



## INVESTING IN NEWBORN HEALTH IN SOUTH ASIA Country Report – Nepal

The baseline neonatal mortality rate (NMR) for Nepal is 20/1,000 live births. To meet the Sustainable Development Goals (SDG) target of 12/1,000 live births, Nepal needs an annual rate of reduction (ARR) in NMR of 4.8%. This is only slightly higher than its current ARR of 4.0% (2000-2018, Inter-agency Group for Child Mortality Estimation [IGME]).

Achieving the SDG target in Nepal would save 27,116 additional newborn lives, prevent 16,434 stillbirths and avert 2,208 maternal deaths, as compared to no change in coverage of the package of interventions. Additionally, 5,935 newborns would have significant lifelong disability averted. The additional cost over ten years, discounted at the standard 3% annual rate, would be USD 260 million. This investment will provide economic returns of USD 6 for every dollar invested.

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



**27,116**  
NEWBORN LIVES  
SAVED



**16,434**  
STILLBIRTHS  
PREVENTED



**2,208**  
MOTHER'S LIVES  
SAVED



**5,935**  
DISABILITIES  
AVERTED



**USD 6**  
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 Nepal Demographic Health Survey (NDHS) 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), chlorhexidine and breastfeeding rates.

Crude coverage of facility deliveries was 57% in Nepal according to the NDHS 2016. To factor in gaps in the quality of care provided by skilled birth attendants, the crude facility delivery coverage level of 57% was adjusted to 42% effective coverage, as estimated by Wang and colleagues (2019). This value then informed the effective coverage levels of interventions delivered at birth and immediately post-natal. Nepal has made substantial progress over the last decade on

improving neonatal mortality rates, despite lower coverage of facility level births, by scaling up community-based interventions for newborns. While in the short term Nepal will need to focus on ensuring service continuity during the COVID-19 pandemic, in the long term to meet the SDG targets for neonatal mortality it would need to:

- Improve coverage of facility-based deliveries (to 75%) while focusing on improving quality of care provided at birth and postnatally
- Improve access to both kangaroo mother care and 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 tetanus toxoid vaccination and the use of chlorhexidine

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: Nepal**

Intervention	Quality-adjusted coverage at baseline (%)	2030 coverage target (%)
<b>Preconception and antenatal interventions</b>		
TT -Tetanus toxoid vaccination	89	95
Multiple micronutrient supplementation in pregnancy	42	80
<b>Interventions during labour and at birth</b>		
Skilled birth attendance	43	75
Health facility delivery	42	75
Clean birth practices	43	75
Immediate assessment and stimulation	43	75
Labour and delivery management	43	75
Neonatal resuscitation	42	75
Antibiotics for pPRoM	21	56
MgSO management of eclampsia	21	56
Active management of third stage labour (AMTSL)	21	56
Induction of labour for pregnancies lasting 41+ weeks	8	45
<b>Postnatal care interventions</b>		
Exclusive breastfeeding	66	73
Prevalence of early initiation of breastfeeding	55	67
Clean postnatal practices	57	75
Chlorhexidine	39	75
Case management of premature babies	42	70
• <i>Thermal care</i>	70	70
• <i>KMC- Kangaroo mother care</i>	0	60
• <i>Full supportive care for prematurity</i>	0	50
Case management of neonatal sepsis/pneumonia	42	70
• <i>Injectable antibiotics for neonatal sepsis/pneumonia</i>	42	70
• <i>Full supportive care for neonatal sepsis/pneumonia</i>	0	50
ORS- oral rehydration solution	37	80

N.B. Linear scale up assumed 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 neonatal sepsis/pneumonia
- Neonatal resuscitation
- Micronutrient supplementation

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

Nepal	Totals 2021-2030				
	Intervention	Lives saved			Disability averted
		Neonatal	Stillbirths	Maternal	
Case management of premature babies	6,787				
Labour and delivery management	6,088	11,562	1,177	3,528	
Case management of sepsis/pneumonia	4,000				
Neonatal resuscitation	2,196			1,819	
Micronutrient supplementation (iron and multiple micronutrients)	1,984	4,233	164		
Chlorhexidine	1,720				
Immediate assessment and stimulation	1,112			588	
Clean birth practices	1,012		112		
Clean postnatal practices	831				
Antibiotics for pPRoM	648		54		
Age-appropriate breastfeeding practices	599				
TT - Tetanus toxoid vaccination	139		6		
MgSO management of eclampsia			320		
Active management of third stage labour (AMTSL)			375		
Induction of labour for pregnancies 41 weeks +		639			

The additional cost over ten years, discounted at the standard 3% annual rate, would be USD 260 million, with a USD 30.5 million 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. The annualized investment would represent 2% of the estimated health expenditure.

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

Present value of additional costs* (2021-2030) USD million	Annualized additional costs, USD million	Annualized additional cost as % of 2017 health expenditure levels indexed**
\$260	\$30.5	2%

\* 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 37,951 and calculated that each dollar invested in achieving the SDG targets for neonatal health will deliver USD 5.7 of return with total net economic benefits ranging from USD 861 million to USD 1.2 billion. As also shown in Table 4, the vast majority of economic benefits (54%) are derived from newborn lives saved, followed by stillbirths prevented (33%) and disability prevented in newborns (9%).

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 4.

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

Economic benefits and costs	Discount rates		
	3%	5%	10%
Newborn lives saved	\$796	\$716	\$560
Stillbirths prevented	\$482	\$433	\$338
Mothers lives saved	\$65	\$58	\$46
Newborns with disability prevented	\$137	\$123	\$96
<b>Total benefits</b>	<b>\$1,480</b>	<b>\$1,331</b>	<b>\$1,040</b>
<b>Total costs</b>	<b>\$260</b>	<b>\$233</b>	<b>\$179</b>
Benefit cost ratio	5.7	5.7	5.8
Net benefits	\$1,219	\$1,098	\$861



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