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Charting the course for an optimised health workforce for NCDs

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NCDAlliance

REPORT · 2025

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See Annex for list of Key Informants.

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Cover photo: Rwandan nurse Rachel Nirere with Emmanuel Habanabashaka (19 years old). He is a PEN-Plus patient living with type 1 diabetes. He comes to the Masaka Hospital (Kicukiro District) every two months for insulin pens and check-ups with nurses who have been trained and supported to manage NCDs.

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Abbreviations

ABBREVIATION	FULL FORM
COPD	Chronic Obstructive Pulmonary Disorder
CSO	Civil Society Organisation
CVD	Cardiovascular Disease
EAG	Expert Advisory Group
EU	European Union
HICs	High-Income Countries
HWF	Health Workforce
IGAP	WHO Intersectoral Global Action Plan for Epilepsy and Other Neurological Disorders, 2022 – 2031
KII	Key Informant Interview
LMICs	Low- and Middle-Income Countries
mhGAP	WHO Mental Health Gap Action Programme
MOH	Ministry of Health
NCD-GAP	Global NCD Action Plan 2013 – 2020
NHWA	WHO National Health Workforce Accounts
NCDs	Noncommunicable Diseases
NGO	Non-Governmental Organisation
OECD	Organisation of Economic Cooperation and Development
PEN	WHO Package of Essential Noncommunicable Disease Interventions
PHC	Primary Health Care
RCT	Randomised Control Trial
SDG	Sustainable Development Goal
UHC	Universal Health Coverage
WHO	World Health Organization
CHW	Community Health Worker

Definitions

To the extent possible, we have used World Health Organization (WHO) definitions. We reviewed literature and triangulated definitions where WHO did not have an organisationally endorsed definition, such as for workforce optimisation or a supportive environment. All documents reviewed for definitions are included in the references.

TERM	DEFINITION
Community health workers	'Community health workers provide health education, referral and follow-up, case management, and basic preventive health care and home visiting services to specific communities. They also support and assist individuals and families in navigating the health and social services system.' (1)
Integrated people-centered health services	'**Integrated services** are managed and delivered so that people receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation and palliative care services, coordinated across the different levels and sites of care within and beyond the health sector, and according to their needs throughout the life course.' '**People-centred** health services is an approach to care that consciously adopts the perspectives of individuals, families and communities, and sees them as participants as well as beneficiaries of trusted health systems that respond to their needs and preferences in humane and holistic ways.' (2)
Health workforce	'Health workers are all people primarily engaged in actions with the primary intent of enhancing health. This definition was first provided by the WHO World Health Report 2006.' 'Care workers provide direct personal care services in the home, in health care and residential settings, assisting with routine tasks of daily life and performing a variety of other tasks of a simple and routine nature.' Throughout this report, for ease of reference, we use the term 'health workers' and 'health workforce' to refer to health and care workers and the health and care workforce. (3)
Workforce optimisation	Optimising the workforce means improving health and care workers' efficiency, effectiveness, and well-being to ensure high-quality patient care. This involves strategies such as (I) Workforce Planning: ensuring that the right number of health workers with the right skills are present to meet patient needs; (II) Training & Development:providing education, including continuous medical education, upskilling, and career progression opportunities; (III) Workforce Well-being: Supporting mental health, reducing burnout, and improving work-life balance, (IV) Technology & Innovation: Using digital tools, artificial intelligence and automation to enhance productivity and reduce administrative burden, (v) Flexible & Integrated Working Models: Encouraging multidisciplinary teams and flexible working arrangements to improve service delivery.
Primary care	'Primary care is a key process in a health system that provides promotive, protective, preventive, curative, rehabilitative, and palliative services throughout the life course.' (4)
Primary health care	'A whole-of-society approach to effectively organise and strengthen national health systems to bring services for health and well-being closer to communities. It has three components: (I) integrated health services to meet people's health needs throughout their lives, (II) addressing the broader determinants of health through multisectoral policy and action, and (III) empowering individuals, families and communities to take charge of their health.' (5)

TERM	DEFINITION
Primary health care workforce (PHC workforce)	According to the WHO, the PHC workforce 'includes all occupations engaged in the continuum of health promotion, disease prevention, treatment, rehabilitation and palliative care. It also includes the public health workforce, and those involved in addressing the social determinants of health'. (6) We use the words workforce and PHC workforce interchangeably. Where we refer to specialists we call this out.
Supportive working environment	The WHO Global Health and Care Workers Compact highlights four areas of action to create a supportive working environment for health and care workers: I. Preventing harm: 'from the dangers and hazards in the workplace, from violence and harassment, in fragile, conflict and vulnerable situations, and from ill health, including by providing mental health and psychosocial support resources and promoting well-being'. II. Inclusivity: equal treatment and non-discrimination. III. Providing support: fair and equitable compensation, social protection and non-financial support, enabling work environments. IV. Safeguarding rights: including the rights to freedom of association and collective bargaining, whistleblower protection and freedom from retaliation. (7)
Deployment	Strategic allocation, distribution, and assignment of health workers to specific locations, roles, or services within a healthcare system to meet the population's healthcare needs and optimise skills effectively.
Retention	Retention refers to the ability of a healthcare system or organisation to keep its workers engaged over time. It is essential in ensuring the workforce's stability and sustainability. Retention strategies are necessary to reduce turnover rates, which can negatively impact the quality of care, increase operational costs, and cause workforce shortages.
Task sharing[I]	'The rational redistribution of responsibilities among health workforce teams. Specific tasks or roles are shared, where appropriate, with less specialised health workers in order to make more efficient use of the available personnel. It should be accompanied by appropriate measures in terms of education, supervision, management support, licensing, regulation and remuneration.' (3)

I The WHO defines task sharing as "the rational redistribution of responsibilities among health workforce teams. Specific tasks or roles are shared, where appropriate, to less specialised health workers to use the available personnel efficiently. It should be accompanied by appropriate measures in terms of education, supervision, management support, licensing, regulation and remuneration." (*See (3)*). The World Medical Association (WMA) views task sharing as a narrow approach to multidisciplinary team-based PHC and discourages use of the term. This brief uses the WHO terminology while recognising that multidisciplinary, non-hierarchical PHC teams are essential for high-quality NCD prevention, treatment, and care. These teams should be non-hierarchical, have clear roles and responsibilities and work under the supervision of a trained medical professional.

EXECUTIVE SUMMARY

This research report provides an overview of global developments, challenges and opportunities associated with optimising the health workforce to expedite efforts to address noncommunicable diseases (NCDs).[II] Throughout the report, we argue that a robust, multidisciplinary, team-based primary health care (PHC) system with strong referral linkages is the most effective approach to tackling the burden of NCDs.

This builds on the 2019 NCD Alliance report "**Protecting Populations, Preserving Futures**", which focuses on optimising the health workforce by creating healthcare models that 1) are people-centred and based in PHC, with health workers holistically meeting the care needs of populations; 2) are multidisciplinary, to ensure the skills and time of each worker is maximised; and 3) leverage innovation and digital health to support an often over-burdened health workforce, also strengthening health data to ease the referral process between healthcare providers.

Six years later – and in the lead up to the fourth High-Level Meeting of the United Nations General Assembly on the Prevention and Control of NCDs and the Promotion of Mental Health and Well-being (HLM4) in September 2025 – this policy research report takes stock of the current global situation and the challenges and opportunities in regard to optimising the health workforce for NCD prevention, treatment and care. It aligns with and builds upon research and findings from the 2019 report and develops a framework for accelerating action towards a comprehensive health system reform, including an optimised health workforce, to manage the NCD burden.

The interlinking pillars of this framework are:

STAFFED
Ensuring the health workforce is adequately **staffed** to meet population needs.

SKILLED
Ensuring the health workforce is **skilled** in preventing and managing NCDs.

SUSTAINABLY FINANCED
Ensuring the implementation approaches identified in STAFFED, SKILLED and SUPPORTED are adequately **financed** to impact NCDs.

SUPPORTED
Creating a **supportive** environment for the health workforce.

This report was developed through a literature review, key informant interviews (KIIs), expert advice, technical guidance (from an Expert Advisory Group/EAG), and implementation examples shared by various organisations, including civil society organisations (CSOs). Based on the evidence that we have gathered, we have developed advocacy requests to accelerate the implementation of a PHC workforce for NCDs.

II The definition of NCDs in this report includes mental health. Mental health conditions have been aggregated with NCDs and treated as such in recent years under the 5x5 initiative. However, mental health and mental health conditions have characteristics that both cut across and are unique from physical health, requiring special attention and consideration.

STAFFED

The world is facing a crisis-level health workforce shortage, with significant disparities between countries and within them. A data-driven approach is needed to assess and address population needs.

The latest WHO estimates project a health workforce shortage of 11.1 million by 2030. This shortage will not be evenly distributed but rather will deepen inequities between and within regions, with particularly high shortages in areas which also have high NCD needs, such as Sub-Saharan Africa, the Eastern Mediterranean, and South Asia. (8)

Gaps result from complex supply-demand factors, so there is no one-size-fits-all approach for all countries, but a key factor driving disparities is migration of health workers from lower to higher income countries. Another gap which is present in countries of all income levels is the gap between rural and urban areas, with rural areas frequently underserved. As stated by experts and key informants, these shortages increase disparities in access to care for NCDs and exacerbate health inequities, leading to inadequate preventive care, delayed diagnosis and treatment, poor management of chronic conditions, reduced quality of care, and increased cost of managing NCDs.

Meeting the global demand for health workers to deliver NCD care must be achieved through population-based planning and policy making, with each country developing the appropriate data-driven and evidence-based approach, drawing upon global, regional and country good practices. WHO provides training and technical support to countries for conducting Health Labour Market Analyses (HLMA), which are useful to gain insight into population needs and formulate costed plans to address identified gaps. (9)

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SKILLED

NCD care must begin at primary level with awareness, prevention and early detection, but PHC workers are often not equipped with the necessary competencies.

