



## Mini Review

# Health System in Nepal in Context of WHO Building Blocks

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### Abstract

Health system is the backbone of delivering efficient preventive, promotive, curative and rehabilitative services. WHO has identified six building blocks of any health system. These include governance and leadership, infrastructure, workforce, financing, information management and access to essential medicines. Nepal has been striving to strengthen its health system despite several challenges in all WHO building blocks. Inadequate funds, geographical inequalities, insufficient health workforce, weak logistics, suboptimal health information system and inadequate health infrastructure have plagued Nepal health system for long. Natural calamities (e.g. earthquake of 2015) and COVID-19 pandemic overwhelmed the health system. In 2015, Nepal promulgated its new Constitution that devolved and decentralized several powers of generating revenue and exercising authority to sub-national governments viz the states/provinces and local civic bodies. Though functions of health system have been clearly defined at federal, state and local levels in the Constitution, transition of the erstwhile federal health system into new governance and implementation modalities continues to be challenging. There is a strong need to strengthen all building blocks of health system in Nepal at all levels of governance.

**Key words:** Nepal: health system; WHO building blocks; devolution of governance; decentralization;

### Introduction

A health system consists of all the organizations, institutions, resources, and people whose primary purpose is to improve health [1]. The health system delivers preventive, promotive, curative and rehabilitative interventions through an infrastructure, human resource, consumables and public health actions. A health system needs staff, funds, information, supplies, transport, communications and overall guidance and direction to function. These essential elements of an efficient health system have been categorized by the World Health Organization as the building blocks of any health system. These building blocks include health service delivery, health workforce, health information system, access to essential medicines, health system financing and governance and leadership [2]. These six building blocks contribute to the strengthening of health systems in different but interconnected ways.

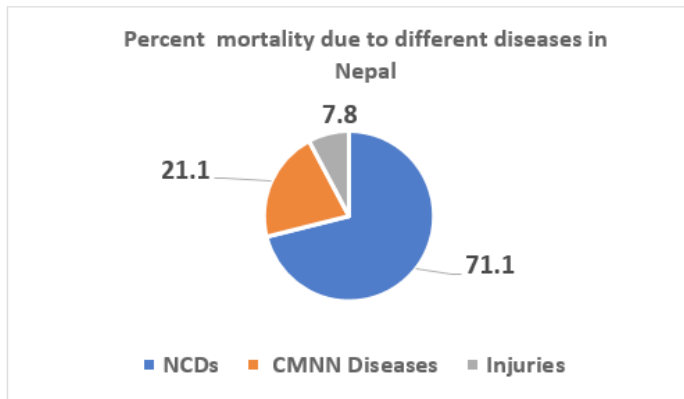
### Country Profile

Nepal with a population exceeding 29 million has been categorized by the World Bank as a lower-middle-income country. Its Gross National Income per capita was USD 1340 in 2022. Nepal's human development index (HDI) value in 2021 stood at 0.602 which is third worst after Afghanistan and Pakistan in the South Asia with a global ranking of 143 [3] The current health expenditure per capita in Nepal is USD 58.3, which is significantly lower than the average of USD 174 in South Asia [4] The Universal Health Coverage (UHC) Index of Nepal was 54 points in 2021 [5].

The Constitution of Nepal guarantees basic and emergency health services to every Nepali citizen free of cost. The National Health Policy 2019 (NHP) has an overarching goal of developing and expanding the health system for all citizens in the federal structure, based on social justice and good governance, and ensuring access to and utilization of quality health services. It commits availability of free basic health services and access to specialized and emergency services for all citizens [6].

### Disease Burden and health indicators

The study on Global Burden of Diseases (2019) [7] estimated a total of 193,331 deaths in Nepal in 2019, of which 71.1% were due to non-communicable diseases (NCDs), 21.1% were caused by communicable, maternal, neonatal, and nutritional (CMNN) diseases and the remaining 7.8% were due to injuries (Fig 1).



