INVESTING IN NEWBORN HEALTH IN SOUTH ASIA

Country Report – Pakistan

Pakistan has the highest baseline neonatal mortality rate (NMR) in South Asia at 42/1,000 live births. To meet the Sustainable Development Goals (SDG) target of 12/1,000 live births, Pakistan needs an annual rate of reduction (ARR) in NMR of 11.6%. This would be a substantial acceleration from its current ARR of 2.1% (2000-2018, Inter-agency Group for Child Mortality Estimation [IGME]), by which Pakistan is not projected to meet the SDG goal for NMR by 2030.

Achieving the SDG target in Pakistan would save 1 million additional newborn lives, prevent over half a million stillbirths and avert 21,015 maternal deaths, as compared to no change in coverage of the package of interventions. Additionally, 174,178 newborns would have significant lifelong disability averted. The additional cost over ten years, discounted at the standard 3% annual rate, would be USD 6.5 billion. This investment will provide economic returns of USD 13 for every dollar invested.

Achieving the SDG targets for neonatal health in Pakistan will mean

1,052,412
NEWBORN LIVES SAVED

588,815
STILLBIRTHS PREVENTED

21,015
MOTHER'S LIVES SAVED

174,178
DISABILITIES AVERTED

USD 13
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 Pakistan Demographic Health Survey (DHS) 2017-2018 and the National Nutrition Survey 2018: tetanus toxoid vaccination, multiple micronutrient supplementation during pregnancy, skilled birth attendance, facility level deliveries, clean postnatal practices and breastfeeding rates. Baseline crude coverage of facility deliveries was 66.2% in Pakistan. As facility delivery rates are used to estimate the coverage of interventions delivered at birth, we calculated the effective coverage of specific interventions at birth according to evidence available on the use of evidence-based practices during labour and birth (Agha et al., 2019). While this study may not be nationally representative as it was conducted in Sindh Province only, it is the only recent study documenting data on direct observation of birth and perinatal practices. Sindh Province is neither the worst or best performing province and therefore was used as a reasonable average representation of Pakistan as a whole.

While in the short term Pakistan will need to focus on ensuring service continuity during the COVID-19 pandemic, to meet the SDG targets for neonatal mortality, Pakistan would need to improve coverage of almost all interventions that impact on neonatal mortality. Specifically:

- Pakistan will not be able to reach the SDGs unless it invests substantially in improving facility delivery rates (to 95%) but also improving the quality of care provided during the intrapartum period and immediate post-partum period, given the large gap in quality of care.

- It would need to scale up access to full supportive care for premature newborns and newborns with sepsis and pneumonia to cover 90% of the newborns in need.
- It needs to scale up coverage of tetanus toxoid vaccination during pregnancy from its current 69% to 98%, coverage levels achieved by some other countries in the region.
- Pakistan would need to scale up (to 90%) existing nutritional interventions for women during pregnancy such as multiple micronutrient supplementation. It should introduce folic acid supplementation/fortification for women prior to conception and ensure that at least 50% of women are covered. Given this is not currently part of the national programme, the delivery channel(s) and specific delivery strategies must be considered carefully in context.
- Scaling up the use of chlorhexidine substantially as well as oral rehydration solution (ORS) for newborns diagnosed with diarrhoea will also help Pakistan in meeting its SDG targets.

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: Pakistan

Intervention	Quality-adjusted coverage at baseline (%)	2030 coverage target (%)
Preconception and antenatal interventions		
Folic acid supplementation/fortification	0	50
TT-Tetanus toxoid vaccination	69	98
Multiple micronutrient supplementation in pregnancy	28	90
Balanced energy supplementation	0	90
Interventions during labour and at birth		
Skilled birth attendance	69	95
Health facility delivery	66	95
Clean birth practices	20	95
Immediate assessment and stimulation	60	95
Labour and delivery management	2	95
Neonatal resuscitation	7	94
Antibiotics for pPRoM	2	80
MgSO management of eclampsia	16	80
Active management of third stage labour (AMTSL)	23	80
Induction of labour for pregnancies lasting 41+ weeks	1	56
Postnatal care interventions		
Exclusive breastfeeding	55	68
Prevalence of early initiation of breastfeeding	20	36
Clean postnatal practices	37	95
Chlorhexidine	3	95
Case management of premature babies	13	90
• Thermal care	*13*	*90*
• Full supportive care for prematurity	*0*	*90*

Intervention	Quality-adjusted coverage at baseline (%)	2030 coverage target (%)
Postnatal care interventions		
Case management of neonatal sepsis/pneumonia	13	90
• *Injectable antibiotics for neonatal sepsis/pneumonia only*	*13*	*90*
• *Full supportive care for neonatal sepsis/pneumonia*	*0*	*90*
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 of neonatal sepsis/pneumonia
- Neonatal resuscitation
- Chlorhexidine

Table 2. Lives saved and disability averted: Pakistan

Pakistan	Totals 2021-2030			
Intervention	Lives saved			Disability averted
	Neonatal	Stillbirths	Maternal	
Case management of premature babies	306,240			
Labour and delivery management	173,573	378,255	8,099	106,046
Case management of sepsis/pneumonia	139,306			
Neonatal resuscitation	97,280			49,576
Chlorhexidine	70,314			
Clean postnatal practices	48,136			
Clean birth practices	48,034		3,231	
Micronutrient supplementation (iron and multiple micronutrients)	34,818	109,930	1,792	
Balanced energy supplementation	27,311	84,691		
TT-Tetanus toxoid vaccination	27,019		46	
Immediate assessment and stimulation	25,873			7,018
Antibiotics for pPRoM	25,078		1,266	
Folic acid supplementation/fortification	13,690			11,637
ORS	9,084			
Age-appropriate breastfeeding practices	7,309			
MgSO management of eclampsia			967	
Active management of third stage labour (AMTSL)			4,625	
Induction of labour for pregnancies 41 weeks +		15,939		

The additional cost over ten years, discounted at the standard 3% annual rate would be USD 6.5 billion, with a USD 765 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. As shown in Table 3 the annualized investment would represent 8% of the estimated health expenditure.

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

Additional costs* (2021-2030) USD million, NPV	Annual additional costs, USD million	Average annualized cost as % of projected 2021 health expenditure
$6,525	$7,649	8%

* 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 62,994 and calculated that each dollar invested in achieving the SDG targets for neonatal health will deliver USD 13 of return with total net economic benefits ranging from USD 56 billion to USD 80.6 billion. As also shown in Table 4.6.4, the vast majority of economic benefits (59%) are derived from newborn lives saved, followed by stillbirths prevented (32%) and disability prevented in newborns (8%).

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 9.

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

Economic benefits and costs	Discount rates		
	3%	5%	10%
Newborn lives saved	$51,099	$45,907	$35,787
Stillbirths prevented	$28,299	$25,309	$19,507
Mothers lives saved	$1,013	$907	$701
Newborns with disability prevented	$6,712	$6,009	$4,643
Total benefits	***$87,122***	***$78,132***	***$60,637***
Total costs	***$6,525***	***$5,817***	***$4,449***
Benefit cost ratio	13.4	13.4	13.6
Net benefits	$80,597	$72,314	$56,188

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.**