

NCD Priority and way forward in Nepal

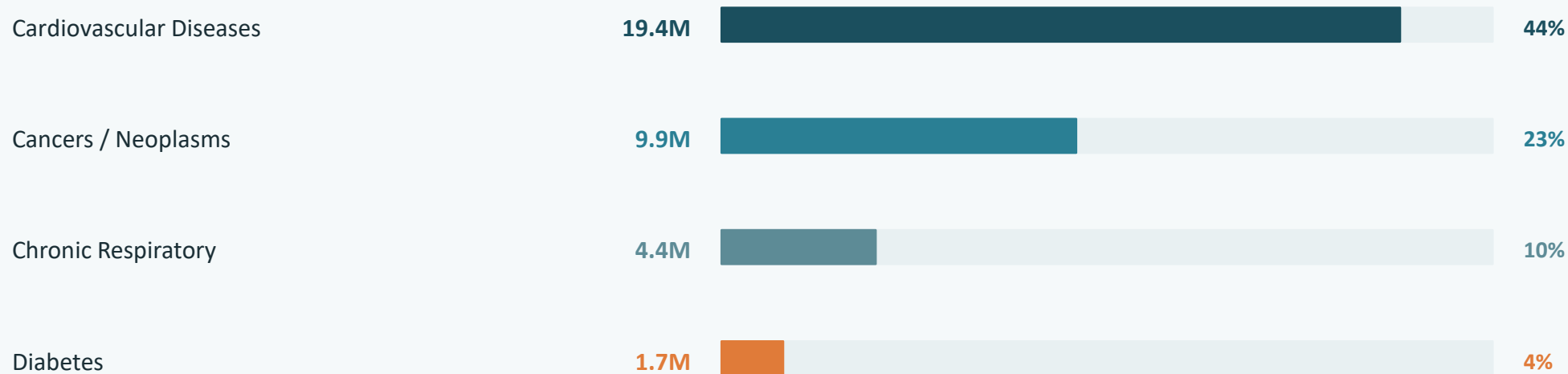
Dr. Samir Kumar Adhikari
Senior Health Administrator,
Ministry of Health and Population

GLOBAL NCD SITUATION

The Global Burden



The Big Four NCDs (2021 Deaths)



Key Risk Factors

- Tobacco use
- Harmful alcohol
- Unhealthy diet
- Physical inactivity
- Air pollution

Projections by 2050:

75.5M deaths
2.44B DALYs

NCD SITUATION – SOUTH-EAST ASIA REGION (SEARO)

NCDs in South-East Asia: A Growing Crisis

55%

of all deaths in SE Asia
due to NCDs (2021)

9.5M

persons die from NCDs
annually in the region

50%

of NCD deaths are
premature (age 30–69)

2.1B

people in 11 SEARO
countries (25.6% global)

NCD Causes & Challenges in SEARO

CVD (3.9M deaths)

Largest cause; 49% premature. Stroke leading contributor.

Cancers

66% premature deaths. Cancer control improving but gaps remain.

Diabetes

Rising trend; premature mortality increasing. Major management gaps.

Treatment Gaps

Only 60% of countries have treatment guidelines for major NCDs.

Health Systems




Just 50% of countries have essential NCD diagnostics in PHCs.

Progress

Premature NCD mortality declined: 23.4% (2010) → 21.6% (2019).

NCD Burden in Nepal

What causes the most deaths?

-  Communicable, maternal, neonatal, and nutritional diseases
-  Non-communicable diseases
-  Injuries

Cause	2013 rank	2023 rank	Change in deaths per 100k, 2013-2023
COPD	1	1	↑ +14.7
Ischemic heart disease	2	2	↑ +7.8
Stroke	3	3	↑ +7.7
Lower respiratory infect	5	4	↓ -4.9
Neonatal disorders	4	5	↓ -15.5
Diabetes	7	6	↑ +7.1
Cirrhosis	8	7	↑ +0.0
Tuberculosis	6	8	↓ -6.2
Self-harm	10	9	↑ +0.7
Rheumatic heart disease	11	10	↑ +1.2

NCD Burden in Nepal

What risk factors drive the most death and disability combined?

- Metabolic risks
- Environmental/occupational risks
- Behavioral risks

Risk	2013 rank	2023 rank	Change in DALYs per 100k, 2013-2023
Air pollution	2	1	↓ -362.0
Malnutrition	1	2	↓ -2,276.0
Tobacco	3	3	↑ +77.1
High blood pressure	5	4	↑ +204.1
Occupational risks	4	5	↓ -40.3
High fasting plasma glucose	7	6	↑ +318.5
Dietary risks	6	7	↑ +207.4
High body-mass index	11	8	↑ +333.5
Kidney dysfunction	10	9	↑ +178.9
Other environmental	9	10	↑ +75.3

