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Task sharing and task shifting:

Optimizing the primary health care workforce for improved delivery of noncommunicable disease services in Kenya

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African Health Observatory
PLATFORM ON HEALTH SYSTEMS AND POLICIES
World Health Organization
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About AHOP

The African Health Observatory - Platform on Health Systems and Policies (AHOP) is a regional partnership that promotes evidence-informed policy-making. AHOP is hosted by the WHO Regional Office for Africa (WHO AFRO) through the integrated African Health Observatory and is a network of centres of excellence from across the continent, leveraging existing national and regional collaborations. National Centres currently include the College of Health Sciences, Addis Ababa University, Ethiopia; KEMRI Wellcome Trust, Kenya; the Health Policy Research Group, University of Nigeria; the School of Public Health, University of Rwanda; and Institut Pasteur de Dakar, Senegal. AHOP draws on support from a technical consortium including the European Observatory on Health Systems and Policies (EURO-OBS), the London School of Economics and Political Science (LSE) and the Bill & Melinda Gates Foundation (BMGF). AHOP joins a cohort of regional health systems Observatories including the European Observatory and the Asia-Pacific Observatory (APO) who have shared their learning to inform the development of the AHOP approach.

About AHOP policy briefs

AHOP policy briefs are one of a suite of outputs produced by the platform. We aim to capture current concepts, experiences, and solutions that are of importance to health policymaking within the African region, often applying a comparative lens to learn from diverse approaches. We recognise that there are multiple approaches to writing policy briefs. Through consultation we have developed a distinct AHOP approach, with all our briefs following a common template. AHOP briefs bring together existing evidence and present it in an accessible format; use systematic methods transparently stated; and all undergo a formal and rigorous peer review process.

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Contents

Abbreviations

CHU	community health unit
CHW	community health worker
CVD	cardiovascular disease
HW	health worker
HWF	health workforce
MoH	Ministry of Health
NCD	noncommunicable disease
NPHW	non-physician health worker
PHC	primary health care
TSS	task sharing and task shifting
WHO	World Health Organization
WHO PEN	WHO Package of essential noncommunicable disease interventions for primary health care in low-resource settings

Key messages

Integration of noncommunicable disease (NCD) care into primary health care (PHC) is crucial in addressing the NCD burden: this could improve health promotion and access to early NCD diagnosis and facilitate continuous management of NCDs at the population level. Successful NCD integration requires both investment in the health system and refocusing of PHC from an infectious disease emphasis to a system approach inclusive of NCD care.

Strengthening the health workforce (HWF) is key in reorganizing the PHC system: availability and adequate capacity and distribution of health workers are crucial.

Task sharing and task shifting (TSS) is an effective intervention to address HWF challenges: sharing clinical tasks with non-physician health workers (NPHWs) such as nurses and community health workers (CHWs) or shifting some tasks to them could help strengthen HWF to accommodate NCD care at the PHC level.

An enabling legal and regulatory framework and adequate training of NPHWs are required to support TSS: the key enablers for successful TSS are training and on-the-job support for NPHWs. The barriers include the lack of a legal and regulatory framework for the new roles NPHWs assume such as prescribing medicines and other health system responsibilities.

Executive summary

Responding to the NCD burden for Kenya requires a restructuring of the health system. The burden of NCDs continues to rise and hinders the country's universal health coverage ambitions. It was reported that in 2019, over one third of all deaths in Kenya were attributable to NCDs. Four major NCDs, that is cardiovascular diseases (CVDs), cancers, diabetes and chronic respiratory diseases, accounted for 57% of these deaths.

Controlling NCDs involves providing promotive, preventative, curative and palliative health services throughout the life cycle. Weak health systems and those structured around infectious or communicable diseases cannot adequately provide these services, given the chronic nature of NCDs and their long-term reliance on the health system. As such, the entire health system needs to be restructured to move from just providing acute episodic care to integrate a continuum of NCD services delivered over time.