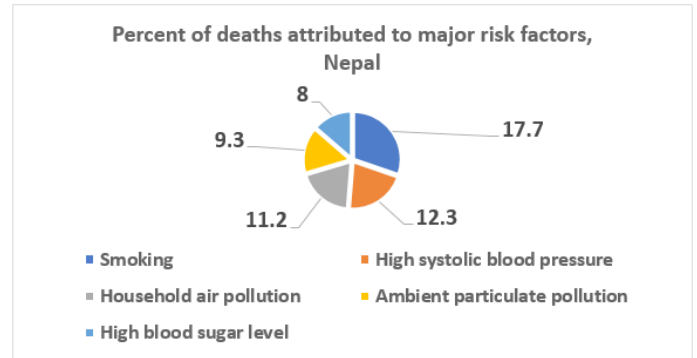
**Figure 1:** Percent mortality due to major disease groups in Nepal (Global Burden of Diseases, 2019).

Cardiovascular diseases (CVDs) were the leading cause of deaths, with 24% of total deaths being attributable to CVDs. Among CMNN diseases, lower respiratory infections were the leading cause of death in 2019 accounting for 4.5% of total deaths, which is a decline from 12.9% of total deaths in 1990. Drug susceptible tuberculosis was responsible for 3.5% of total deaths [7].

It is obvious that Nepal has a dual burden of diseases with, as in other developing countries, NCDs gradually becoming dominant cause of mortality and morbidity. This is due to burgeoning NCDs risk factors (Fig 2). 17.7% of deaths were due to smoking, 12.3% due to high systolic blood pressure, 11.2% due to household air pollution from solid fuels, 9.3% due to ambient particulate matter pollution and 8.0% were due to high fasting plasma glucose [7]. NCDs could pose a complex technical and financial challenge to the health system.

Nepal was severely hit by COVID-19 pandemic. More than 1 million cases and deaths exceeding 12,000 have been reported till March 2024 [8]. Sporadic cases continue to occur. Pandemic preparedness and Response as demonstrated by the COVID-19 pandemic showed limited national capacity. The Global Health

Security Index in 2021 has given an index score of 34 to Nepal and ranked it at 107 out of 195 countries [9]. The SPAR score for Nepal for International Health Regulation (IHR 2005) capacities was 44 [10], indicating urgent need to strengthen health system for effective and swift response to public health emergencies.



**Figure 2:** Percent of deaths attributed to major risk factors (Global Burden of Diseases, 2019).

Nepal is highly vulnerable to disasters caused by natural hazards, climate change, and environmental degradation. Earthquake of 2015 (Gorkha Earthquake) of 7.6 magnitude devastated the country, killed 9000, injured more than 100,000, destroyed 500,000 houses and damaged 269,000 dwellings [11]. This earthquake continues to be a reminder of occurrence of such natural events given the geographical location of the country in vulnerable seismic zone [11]. This further necessitates strengthening of all building blocks of health system across the country.

### Governance

Nepal has recently undergone devolution (or decentralization) of its national governance system with greater authority and responsibilities to subnational governments (SNG) comprising of states/provinces and local civic bodies (municipalities). Autonomy to SNGs is directed towards collection of revenue, local development and around 28 areas of work including health. The health sector activities conform to the broad guidance incorporated in the National Health Policy (2019). Schedules 5-8 of the Constitution of Nepal (2015) provide authority to the federal government, state governments and local governments (Table 1) in context of health system [14]. It also articulates the concurrent powers of federal and state governments including for health sector.

Schedule of Constitution	Level	Functional Authority
Schedule 5	Federal	Health policies, health services, health standards, quality and monitoring, national or specialized service providing hospitals, traditional treatment services and communicable disease control
Schedule 6	State	Health services
Schedule 7	Federal and state: concurrent	<ul style="list-style-type: none"> <li>• Drugs and pesticides</li> <li>• Early preparedness for, rescue, relief and rehabilitation from, natural and man-made calamities</li> </ul>
Schedule 8	Local	Basic health and sanitation

**Table 1:** Devolution of authorities on health system in Constitution of Nepal [13].

In accordance with these major changes in the governance, the Government of Nepal’s Fifteenth Plan [15] has established a system for providing basic health services by federal, provincial, and local governments with ambitious targets.

