maternity care
- **Facility-based quality improvement initiative** to enhance compliance with care standards

But questions remain about the extent to which implementation, context and scale can affect the cost-effectiveness of a strategy.

Intensive implementation may improve a strategy's effectiveness, but this is likely to come at a cost. The context for a study can also influence costs and effects, and whether a cost-effective strategy can be replicated in another setting. Similarly, the scale of implementation may affect costs or effects, and the potential to generate economies of scale will depend on the characteristics of the strategy and the geographic setting.

"Questions remain about the extent to which implementation, context and scale can affect the cost-effectiveness of a strategy."

Evidence is limited by the number of studies

There are relatively few studies from low-income and lower-middle-income countries that report on the cost-effectiveness of demand and supply-side strategies to improve maternal and newborn health (Fig 1). Evidence was synthesised from 43 studies from published since 1990, and included 23 studies from sub-Saharan Africa, 17 from Asia and 3 from other regions.

Evidence is limited on different types of demand and supply strategies

There was considerable diversity in the strategies identified, and also in the intensity, context and scale of implementation. Although each strategy is distinct, there were some common themes. Many of the studies focused on care during pregnancy and involved community-based strategies, either to stimulate demand or complement facility-based services. The studies available are presented here in relation to the continuum of care and the levels of the health system (Fig 2).

Evidence is limited by the lack of high quality studies using comparable cost-effectiveness measures

Although the literature contains some high quality publications, many fell short of the recommended standard. Gaps in reporting made it difficult to assess whether methods were appropriate, what assumptions had been made, and how the findings should be interpreted. Researchers should, where possible, report a cost-effectiveness measure that allows different strategies to be compared, such as the cost per life saved or cost per disability-adjusted life-year (DALY) averted. But many studies reported strategy-specific cost-effectiveness measure, such as the cost per syphilis case treated or cost per caesarean-section, and these have limited comparability.

Abbreviations
CHW = Community health worker,
EmOC = Emergency Obstetric Care,
ANC = Antenatal care

Fig 1: Map showing the number of cost-effectiveness studies per country

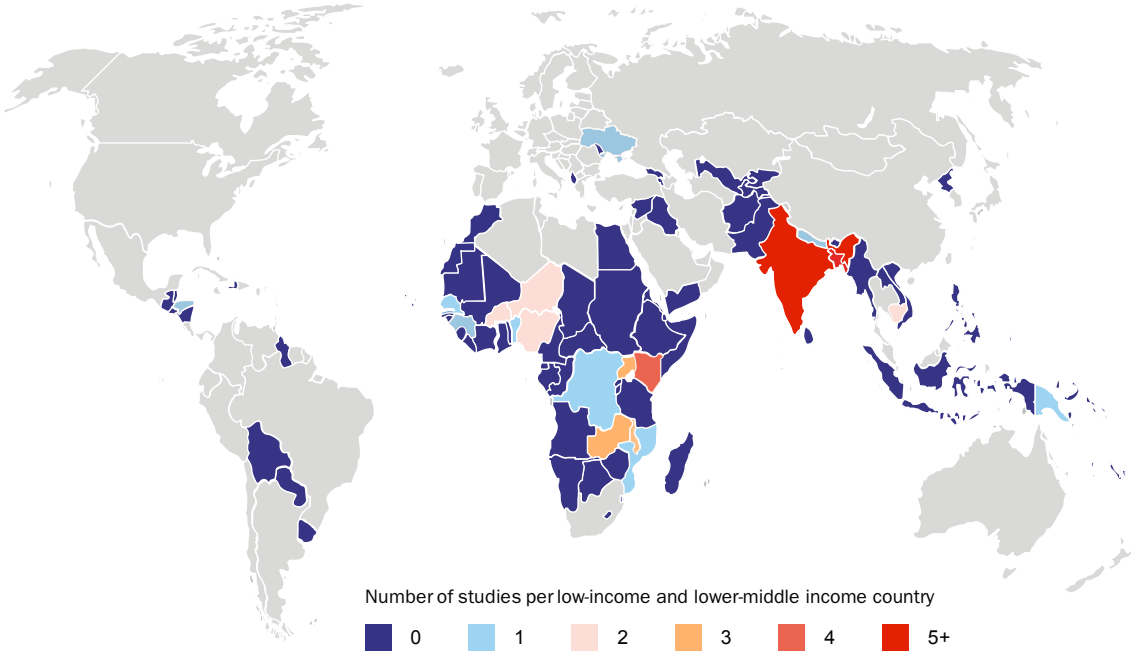
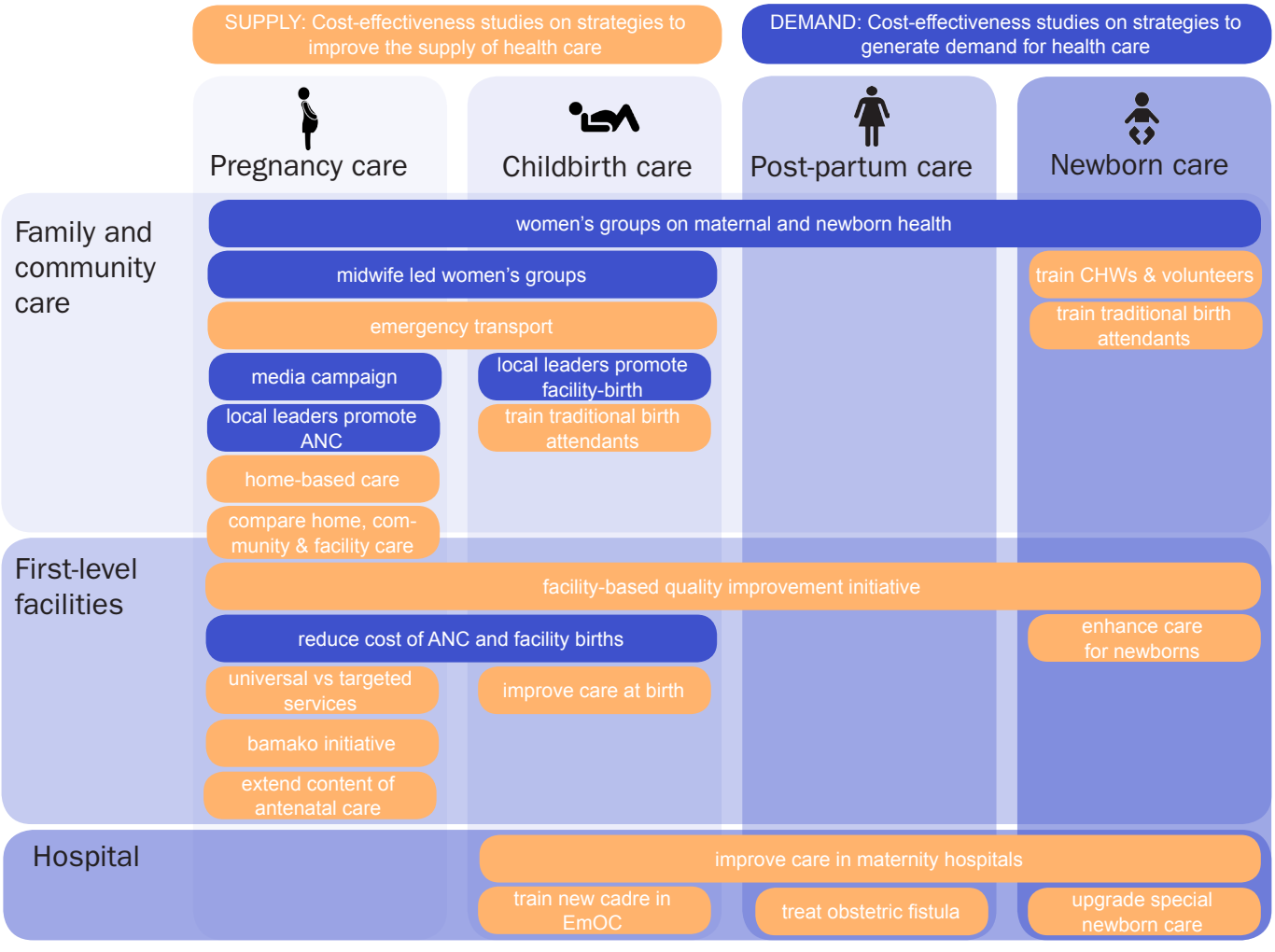


