IJN
Iranian Journal of Neonatology
http://ijn.mums.ac.ir

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Editorial

How to Reduce Neonatal Mortality in Iran?

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Introduction

Neonatal mortality rate, has significantly declined in Iran over recent decades. The national neonatal mortality rate (NMR) has decreased from around 30 per 1,000 live births four decades ago to approximately 9 per 1,000 in recent years, with Iran aiming to reduce it to under 7 per 1,000 by 2025-2026. (1,2)

The country has already achieved Sustainable Development Goal (SDG) 3.2 targets for neonatal and under-5 mortality in most provinces, though regional disparities persist, particularly in areas like Sistan and Baluchestan and Azerbaijan. This short review outlines key contributing factors and evidence-based strategies to further reduce neonatal mortality, based on recent data up to 2026. (3,4)

According to the World Health Organization report published on March 14, 2024; although neonatal deaths have decreased by 44% since 2000. However, in 2022, approximately 2.3 million neonatal deaths occurred, accounting for 47% of all deaths among children under 5 years old in the neonatal period, and approximately 6,500 neonatal deaths occur daily. Furthermore, progress has significantly slowed since 2010, and 64 countries will fail to achieve the Sustainable Development Goals target for neonatal mortality by 2030 unless urgent actions are taken.(1)

Additionally, inequities in access to health services have resulted in children having different survival chances based on where they are born, with neonatal mortality rates in 2022 being about 27 deaths per 1,000 live births in Africa, and 21 in Central and Southern Asia. In other words, the risk of death in the first month of birth for a child born in the country with the highest mortality rate is about 60 times higher than in the country with the lowest mortality rate.(1)

The lowest neonatal mortality rate in 2022 was about 0.7 deaths per 1,000 live births in Australia and New Zealand.(1)

Main Factors Contributing to Neonatal Mortality

Leading causes include preterm birth complications, respiratory distress syndrome (RDS), birth asphyxia, congenital anomalies, and infections such as lower respiratory infections and sepsis. Prematurity and RDS are major contributors, while regional variations show higher rates in low-sociodemographic index (SDI) provinces. Other risk factors encompass maternal conditions like hypertension, eclampsia/ preeclampsia, and lack of antenatal care.(2.5.6.7)

Strategies to Reduce Neonatal Mortality

A comprehensive approach integrating infrastructure, training, prevention, and policy is essential:

Enhancing Healthcare Infrastructure

Expanding Neonatal Intensive Care Units (NICUs) and modernizing equipment like ventilators and monitoring systems can significantly lower mortality. Simulations indicate a 20% increase in NICU capacity could reduce NMR by 7-35% in high-burden areas like Kerman and Bam. Upgrading surveillance systems for neonatal mortality, birth registries, and

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Please cite this paper as:
Saeidi R. How to Reduce Neonatal Mortality in Iran? Iranian Journal of Neonatology. 2026 Jul: 17(3). DOI: 10.22038/ijn.2026.96955.2874

hospitalizations supports better detection and response.(8.9.10)

Capacity Building and Training

Targeted training for healthcare providers, focusing on the "Golden Hours" post-birth, addresses staff turnover and skill gaps in high-risk provinces like Sistan and Baluchestan. Training over 400 neonatal specialists and standardizing protocols have reduced ventilated newborn mortality from 43.6% to 24% and shortened hospital stays.(11)

Preventive Measures and Prenatal Care

Reducing prematurity through preconception and antenatal care, including corticosteroids, genetic counseling, and surfactant administration, is critical. Promoting exclusive breastfeeding, vaccinations (e.g., rotavirus, pneumococcal), and maternal nutrition programs targets low birth weight and infections.(12)

Policy and Social Interventions

Establishing a single national leadership entity, allocating dedicated budgets, and decentralizing NICUs to minimize transfers are recommended. Programs like the Rural Family Physician Plan, Every Newborn Action Plan (ENAP), and focus on refugee-dense areas promote equity. Digital health interventions post-NICU discharge can improve outcomes and maternal competence.(13)

Conclusion

Iran's progress toward SDG 3.2 is notable, with converging mortality trends linked to rising SDI. Achieving an NMR under 7 per 1,000 by 2026 requires focused efforts on provincial disparities, infrastructure investment, and multi-sectoral collaboration with entities like UNICEF and WHO. Ongoing policy analysis and root cause assessments will ensure sustained reductions.

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