This is often a reflection of health systems themselves, especially in LMICs, where PHC has focused on vertical programs for infectious diseases and maternal and child health. Today, the disease burden has shifted towards NCDs, and PHC teams now must be prepared to manage these conditions. This means providing access to NCD clinical, leadership, and management skills and training. We emphasize various training resources and curricula developed for NCDs by global and local academic institutions, non-governmental organisations, and public-private partnerships.

The health workforce must also be optimised by improving efficiency, ensuring all health workers' time and skills are being maximised, and task sharing of key duties to community health workers, nurses, or other PHC professionals who have been provided with the appropriate training and support.

SUPPORTED

The health workforce is facing mental health concerns from burnout, stress, and gender inequalities, reducing job satisfaction and workforce retention.

Ensuring a supportive environment is part of addressing broader health workforce issues and must be included in the country's workforce planning and implementation. These measures should include adequate remuneration, strong mental health support, addressing gender inequalities and building a strong, non-hierarchical team culture.

The COVID-19 pandemic put a spotlight on the mental health of the frontline health workforce, revealing severe burnout and stress, which can result in intent to leave the profession and further reduce the numbers of health workers. (10) Since then, the world has experienced various localized health emergencies, along with other humanitarian emergencies like conflict, extreme weather events, and political unrest. In all cases, frontline health workers put their wellbeing and even their lives at risk to provide care to others and need adequate support.

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SUSTAINABLY FINANCED

Adequate and sustainable funding is needed to equip the health workforce to manage NCDs, with investments made both horizontally to strengthen PHC and vertically for NCDs specifically.

For LMICs, the shrinking of development assistance for health will have a significant impact on funding for health workforce programmes, and countries will need to assess alternative sources of funding to fill this gap. Financing sources to drive optimised health workforce policies include but are not limited to domestic resource mobilisation, public-private partnerships, and philanthropic financing.

Investments should be made based on country-level data gathered on the disease burden, the health workforce, and population needs. There are many best practice policies relating to the first three pillars which countries can implement – but all are contingent on adequate financing.

Accelerating progress toward health systems built upon multidisciplinary, team-based care – capable of managing the disease burdens of the populations they serve, including for NCDs – will be most effective through an approach that integrates the most appropriate recommendations for each of the four pillars according to each country's specific context. To achieve this, it is essential that countries develop data-driven strategies to drive progress towards more effective and efficient health care systems.

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INTRODUCTION

Noncommunicable diseases, or NCDs, are the number one killer worldwide, causing 43 million deaths per year, or 75% of all deaths globally. 18 million of these deaths occur before the age of 70 years, with most of these - 82% - occurring in LMICs. (11)

Today, the numbers of people living with NCDs are staggering. There are 1 billion people living with obesity, 1.3 billion are hypertensive, a billion are living with a mental health disorder, and half a billion people are living with diabetes and chronic respiratory diseases. We are living in a world where NCDs, ill health and disability are becoming the norm rather than the exception, and the NCD burden is growing at an alarming speed. (12) Health systems are buckling under the pressure.

The health landscape is changing in ways that demand a new approach to NCD care and management, and our health systems must respond by transitioning from episodic disease-specific treatment to long-term integrated health management. At the core of this shift is the health workforce, which requires strengthened capacity to respond to the NCD burden.

Most NCDs can be prevented or delayed into advanced age – up to 80% – and nurses, primary care physicians, and community health workers play a critical role in this aspect of care. (12) With the appropriate support and training, integrated PHC and NCD care means that every consultation can be used as an opportunity to promote healthy behaviours, and to detect NCDs at an early stage, before complex treatment is needed.

While primary healthcare is the entry point and foundation of the health system, secondary and tertiary levels must work in conjunction. NCDs like cancer or those that have reached an advanced stage require a specialised workforce and complex treatment and technology. PHC is extremely important, but all levels of the health system must be functioning together to manage NCDs.

Furthermore, the sheer scale of the NCD burden means that it is simply not feasible to manage these diseases mainly through specialists or in hospitals – it requires a shift to multidisciplinary, team-based care, in which all health workers across doctors, specialists, nurses, and community health workers are working collaboratively to meet patient needs.

The past two decades have seen important NCD targets being set, like Sustainable Development Goal target 3.4 to reduce premature deaths from NCDs by one third by 2030. And there are an increasing number of evidence-based interventions that are available to address them, such as those presented in the WHO Package of Essential NCD Interventions (PEN), the NCD Global Action Plan (NCD-GAP), the Mental Health Gap Action Programme (mhGAP) and the Intersectoral Global Action Plan on Epilepsy and Other Neurological Disorders, 2022 - 2031 (IGAP) (14) (15) (16) (17). There is also ongoing country research on PEN-Plus, a strategy to increase access to care for severe childhood NCDs in highly constrained health systems. (18) However, implementation of these interventions is only possible with an optimised health workforce.

This report presents key challenges and recommended solutions for optimising the health workforce and building its capacity to respond to the growing burden of NCDs, in line with increasing calls for multidisciplinary, team-based care that leaves no one behind.

METHODOLOGY

We intentionally focus on key points rather than striving for exhaustive coverage in each section. We acknowledge that a specialised health workforce is essential for providing high-quality integrated health services for NCDs, including managing referrals. PHC serves as the foundation for accessing specialists.

Additionally, we acknowledge the increasing significance of digital technologies and innovations. Therefore, throughout this report, we discuss how these technologies can assist policymakers in tackling health workforce challenges related to NCDs.

The report was created using a mixed-methods approach integrating desk research, key informant interviews (KIIs), expert insights, and best practice examples to illustrate viable solutions.

KEY STEPS

1. Conduct desk research to assess the status of the workforce and NCDs since 2019 and prepare for KIIs. Both published articles and grey literature were reviewed.
2. Create a list of key informants to ensure a well-rounded representation of perspectives from both global and local experts (***Annex***).
3. Conduct KIIs to validate the literature review findings and fill knowledge gaps.
4. Curate examples demonstrating successful practices in the health workforce, including NCD management at global, regional, and country levels, particularly those that have already been scaled or show potential for scaling. Special attention was given to identifying examples from low- and middle-income countries (LMICs); however, in the absence of LMIC examples, we highlight promising practices from high-income countries (HICs).
5. Convene an expert advisory group (EAG) to guide the report development. The EAG's role was to advise the team on technical direction and topic framing and support the team in identifying good practice examples. The members of the EAG included representatives from the World Bank, United for Global Mental Health, Community Health Worker Impact Coalition and the World Medical Association. WHO provided input at specific stages but was not part of the EAG.

Questions Guiding the Collection and Analysis of Information

1. What have been the main developments in the health workforce since 2019? Where are the opportunities and challenges concerning the supply and deployment of the current health workforce for NCDs? How do we frame these issues for action?
2. What are some emerging promising practices, including service delivery innovations in building and nurturing an optimal workforce for NCDs at the PHC level, focusing on LMICs? How can these good practices be scaled and leveraged by other countries?
3. What key messages related to the health workforce and NCDs should be highlighted for the UN HLM on NCDs in 2025?

The report is organised as follows. We present the main findings around our four-part optimisation framework: **Staffed, Skilled, Supported, and Sustainably financed.** We present promising global, regional, and country-led initiatives for each section. Then, we conclude with key advocacy asks.

PILLAR 1

STAFFED

Meet the global demand for health workers to deliver NCD care through population-based planning and policy making

Our health systems are facing a crisis-level shortage of workers, particularly in regard to managing the growing NCD burden. Shortages are projected to reach 11.1 million by 2030, (8) but this gap is not evenly distributed around the globe – there are stark disparities between and within countries.

Medical Doctor Liesse Florence Irakoze and nurse Rachel Nirere from the Masaka District Hospital (Rwanda) with Nagoya Gideon from Partners in Health/NCDI Network. The hospital provides decentralised services for type 1 diabetes, childhood heart disease, and sickle cell disease, in a scheme known as PEN-Plus, a complementary programme to PEN in low-resource settings. Implementation is supported by the NCDI Poverty Network.

The poorest nations have as little as one-tenth of the health workers as the richest ones, with some of the poorest nations also having the highest need for NCD care. This is the case for many countries in regions such as Sub-Saharan Africa and South Asia, (19) where the size of the health workforce does not match the health needs of the population. There are also disparities within countries, with different population groups being underserved by the health workforce, namely rural populations.

Gaps result from complex supply-demand factors, so there is no one-size-fits-all approach for all countries, but a key factor driving disparities is migration of health workers from lower to higher income countries.

Policies must be implemented to address this migration, as well as a growing preference to serve urban areas. As stated by experts and key informants, these shortages increase disparities in access to care for NCDs and exacerbate health inequities, leading to inadequate preventive care, delayed diagnosis and treatment, poor management of chronic conditions, reduced quality of care, and increased cost of managing NCDs.

Meeting the global demand for health workers to deliver NCD care must be achieved through population-based planning and policy making, with each country developing the appropriate data-driven and evidence-based approach, drawing upon global, regional and country good practices

The following section outlines strategies for addressing health workforce shortages by effectively recruiting, deploying, and retaining health workers to mitigate migration and eliminate urban-rural disparities. It also provides guidance for countries to develop data-driven health workforce planning.