Fig 2: Demand and supply strategies presented along the continuum of care and level of the health system



More attention should be given to the design and reporting of cost-effectiveness studies

Cost-effectiveness results may depend on the choice of comparator, the costs included, and assumptions made about the effect on the quantity and quality of life. For example, home-based care is often more expensive than care at an outreach clinic or at the health facility when the costs included are estimated from a health services perspective, and any direct or indirect costs incurred by families are ignored.

Similarly, the cost-effectiveness of life-saving interventions may substantially under-estimate the resources required to reduce maternal and neonatal mortality if the cost of demand- and supply-side strategies are not taken into account. As one study demonstrated, there was an eightfold increase in the cost per facility-birth when the full cost of the health promotion activities were included in the cost-effectiveness calculations.

> “...there was an eightfold increase in the cost per facility-birth when the full cost of the health promotion activities were included”

A way forward to standardise cost-effectiveness analysis?

A standardised methodology for planning, conducting and reporting of economic evaluations, known as the “Gates Reference Case”, was launched in 2014. The Gates Reference Case was commissioned by the Bill & Melinda Gates Foundation and developed by a collaboration led by NICE International. It provides guidance on 11 key principles, including the appropriate selection of comparator, outcome measure, and approaches to costing. All recipients of new funding from the foundation will be encouraged to use the Gates Reference Case, and it is hoped that other groups and institutions will apply these principles in their work. This initiative will help to raise the quality, comparability and usefulness of all economic evaluations of health interventions in low and middle-income countries.

www.nice.org.uk/About/What-we-do/NICE-International/NICE-International-projects/Methods-for-Economic-Evaluation-Project-and-the-Gates-Reference-Case

Definitions

Demand-side strategies influence health practices of individuals and communities and promote uptake of preventive and curative maternal and newborn health care during pregnancy, childbirth and in the post-natal period. These strategies may provide health information and education, or address geographic, financial, or cultural barriers to accessing care.

Supply-side strategies enhance the capability and performance of front-line health workers who, as the first point-of-contact for women and newborns, provide essential care in the community and health facilities. They may involve training health workers, motivating health workers, improving the working environment and resources available, or strengthening the health system.

Cost effective strategies: Based on the World Health Organization guidance, strategies are cost-effective if the cost per life-year saved, cost per disability-adjusted life-year (DALY) averted or cost per quality-adjusted life-year (QALY) gained was less than three times the country’s gross domestic product per capita.
www.who.int/choice/costs/CER_thresholds/en/

IDEAS project

IDEAS aims to improve the health and survival of mothers and babies through generating evidence to inform policy and practice. Working in Ethiopia, northeast Nigeria and the state of Uttar Pradesh in India, IDEAS uses measurement, learning and evaluation to find out what works, why and how in maternal and newborn health programmes. IDEAS is funded between 2010 and 2016 by a grant from the Bill & Melinda Gates Foundation to the London School of Hygiene & Tropical Medicine.

t +44 (0)207 927 2871
w ideas.lshtm.ac.uk
@LSHTM_IDEAS