	Federal	State/Provincial	Local level
Operational Organization	Ministry of Health & Population	Ministry of Social Department	Municipal Health Section
Major Technical/ Implementing Units	<ul style="list-style-type: none"> <li>• Health Emergency &amp; Disaster Unit</li> <li>• Central Reference Hospital</li> <li>• National Disease Control Programmes</li> <li>• Department of Drug Administration</li> <li>• Department of Health Services</li> <li>• Department of Ayurveda &amp; Alternative medicines</li> </ul>	<ul style="list-style-type: none"> <li>• Provincial hospital</li> <li>• Central Laboratory</li> <li>• Private hospital/Academia/NGOs</li> <li>• Provincial Health Directorate</li> <li>• Public Health Emergency Operations Centre</li> </ul>	<ul style="list-style-type: none"> <li>• Primary hospital</li> <li>• Primary Health Care Centre</li> <li>• ‘Health Post</li> <li>• Female community health volunteer</li> <li>• Others</li> </ul>

**Table 2:** Decentralized structure and operations of health system in Nepal

The government has brought health services closer to the communities through this decentralized health system (Table 2). There is at least one health post in every former village development committee, one primary health care center in every electoral constituency, a district level hospital in every district and secondary level hospitals in zonal and regional level.

### Challenges and opportunities due to devolution

The federalism and the subsequent decentralization have brought about new opportunities as well as challenges for local governments to address health disparities and needs at the local level. Limited human resources for health constrain implementation of national health policies, strategies, programmes and guidelines at all levels. Other challenges include wider inequities in health service utilization, especially among poor and vulnerable populations; unequal distribution of human resources for health; and high out-of-pocket expenditure for health care.

### Health infrastructure

Various categories of health facilities available in Nepal in 2022-2023 are shown in Table 3.

Facility	Number
Public hospitals	215
Primary Health Centres	187
Health Posts	3778
Non-public facilities	2551
Basic Health Services Centre	7582
Basic Hospital (5-15 beds)	246
General Hospitals (25-50 beds)	333
General Hospitals (100-300 beds)	79
Specialized hospitals (100 beds and above)	28
Super Specialty Hospitals (50+ Beds)	22
Academic and teaching hospitals (300+beds)	29
Other Type of Health Facilities	2164

**Table 3:** Health facilities in Nepal (2022-2023).

The private sector is concentrated in urban areas and private-not-for-profit sector in rural areas. The peripheral health facilities lack of mechanisms for quality assurance of clinical and diagnostic services. Inadequate human resources for health in the peripheral and rural areas is a critical barrier to provide basic health services to remote communities. Most of the infrastructure is not climate change and earthquake compliant. Rugged terrains in some parts of Nepal make it difficult for vulnerable populations to timely access comprehensive health services.

### Health financing

The national budget for health grew almost three fold from Nepalese Rupees (NPR) 40.6 billion in FY 2016/17 to NPR 123.3 billion in FY 2022/23 (1\$=133 NPR) [17]. These increases may be attributable to the COVID-19 prevention and control programs. In the budget of FY 2022/23, the health budget has fallen in comparison to the previous year and was at NPR 103 billion. The Government of Nepal has recently endorsed a new ten-year strategy for health financing with the aim of ensuring equitable financial management to achieve universal health coverage (UHC) in Nepal. The National Health Financing Strategy 2023- 2033 [18], endorsed to address the resource gaps in the health sector by increasing the fiscal space in the federal context, includes strategic interventions to expand fiscal space for health, strengthen social protection, improve resource generation, and improve health financing governance, accountability, and transparency in the health sector. The commitments made by Nepal to achieve the SDGs and UHC by 2030 are heavily reliant on public funding.