RELEVANT POLICY FRAMEWORK FOR NCDs

Global → Regional → National Policy Landscape

GLOBAL

- ▶ UN GA High-Level Meeting on NCDs (2011, 2014, 2018, 2022)
- ▶ WHO Global Action Plan for NCDs 2013–2030
- ▶ WHO NCD Implementation Roadmap 2023–2030
- ▶ SDG 3.4: Reduce premature NCD mortality by 1/3 by 2030
- ▶ WHO 'Best Buys' for NCD intervention (2024 update)
- ▶ WHO Global NCD Monitoring Framework (9 voluntary targets)
- ▶ WHO FCTC (Framework Convention on Tobacco Control)

SEARO

- ▶ Regional Action Plan for NCDs, South-East Asia 2013–2020 (extended to 2030)
 - ▶ SEAHEARTS Initiative (CVD prevention & control, 2023)
 - ▶ SEARO NCD Implementation Roadmap 2022–2030
 - ▶ SEARO NCD Dashboard (launched 2023)
 - ▶ Resolution SEA/RC76/R5: CVD milestones by 2025
 - ▶ Salt/sodium reduction targets (10 of 11 countries)
 - ▶ Regional tobacco control strategy



NEPAL

- ▶ National Health Policy 2019: NCD prevention emphasis
- ▶ MSAP 1.0: Multisectoral Action Plan 2014–2020
- ▶ MSAP 2.0: NCD Action Plan 2021–2025
- ▶ MSAP 3.0 (Draft): NCD Action Plan 2026–2030
- ▶ Package of Essential NCDs (PEN) – WHO, launched 2016
- ▶ Tobacco Products (Control & Regulatory) Act 2011
- ▶ Trans fat regulation legislation (2024)
- ▶ National Mental Health Strategy & Action Plan 2021

Implementation Status in Nepal

Progress:

- Expansion of PEN services across districts and PEN Plus in few districts
- Increased screening for hypertension and diabetes
- Inclusion of Essential NCD medicines like Amlodipine, Losartan , Metformin, Glimepiride in Essential Free Drug List
- HTN & DM Cascade Model is being demonstrated in few districts
- Growing political commitment

Gaps:

- Limited integration of CRD-specific services at primary health care level
- Inadequate diagnostic capacity (e.g., spirometry)
- Weak referral and follow-up mechanisms
- Supply chain challenges

NEPAL'S STANDING – SDG 3.4 & NCD TARGETS

SDG 3.4: Reduce premature NCD mortality by one-third by 2030

🎯 SDG Target 3.4: By 2030, reduce by one third premature mortality from NCDs through prevention/treatment (ages 30–70) | Nepal NCD MSAP Target: 25% reduction by 2025 and 1/3 by 2030

WHO 9 Voluntary Global NCD Targets (2025 deadline) — Nepal's Status

Target 1: 25% reduction in overall premature NCD mortality	Partial	Target 6: 25% reduction in raised blood pressure prevalence	Partial
Target 2: 10% reduction in harmful use of alcohol	Lagging	Target 7: Halt rise in diabetes & obesity	Off Track
Target 3: 10% reduction in physical inactivity	Lagging	Target 8: 50% drug therapy/counselling for eligible high-risk persons	Partial
Target 4: 30% reduction in salt/sodium intake	Partial	Target 9: 80% availability of essential NCD medicines & technologies	Off Track
Target 5: 30% reduction in tobacco use prevalence	On Track ✓		

Nepal SDG Progress: Score 66.5/100 (Rank 99/166 countries) | SDGs integrated in 15th Development Plan (2019–2024) | Annual SDG funding gap: ~NPR 500M

RESEARCH PRIORITY AREAS - OVERVIEW

- 1. Epidemiology & Surveillance**
- 2. Risk Factors & Determinants**
- 3. Health Systems & Service Delivery**
- 4. Prevention & Intervention Research**
- 5. Multimorbidity & Mental Health**
- 6. Climate, Environment & NCDs**

Population-Based Studies

Conduct nationally representative NCD prevalence surveys across all 7 provinces using standardized WHO STEPS methodology

Longitudinal Cohort Studies

Establish prospective cohorts tracking NCD onset, progression, and outcomes over 10–20-year time horizons

Integrated Disease Surveillance

Link NCD data streams into HMIS, enabling real-time monitoring and early detection of emerging epidemic trends

Subnational Disaggregation

Generate district-level data to identify geographic disparities and high-burden areas for targeted interventions

Civil Registration & Vital Statistics

Strengthen death registration to capture NCD mortality with accurate cause-of-death coding at facility and community levels

Biobank & Genomic Repository

Develop a national biobank capturing biological samples for genetic, metabolomic, and environmental exposure research

Behavioral Risk Factors

- Tobacco use patterns across socio-demographic groups
- Alcohol consumption & harmful use norms
- Physical inactivity in urban & peri-urban populations
- Dietary quality: salt, fat & processed food intake

Metabolic Risk Factors

- Hypertension prevalence, awareness & control cascade
- Obesity & adiposity trends across age groups
- Dyslipidemia screening and population patterns
- Hyperglycemia & impaired glucose tolerance

