Road Traffic Accidents in Nepal: A Silent Preventable Epidemic

Prabin Nepal

Department of Orthopedics, Nepal Armed Police Force Hospital, Kathmandu, Nepal

Road traffic accidents (RTAs) represent one of the most neglected yet devastating public health crises of our time. Globally, they claim approximately 1.19 million lives every year and 20–50 million suffer non- fatal injuries, disproportionately affecting low and middle income countries (LMICs) like Nepal. Unlike infectious outbreaks or natural disasters, this epidemic unfolds daily and is predictable, and most importantly preventable. Despite decades of evidence and proven interventions, road safety continues to languish at the margins of policy priorities. This failure carries an unacceptable human, social, and economic cost. RTAs are now the leading cause of death among children and young adults aged 5–29 years worldwide and the 12th leading cause of death overall.[1] The burden falls most heavily on economically productive age groups, amplifying poverty, disability, and inequity. While technological advances in vehicles and road engineering have improved safety in high income countries, global road traffic mortality declined by only 5% between 2010 and 2021 far below what is required to meet the United Nations Decade of Action for Road Safety target of halving deaths by 2030.[2] This stagnation reflects not a lack of solutions, but a lack of political urgency.

Nepal illustrates this challenge starkly. The country's complex terrain, rapid motorization, poorly designed roads, and inconsistent enforcement of traffic laws create a high-risk environment for road users. According to the World Health Organization (WHO), an estimated 8,000 people died from road traffic injuries in Nepal in 2021, while police records reported only around 2,500 deaths.[3,4] This discrepancy points to systemic underreporting, particularly of deaths occurring in rural areas or after hospital admission. With a fatality rate of 28.2 per 100,000 population nearly double the Asia-Pacific average Nepal's road safety crisis is both severe and under-acknowledged.[5] Road traffic injuries are estimated to cost Nepal nearly USD 3 billion annually around 7% of the national gross domestic product (GDP).[6] This figure exceeds the country's total annual health expenditure, underscoring how road crashes silently drain national development. Lost productivity, long-term disability, catastrophic out-of-pocket health expenses, and premature death of young adults collectively entrench households in cycles of poverty. Evidence from Nepal's own data reinforces the urgency for action. Police-based analyses over recent years show a steady rise in collisions, particularly involving two wheelers and public transport vehicles. Speed, alcohol use, poor road maintenance, unsafe pedestrian infrastructure, and mechanical failure remain dominant risk factors.[7] Earlier longitudinal studies have consistently shown that pedestrians and motorcyclists predominantly men aged 20–40 years bear the highest burden of fatalities and injuries.[8] Hospital-based studies further revealed RTAs as a leading cause of trauma admissions, placing sustained pressure on already overstretched emergency and surgical services.[9]

Outcome indicators include mortality rates in the Emergency Department (ED), complication rates following procedures, hospital- acquired infections, and functional recovery, particularly in conditions like trauma. These indicators capture the effectiveness of both the processes and the systems in place. However, not all outcomes are within direct control of ED staff. Factors like pre-hospital care, comorbidities, and social determinants of health also influence these measures. This is why a comprehensive quality framework must triangulate structural readiness, process excellence, and outcomes, while recognizing their interdependence.

Adaptive Way Forward

The fact is that this burden is largely avoidable. Countries across high income levels have demonstrated that road traffic deaths are not an inevitable cost of mobility. Sweden's "Vision Zero" policy, which treats any road death as unacceptable, reduced fatalities by prioritizing safe road design, strict speed management, and shared responsibility between users and system designers.[10] Similarly, Sri Lanka, Vietnam, and Chile achieved substantial reductions in mortality through helmet mandates, speed-limit enforcement, and alcohol control[11] in which Nepal has evidence of success. The "MaPaSe" anti–drink-driving campaign launched in Kathmandu in 2011 led to measurable reductions in crashes during its early years.[12] Lane discipline initiatives, helmet enforcement, and "No Horn" zones have shown that behavior can change when laws are visible, consistent, and enforced yet these efforts remain fragmented, urban-centered, and insufficiently scaled. Nepal now requires a decisive shift from reactive responses to a preventive, system-based approach. The WHO's Safe System framework provides a clear roadmap: safer roads, safer vehicles, safer speeds, safer road users, and stronger post-crash care.[2] Achieving this demands require genuine multisectoral collaboration.

Road safety cannot be the responsibility of traffic police alone; it requires coordinated leadership from health, transport, education, finance, and local governments. Legislation must be matched with enforcement. Primary enforcement of seat- belt and helmet laws, strict blood alcohol limits, speed cameras, and sobriety checkpoints are proven deterrents. Infrastructure investments must prioritize vulnerable road users through sidewalks, safe crossings, traffic calming near schools, and protected lanes. Equally critical is strengthening emergency medical services because survival after a crash often depends on what happens in the first hour. Nepal's move toward digital accident reporting systems such as the Road Accident Information Management System (RAIMS) is promising, but integration of police and hospital data is essential to identify high-risk corridors and guide targeted interventions.[4] Without reliable data, road safety remains invisible and invisibility breeds in action.

Road traffic accidents are not random events; they are predictable outcomes of policies implemented. Nepal stands at a crossroads and has been cost thousands of young lives each year, while decisive, evidence-based action can transform roads from sites of tragedy into enablers of safe mobility and development. Treating RTAs as the preventable epidemic, it is no longer optional but is a moral, economic, and public health imperative.

REFERENCES

1. World Health Organization. Road traffic mortality [Internet]. Geneva: World Health Organization; 2023.

2. World Health Organization. Global status report on road safety 2023 [Internet]. Geneva: World Health Organization; 2023.

3. Ministry of Physical Infrastructure and Transport. Nepal Road Safety Action Plan (2021–2030): Kathmandu: Government of Nepal; 2021.

4. Public Health Update. National Health Policy 2019 (English version). Kathmandu; 2020.

5. Gu D, Ou S, Liu G. Global burden of road injuries and their attributable risk factors from 1990 to 2021: a systematic analysisfor the Global Burden of Disease Study 2021. PrevMed Rep. 2025;53:103051.

6. Asian Transport Observatory. Nepal road safety profile 2025 [Internet]. 2025.

7. Tortosa-Alted R, Reverté-Villarroya S, Martínez-Segura E, López-Pablo C, Berenguer-Poblet M. Emergency handover of critical patients. A systematic review. International Emergency Nursing. 2021 May;56(1):100997.

8. Economic burden of road traffic injuries in Nepal [Internet]. ResearchGate; 2025.

9. B.C. R, Khadka J, Devkota G, Bhatt PR, Basnet P, Bhatta C. Road traffic injuries, trends, and patterns: a five-year retrospective analysis using secondary police data in Nepal. J Nepal Med Assoc. 2026;64(293):3–8.

10. Karkee R, Lee AH. Epidemiology of road traffic injuries in Nepal, 2001–2013: systematic review and secondary data

11. Shrestha R, Shrestha SK, Kayastha SR, Parajuli N, Dhoju D, Shrestha D. A comparative study on epidemiology, spectrum and outcome analysis of physical trauma cases presenting to emergency departments in Nepal. Kathmandu Univ Med J (KUMJ). 2013;11(43):241–246.

12. Kuikel, J., Aryal, B., Bogati, T., & Sedain, B. (2022). Road traffic deaths and injuries in Kathmandu. Journal of Health Promotion, 10(1), 73–88. https://doi.org/10.3126/jhp.v10i1.50989.