

NEW GLOBAL INVESTMENT FRAMEWORK FOR WOMEN'S AND CHILDREN'S HEALTH

Investing in women's and children's health will secure substantial health, social and economic returns. Increasing health expenditure by only US\$ 5 per capita per year until 2035 (equivalent to US\$ 30 billion per year, and in per capita terms representing a 2% increase in current spending) in the 74 high-burden countries could result in up to nine times that value in economic and social benefits. These benefits include greater GDP growth through improved productivity, as well as avoiding the preventable deaths of 147 million children, 32 million stillbirths, and 5 million women between 2013- 2035.



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DCP³ | Disease Control Priorities
economic evaluation for health

The challenge

Despite a significant reduction in maternal and child mortality over the last two decades (Maternal Mortality Rate (MMR) reduced by 47% from 1990-2010; Under-five Mortality Rate (U5MR) by 47% from 1990-2012), the progress is not sufficient to achieve Millennium Development Goals 4 and 5.^{1,2} The investment gaps, which lead to high rates of preventable maternal and child deaths, are well known: insufficiently resourced health systems with low levels of coverage of essential interventions, and poor health information and management systems making inefficient use of limited resources.

The leading causes of maternal mortality – obstetric haemorrhage, hypertensive disorders of pregnancy, sepsis and unsafe abortion – are largely preventable with well-equipped health facilities, presence of skilled care providers, a functioning referral system, and reliable

supplies of life-saving commodities. However, access to services to prevent these deaths remains low, especially among the poorest in high-burden countries.³ Similarly, 17% of deaths among children under five are due to diseases that can be prevented by routine, cost-effective vaccination (e.g. pneumonia and diarrhea).^{4,5} Vaccination coverage to prevent these conditions could be scaled up by strengthening supply chains, training health workers, and outreach activities to rural communities. High malnutrition rates are an important factor in maternal mortality, and contribute to over 45% of all under-five deaths, as well as impacting later years of life.^{6,7}

Poor health service coverage leads to significant economic and social consequences, especially for poor and vulnerable groups.^{8,9} For example, unexpected healthcare costs are a leading cause of impoverishment in many countries.¹⁰

What do we know?

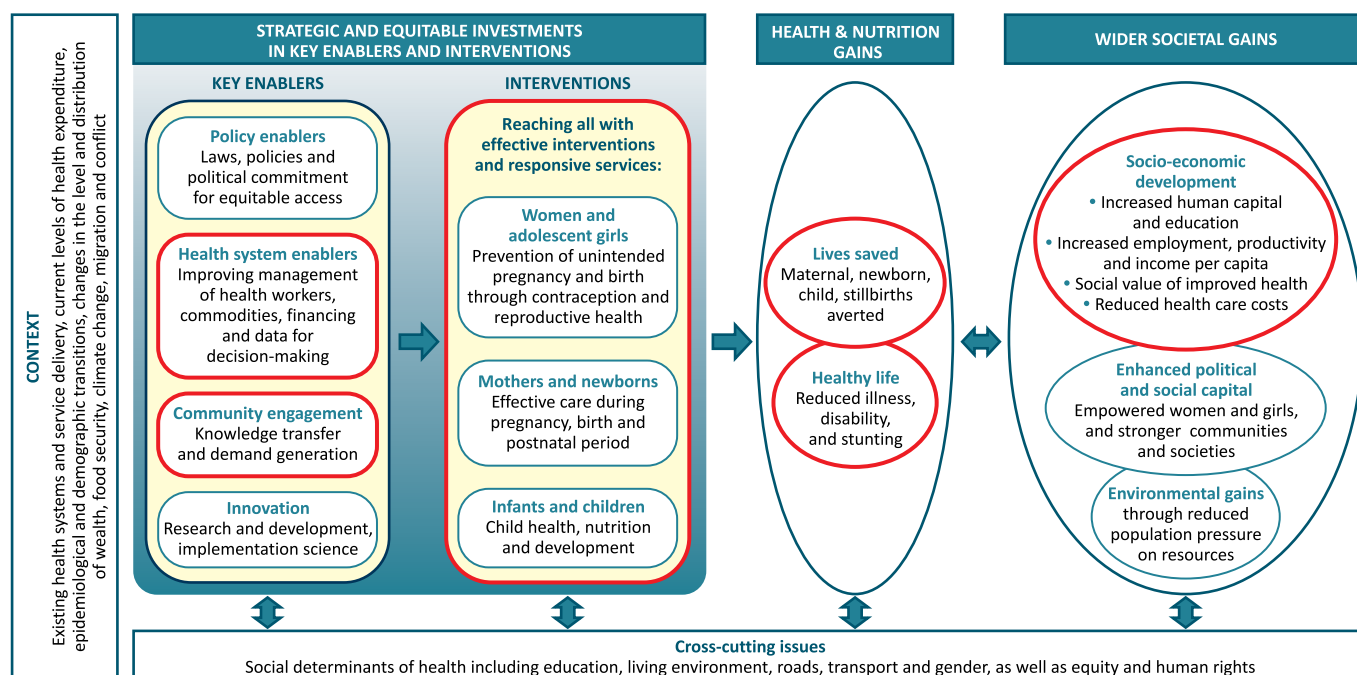
Summary of knowledge base

The Global Investment Framework (GIF) builds on previous investment frameworks by estimating the effects of investment on RMNCH across the continuum of care, including family planning, stillbirths and newborn health.¹¹ It also extends the analysis of economic and social