Integrating NCD care into PHC is underutilized in Kenya

Integrating NCD care into the PHC system offers great potential, as PHC is the entry point for most people into the health system. Studies show that NCD services can be delivered at the PHC level with good outcomes. But this model is underutilized in Kenya, and for several reasons:

- access to care is inequitable with most services being available in private facilities and primarily in urban areas;
- supply of essential NCD drugs is inconsistent;
- health information systems are weak;
- only a limited number of facilities have the full capacity for NCD services;
- health workers are in short supply, especially in rural areas.

This means that a coordinated and integrated national service delivery system for NCD control through PHC will require significantly strengthening the current PHC system.

PHC workforce as an important lever in strengthening PHC

An assessment of the progress of African countries, including Kenya, in integrating NCD care into PHC found that countries needed to significantly increase their HWF capacity, among other factors. HWF in Kenya faces a myriad of challenges, including severe shortages and maldistribution, leading to inequitable access to care for most of the population. Integrating NCD care into PHC could mean a significant increase in the workload of existing workers and subsequently add pressure on a workforce already facing major challenges. Innovative approaches are needed to rapidly expand and optimize HWF to accommodate NCD care at the PHC level.

Task sharing and task shifting as effective interventions for optimizing the health work force for the response to the NCD burden

Task sharing and task shifting (TSS) can optimize the HWF by increasing the efficiency of available HWs. With TSS, specific tasks normally performed by a physician are shared with or delegated to health professionals of a different or lower cadre or persons without formal health education, but who are specifically trained for the tasks. Studies on the effectiveness of TSS in NCD services at the PHC level show NPHWs, in this case nurses and community health workers (CHWs), to be effective in performing tasks such as health promotion and screening for, and diagnosis and treatment of NCDs with good health outcomes. The key enablers identified are training of NPHWs and providing them with on-the-job support tools such as treatment and referral guidelines, plus supervision. The barriers include a lack of legal and regulatory frameworks supporting the new NPHWs' roles such as prescribing and dispensing of medicines and other health system challenges.

To support TSS implementation at the health system level, tailored pilot programmes are needed to determine its feasibility and scaling up. Legal and regulatory frameworks should in place to support the expanded health worker roles and ensure efficient and safe TSS. Importantly, TSS models should be rigorously documented and evaluated to learn what works and in what circumstances. In addition, as interventions for HWF have implications for the entire health system, they must be viewed through a systems lens.

Introduction

Background

Over one third of all deaths in Kenya in 2019 were attributed to NCDs (Vos et al., 2020). The four major NCDs – CVDs, cancer, diabetes and chronic respiratory diseases – accounted for 57% of these deaths. Furthermore, the direct and indirect economic impact of NCDs is significant- Kenya is said to have lost Ksh 230 billion or 3.4% of its gross domestic product in 2016 from rising NCD-related medical costs and indirect productivity losses. At the household level, an estimated decrease of 28.6% in income due to NCDs was reported in 2007 (Mwai & Muriithi, 2016; Mensah et al., 2020). Therefore, preventing and managing NCDs are significant public health and economic priorities.

Controlling NCDs involves addressing their risk factors and ensuring their early detection and timely and appropriate management. This requires delivering well-designed and cost-effective services that are highly coordinated across all health system levels. Adopting an integrated health service delivery approach is key to sustainably delivering such services. However, this requires a paradigm shift in the service delivery systems from addressing NCDs separately or vertically to holistic service delivery for disease groups in an integrated manner.

Different integrated health care service delivery models are already in use in Kenya. These include integrating services into existing vertical programmes and the more "systems" approach of integrating services into PHC. Examples at the vertical programme level include integration of family planning with HIV care, NCD care with HIV services, and HIV services with tuberculosis care (Gupta et al., 2014; Legido-Quigley et al., 2013; Narasimhan et al., 2019; Warren et al., 2017; Adeyemi et al., 2021; McCombe et al., 2022). At the system level, services are delivered by integrating the primary, secondary, and tertiary levels of care, allowing patients to transition from one level to another as needed. This is outlined in the Kenya essential package for health, which includes the provision of NCD services, from health promotion to referral and disease management.