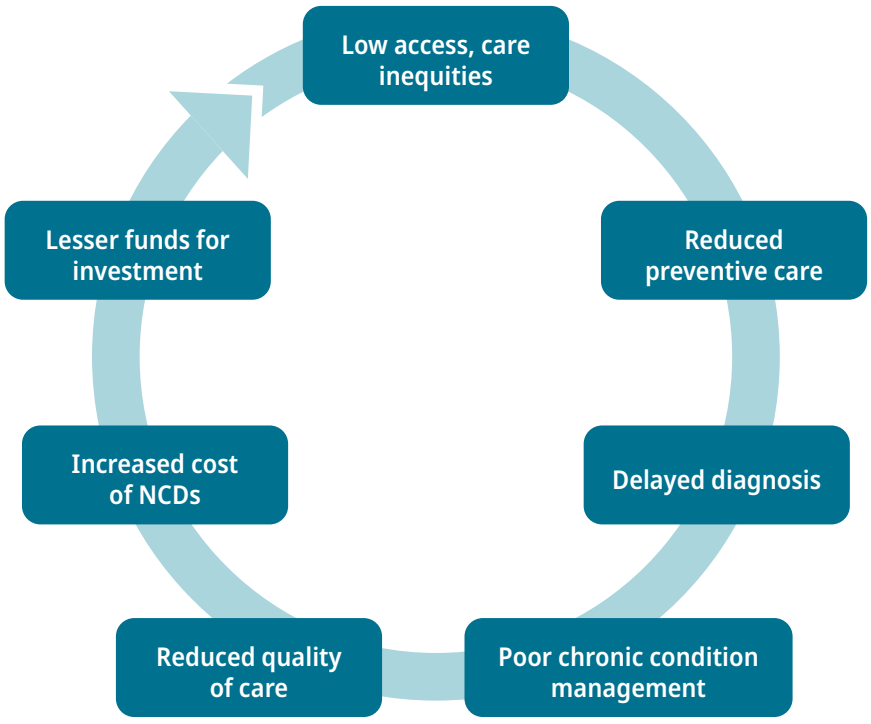

Figure 1. Impact of the health workforce shortage on NCD care

IMPLEMENTATION
APPROACH 1

Addressing international migration through global and national interventions

Despite the existence of various global and regional frameworks to regulate the migration of the health workforce, including both the PHC workforce and NCD specialists, approximately 15% of health care workers are currently employed outside of their country of birth or first professional qualifications country. (20) Health workforce migration around the world follows the same flow – from lower to higher income countries. Unemployment or underemployment, dissatisfaction with remuneration and benefits, and gaps in health infrastructure, diagnostics, and medicine, are all factors found to trigger workforce migration. (21)

Research has shown that the impact of COVID-19 and widespread disruptions to health services has also resulted in increased international recruitment of health workers. Frameworks like the WHO Global Code of Practice on the International Recruitment of Health Personnel, can drive multi-country action and promote cross-country accountability, yet do not explicitly prohibit the active recruitment of healthcare workers from lower-income countries to higher-income countries, referred to in the Bridgetown Declaration as 'reverse foreign aid'. (20) (22)

For instance, the proportion of foreign-trained nurses now reaches 70% to 80% in some high-income Gulf countries. For the countries losing health workers, this contributes to worse population health outcomes, negatively impacts on health systems and results in slowed or even reversed progress towards achieving UHC and health security. About 10-12% of foreign-trained doctors and nurses are from countries deemed vulnerable by WHO due to already insufficient numbers of indigenous health workers. (23) Many of the countries most severely affected are in Africa. Rwanda for instance – despite having made significant progress in strengthening its health workforce – continues to face high health workforce attrition. Nine percent of all health professionals leave the industry annually, and 13% of all health professionals and 22% of medical specialists who graduated in Rwanda between 2000 and 2016 have left the country. (24) (25)

Bilateral agreements on workforce recruitment between HICs and LMICs should support skills-sharing initiatives where healthcare workers can return and contribute to their country´s health sector and encourage knowledge exchanges. Countries must also address the causes of international migration of the workforce attrition internally, taking a holistic approach that focuses on training, deployment, and retention, and addresses multiple dimensions identified through country-specific analysis (***see section on HLMA***). Strategies are typically focused on improving working and living conditions for the health workforce, offering opportunities for professional development, and leveraging the potential of non-physician clinicians and community health workers (CHWs) to expand the health workforce. Although these professionals are making significant contributions to strengthening health systems and improving access to care in many countries around the world, the credentials that can be awarded to them are typically recognised only within their respective countries. (26)

IMPLEMENTATION EXAMPLES

Rwanda has launched '4x4 health reforms', which recognise the need for quadrupling the number of health workers in the country within the next four years to meet the WHO recommendation of at least four healthcare professionals per 1,000 population density. Rwanda is tackling the migration problem by building a robust healthcare system that trains local professionals through partnerships with international universities and organisations. The number of medical students at the University of Rwanda's College of Medicine and Health Sciences grew from 300 in 2019 to over 450 in 2023. Rwanda is now focusing on offering competitive wages and career development opportunities, which is expected to further reduce the incentive to emigrate. (24) (25)

The **Nigerian** government has announced a National Policy on Health Workforce Migration to address the growing issue. The policy takes a holistic approach and includes supporting managed migration; adopting telemedicine so that the Nigerian workforce has access to high-quality advice and mentoring, especially from Nigerian doctors working overseas; improving workforce retention, particularly in rural areas, through various incentives; and strategic workforce planning to address HWF migration through an evidence-based approach aiming for medium-term results. (27)

IMPLEMENTATION
APPROACH 2

Addressing geographic imbalances through rural recruitment, deployment and retention

Another critical policy area to address is the lack of health workers in rural areas. Despite rapid urbanisation, over half of the world's population lives in rural areas, with Africa and Asia hosting nearly 90% of the world's rural populations. (28) Rural populations also include over 80% of the world's extremely poor.

Yet 76% of doctors and 62% of nurses serve urban populations, widening disparities in access to care and reducing health equity. (29) LMICs are most affected, but this global challenge affects HICs like Canada and Australia as well. (30) (31)

Countries have also adopted multiple innovative approaches to address this problem. Generally, strategies must be holistic and touch upon education, regulation, financial incentives, and professional support, as outlined in the WHO Framework. (32) Research has found that it is more likely that professionals will stay in a rural area if they have been recruited from the local community. (30) However, this requires proactive recruitment, education and financial incentive strategies. (33)

IMPLEMENTATION EXAMPLES

Australia has created a professional rural recruitment and retention pathway—the National Rural Generalist Pathway. One-third of 2025's cohort of future General Practitioners are in training for Rural Generalism, indicating an essential milestone in deploying general practitioners to rural and remote areas of Australia. (34) The Rural Health Workforce Incentive Scheme provides financial bonuses to rural doctors. (35)

Mariwala Health Initiative (MHI) works with the power of community to support people living with mental health disorders in rural communities of **Gujarat state in western India**. Volunteers are recruited from the community and have various roles: to raise awareness in the community about mental health issues; to identify individuals experiencing distress and provide counselling sessions; to refer people who may have a severe mental health condition to the public mental health service; and to support people in need with access to social care assistance. The benefits are clear - one review of the MHI programme showed that serious cases of mental health distress had fallen by 80 per cent after three months. (36)

Brazil´s Mais Médicos (More Doctors) Program recruits doctors to work in underserved areas. (37). Launched in 2013, the program reached 48 million people in its first year, and by 2024, Mais Médicos had recruited 28,000 doctors across 4547 municipalities, reaching 73 million people in Brazil, covering all Indigenous areas and remote regions.

Rwanda is tackling urban-rural gaps by incorporating strategies to improve retention in rural and underserved areas, such as targeting admissions policies, locating education facilities in rural areas, providing targeted support (financial, academic, and social), and supplementing in-person opportunities with digital tools. (38)

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The Community Cure is a mini-film about the Mariwala Health Initiative, which trains community health workers to provide mental health support in rural India.

IMPLEMENTATION APPROACH 3

Using data to develop targeted national policies

Health workforce gaps arise from complex demand and supply-side factors, making in-depth quantitative analysis of health workers and population needs crucial. Robust data and evidence are the basis for developing targeted national workforce strategies. Understanding the deployment, retention, and skill mix of recent graduates and existing workers is vital for health workforce optimisation.

WHO has created a standardised framework for analysing workforce gaps and provides training and technical support to countries for conducting Health Labour Market Analyses (HLMA), which are useful to gain insight into population needs including the shifting NCD burden and formulate costed plans to address identified gaps. (9)

The analyses facilitate country efforts to evaluate fiscal space, quantify the return on investment of health workers, assess the national skill mix and workload, project future labour demand and need and strengthen strategic multisectoral planning and policy making.

Conducting an HLMA can help countries develop holistic solutions, including tackling international migration and shortages in rural areas, as well as paradoxical challenges such as unemployment and under-employment despite workforce availability, sometimes called "brain wastage".[III] (39) In countries where an HLMA has been undertaken, the results have been comprehensive and have led to policy changes, indicating it as a targeted implementation approach to drive government action.

IMPLEMENTATION EXAMPLES

In **India**, WHO has conducted several HLMAs, including in some of the poorest and most rural states, where significant workforce gaps exist, including at the PHC level. Based on a request from the Chhattisgarh state government, WHO, in collaboration with a local technical organisation, applied the HLMA framework to build evidence on the workforce and develop policy recommendations.

Chhattisgarh, with a population of 29 million, is one of the poorest states in India. Its population is predominantly rural and tribal. The health workforce had high and rising vacancy rates alongside rising numbers of qualified health workers, referred to as 'brain wastage'. The HLMA evaluates essential policy topics such as task sharing, upskilling general practitioners, and the role of nurses and community health workers. Based on the analysis, country experts and WHO developed recommendations to address gaps in specialists, medical doctors, nurses, and community health officers. Over the past 3 years since the HLMA began, the public sector has absorbed an additional 4547 health workers (including 1141 doctors). This translates into a two-fold increase in specialists; 51% in undergraduate doctors and 47% in nurses contributing to an increase in UHC access (40) (41).

Tajikistan is reforming its health system to focus on PHC, rather than specialised care. The Ministry of Health and WHO initiated an HLMA to answer policy questions related to the PHC workforce. The HLMA showed that there has been an overall increase in the health workforce over the past seven years. However, there was a significant shortage of general practitioners, with the most severe shortages in rural and mountainous regions of the country. Despite increases in the HWF overall, the number of GPs had gone down, along with the number of enrolments and graduates in general practice medicine.GPs also constituted the highest proportion of specialists who migrated to other countries.