The proportion of health care expenditures taken on by subnational governments has been steadily increasing since federalization, and the role of sources of funding internal to SNGs (e.g., taxes gathered by provincial governments) has grown rapidly

from nearly 0% immediately after federalization (2017/2018) to nearly 64% in 2021/2022 [19]. This has been coupled with general efforts on the part of the federal government to support the affordability of health care through insurance schemes like the National Health Insurance Program (NHIP), which is meant to prevent health expenses which impoverish citizens-a critical step towards UHC. Collectively, these represent considerable resources put forward by the federal government to support the transition to federalism and the achievement of UHC.

With ever increasing burden of NCDs, the allocation of funds to manage these are inadequate. The proportion of all deaths in Nepal attributable to NCDs in 2019 (71.1%) is more than double that of 1990 (31.3%) [20]. In fiscal year 2021/2022, provincial governments allocated less than 4%, and local governments less than 1%, of their expenditures to NCD management [21] This has placed the burden of financing NCD treatment on private citizens. For instance, nearly all (97.4%) patients with diabetes in Kathmandu paid out of pocket for diabetes treatments, while patients with diabetes spent a monthly average of NPR 7312.17 at public hospitals or NPR 10,125.31 at private hospitals [21]. As the per capita income of Nepal was NPR 103,335 in the same fiscal year this is a considerable expense-one that would drive many to poverty, indicating a failure of the NHIP and local government in the case of diabetes.

### Health insurance

The present health insurance program in Nepal is contribution-based, with coverage provided at the household level-which is also the basic unit of the program. According to the Health Insurance Regulations 2018 [22] the contribution for a family with up to five members is NPR 3,500, and for each additional member, NPR 700. The contribution amount must be paid in advance of receiving services, and rates vary accordingly. For a family of up to five members, this contribution provides access to free healthcare up to NPR 100,000. If a family has more than five members, the arrangement allows additional treatment for each member beyond five, with a rate of NPR 25,000. The current regulations allow for 100% contribution for ultra-poor populations, those with severe disabilities, leprosy, HIV/AIDS, complicated tuberculosis (MDR/XDR tuberculosis), along with their families, and citizens above the age of 70 [23].

Currently, the health insurance program is being provided by 466 service providers listed in the program. Payment to service providers is made based on a package of services provided by the Health Insurance Board. The package includes 152 types of laboratory tests, 72 types of imaging services (radiology and others), 102 types of medical procedures, 36 types of cardiac treatment procedures, 915 types of surgical treatment procedures, and materials used in 43 types of surgeries. Additionally, the benefit package provides access to 1108 types of allopathic medicines and medical supplies, as well as 25 types of Ayurvedic and alternative

medicines [24]. As per Nepal Demographic and Health Survey (NDHS) 2022 [25], considerable percentage around 88% women and 87% men, are not covered by the health insurance program in Nepal.

### Human Resource for Health

To address health workforce issues in the federal context, the Ministry of Health and Population has formulated the National Human Resources for Health (HRH) Strategy (2021–2030) [26]. The strategy aims to ensure equitable distribution and availability of quality health workforce in the federal health systems to advance UHC and promote health equity. Subnational governments (SNGs) have failed to adequately support health workforce development.

Category	Number	Per 10,000 population
Medical Officer (including dentist, specialist)	28477	9.774
Registered Nurses	69429	29.08
ANMs	35009	12.015
Midwife	14	0.005
Pharmacist	14720	5.052
Ayurvedic Physician	790	0.271
Ayurvedic Health workers	4281	1.439
Health Assistant	17363	5.959
Medical lab technician	29928	10.272
Homeopathic and Unani physicians	228	0.076
Clinical psychologist	24	0.008

**Table 4:** Health workforce in Nepal (2021-2022)

The share of the health expenditures for wages and salaries has decreased during federalization from 24.3% in 2017/18 to 13.8% in 2021/22, a decrease at least partly attributable to salary being placed under the direction of SNGs [21]. Likewise, federal funding was still the primary source for efforts to improve staff availability (nearly 100% federal) and training (61%/39%/0%, federal/provincial/local) in fiscal year 2021/2022. These failures contribute to serious workforce shortages, where key roles go unfilled and qualified health care workers can be hard to find. The number of various categories of health workforce is given in Table 4 [26].

