
## INVESTING IN NEWBORN HEALTH IN SOUTH ASIA

# Country Report – India

The baseline neonatal mortality rate (NMR) for India is 23/1,000 live births. To meet the Sustainable Development Goals (SDG) target of 12/1,000 live births, India needs an annual rate of reduction (ARR) in NMR of 6.3%. At its current annual rate of reduction of 3.5% (estimated for 2000-2018 by the Inter-agency Group for Child Mortality Estimation [IGME]), India is not projected to meet the SDG targets for NMR by 2030. The India Newborn Action Plan (INAP) launched in 2014 has an even more ambitious target of a 'single digit NMR and stillbirth rate by 2030' (Ministry of Health and Family Welfare, 2014). A recent study carried out subnational mapping of NMR and under-five mortality rate (U5MR) trends from 2000-2017 and found that at current rates of reduction India will not meet the NMR SDG target and 59% of the districts will need a much higher rate of reduction (Dandona et al., 2020).

Achieving the SDG target in India would save 1.7 million additional newborn lives, prevent 963,009 stillbirths and avert 73,382 maternal deaths, as compared to no change in coverage of the package of interventions. Additionally, 262,630 newborns would have significant lifelong disability averted. The additional cost over ten years, discounted at the standard 3% annual rate would be USD 23.8 billion. This investment will provide economic returns of USD 11 for every dollar invested.

### Achieving the SDG targets for neonatal health in India will mean

**1,696,661**
NEWBORN LIVES SAVED

**963,009**
STILLBIRTHS PREVENTED

**73,382**
MOTHER'S LIVES SAVED

**262,630**
DISABILITIES AVERTED

**USD 11**
ECONOMIC RETURNS FOR EVERY DOLLAR INVESTED

### Best-buy intervention package

To estimate the package of interventions, baseline values were established for all relevant interventions. Estimates for the following interventions were available from the most recent national level survey National Family Health Survey (NFHS) 4 (2015-2016): tetanus toxoid vaccination, iron supplementation during pregnancy, skilled birth attendance, facility level deliveries, clean postnatal practices (using available data for postnatal care visits as proxy) and breastfeeding rates. Baseline crude coverage of facility deliveries was 78.9% in India.

As this is used as a proxy for all interventions around birth and immediate postnatal, we adjusted the availability of specific interventions at birth according to evidence available in studies documenting the use of evidence-based practices during labour and birth (Ahmed et al., 2019; Molina et al., 2020; Vail et al., 2018).

For example, if we had used the crude coverage rate of facility delivery for labour and delivery management, the baseline coverage would have been 78.9%. However, according to Ahmed et al. (2019), use of the partograph to monitor labour was only initiated in 33% of deliveries in facilities. As a result, the effective coverage of labour and delivery management was set at 33%.

India has made substantial progress over the last decade in improving the facility delivery rate. While in the short term, India may need to focus on ensuring service continuity during the COVID-19 pandemic, in the long term to meet the SDG targets for neonatal mortality, India would need to:

- Focus on improving quality of care provided at birth and postnatally, while further improving its facility delivery rates
- Substantially scale up access to full supportive care for premature newborns and newborns with sepsis and pneumonia
- Introduce and scale up multiple micronutrient supplementation for women during pregnancy (swap iron supplementation programmes with micronutrient supplementation) to reduce the risks of prematurity and low birth weight
- Scale up the use of chlorhexidine
- Invest in breastfeeding promotion for all mothers and pregnant women

Table 1 provides the package of interventions and the baseline and target coverage of interventions required to reach the SDG targets.

**Table 1.** Scale-up required to meet SDG targets: India

| Intervention | Quality-adjusted coverage at baseline (%) | 2030 coverage target (%) |
|---|---|---|
| **Preconception and antenatal interventions** | | |
| TT-Tetanus toxoid vaccination | 89 | 98 |
| Multiple micronutrient supplementation in pregnancy | 30 | 80 |
| **Interventions during labour and at birth** | | |
| Skilled birth attendance | 83 | 90 |
| Health facility delivery | 79 | 85 |
| Clean birth practices | 24 | 90 |
| Immediate assessment and stimulation | 76 | 90 |
| Labour and delivery management | 33 | 90 |
| Neonatal resuscitation | 42 | 85 |
| Antibiotics for pPRoM | 11 | 64 |
| MgSO management of eclampsia | 11 | 64 |
| Active management of third stage labour (AMTSL) | 30 | 64 |
| Induction of labour for pregnancies lasting 41+ weeks | 10 | 51 |
| **Postnatal care interventions** | | |
| Exclusive breastfeeding | 55 | 65 |
| Prevalence of early initiation of breastfeeding | 41 | 58 |
| Clean postnatal practices | 47 | 85 |
| Chlorhexidine | 7 | 85 |
| Case management of premature babies | 42 | 70 |
| *• Thermal care* | *42* | *70* |
| *• KMC- Kangaroo mother care* | *0* | *70* |
| *• Full supportive care for prematurity* | *0* | *60* |
| Case management of neonatal sepsis/pneumonia | 42 | 70 |
| *• Injectable antibiotics for neonatal sepsis/pneumonia* | *42* | *70* |
| *• Full supportive care for neonatal sepsis/pneumonia* | *0* | *60* |

N.B. Linear scale-up assumed for all interventions between 2020-2030.