The HLMA revealed that the attraction of doctors to specialised care was undermining general practice medicine and PHC more broadly. The policy considerations arising from the HLMA have enhanced evidence-based strategies for the retention and recruitment of the PHC workforce. These developments have led to medical and nursing education advancements and increased investments in the PHC workforce, particularly in general practice medicine. (42)

III In 2023, Uganda had 108,208 registered nurses with just 87,618 of them formally employed. This is just one example of the widespread issue of brain waste. In Niger, for instance, between 2010 and 2014, 55% of health graduates were unable to find employment in the health sector, and in Kenya, 27,243 health workers were either unemployed or underemployed in 2021. This type of in-country brain waste is due to the mismatch between the number and type of health workers trained, where they are from and where they are trained, and where the open jobs are in both the public and private sectors. This mismatch often occurs due to pressure policymakers receive to expand schools in major metropolitan areas, which usually have enough primary care workers and a lack of understanding that health workers from urban areas cannot be incentivised to work in rural areas. ***See source (33).***

PILLAR 2

SKILLED

Providing the skills to manage the NCD burden

Globally, there are concerns about the lack of a sufficiently trained public health workforce to prevent, treat and manage the growing NCD burden. Primary healthcare is usually the first point of contact that people have with their healthcare system, and ideally should provide comprehensive, affordable, community-based care.

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Crucially, in the context of NCDs, PHC provides whole-person care for health needs throughout the entire course of a person's life, and not just for a set of specific diseases. This is especially relevant for people living with NCDs, as NCDs are chronic in nature, requiring long-term or lifelong care, and are often accompanied by comorbidity risks.

In many LMICs, PHC focuses on vertical programs for infectious diseases and maternal and child health (43). Until recently, this approach corresponded to the global disease burden. But over the past few decades, the disease burden has shifted towards NCDs (44) and PHC teams must be equipped to prevent and manage these conditions. However, in many LMICs, pre- and in-service training does not cover NCDs. (45) (46).

Countries must identify their own specific HWF training needs through data-based evaluation, such as a Health Labour Market Analyses (***see page 16***). Along with a 'critical mass' of PHC workers, a continuous system of care including prompt referrals to secondary and tertiary care is essential for managing NCDs. Therefore, in addition to having the right numbers, distribution and skills for the PHC workforce, NCD specialists are needed. There are significant gaps in NCD specialists between high and low-income countries.

Beyond having adequate numbers of trained health professionals at all levels, health systems must transition to multidisciplinary, team-based care, improving efficiencies and ensuring all health professionals time and skills are being maximised. This health workforce optimisation will eventually provide the conditions most conducive to staff wellbeing and supports workers to provide the highest-quality care possible for patients seeking services.

For example:

The Lancet Commission set the target for surgeons, anesthesiologists, and obstetricians to have a density of 20–40 per 100,000 people. In many African countries, there is a total of 0 surgeons per 100,000 people. The number is only slightly higher in many Southeast Asia and parts of Latin America (47). In high-resource settings, there is a median neurological workforce of 7.1 neurologists per 100,000 people. In comparison, low-income countries have 0.1 neurologists per 100,000 people. In middle-income countries, the number can range from 1.4 to 3.1 neurologists per 100,000 people. (48)

In high-resource settings, there is a median neurological workforce of 7.1 neurologists per 100,000 people. In comparison, low-income countries have 0.1 neurologists per 100,000 people. In middle-income countries, the number can range from 1.4 to 3.1 neurologists per 100,000 people. (48)

In some African countries, oncologists or radiologists are not available at all to treat cancer patients. A total of 34 African countries have no cancer workforce. (49) (50)

Based on a literature review, KIIs, and expert input, we identified the PHC workforce's training needs, including clinical skills, leadership, and management skills (***Table 1***). This skill gap is significant as it concerns not just the knowledge of particular NCDs but also cross-cutting skills such as patient education, empowering patients for better self-care, and the general management of long-term chronic diseases as opposed to episodic diseases.

SKILLS	EXAMPLES OF SKILL GAPS
Clinical skills and diagnostics	Many PHC workers lack training in diagnosis of common NCDs, which can lead to misdiagnoses or overreliance on referrals to secondary care. Skills in emergency and trauma response are also often underdeveloped, especially in rural or resource-limited settings, impacting the management of acute cases, such as cardiovascular events and strokes.
Community engagement and empowerment skills	PHC providers often lack community engagement and empowerment skills, which is a key part of educating communities on prevention, understanding cultural contexts, and promoting health behaviour changes.
Digital and technological proficiency	As health systems digitalise, the PHC workforce needs more training to use digital health records, telemedicine platforms, and telemedicine tools effectively.
Management and leadership skills	In many low-resource settings, PHC workers manage supplies and need more inventory management and procurement training. They also often have to develop health budgets and advocate for health financing.
Interdisciplinary and collaborative skills	Interdisciplinary collaboration skills are needed for cultivating team-based approaches that integrate PHC services with secondary and tertiary care.

Table 1. Examples of Skill Gaps among the Primary Health Care Workforce to Tackle NCDs

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With its philosophy of "teach the teachers first", the Fred Hollows Foundation has helped establish a legacy of lasting and affordable eye health care for Vietnam. Learn more in the minifilm **Setting Sights on Better Eye Health.**

IMPLEMENTATION
APPROACH 1

Upskilling nurses, pharmacists and community health workers

A large portion of NCD care can be managed at PHC level, and an appropriately skilled and deployed PHC workforce can optimise the care and management of NCDs. This shift to primary level care must take place together with a shift in health systems to awareness, prevention and early detection. Most people, especially in LMICs, only seek NCD care once a disease has reached an advanced stage and symptoms are severe enough to disrupt daily life. By this point, secondary or tertiary level care is often required, and treatment is more complex and costly.

By training and providing support to nurses, community health workers and community pharmacists to manage NCD prevention and early-stage treatment, with efficient referral pathways for more advanced NCDs requiring more complex care, the need for specialised health workers at secondary and tertiary level is reduced and health outcomes for patients are improved. Furthermore, PHC is normally the most affordable level of healthcare, and ideally the most community-based, which contributes to reducing health inequities and access barriers due to the social determinants of health such as socioeconomic status and geographic location. Given the global shortages in the health workforce, together with tightly stretched health budgets in most countries, this shift to a multidisciplinary, team-based model of PHC is a practical approach.

The team's size and composition should be tailored to meet the specific health needs of the local population, based on population data and taking available resources into account. The skill mix and efficient collaboration among team members is more important than their formal titles. Task-sharing, creating new roles, and expanding scopes of practice have been commonly implemented in various settings, including resource-constrained environments, particularly in communities facing critical shortages, maldistribution of healthcare personnel, and conflict or post-conflict situations. (51)

Nurses

Nurses represent the largest group of healthcare professionals in most healthcare systems. (52) Nurse-led and supported PHC models are sometimes used as an innovative PHC model and are becoming important, especially for underserved populations. (53) Scoping reviews indicate that trained nurses, including nurse practitioners and registered nurses, are likely to provide care of equal quality to primary care doctors for ongoing and urgent physical complaints, as well as chronic conditions, achieving similar or better patient outcomes.

Nurse-led PHC reforms must be developed in close collaboration with medical doctors and nurses to ensure that nurses receive sufficient remuneration, supervision and support. (54) LMICs do not have many examples of developing and supporting nursing professionals as a PHC policy focus, and more research to evaluate the potential and implementation details would be useful for LMIC policymakers.

Community health workers (CHWs)

CHWs are proven to be highly effective members of the health workforce in LMICs, serving as a bridge to the community and increasing community-member trust in the health system. As such, CHWs are especially well-positioned to educate communities and individuals on NCD prevention, provide NCD screening services, and support patients in making behavioural modifications and treatment adherence choices that improve NCD care outcomes. The empowerment and strategic deployment of CHWs within the multidisciplinary care team model is therefore central to the efficacy, sustainability, and acceptability of the health workforce. CHWs are widely used in LMICs and have been essential in bringing care to rural and otherwise underserved populations. Emerging research suggests that CHWs could also play a valuable role supporting provision of NCD care in high-income countries. (55)

CHWs must be integrated into the health workforce through several pathways

Establishing a conducive policy environment and training curricula to equip CHWs with appropriate knowledge and skills; formulating accessible national NCD policies and strategies that include adequate resources to support effective deployment; ascertaining a solid commitment from governments and targeted advocacy to allocate sufficient resources towards community health strategies and structures for CHW retention. Adequate remuneration is equally crucial since CHWs are often treated as volunteer workers. Integration is a serious implementation process that requires continuous funding, monitoring, evaluation, and process improvements.

The voices of CHWs must be integrated into the policy process (***see page 22 – Voices from the Field***).

Community pharmacists

In LMICs, where there are gaps in PHC services, community pharmacists are often the first line of care for individuals. Their role has evolved, and they frequently serve as patient counsellors and educators, actively participating in immunisation programs, chronic disease management, and health screenings. They are essential for individualised care by tailoring medication plans to patients' unique needs, including age, comorbidities, and lifestyle factors. (56) (57) According to a survey conducted by the International Pharmaceutical Federation, there are approximately 1.8 million community pharmacists across 74 countries globally, catering to approximately 54% of the global population. (58)

Most community pharmacists operate in the private sector, so working with community pharmacists often translates into public-private or private-private partnerships to advance PHC goals. Despite their importance in LMICs, most of the examples of integration of community pharmacists into PHC are from HICs. While there are plenty of examples in LMICs, such as South African pharmacies offering HIV testing and counselling, few have been monitored and evaluated.