Evaluations of different integrated NCD service delivery approaches show their effectiveness to vary (Hyle et al., 2014; Njuguna et al., 2018; Mwagomba et al.; 2018, Narain, 2011). For example, studies across various low and middle income countries show that vertical integration of NCDs into HIV service delivery can increase retention in and adherence to care (Duffy et al., 2017; Janssens et al., 2007; Osetinsky et al., 2019). However, this approach also contributes to the creation of a fragmented array of isolated or siloed programmes that are challenging to scale up owing to broader health system flaws. On the other hand, the systems approach of integrating services into PHC offers an opportunity for health promotion and greater access to early diagnosis and continuous management of NCDs throughout an individual's life (Demaio et al., 2014; Coleman et al., 1998; Haque et al., 2020; Varghese et al., 2019). This model is underutilized in Kenya, largely owing to the inequitable access to health care services and a lack of the essential health system investment in the management of long-term NCDs through PHC (Wami et al., 2022; Subramanian et al., 2018; Rockers et al., 2018).

Successful integration of NCD services into PHC is directly linked to the strengthening of all components of the PHC system such as financing, human resources, service delivery, information management, governance and provision of health commodities. As PHC in Kenya undergoes reorganization under the new PHC Strategic Framework 2019–2024, appropriate and cost-effective interventions are required to strengthen NCD service delivery at the PHC level (MoH, 2020b).

Owing to the breadth and complexity of the health system, this brief will focus on interventions targeting only the HWF component of the health system. HWF challenges have been a consistent barrier in scaling up NCD care for PHC (Tesema et al., 2020). They include acute shortages of specialized health worker cadres, inefficient distribution of HWF and failure to attract and retain HWs at the PHC level.

Key question

This brief seeks to answer the following policy question: how can the HWF be optimized to support the integration of NCD services into Kenya's PHC system? It presents evidence on TSS as an option for strengthening HWF to enable PHC systems to respond to the NCD burden. It focuses on CVDs and diabetes, two prevalent NCDs in Kenya. The brief is intended to support evidence-informed deliberation among policy-makers and other PHC stakeholders in Kenya. It is not intended to prescribe specific policy options or implementation strategies.