Table 2 shows the additional lives saved and disability prevented from scaling up coverage, arranged in descending order from the biggest impact on newborn lives between 2021-2030. The largest gains come from scaling up coverage of:

- Case management of premature babies
- Labour and delivery management (this has dividends for stillbirths, maternal lives saved, and disability averted)
- Case management of of neonatal sepsis/pneumonia
- Neonatal resuscitation
- Micronutrient supplementation

**Table 2.** Lives saved and disability averted: India

| India | Totals 2021-2030 | | | |
|---|---|---|---|---|
| Intervention | Lives saved | | | Disability averted |
| | Neonatal | Stillbirths | Maternal | |
| Case management of premature babies | 582,834 | | | |
| Labour and delivery management | 314,180 | 691,237 | 21,952 | 185,460 |
| Case management of sepsis/pneumonia | 145,888 | | | |
| Neonatal resuscitation | 140,210 | | | 69,492 |
| Micronutrient supplementation (iron and multiple micronutrients) | 125,609 | 238,483 | 6,334 | |
| Chlorhexidine | 122,525 | | | |
| Clean postnatal practices | 87,358 | | | |
| Clean birth practices | 77,390 | | 17,544 | |
| Antibiotics for pPRoM | 43,926 | | 5,769 | |
| Immediate assessment and stimulation | 28,614 | | | 7,678 |
| TT - Tetanus toxoid vaccination | 14,083 | | 275 | |
| Age-appropriate breastfeeding practices | 14,044 | | | |
| MgSO management of eclampsia | | | 6,802 | |
| Active management of third stage labour (AMTSL) | | | 14,706 | |
| Induction of labour for pregnancies 41 weeks + | | 33,289 | | |

The additional cost over ten years, discounted at the standard 3% annual rate, would be USD 23.8 billion with a USD 2.8 billion annualized value. To put this figure in perspective, we compare it against what would be the 2021 health expenditure if 2017 levels are indexed by inflation and population growth rates. As shown in Table 3 the annualized investment would represent 3% of the estimated health expenditure.

**Table 3.** Costs of meeting the newborn SDG targets: India

| Present value of additional costs* (2021-2030) USD million | Annualized additional costs, USD million | Annualized additional cost as % of 2017 health expenditure levels indexed** |
|---|---|---|
| $23,829 | $2,793 | 3% |

* Estimated at a constant annual discount rate of 3%.
** See note above.

## Returns on investment

We estimated a Value of Statistical Life (VSL) for the year 2021 amounting to USD 111,202 and calculated that each dollar invested in achieving the SDG targets for neonatal health will deliver USD 10.6 of return with total net economic benefits ranging from USD 160 billion to USD 228 billion. As also shown in Table 4, the vast majority of economic benefits (58%) are derived from newborn lives saved, followed by stillbirths prevented (33%) and disability prevented in newborns (7%).

Returns on investment for all our scenarios have been calculated under the assumption of a decade long economic stagnation due to the economic and financial impact of the current pandemic. After a 50% increase in the cost of delivering neonatal health interventions due to the spillover of the COVID 19 crisis, even the most conservative scenario shows that each dollar invested will lead to economic returns of USD 7.

**Table 4.** Total economic benefits and costs – discount rate scenarios (2018 million USD): India

| Economic benefits and costs | Discount rates | | |
|---|---|---|---|
| | 3% | 5% | 10% |
| Newborn lives saved | $145,631 | $130,918 | $102,215 |
| Stillbirths prevented | $82,171 | $73,676 | $57,149 |
| Mothers lives saved | $6,283 | $5,642 | $4,392 |
| Newborns with disability prevented | $17,642 | $15,832 | $12,307 |
| ***Total benefits*** | ***$251,727*** | ***$226,068*** | ***$176,064*** |
| ***Total costs*** | ***$23,829*** | ***$21,273*** | ***$16,322*** |
| Benefit cost ratio | 10.6 | 10.6 | 10.8 |
| Net benefits | $227,898 | $204,795 | $159,742 |

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