IMPLEMENTATION EXAMPLES

Residents of rural **Australia** and vulnerable populations (e.g. indigenous, the homeless) often face limited access to health services and experience worse health outcomes than those living in metropolitan areas. In 2000, nurse practitioners were introduced as a solution to alleviate strain on the healthcare system, tackle health workforce shortages, and enhance access to medical care for rural communities. (59) They are crucial in strengthening healthcare systems for rural and vulnerable populations in Australia, improving patient outcomes, and ensuring that people in remote areas receive high-quality, timely medical care. Ensuring their success requires continuous evaluations, policy finetuning, funding and professional support. (60) (61)

Unjani Clinics is an innovative network of nurse-led clinics in **South Africa**. Professional nurses perform routine medical tasks for PHC provision as opposed to physicians. Based on the idea of a 'social franchise', the nurses also assume full responsibility for running the clinics (financially and from an operational perspective), eventually becoming owners of the physical clinic. The head office of this nonprofit organisation oversees the operations of more than 90 independent, for-profit PHC clinics. (62)

In **Kenya**, government policies support equitable access to comprehensive PHC. In this context, CHWs are employed to increase hypertension awareness, screening rates, and treatment literacy by equipping them with blood pressure monitors to conduct household screenings and integrating them at the facility level. CHWs are critical in ensuring clinical follow-up, including for NCD patients and linking patients to support groups. (63)

With **India's** population of 1.4 billion, 64 percent of whom live in rural areas, (64) delivering high-quality health services in rural regions is a key policy priority. Its government runs the world's largest community volunteer program, where CHWs, called Accredited Social Health Activists (ASHAs) serve as community-based care agents, primarily focused on linking health services to the community. They are recognised as essential members of the PHC team, delivering a broad range of services at the community level. Their responsibilities have been broadened from maternal and child health and communicable diseases to include newer areas such as emergency and trauma care, oral health, eye care, and chronic conditions like mental health, palliative care, and geriatric care. (65)

VOICES FROM THE FIELD

Community health workers on providing NCD prevention treatment and care in Kenya, Uganda and Zimbabwe

CHWs are taking on a growing role as a respected part of the health workforce, but there are challenges to be addressed. Any intervention integrating CHWs into health systems must include continuous monitoring and evaluation, and the meaningful engagement of CHWs themselves. The points below emerged from interviews conducted as part of this report's research, with CHWs in three Sub-Saharan Africa countries. The questions focused on task-sharing and the role of CHWs in providing comprehensive PHC.

- CHWs in the three countries provide NCD services, although the type of services varies considerably based on training. For example, in Uganda, there is still a need to train CHWs to provide NCD services so that CHWs can do what they can based on the knowledge they have gathered. In Kenya, CHWs have been provided with some training on NCD management. In Zimbabwe, there are structured Ministry of Health-led NCD training programmes for CHWs.
- CHWs in all three countries highlighted the very important role of continuous training in enabling them to deliver NCD services. The CHW in Zimbabwe noted that training must include support for travel, accommodation, and food. When CHWs have to cover these expenses out-of-pocket, it is a considerable strain for them.
- CHWs in all three countries noted a lack of essential equipment such as blood pressure machines and diabetes testing kits. They also lack mobile technology, which would enable them to improve their efficiency in task delivery and participate in online training programs.
- Doctors and nurses are still wary of the role of CHWs, and some feel that CHWs will take away their tasks. CHWs felt they helped doctors and nurses deliver on their programs and should be recognised.
- CHWs identified lack of a salary and a focus on voluntary support to be a significant problem.
- Working on malaria, TB, and HIV/AIDS is better since donors finance these programs. However, CHWs still do not receive consistent remuneration but rather a focus on performance-driven incentive payments, which are also sometimes not paid.
- These gaps must be addressed if CHWs have to deliver high-quality integrated PHC.



Conversation with Angeline Chikumba, CHW, Zimbabwe; Benard Otieno, CHW Advocate, Kenya; and Irene Tukashaba, CHW, Uganda. The Community Health Worker Impact Coalition facilitated the discussions.

IMPLEMENTATION
APPROACH 2

Country-led NCD-specific training

To develop and sustain a multidisciplinary, team-based healthcare model, capable of managing disease burdens including NCDs, continuous training needs to be made available and accessible. Delivering NCD training in LMICs faces several challenges, including overburdened health workers, making it difficult to release staff for training; lack of localised, up-to-date training materials relevant to the healthcare context; limited funding to invest in training; and a lack of standardised training programs, with trainings that may not align with national guidelines or PHC strategies.

Countries must develop a tailored approach to NCD training, based on needs and resources. Trainings must answer local needs according to the specific disease burden; an HLMA can be a valuable tool in this regard and can also help in strengthening or building public-private partnerships to mobilise financing for training. Support for training should also come from government policies that support NCD training integration into health systems, and institutional capacity for education in LMICs must be strengthened. (66)

In many LMICs, particularly in Africa, private sector partners support NCD training for the PHC workforce in collaboration with NGOs. These programs often included capacity building efforts like medicines access, infrastructure improvements, and digital health interventions. The implementation examples provided here reflect contributions by both private sector and NGO partners.

IMPLEMENTATION EXAMPLES

The **Palestinian territories** are facing a rapidly growing burden of NCDs. WHO implemented PEN Packages in the occupied Palestinian territories to integrate NCDs at the PHC level. A training-of-trainers programme was implemented for NCD trainers in the MOH, NCD supervisor training for one general practitioner and one nurse per district, and a supportive supervision program was implemented for PHC workers. In two years, all staff were trained, and NCD services at the PHC level were initiated, thereby curbing the need for referral to secondary services for NCD care. (67) (68)

The Pacific Islands have one of the highest burdens of NCDs in the world. Until recently, NCDs were not included in the undergraduate education curriculum. Academic Institutions in **Fiji** have integrated NCD prevention and control into undergraduate curricula for degrees related to medicine and health. A Master of Public Health (MPH) is offered, mainly focusing on NCDs. Students are encouraged to conduct research that leads to evidence-informed policymaking and advocacy. (68)

The **Healthy Heart Africa** (HHA) initiative, launched in 2014, aims to address Africa's growing burden of cardiovascular diseases. HHA provides healthcare workers mentorship, equipment, and training, enhancing their capacity to diagnose and manage hypertension. Since its inception, the program has trained over 9,000 healthcare workers and established more than 950 treatment facilities across the continent. (69)

The **EQUIP platform**, a joint WHO/UNICEF initiative, aims to enhance training quality and service delivery. It provides free competency assessment tools and e-learning courses to help governments and organisations deliver effective psychological support to adults and children in humanitarian and development contexts. These resources have been tested in countries like **Ethiopia**, **Jordan**, **Kenya**, **Lebanon**, **Nepal**, **Peru**, **Uganda**, and **Zambia**, showing training improvements. (70)

IMPLEMENTATION
APPROACH 3

Distance learning through digital and tele-training

Online programmes have successfully delivered continuing education to health workers in both high- and low-resource settings where the necessary technologies are available. Using e-learning technologies, such as discussion forums and online platforms for facilitated peer learning, could also improve the quality of multidisciplinary, collaborative learning and encourage interprofessional interactions. Self-directed learning allows participants to choose when and how to engage with the training material and tailor their learning experience to their needs, time constraints, and learning objectives. The competency domains of the health workforce required for integrated service delivery, namely people-centeredness, decision-making, communication, collaboration, evidence-informed practice and personal conduct, can be efficiently improved by employing e-learning for training and education. Most importantly, pre-service and continuing professional education is needed to prepare an interdisciplinary health workforce to prevent and control NCDs. (46)

Most importantly, pre-service and continuing professional education is needed to prepare an interdisciplinary health workforce to prevent and control NCDs. Given the increasing workload of healthcare workers, facilitating education access is imperative in providing funding for courses, allocating time for training during work hours, and authorising the use of office equipment to access e-courses. (46) The competency domains of the health workforce required for integrated service delivery, namely people-centeredness, decision-making, communication, collaboration, evidence-informed practice and personal conduct, can be efficiently improved by employing e-learning for training and education. (46)

Overcoming barriers to facilitate education access is imperative, which include difficulty accessing digital resources, the digital divide between HICs and LMICs and within countries, and the lack of participation of women and other underrepresented groups. Comprehensive evaluations of e-learning programs are needed to understand the effect of e-learning on health worker competencies and the quality of integrated care. Additionally, regulators should review the evidence on the effectiveness of e-learning and incorporate it in pre-service education programs.

IMPLEMENTATION EXAMPLES

WHO Europe training course on NCDs - Coordinated by the WHO European Office for the Prevention and Control of NCDs, this course is tailored for early and mid-career professionals, including researchers, policymakers, and postgraduate students. The curriculum comprises 15 modules, each lasting three hours, covering topics such as NCD surveillance, policy analysis, population-level prevention strategies, and data analysis. The course is conducted online and is free of charge for selected participants. (71)

NCD Academy - Developed by the American College of Cardiology in collaboration with the World Heart Federation and the NCD Alliance, the NCD Academy offers free online courses tailored for PHC providers. The curriculum encompasses various NCDs, including cardiovascular diseases, cancer, chronic respiratory diseases, diabetes, and mental health. Notably, the academy introduced a Health Equity and Social Determinants of Health course in 2023, emphasising the importance of equitable care in NCD prevention and treatment. Courses are accessible on-demand, allowing learners to progress at their own pace. (73)

Project ECHO (Extension for Community Healthcare Outcomes) is a global initiative to expand access to specialised healthcare knowledge, especially in underserved areas. Initially developed by the University of New Mexico, it uses a "hub-and-spoke" model to connect healthcare specialists (the hub) with community-based providers (the spokes) via tele-mentoring sessions. This approach supports preservice and in-service training for various health issues, including NCDs like diabetes, hypertension, cardiovascular disease, and cancer. The model emphasises interactive, case-based learning to build competencies; provides remote access to expert knowledge and opportunities for mentorship and professional development; fosters a collaborative learning environment; and improves cultural competence and contextual understanding with a focus on primary care and community-based solutions to NCDs. It also provides support for scaling its model in LMICs. (74)

Union for International Cancer Control (UICC) Global Breast Cancer Initiative foundational course is an online course providing foundational knowledge on the strategies that national programme managers, policy makers and multisectoral actors should follow in assessing, strengthening and scaling-up services for the early detection and management of breast cancer, following the WHO's **Global Breast Cancer Initiative** established in 2021. (75)

PILLAR 3

SUPPORTED

Creating a supportive environment for the mental health and wellbeing of the health workforce

A supportive environment for healthcare workers is a workplace that promotes their well-being, job satisfaction, and ability to provide quality patient care. It reduces burnout, improves job performance, and enhances patient outcomes (*Figure 2*). Some of the solutions already described, like increasing the number of health workers and shifting to team-based care and ensuring adequate pay, will help relieve some of the stresses that often accompany frontline health workers.

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More specific approaches are also needed, particularly to support the health workforce in emergency or humanitarian settings, as conflict, forced migration, extreme weather events and other crises occur more frequently around the world. More than one billion people live in fragile and conflict-affected settings globally, and health workers providing care need mental health support, along with the populations they serve. (76)

The health workforce needs and deserves a supportive professional environment. This should be delivered by improving working conditions generally and offering targeted interventions that support mental health.