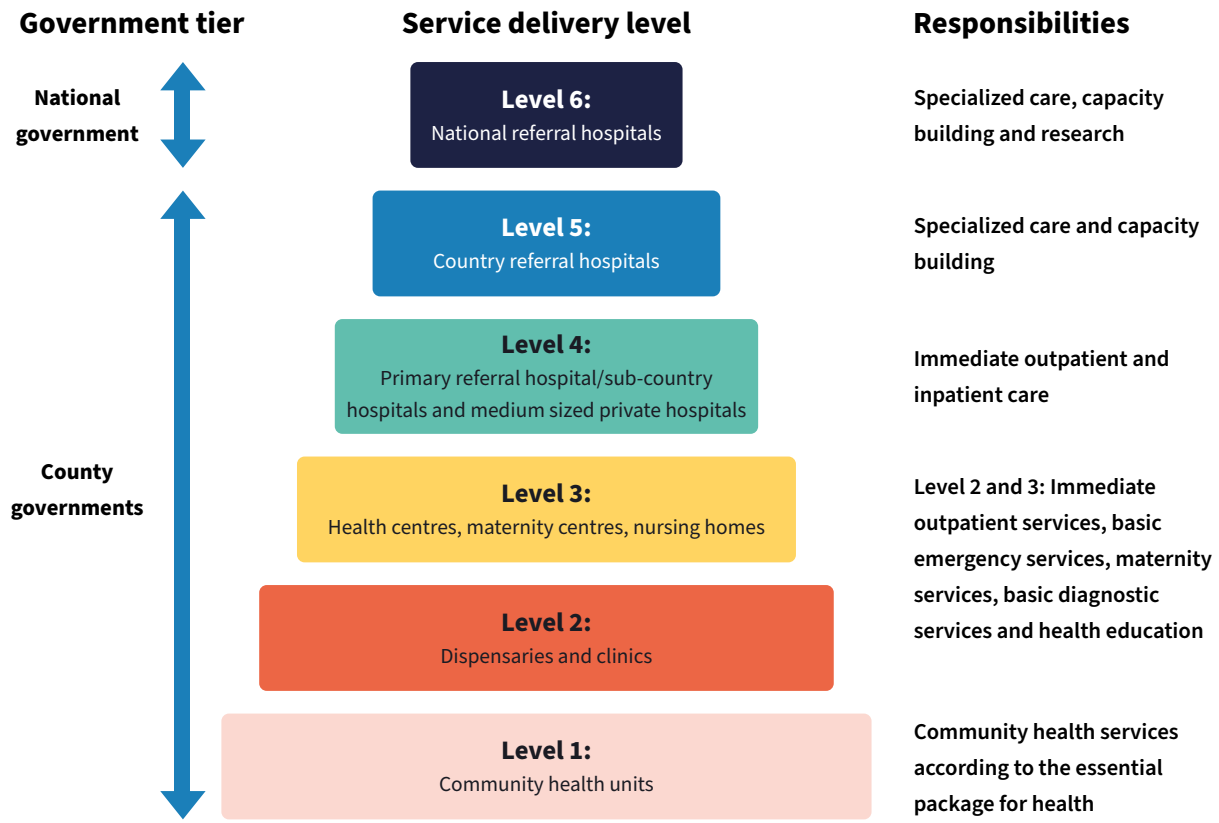
Methodology

This policy brief summarizes the global and local evidence on optimizing the HWF for the delivery of NCD care at the PHC level. We searched electronic databases including PubMed, Health Systems Evidence, the Cochrane Library and Google Scholar for relevant systematic reviews and primary studies. We also checked the reference lists of key studies to identify additional resources. We summarized the key details of each study, including the intervention and its outcomes, barriers and facilitators (see Appendix 1).

Kenya's health system

Kenya's health system underwent a drastic transformation in 2010 after the country adopted a two-tier, devolved governance system comprising national and county governments. The national Government's health sector's responsibilities include developing health policies, building capacity, mobilizing resources, conducting research, managing national referral health facilities, and providing technical assistance to counties. County governments are responsible for their health facilities and pharmacies, ambulance services and promotion of PHC (see Figure 1).

Figure 1: Kenya's health system's six levels of health service delivery.



Source: Kenya Health Policy 2014–2030

Delivery of NCD care in Kenya

The Kenya Government has taken several policy-level steps to address the rising burden of NCDs. The Kenya essential package for health outlines details on NCD service delivery across all levels of the health care system. Health promotion is provided at level 1, disease screening and management at levels 2 and 3 and specialized care for complicated cases at levels 4–6 (Kraef et al., 2020; Asiki et al., 2018; Shiroya et al., 2019).

The National NCD Strategic Plan 2021–2025 provides a framework for developing action plans for the prevention and control of NCDs by the national and county governments. A key strategy in the strategic plan is to develop and implement an integrated NCD model for PHC. In addition, the Ministry of Health (MoH) has developed disease-specific policies such as the Kenya national guidelines for cardiovascular diseases management 2018 and the National and clinical guidelines for management of diabetes mellitus. The establishment of an NCD department in MoH and an NCD interagency coordinating committee and the support from the presidency for universal health coverage have been important facilitators in strengthening NCD management. However, the implementation of these policies and frameworks has been challenging.

The PHC system

PHC services are currently primarily provided at levels 1–3 of the health care system structure and are the responsibility of county governments (Table 1). To increase access to PHC services and improve the quality of care, MoH recently developed the PHC Strategic Framework 2019–2024. Under that framework, PHC is provided through the PHC network, which utilizes a hub and spoke model in which the emphasis is on levels 2–4 facilities (Figure 2). Level 2 facilities will be strengthened and upgraded to provide the same level of care as the current level 3 facilities and will be known as PHC facilities.