returns on investment to 2035 to provide an updated estimate of the health, social and economic benefits of investing in health systems strengthening to deliver RMNCH interventions. The focus is on 74 low- and middle-income countries that account for more than 95% of maternal and child deaths.

Figure 1

Conceptual framework



Note: Areas with red circles are those included in the quantitative analysis.

Conceptual framework for estimating the economic and societal benefits of improved health

The conceptual framework that underpins the GIF (Figure 1) starts with the overall health and development context, and identifies four 'key enablers' that drive health outcomes on policy, health system, community engagement, and innovation. It then defines a package of evidence-based RMNCH interventions with health benefits for women and children, recognizing the importance of the 'first thousand days' (from conception to two years after birth).¹² The framework outlines the costs associated with these 'key enablers' and the critical interventions, and estimates gains in terms of 'lives saved' and 'healthy lives', in addition to societal gains.

Calculation of returns on investment

Approach

The GIF, focusing on interventions where data on effectiveness is available, estimates the cost and impact of delivering six packages of interventions (Box 1) provided at four delivery points: hospital, first level facility, outreach and the community. Nutrition is a crosscutting theme.

Each package includes costs for inpatient and outpatient care and the supply of commodities. Cost estimates are also included for managing RMNCH programmes, improving accessibility to health services for adolescents, and using conditional cash transfers to encourage women to give birth in health facilities. Broader health system strengthening costs are also captured, such as for improving infrastructure (frontloaded investments), governance, supply chains, information systems and implementing a health financing policy.

Three scenarios are used to estimate the incremental cost and impact of varying the levels of coverage for the investment packages in the 74 high-burden countries:

- Low scenario – assumes coverage is maintained at current levels (considered as the counterfactual).
- Medium scenario – assumes scale-up according to available historic trends for coverage in each country between 1990-2010.
- High scenario – a more ambitious scenario where scaling-up coverage is based on accelerating current trends using a 'best performer' approach.

Cost estimates are based on an 'ingredients approach' where needs-based quantities are multiplied with country-specific prices/ service delivery costs. Sensitivity analysis was also undertaken on cost estimates (e.g. for the allocation of health systems costs to RMNCH, and for commodity and service delivery costs).

Box 1 – GIF investment packages

Package 1: Family Planning

Modern Family Planning methods (Pill, Condom, Injectable, IUD, Implant, Female sterilization, Male sterilization, lactational amenorrhea method (LAM), Vaginal barrier method, Vaginal tablets, Other contraceptives)

Package 2: Maternal and Newborn Health

- Safe abortion*
- Post-abortion case management
- Ectopic pregnancy case management
- Syphilis detection and treatment in pregnant women
- Multiple micronutrient supplementation
- Balanced energy supplementation**
- Management of pre-eclampsia (Magnesium sulphate)
- Detection and management of diabetes in pregnancy**
- Detection and management of fetal growth restriction**
- Skilled Birth Assistance during labor
- Active management of the third stage of labor
- Management of eclampsia with Magnesium sulphate
- Neonatal resuscitation
- Kangaroo mother care
- Clean practices and immediate essential newborn care
- Antenatal corticosteroids for preterm labor
- Antibiotics for Preterm Premature Rupture of Membranes (pPRoM)
- Induction of labor (beyond 41 weeks)
- Neonatal infections/newborn sepsis - Full supportive care
- Preventive postnatal care
- Periconceptional folic acid supplementation
- Calcium supplementation for prevention and treatment of pre-eclampsia and eclampsia

Package 3: Malaria

- Insecticide treated materials
- Pregnant women sleeping under an insecticide treated bed net
- Intermittent Preventive Treatment –(IPT) for pregnant women
- Malaria treatment in children 0-4 years
- Treatment of malaria in pregnant women

Package 4: HIV

- Prevention of Mother to Child Transmission (PMTCT)
- ART (First-Line Treatment) for pregnant women
- Cotrimoxazole for children
- Pediatric ART

Package 5: Immunization

- Tetanus toxoid vaccine (pregnant women)
- Rotavirus vaccine
- Measles vaccine
- Diphtheria, pertussis, tetanus (DPT) vaccine
- Haemophilus influenzae type B vaccine (Hib) vaccine
- Polio vaccine
- BCG vaccine
- Pneumococcal vaccine
- Meningitis vaccine**