The doctor-patient ratio in Nepal is 1:850 in the Kathmandu Valley and 1:150,000 in the rural areas against WHO recommendation of an overall doctor-patient ratio of 1:1,000 [27].

### Health services through private sector

Many segments of the population in Nepal mainly rely on private health facilities. A study on utilization of health services by the elderly showed that a notable proportion of them did not use public health services despite having health problems. The study also showed that private health facilities (56.4%) were used more than government health facilities (35.7%) [28]. High dependency on private health facilities leads to higher out-of-pocket health expenditures. Private health care is mostly present in urban areas and their services are being predominantly used by the affluent part of the population. There is a lack of effective regulatory oversight for private health care with robust standards, accreditations and protocols.

Nepal has 366 private hospitals, of which 99 hospitals are located in the Kathmandu Valley [28]. The private sector's entry is believed to make healthcare services better, professional and more reliable. However, the question of affordability persists. At the same time private hospitals are facing various hurdles to comply with government regulation. The government support to these hospitals in importing equipment and technologies is negligible.

### Access to essential medicines

The government of Nepal, in 2012 established an Essential Medicines Program (EMP) to provide affordable and quality essential medicines with the help of international development partners [29, 30]. Various distribution sources, in public and private sectors, have been utilized for easy and wider distribution of these medicines. Medicines are procured centrally by the Ministry of Health and Population. Several warehouses with cold storage facilities, as and where required, have been set up in the country. These medicines are given free at the public health facilities. Yet, several logistical challenges are experienced in seamless distribution and continuous availability of medicines across the country [31].

### Health Information system

The country has shown progress in strengthening its health information system by deploying an integrated health information management system across the country, institutionalizing surveillance and establishing National Health Accounts. The Integrated Health Information Management Roadmap 2022–2030 of Nepal [32] seeks to strengthen the health information system to make quality data available for decision-making while using digital architecture. Nepal has developed the National e-Health Strategy (2017), which sets out an overarching vision for a digital health ecosystem. To implement it, the Ministry of Health and Population has endorsed the eHealth Roadmap in 2019, emphasizing the use of digital interventions to bring health services closer to people and improving the efficiency of the health system [33].



## Climate Change impact on health system in Nepal and country's response

Nepal is at high risk due to climate change. Nepal's varied topography and socioeconomic circumstances make the country particularly vulnerable to climate variability and change.

These extreme events threaten food security, water supply and infrastructure. Climate change has serious impacts on health of Nepal citizens, including but not limited to dehydration, increased incidence of water and vector-borne diseases, malnutrition related to reduced crop yields, and physical and psychological effects of extreme events. In Nepal these impacts can be particularly devastating [34].

Nepal, in November 2023, launched its first National Adaptation Plan (NAP), a comprehensive strategy aimed at bolstering the nation's resilience against climate change [35]. The plan, having an estimated cost of USD 47 billion will extend to 2050. The NAP outlines 64 specific adaptation interventions across eight key economic sectors. The policy document charts the path for the country to adapt to climate change in the short, medium and long-term. The funding model for Nepal's NAP involves a blend of national and international financial support, with the Nepalese government committing \$1.5 billion and external sources providing the remaining \$ 45.9 billion. The plan calls for wider-scale collaborations with development partners and the private sector and a whole-of-society approach.

## Conclusions

Nepal is a developing country. Nepal Constitution (2015) is driving major changes in governance through devolution of powers and functions. Health system is in transition to meet the requirements enunciated in various schedules of the Constitution. There are numerous challenges in reorienting the health services to meet peoples' expectations. There is an urgent need to strengthen all building blocks of the health system. Health infrastructure requires strengthening, modernization and compliance with emerging challenge of climate change and natural calamities; health workforce needs augmentation and equitable distribution across the country, and an improved logistics for uninterrupted supply of essential medicine and diagnostics are called for. Greater technical and financial support by the international development partners shall fast-track development and strengthening of health system in Nepal.

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