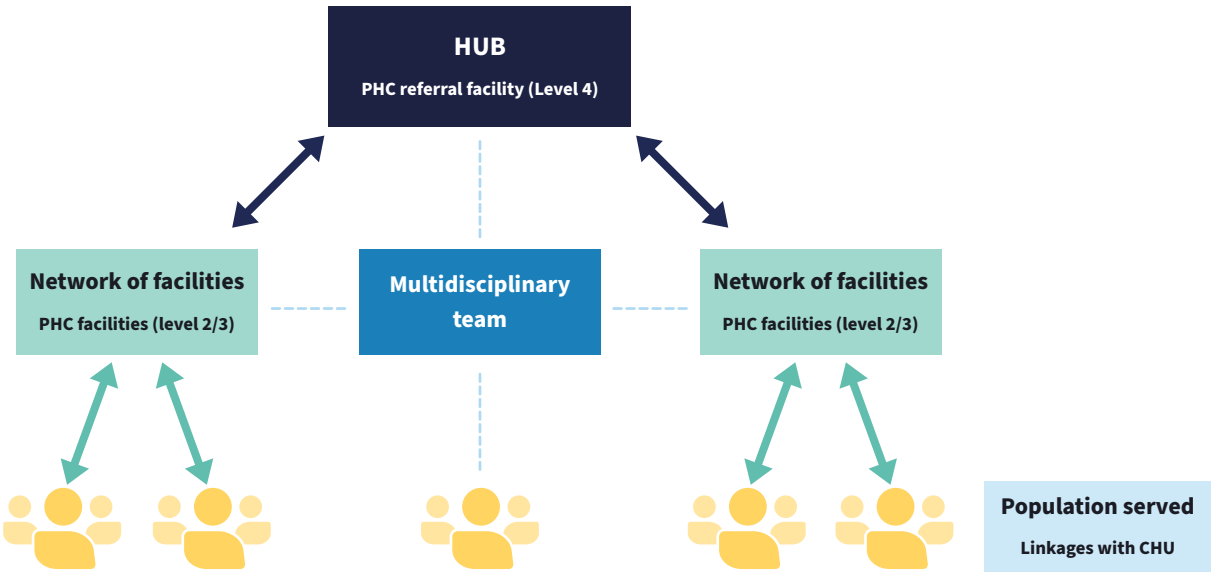
Table 1: Health facilities within the national PHC network

Level	Number of facilities
Level 4	895
Level 3	2 237
Level 2	10 943
Level 1	9 150 (community health units)

Source: Economic Survey by Kenya National Bureau of Statistics, 2022.

Each PHC facility will have a multidisciplinary team of HWs assigned to a population in a predetermined geographical area known as the community PHC zone (Figure 2). Each of these zones will have a set number of community health units (CHUs) where all individuals in the area will be registered. The CHUs will be managed by CHWs and will be linked to the PHC facilities. This brief will consider this scenario as constituting what Kenya's PHC system is. PHC services for NCDs under the new framework include health promotion and education, disease screening, rehabilitation, workplace health and safety, and food quality and safety. The framework also aims to strengthen the referral system to ensure that NCD care is delivered at the appropriate health service level.

