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INVESTING IN NEWBORN HEALTH IN SOUTH ASIA

Country Report – Bhutan

The baseline neonatal mortality rate (NMR) for Bhutan is 16/1,000 live births. To meet the Sustainable Development Goals (SDG) target of 12/1,000 live births, Bhutan only needs an annual rate of reduction (ARR) in NMR of 2.9%. This is lower than its current ARR of 3.7%. While Bhutan's current ARR shows that it will meet its SDG targets, this cannot be taken for granted. Newborn health will require continued attention in order to make further marginal improvements, given the already very high coverage of facility deliveries. The current COVID-19 pandemic also requires an understanding of where investment might be needed to continue gains made through recent improvement in intervention coverage levels.

Achieving the SDG target in Bhutan would save 326 additional newborn lives, prevent 176 stillbirths and avert 11 maternal deaths, as compared to no change in coverage of the package of interventions. Additionally, 77 newborns would have significant lifelong disability averted. The additional cost over ten years, discounted at the standard 3% annual rate would be USD 5 million. This investment will provide economic returns of USD 17 for every dollar invested.

Achieving the SDG targets for neonatal health in Bhutan will mean

326
NEWBORN LIVES SAVED

176
STILLBIRTHS PREVENTED

11
MOTHER'S LIVES SAVED

77
DISABILITIES AVERTED

USD 17
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 (Bhutan Annual Health Bulletin, 2019): tetanus toxoid vaccination, skilled birth attendance, facility level deliveries, clean postnatal practices (using available data for postnatal care visits as proxy) and breastfeeding rates. Facility level delivery coverage is already above 90% in Bhutan, with crude coverage at 93.4%.

No published information was available on the quality of care provided during birth and post-natal. Therefore, we assumed a 25% drop in quality for interventions provided at birth (for which the facility delivery rate acts as proxy).

Bhutan has already made substantial progress over the last decade in improving the facility delivery rate. While in the short term Bhutan 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 Bhutan would need to:

- Focus on improving quality of care provided at birth
- Improve access to facility-based full supportive care for premature newborns and newborns with sepsis and pneumonia
- Scale up the coverage 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: Bhutan

Intervention	Quality-adjusted coverage at baseline (%)	2030 coverage target (%)
Interventions during labour and at birth		
Skilled birth attendance	96	96
Health facility delivery	93	93
Clean birth practices	72	96
Immediate assessment and stimulation	72	96
Labour and delivery management	72	96
Neonatal resuscitation	70	93
Antibiotics for pPRoM	53	70
MgSO management of eclampsia	53	70
Active management of third stage labour (AMTSL)	53	70
Induction of labour for pregnancies lasting 41+ weeks	42	56
Postnatal care interventions		
Exclusive breastfeeding	51	64
Prevalence of early initiation of breastfeeding	59	79
Clean postnatal practices	93	93
Chlorhexidine	39	75
Case management of premature babies	93	93
• *Thermal care*	*93*	*93*
• *KMC- Kangaroo mother care*	*50*	*60*
• *Full supportive care for prematurity*	*50*	*60*
Case management of neonatal sepsis/pneumonia	93	93
• *Injectable antibiotics for neonatal sepsis/ pneumonia*	*93*	*93*
• *Full supportive care for neonatal sepsis/pneumonia*	*50*	*60*

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:

- Labour and delivery management (this has dividends for stillbirths, maternal lives saved, and disability averted)
- Chlorhexidine
- Case management of premature babies
- Neonatal resuscitation
- Immediate assessment and stimulation

Table 2. Lives saved and disability averted: Bhutan

Bhutan	Totals 2021-2030			
Intervention	Lives saved			Disability averted
	Neonatal	Stillbirths	Maternal	
Labour and delivery management	82	170	7	47
Chlorhexidine	82			
Case management of premature babies	63			
Neonatal resuscitation	34			23
Immediate assessment and stimulation	18			8
Age-appropriate breastfeeding practices	17			
Clean birth practices	17			
Case management of sepsis/pneumonia	9			
Antibiotics for pPRoM	4			
Active management of third stage labour (AMTSL)			4	
Induction of labour for pregnancies 41 weeks +		6		

The additional cost over ten years, discounted at the standard 3% annual rate, would be USD 5 million with a USD 578,627 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 1% of the estimated health expenditure.

Table 3. Costs of meeting the newborn SDG targets: Bhutan

Additional costs* (2021-2030) USD million, NPV	Annual additional costs, USD million	Average annualized cost as % of projected 2021 health expenditure
$5	$0.58	1%

* Net present value of additional costs estimated at a constant annual discount rate of 3%

Returns on investment

We estimated a Value of Statistical Life (VSL) for the year 2021 amounting to USD 190,100 and calculated that each dollar invested in achieving the SDG targets for neonatal health will deliver USD 17 of return with total net economic benefits ranging from USD 55 million to USD 79 million. As also shown in Table 4, the vast majority of economic benefits (57%) are derived from newborn lives saved, followed by stillbirths prevented (31%) and disability prevented in newborns (11%).

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 11.

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

Economic benefits and costs	Discount rates		
	3%	5%	10%
Newborn lives saved	$47.8	$43	$33.4
Stillbirths prevented	$25.7	$23	$17.8
Mothers lives saved	$1.6	$1.4	$1
Newborns with disability prevented	$8.9	$8	$6.2
Total benefits	***$83.9***	***$75.3***	***$58.6***
Total costs	***$4.9***	***$4.4***	***$3.4***
Benefit cost ratio	17	17.1	17.2
Net benefits	$78.9	$70.9	$55

This country report is taken from a report prepared for UNICEF Regional Office for South Asia (ROSA) by the Nossal Institute for Global Health, University of Melbourne: **Dayal, P, Jimenez-Soto, E., Reeve, M., & Morgan, A. (2021)** ***Investing in Newborn Health in South Asia.*** **Kathmandu: UNICEF.**