Package 6: Child Health

- Oral Rehydration Therapy - ORS
- Zinc for diarrhea treatment
- Antibiotics for treatment of dysentery
- Pneumonia treatment in children 0-4 years
- Vitamin A for measles treatment in children 0-4 years
- Breastfeeding counseling and support
- Rates of exclusive breastfeeding modeled: 1-5 months
- Complementary feeding counseling and support
- Management of severe malnutrition in children 0-4 years
- Vitamin A supplementation in infants and children 6-59 months
- Average coverage across 50 interventions

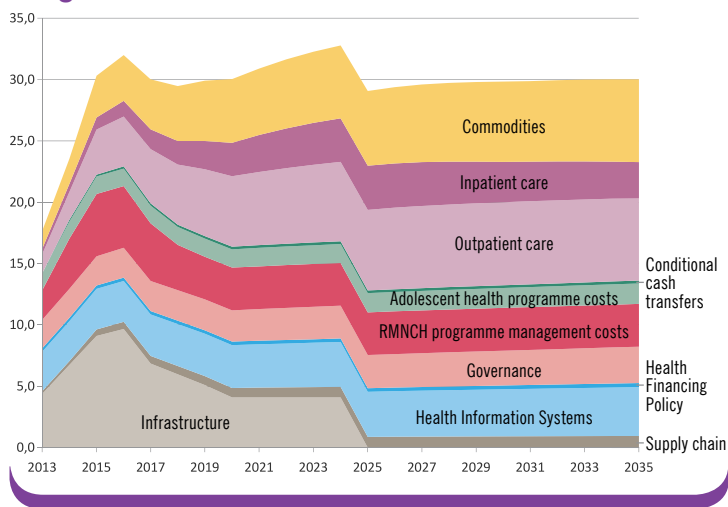
* In 11 countries where abortion is legal.
** Current analysis includes impact only, not cost.

Investment requirements

The additional investment required for the high coverage scenario as compared to the low scenario equates to an average of US\$ 5 per capita per year from 2013 to 2035 across the high-burden countries (as compared to the medium scenario which would require US\$ 3). In absolute terms, this additional investment reaches around US\$ 30 billion

Figure 2

Additional investment by category: comparison of high and low scenarios



per year in year 2035. Figure 2 illustrates the cost profile of this additional investment by category.

Health impact of additional investments

Additional investments to increase and improve the coverage of essential RMNCH interventions would significantly reduce maternal and child mortality in the 74 high-burden countries. In particular, the high investment scenario would result in 147 million fewer child deaths, 32 million fewer stillbirths, five million fewer maternal deaths, and a reduction in the total fertility rate from 2.7 to 2.0 between 2013-2035.^{13,14} Along with a reduced number of unintended pregnancies and improved nutrition status of children, additional investment would also result in a significantly higher quality of life for millions who not only escaped death, but also lifelong disability.

Economic and social returns

The expected economic and social benefits from improving the coverage of essential RMNCH interventions are significant. Under the high scenario, an additional average investment of US\$ 5 per capita per year from 2013 to 2035 would result in up to nine times that value in economic and social benefits for the 74 high-burden countries. The economic benefits arise from increased labour force participation and productivity which results from reduced mortality and morbidity, as well as higher per capita incomes arising from lower incidence of unintended pregnancies. Social benefits capture the social value of a human life — i.e. the value placed by communities on women, mothers, children, and families being healthy — as a percentage of GDP.

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The social benefits of investment start accruing almost immediately, whereas the economic benefits take time to build up. Total benefits, measured as the sum total of mortality reduction, morbidity aversion and demographic dividend, exceed total costs (which require some frontloading, e.g. to support health systems strengthening and infrastructure costs) by 2017, and continue to increase rapidly beyond that year.

Conclusion

Investing in women's and children's health saves millions of lives and could yield significant health, social and economic returns, potentially up to nine times the value of the investment. On average, this could be achieved by making an incremental investment of US\$ 5 per capita in the 74 low- and middle- income countries till 2035. This investment is estimated to save a total of five million maternal deaths, 147 million child deaths, and 32 million stillbirths between 2013 and 2035.

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10. Xu K, Evans DB, Kawabata K et al. Household catastrophic health expenditure: a multicountry analysis. *Lancet* 2003; 362, 111-17.
11. Previous investment frameworks include an investment framework for HIV/AIDS, investment cases for RMNCH (including the PMNCH-coordinated investment case for Asia and the Pacific and for health systems strengthening in Africa), and the WHO EMRO case for investing in scaling up interventions in the region.
12. PMNCH, WHO, Aga Khan University. Essential interventions, commodities and guidelines: A global review of key interventions related to reproductive, maternal, newborn and child health.
13. The impact analysis is based on epidemiological models included within the OneHealth Tool, in particular the Lives Saved Tool (LiST), which estimates reduction in mortality rates based on modelled increases in coverage.
14. The estimated number of deaths prevented is based on a comparison between outcomes in the high scenario with a lower population growth, to those in the low scenario with a growing population. As such, the number of deaths averted in 2035 is greater than current estimated number of deaths.