Optimising workflows and ensuring that medical doctors, nurses, and community health workers can work effectively plays an essential role in delivering quality PHC and NCD care while motivating the workforce and managing their mental health, in any setting. Any intervention should also consider gender dimensions of HWF, as women make up 70% of HWF.

Interventions to support wellbeing, mental health and gender equality are more widely implemented in high-income countries, signalling a key gap to be addressed in LMICs.

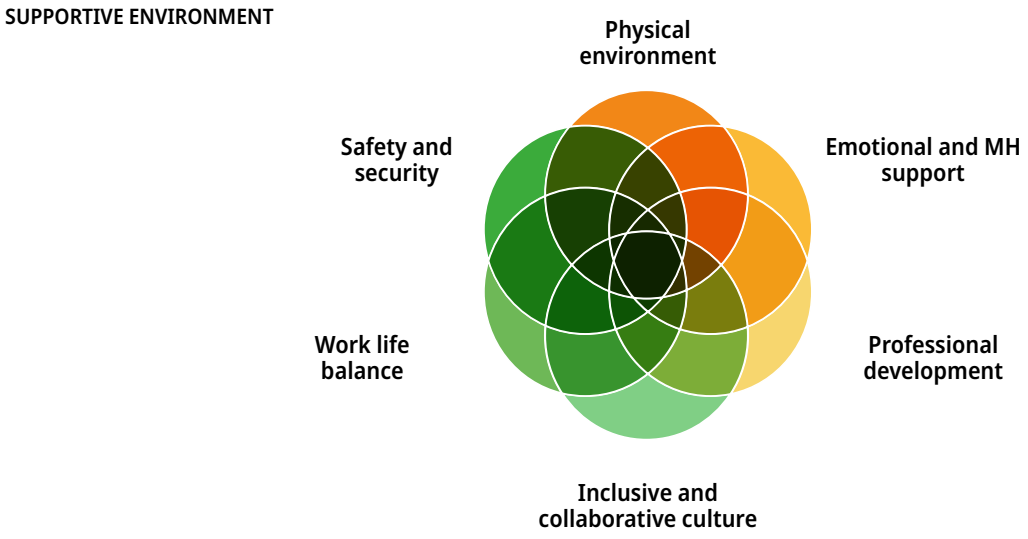

Figure 2. Components of a Supportive Environment for Healthcare Workers[IV]

IV Author representation based on literature review and key informant interviews.

IMPLEMENTATION
APPROACH 1

Improve working conditions

Flexibility in working hours, part-time contracts, and parental leave are widely used, especially in Europe. All of these methods are shown to reduce work-related stress and gender inequalities and improve the overall well-being of healthcare workers. However, they are not widely implemented, with most examples coming from the WHO Europe region. Even within Europe, there are gaps in implementation. For instance in the UK, nurses have the right to request flexible working conditions; but generally in the EU, these rights are limited to people with parental or carer responsibilities.

A multidisciplinary, team-based health workforce is in itself supportive to health workers and should incorporate targeted peer-to-peer support and relationship building between coworkers; and well as organisational and system level changes by focusing on wellbeing policies and cultural change. (77) This model of care also promotes the effective division of tasks, thus reducing the risk of overburdening certain team members. The use of digital tools can further reduce workload by improving the efficiency of services and allowing many people living with NCDs to self-manage their care, thus reducing the need for in-person visits with health professionals.

IMPLEMENTATION EXAMPLE

The CareWell model implemented in **Spain**, **Poland**, **Wales**, **Italy**, and **Croatia** uses digital platforms to improve care coordination and communication between care providers while supporting patient empowerment and home-based care delivery. It led to fewer visits to emergency departments and an increased use of primary care, thus improving efficiency and reducing workload. (78)

IMPLEMENTATION
APPROACH 2

Mental health support

The mental health of HWF requires special attention, as demonstrated during the COVID-19 pandemic. Long hours, heavy workloads, and inability to provide treatments needed contributed to higher than average levels of anxiety, depression and even suicide in health professionals than the general population. These mental health problems persist even in non-pandemic times; for instance in the UK, suicide rates are 24% higher than the national average, with female doctors at highest risk. (79)

Countries employ various interventions to improve the mental health of their healthcare workers, including targeted therapeutic and mental health prevention interventions. A systematic review on mental health interventions for healthcare workers revealed that interventions such as mindfulness and cognitive behavioural therapies are particularly useful in reducing stress, anxiety, and depression in medical personnel. Such interventions should be accompanied by system-based changes that ensure, among other things, suitable staffing levels and better working hours. (80)

Mental health interventions include the development of coping skills through resilience-building, help-seeking, and responding to stressors; mindfulness through directed meditation; health literacy awareness including stigma reduction; and reflection and relaxation through writing or artistic exercises, creativity, and conveying gratitude. (77)

Healthcare workers can also be provided with social support through various interventions, such as text messages that offer emotional and networking assistance. There have even been cases of having facility dogs to build companionship.

IMPLEMENTATION EXAMPLE

South Korea's Huddling Program consists of courses, self-care guidelines, and computerised training sessions to enhance Change-related Self-Efficacy (CSE) and group activities focusing on empowerment. It provides new nurses with the tools and confidence to cope with the demands of their jobs. (81)

IMPLEMENTATION
APPROACH 3

Addressing gender inequality in the workforce

Gender inequality can take different forms in the health sector, namely occupational segregation (horizontal or vertical) and gaps in leadership. (82) (83) Horizontal gender segregation denotes the unequal representation of genders across various occupations or sectors without regard to hierarchy or ranking. In comparison, vertical gender segregation refers to the disproportionate presence of a specific gender in higher-ranking positions within occupations where these roles offer more significance.

Gender segregation can be reduced by attracting men to work at the mid-level categories (e.g. nurses, CHWs, and medical technicians), training women for upward mobility within the health sector, organising job fairs to educate and encourage women to pursue Science, Technology, Engineering, and Mathematics (STEM) careers while investing in women-centric STEM programs via career counselling and internships, standardising working conditions by making temporary contracts into permanent ones and creating equitable work conditions by promoting collective pay agreements including regarding paid maternity leave. To clear ambiguity, transparency around wages must be established, legal instruments must be engaged against the gap and discrimination, and a framework to change cultural gender norms and damaging stereotypes must be employed.

IMPLEMENTATION EXAMPLE

Germany has implemented a rule that requires health enterprises with 200 or more wage employees to disclose the earnings of their employees when requested by at least one of them. Similar instruments were implemented in **France**, **Iceland**, **Canada**, **Spain** and the **United Kingdom**. Other interventions include a collection of sector-specific wage data and regular analysis to assess working conditions and monitor the pay gap, the formalisation of informal jobs to improve working conditions and build system resilience, the use of social dialogue through collective bargaining, and the reduction of gender segregation through concrete country-specific policy action. (82)

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PILLAR 4

SUSTAINABLY FINANCED

Ensuring adequate and sustainable resources for the health workforce

Each of the three pillars previously described: present, skilled, and supported – is contingent upon adequate and sustainable financing for the HWF. Without financing, none of this is possible. Securing adequate funding for NCD care and the health workforce is a chronic challenge, and there are wide disparities in spending between and within WHO regions, as well as in funding for types of health personnel, with primary health care practitioners generally underfunded in most countries.

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In recent years, the NCD community has made a conscious shift from talking about health expenditure to talking about health investment, but financing for NCDs remains a major gap, especially in LMICs where the resources to adequately address NCDs are simply not available. Funding for the HWF and NCDs comes from government resources, external funding, philanthropic donors, and private sector. External health and development aid has historically been important to health systems in LMICs, but with widespread funding cuts and growing demands from other global priorities, the health financing landscape is increasingly perilous.

Regardless of where financing is sourced, there are wide disparities in spending on health between and within WHO regions, as well as in funding for types of health personnel, with primary health care practitioners generally underfunded in most countries. But funding is needed both horizontally for integrated PHC and vertically for specific NCD interventions and upskilling. This requires targeted resource allocation to meet each country's urgent challenges and align with specific workforce development needs.

The Second WHO—World Bank Health Financing Dialogue on NCDs and Mental Health in June 2024 emphasised health financing for the workforce as a crucial gap that needs a data-driven approach. An ongoing analysis aims to estimate global health financing needs to support a robust workforce for NCDs, assist countries, and inform potential funders. (84) Countries can draw upon many good practice examples to make an investment case for HWF. Strong monitoring and evaluation to show results will further support resource mobilisation, including from innovative financing.

Securing funding for a high-quality workforce is essential for effectively preparing health systems to tackle NCDs. On the other hand, insufficient funding has spillover effects on all aspects of the workforce, including contributing to a shortage of healthcare workers, motivating migration of the workforce from low-resource to high-resource settings, limiting workforce retention due to low wages, and reducing training and capacity building.

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IMPLEMENTATION
APPROACH 1

Horizontal investments for PHC

Horizontal investments require robust country-level data, a strategic plan with a budget and considerable investments over a 5 – to 10-year period. They aim to make systemic changes to health systems, by advancing towards multi-disciplinary team-based care that leaves no one behind.

Interventions can be broadly grouped into three types of strategies. One is to invest in order to increase the quantity of available health workers through recruitment and training, with incentives to fill gaps in underserved areas such as rural communities; another is to invest in in training and education of health workers to support shifting towards preventative primary care and early diagnosis of NCDs; and the third aims to improve retention through labour market interventions and protecting, supporting and effectively managing the health workforce. (85)

All of these intervention types require an excellent understanding of country-level push and pull factors and gaps. Therefore, to address these elements, countries must conduct an HLMA and gather deep-dive data on diverse factors, such as gender gaps and drivers of for low workforce retention. Once this data is available, it needs to be converted into costed plans and made actionable through budget submission and tracking. In countries that are high recipients of development assistance for health, the good practice would be to pool public, external and private financing to drive a unified approach to building the PHC workforce. ***Figure 3*** shows a framework for action that was developed for this report.