Social Determinants

- Poverty, food insecurity & NCD risk nexus
- Gender-based disparities in NCD outcomes
- Education level and health literacy gaps
- Urban-rural and caste/ethnicity inequities

Access & Coverage

Map geographic and financial barriers to NCD care across rural, remote, and disadvantaged communities

Primary Health Care Integration

Evaluate models for integrating NCD screening and chronic care management into PHC facilities

Workforce Capacity

Assess NCD competencies of health workers; develop task-sharing models for non-physician providers

Digital Health Solutions

Test mHealth, telemedicine, and e-registry tools for NCD patient tracking and treatment adherence

Financial Risk Protection

Analyze out-of-pocket costs, catastrophic expenditure, and impact of health insurance on NCD care-seeking

Quality of Care

Develop and validate NCD clinical quality indicators; conduct health facility assessments

Community-Based Interventions

- Community health worker-led NCD screening programs
- School-based healthy lifestyle and dietary intervention trials
- Workplace wellness programs in formal & informal sectors
- Salt reduction strategies via community & food industry engagement
- Physical activity promotion in urban design and policy

Clinical Trials & Policy Research

- Simplified treatment protocols for hypertension & diabetes
- Fixed-dose combination therapy effectiveness trials
- Tobacco cessation: pharmacotherapy vs. behavioral support
- Evaluation of national NCD policy implementation fidelity
- Health technology assessment for NCD medicines & devices

An emerging and neglected area: multimorbidity (≥ 2 concurrent NCDs) is rising rapidly in Nepal's aging population, with strong bidirectional links between NCDs and mental health conditions requiring integrated research approaches.

Multimorbidity Patterns

Characterize the clustering of NCDs (e.g., hypertension + diabetes + CKD); identify high-risk profiles and trajectories across the life course

NCD-Mental Health Nexus

Investigate co-occurrence of depression, anxiety, and conditions like diabetes and heart disease; assess bidirectional causal pathways

Palliative & Cancer Care

Develop evidence-based palliative care models for Nepal; study cancer pain management, morphine access, and caregiver burden

Integrated Care Models

Design and evaluate person-centred, integrated care pathways that address multiple NCDs and mental health simultaneously

Air Pollution & Respiratory Disease

Quantify burden of COPD and asthma attributable to household and ambient air pollution; evaluate clean cooking fuel transitions

Climate Change & Cardiovascular Risk

Study heat stress, extreme weather events, and their impact on cardiovascular and renal morbidity and mortality

Water, Sanitation & NCD Links

Explore associations between arsenic in groundwater and diabetes; fluoride exposure and bone disease

Pesticide Exposure & Cancer

Investigate agricultural pesticide exposure in farming communities and links to cancer, reproductive, and neurological NCDs

Nepal's Unique Context

- Among world's most climate-vulnerable nations
- Glacial retreat threatens water security
- 70%+ households use biomass for cooking
- High altitude physiology and cardiovascular risk
- Rapid industrial & construction sector growth
- Trans-boundary air pollution from Indo-Gangetic Plain

The Path Forward

Building a Stronger NCD Research Ecosystem in Nepal

- Establish a National NCD Research Agenda aligned with SDGs and Nepal's Health Sector Plans
- Increase dedicated NCD research funding
- Build institutional capacity at research institutions, medical colleges, and subnational levels
- Create open-access NCD data platforms for sharing and secondary analysis
- Strengthen research collaborations within the region as well as global
- Investing in NCD research today is investing in the health and prosperity of Nepal's future generations.

ISSUES & CHALLENGES

❑ Logistics, Supplies & Diagnostics

- **Frequent stock-outs** of NCD medicines (Amlodipine, Metformin, Enalapril, Glibenclamide).
- **Insufficient point-of-care diagnostics** (glucometers, strips, peak flow meters).
- **Poor maintenance** of equipment at peripheral facilities.
- **No centralized inventory tracking system** at municipalities.

❑ Health Information & Digital System Limitations

- **Low use of NCD registers**, poor documentation of screening and follow-up.
- **Weak reporting** through DHIS2/BHIMS and lack of real-time dashboards.
- **Absence of unique patient identifiers** leading to duplication and loss to follow-up.
- Lack of **integrated digital NCD tools** (Tracker) at point of care.

❑ Community Awareness & Demand Generation Gaps

- **Low community literacy** on preventive behaviors and NCD risks.
- **Social stigma and myths** around hypertension, diabetes, and mental health.
- **Low participation** in routine screening opportunities.
- **Limited role of FCHVs** in community-level NCD education and referral.

❑ Health System Structural Issues

- Rural/remote areas **lack 24/7 PHC services**.
- Urban areas face **overcrowding, environmental exposure**, and inequity.
- **Weak multi-sectoral collaboration** with education, urban development, agriculture, environment.



#beatNCDs

**TOGETHER
LET'S BEAT NCDs**



Thank You!