IMPLEMENTATION EXAMPLE

In 2016, a Ministry of Health analysis in **Benin** highlighted severe shortages and uneven distribution of healthcare professionals across different regions. (85) In response, the government made improving the health workforce a key part of its reforms, supported by a dedicated committee with representatives from various government departments to develop and cost an investment plan. With co-financing from the Islamic Development Bank and support from the Global Fund, a five-year program was launched in 2021. It includes recruiting and training 400 doctors, 400 nurses, and midwives, along with 600 health assistants for rural areas to provide community-based health and nutrition services, and deploying over 4000 community health workers to deliver home-based health and nutrition services.

The sustainability of the project is ensured through public–private partnerships. For example, at the end of their 2-year contract, general practitioners can establish private practices in remote and underserved areas and pursue further training to specialize in fields prioritized by the Ministry, in order to address long-term shortages.

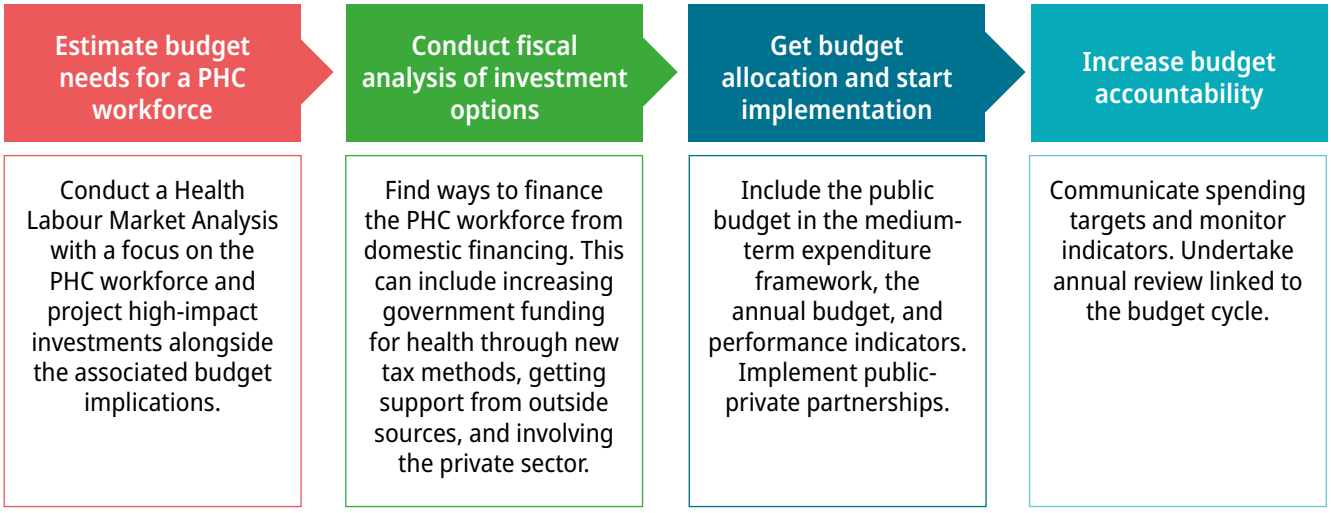

Figure 3. Data-driven investment

IMPLEMENTATION
APPROACH 2

Vertical investments for NCDs

Vertical investments in NCD competency can be mobilised faster than horizontal investments for PHC. They can provide a source of catalytic investment for building NCD training programs in collaboration with the government and local private sector, or digital infrastructure investments working with the private and philanthropic sectors. However, vertical investments are most sustainable when embedded in a robust country-led program, with clear performance indicators and evaluation of progress.

Ensuring that the PHC workforce is equipped to tackle NCDs requires dedicated financing for vertical integration of NCD training programs. Several LMICs are financing the integration of NCDs into health workforce training and competency building. One of the learnings from these experiences is the importance of government policy leadership on NCDs, and creating government-led implementation frameworks that private sector partners and external agencies can fund through pooling resources.

IMPLEMENTATION EXAMPLES

Rwanda employs a multifaceted approach to finance the prevention and management of NCDs, integrating government funding, community-based health insurance, and international partnership management. The Ministry of Health has expanded the PEN-Plus model nationwide, training hundreds of health workers to diagnose and treat severe NCDs. This training is in partnership with the NCD Poverty Network and Partners in Health, which also provide monetary and non-monetary support (through the time of the trained specialist) (86). The training is part of a broader strategy of the government to integrate NCDs into the health system, including through innovative financing.

Ethiopia has funded its NCD expansion program through a combination of domestic resources, international partnerships, and grants from global health organisations. Key components include support from international agencies such as WHO, the United Nations Development Programme (UNDP), and partnerships with various NGOs to strengthen local health systems and improve NCD care infrastructure. Additionally, programs like those led by the Tropical Health and Education Trust (THET- now called Global Health Partnerships) and Health Poverty Action, funded by the private sector, focus on delivering essential NCD medications and building healthcare capacity at the primary care level in multiple Ethiopian regions. (87)

Ethiopia also benefits from research grants, such as the €4 million Horizon Europe grant awarded to the ENABLE consortium. This project, coordinated by the Norwegian Institute of Public Health and in collaboration with Ethiopian health institutions, is focused on promoting healthy lifestyles to reduce NCD risks and aims to improve community health practices through local interventions, digital tools, and evidence-based health strategies. (88) Furthermore, Ethiopia's Health Extension Program and decentralized healthcare model have enabled greater community outreach, with health centres and health workers actively engaged in NCD prevention and management efforts across urban and rural areas. (89)

In **Kenya**, the AMPATH Global NCD programme leverages existing PHC structures to expand care models for diabetes and hypertension, strengthening referral systems and establishing robust monitoring and evaluation frameworks. This collaborative approach enhances the quality of chronic disease care and fosters sustainable health system improvements. (90)

IMPLEMENTATION
APPROACH 3

Sourcing sustainable financing

Countries need to leverage multiple financing sources and solutions for NCDs, depending on their disease burdens and epidemiological trends, fiscal capacity, existing donor relationships, and other factors depending on their specific context. The result will be a combination of financing for NCDs, including development aid for LMICs, philanthropic financing, government financing, and private financing. (91)

Development aid for health has historically played an important role in health systems including the health workforce in LMICs. A study analysing data from IHME and OECD estimates that donor contributions for workforce initiatives exceeded $4 billion in 2020, partly fueled by the demands brought on by the COVID-19 pandemic. (92) However, as development aid become less reliable as a source of health financing, there is growing consensus among policymakers in LMICs that governments must safeguard their health systems with financing from more sustainable sources such as domestic resource mobilization and public-private partnerships.

Philanthropic financing contributes significantly to global health workforce investments. Their support is channeled into programs that improve PHC training, infrastructure, and the development of health information systems. For example, in 2023, the Bill & Melinda Gates Foundation allocated $76 million to PHC initiatives, an increase from the $43 million dedicated in 2022. (93) The Leona M. and Harry B. Helmsley Charitable Trust has been a major supporter of type 1 diabetes programs in LMICs, including through training for health and care workers. (94)

Government financing through allocation of domestic resources is increasingly recognised as the one of the most sustainable financing options, provided that sufficient resources are mobilised. There are many best practice policies to support resource mobilisation for health, such as taxation of health harming goods including tobacco and alcohol, removal of subsidies often awarded to industries like fossil fuels and tobacco, and pooling of funds from various sectors to address gaps in the health workforce. The implementation of such policies is essential for LMICs to achieve the health systems optimisation and sustainability, including a health workforce that is able to manage the NCD burden.

World Bank data from 2021 shows (*Table 2*) that government allocation per capita for health varies significantly across countries. Low-income countries are severely constrained even if they want to improve workforce policies. In this cases, a comprehensive strategy for domestic resource mobilisation is needed.

Private sector financing through public-private partnerships (PPPs) are gaining importance not only in providing financing but also expertise, technology, and access to medicines. For instance, the pharmaceutical and medical devices sector has significantly contributed to NCD training. PPPs can also be an effective means of making the supply of NCD-related public goods and NCD services more reliable and affordable, while complementing government resources. If properly designed and managed, these can offer a way for governments, development actors and the private sector to pool resources and work together for efficiency. (91)

Economic Level	Year	Government spending per capita(US$ current)
High Income	2021	3839.65
Upper Middle Income	2021	311.64
Middle Income	2021	166.18
Lower Middle Income	2021	31.19
Low-Income	2021	8.09

Table 2. Government spending on health, per capita (current USD), World Bank 2025

IMPLEMENTATION EXAMPLES

Kenya has benefitted significantly from public-private partnerships. For example, in regions prone to natural disasters, such as Tana River and Kilifi counties, the Kenya Red Cross and the Danish Red Cross, supported by the private sector, have implemented projects to integrate NCD care into emergency preparedness and response. These initiatives have developed tools to assess NCD needs, trained health professionals in managing NCDs during emergencies, and adapted the WHO NCD Kit for local use. These efforts ensure the continuity of NCD services during crises, benefiting both healthcare providers and patients. (95)

India's NCD training program for community health workers - known in the country as Accredited Social Health Activists (ASHAs) - involves collaboration between national and state governments, local bodies, and international partners. This approach ensures the effective mobilisation of funds for training ASHAs in NCD prevention and management. The National Health Mission (NHM) includes the National Rural Health Mission and the National Urban Health Mission (NUHM) and pools resources from national and state budgets. At the state level, additional funding mechanisms are employed. For example, in the southern state of Kerala, local self-governments allocate their funds, alongside NHM contributions, to finance NCD training for ASHAs. One of the learnings from state and local government financing is the need to sustain support at times of political change. (96) International organizations, like UNDP, collaborate with the Indian government to enhance NCD initiatives by providing technical assistance to the Ministry of Health and Family Welfare. (97)

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CONCLUSION

This policy research report aimed to evaluate the current global situation of the health care workforce to accelerate action on non-communicable diseases (NCDs). We find that some of the countries with the fastest-growing NCD burden are experiencing the most severe workforce shortages, including both primary health care workers and specialists.

The reasons behind workforce shortages are complex and reflect many demand- and supply-side factors, such as low availability of training institutions, undesirable working conditions, and insufficient funds allocated to the health care workforce. In addition, significant gaps in skills, workforce distribution, financial resources, and social factors such as lack of mental health support and gender inequalities further hinder efforts to build a capable and resilient workforce. Addressing these interconnected issues is essential to ensuring that the health workforce can effectively manage the prevention, diagnosis, and treatment of NCDs and improve patient outcomes.

The framework developed in this report—Staffed, Skilled, Supported, and Sustainably Financed—provides a roadmap for overcoming these challenges. By ensuring that the workforce is adequately deployed, equipped with the necessary competencies, supported in their roles, and properly financed, countries can strengthen their health systems and improve prevention, diagnosis and care for people at risk of or living with NCDs.

To address these challenges, countries must implement comprehensive strategies that focus on several **key areas**:

First, regulating the migration of healthcare workers towards higher-income countries is essential. This can be achieved through bilateral agreements that support skill-sharing initiatives while prioritizing in-country training and improving working and living conditions for health workers, particularly in rural and underserved regions. Data-driven workforce planning is also essential to assess and address local needs and resources.

Second, primary healthcare workers must be adequately trained to prevent, detect, and treat NCDs. Tailored training programs for nurses, community pharmacists, and community health workers, combined with robust referral pathways to other levels of care, will reduce the need for specialised health workers, thus improving efficiency and affordability. Leveraging digital tools for distance learning can also expand the workforce's capacity without overburdening existing resources.

Third, supportive work environments are key for retaining a motivated and effective workforce. Reducing burnout, promoting gender equality, and fostering job satisfaction are key. This can be accomplished by cultivating peer support, focusing on team-based approaches, and implementing organizational and system-level changes that encourage collaboration and reduce stress. Mental health support is also important, especially in emergency and humanitarian settings.

Fourth, securing adequate financing is crucial to scaling these innovations. Investments should focus on increasing the quantity, quality, and diversity of healthcare workers through education, optimizing workforce utilization through primary care, skill-mix reforms, and digital technologies, and improving retention through labor market reforms that protect and support healthcare workers.

The following policy recommendations reflect these priorities.

POLICY RECOMMENDATIONS

for strengthening the health workforce for NCDs

The following policy recommendations are grouped by pillar, but due to their interconnected nature, many of themcan bring benefits to more than one pillar.

STAFFED

Meeting the global demand for health workers to deliver NCD care must be achieved through population-based planning and policy making, with each country developing the appropriate data-driven and evidence-based approach, drawing upon global, regional and country good practices.

The deficiencies in health workforce availability, distribution and quality need to be addressed through an evidence-informed approach accounting for health labor dynamics specific to each country.

We recommend Member States to:

- **Complete a WHO Health Labor Market Analysis (HLMA)** to gain insight into population needs and formulate costed plans to address identified gaps. Conducting an HLMA can help countries to design the most effective health labour market policies needed to address the root causes of workforce challenges, including international migration, shortages in rural areas, and 'brain wastage', and meet the growing demand for health workers.
- **Strengthen national surveillance and monitoring systems** to collect and consolidate a core set of data on human resources for health, for annual reporting to the Global Health Observatory.
- **Plan health service models and workforce strategies concurrently:** Define clear links between the essential health service package/UHC benefit package and the workforce strategy. Ensure that workforce policies align with disease burden data to improve need-based workforce training and address gaps within primary healthcare settings. Workforce strategies should take into account the WHO NCD-GAP, including Appendix 3 and other recommended interventions ("the NCD best buys"), the WHO Package of Essential NCD Interventions, the WHO mGAP and the WHO IGAP. Countries can work in partnership with health professionals, WHO regional and country offices, academia, and the private sector, to develop implementation plans tailored to their national needs.
- **Address the root causes of the migration of health personnel** and reduce the incentives to emigrate by improving living and working conditions, particularly in LMICs, prioritising non-wage retention strategies, training, and career development. Ensure that high- and low- resource economies are coordinating and aligning on this issue, including through bilateral agreements, and skills-sharing initiatives.
- **Incentivise health workers to fill positions in rural areas**, which are often underserved, through financial incentives and support, rural quotas, targeted admissions policies, locating education facilities in rural areas, and supplementing in-person opportunities with digital tools. The rural gap can also be filled to a large degree by adequately trained CHWs or nurses.

SKILLED

Competency development is a key step towards better equipping the global health workforce for addressing NCDs. Health and care workers need to be equipped to handle the growing burden of NCDs. In many countries, particularly LMICs, pre- and in-service training does not cover NCDs and as a result, health and care workers at the primary health care level are not equipped for the prevention, diagnosis, management and care of chronic conditions.

There is an urgent need for effective and accessible training and education programmes for knowledge and skill development among primary healthcare workers, as well as ensuring prompt referral systems to specialist care.

We recommend Member States to:

- **Shift to a multidisciplinary, team-based PHC by upskilling nurses, community pharmacists, and community health workers** to manage NCD prevention and early treatment, reducing the need for specialized care. Within multidisciplinary care teams, Member States should implement supervision and mentoring programs to ensure patient safety and quality care. Additionally, they should leverage community health workers' potential to provide social support alongside health services and their key role in NCD awareness, prevention, care, and outreach, especially in vulnerable communities.
- **Actively integrate public health policies with social support policies** in a structural manner, to ensure that legal and policy frameworks in healthcare settings support the development and use of country-specific career progression guidelines, supervision, mentoring programs and life-long learning.
- **Develop a tailored approach to NCD training, based on national needs and resources,** leveraging the HLMA to develop trainings that answer local needs, and develop government policies that support NCD training integration into health systems. Existing training resources, such as the WHO Academy regional training centres and training provided by global health financing mechanisms, should also be leveraged to build workforce capacity, especially in LMICs and underserved areas.
- **Integrate the appropriate use of digital technologies** to increase efficiency, ease workload, cut costs and support rural health workers within the national and local context and capacity. This can include online training, telemedicine and remote consultations, mobile health and health apps, artificial intelligence (AI) and decision support systems. The shift to digital technologies should be accompanied by the corresponding education and monitoring.

We recommend the WHO to:

- Complete a rapid assessment of existing NCD training programs and opportunities for consolidation and streamlined delivery through the WHO Academy and other programs.

We recommend civil society and academia to:

- Support WHO in the assessment of existing NCD training programs, through the WHO Academy, non-profit (e.g. the NCD Academy hosted by the American College of Cardiology) or private sector initiatives.

SUPPORTED

A supportive working environment is essential for improving recruitment, retention, and professional satisfaction, which ultimately leads to better patient outcomes.

We recommend Member States to focus on:

- **Improving working conditions,** including flexible working hours, the effective division of tasks, part-time contracts, parental leave, and fair, equal, consistent and timely pay for all health professionals.
- **Mental health and psychological support,** including a focus on peer support and relationship building, organisational policies that support workplace wellbeing, system-based changes including suitable staffing and better working hours, targeted therapeutic and mental health prevention interventions, including the development of coping skills, social support, and medical interventions including pharmaceutical and other treatment pathways.
- **Addressing gender inequality** by creating better opportunities for women to take on leadership roles, increasing their representation, engagement, participation and empowerment, and eliminating gender bias and unequal pay. This also includes attracting men to mid-level roles and training women for upward mobility, alongside transparent wage structures and legal instruments to address discrimination and damaging stereotypes.
- **Reviewing workforce policy development** by ensuring diverse health personnel are included in planning and implementation, and collaborating with professional associations to strengthen their meaningful engagement in policy initiatives.

FINANCED

Consistent and sustainable financing is needed to optimise the heath workforce to address NCDs and achieve global targets. There are wide disparities in spending between and within WHO regions, as well as in funding for types of health personnel, with primary health care practitioners generally underfunded in most countries. Dependence on external donors leads to instability and prevents long-term health and care workforce development.

We recommend Member States to:

- **Leverage horizontal investments based on robust country-level data:** In coordination with the WHO, World Bank and regional development banks, use the HLMA to estimate fiscal needs and gather data on diverse factors, such as gender gaps and drivers of low workforce retention. Use this data to complete a budgetary space analysis for healthcare workforce supply and demand and develop costed plans made actionable through budget submission and tracking. In countries that are high recipients of development assistance for health, pool public, external and private financing to drive a unified approach to building the PHC workforce.
- **Progressively implement National Health Workforce Accounts** to facilitate an integrated approach for regular collection, analysis and use of standardized health workforce information, and to inform evidence-based policy decisions at the national policy and planning level, in line with the Global strategy on Human Resources for Health: Workforce 2030. In contexts of limited resources, or poor data collection infrastructure, governments should work with WHO capacity building and technical support initiatives to improve the quality and frequency of reporting.
- **Leverage vertical investments,** through government-led policy and implementation frameworks that private sector partners and external agencies can fund through pooling resources, with clear performance indicators and evaluation of progress.
- **Work with academic institutions and policy research think tanks** to map innovative, community-based primary healthcare models and propose scale-up options through public and private funds.

ANNEX
Key Informant Interviews

KEY INFORMANT	INSTITUTION	DETAILS
Samson Radeny	Intrahealth	Technical expert
Pascal Zurn	WHO	Intl. Org
Janet Muruki	Intrahealth	Technical expert
Carey Westgate	CHIC	CSO group
Edson Araujo	World Bank	Expert Advisory group
Arnold Behbe	Zambia UTH	Country
Claudia Batz and Shweta Gidwani	George Institute	CSO group
Kelcey Armstrong	WHF	CSO group
Hoi Shan Woo	ICN	CSO group
Giorgio Cometto	WHO	Intl. Org
Edwin Bolastig	PAHO	Intl.Org
Erin Ferenchick	UnitedGMH and Colombia University	CSO group and Academic
Yoseph Mamo	Global Health Partnerships	CSO group
Deanna Saylor	Zambia UTH	Technical expert
Marion Souveton and Carolyn Mendy	Roche	Private sector
Berbard Otieno	CHW Kenya	MOH
Irene Tukashaba	CHW Uganda	MOH
Angeline Chikumba	CHW Zimbabwe	MOH
Theebika Shanmugara	CHIC	CSO
Goncalo Pinto	FIP	CSO
Julia Tainijoki	WMA	CSO

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