Figure 2: Structure of the revised PHC system



CVD and diabetes prevalence

CVDs were the underlying cause of death in 13.8% of the reported deaths in Kenya in 2019, compared with 13% in Africa and 32% globally. The leading CVDs as causes of death were stroke at the levels of 6.1% overall, 5.8% for males and 6.4% females, and ischemic heart disease at the levels of 4.6% overall, 4.7% for males and 4.6% for females (Vos et al., 2020). In that year, the age adjusted comparative prevalence of diabetes in Kenya was estimated to be 4%, compared with 5.3% in Africa and 9.8% globally, with associated deaths among adults aged 20–79 years estimated at 15 285. In addition, an estimated 43.7% of individuals had undiagnosed diabetes, compared with 53.6% for Africa and 44.7% globally. Diabetes-related expenditure per person with diabetes among people aged 20–79 years was estimated to be US$ 448.60 (Sun et al., 2022). In 2015, only 41% of Kenyans aged 15–69 years diagnosed with diabetes received treatment and only 7% of them had their disease controlled (MoH, 2016).

In their study assessing the readiness of health facilities in Kenya to deliver CVD and diabetes services, Wami et al. (2022) found that while the availability of services was high, with readiness scores of 69% for CVDs and 74% for diabetes, the services were concentrated in facilities in level 4 and above in the public health care system and in private facilities. In addition, there was a notable shortage of trained HWs of all cadres and inadequate management guidelines to support provision of care.

The World Health Organization (WHO) considers the top risk factors for the majority of NCDs to be excessive consumption of alcohol, tobacco use, physical inactivity and an unhealthy diet (WHO, 2022; see Table 2 for data from a 2015 survey in Kenya).

Table 2: Risk factors for and determinants of CVD and diabetes in Kenya

Risk factors and determinants of CVD and diabetes	2015 Kenyan statistics
Obesity/overweight	27%
Consumption of tobacco products	13%
Exposure to second-hand smoke	24% at home and 20.9% at work
Failure to engage in the recommended amount of physical activity	6.5%
Low consumption of fruits and vegetables	2.1 servings (WHO recommends 5 servings)
Alcohol consumption	19.3% of the population, of whom 13% consume alcohol daily

Source: Kenya STEPwise Survey, 2015.

Integrating NCD care into the PHC system

Evidence shows that health promotion, NCD prevention, early diagnosis and management can be delivered at the PHC level with good outcomes (see Wangchuk et al., 2014; Haque et al., 2020; Demaio et al., 2014; Varghese et al., 2019; Hyon et al., 2017; Khunti and Ganguli, 2000). The PHC workforce is a key element in the success of this, and this is acknowledged in Kenya's new PHC strategy (MoH. 2020b). The focus of the strategy is to ensure availability of PHC workforce with the right skill mix. To this effect, the strategy adopts a multidisciplinary team approach with the requirement that a PHC team consist of medical, clinical, pharmaceutical, public health, health promotion and health records officers, together with nurses, nutritionists and laboratory specialists. Having multidisciplinary teams will facilitate the structuring of the workforce to span the entire spectrum of care in an integrated, multi-modal manner, which is useful in the integration of NCD care at the PHC level.

In 2010, WHO developed the Package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings in response to the growing NCD burden and to decentralize NCD care to the PHC level. Implementation of PEN by any Member State is seen as a first step in integrating NCD care into the Member State's PHC. However, since 2012, only nine WHO African Member States have adapted PEN. In addition, 17 countries have reported training or planning to train their PHC workforce on managing NCDs (Tesema et al., 2020). Studies in Zambia (Mutale et al., 2018) and Ghana (Nyarko et al., 2016) identified PHC workforce capacity as a gap in implementing the PEN guidelines. These guidelines are yet to be implemented in Kenya, owing to challenges such as financial and human resource limitations and poor awareness on the guidelines, amongst other issues.

In Kenya, the Government will need to address the current gaps in providing integrated NCD services within the PHC system. While the Government has made considerable efforts to strengthen PHC, several challenges persist. For example, only 11% of the total health expenditure for the 2017/2018 financial year was spent on NCDs (MoH, 2020c). The health system remains largely hospital centric, and patients suffer long wait times and low quality of care (Yan et al., 2019; Wami et al., 2022). Additional challenges include (1) inequitable access to care with most services being available in private facilities and primarily in urban areas, (2) interruptions in the supply of essential NCD drugs, (3) weak health information systems, (4) few facilities with full capacity for NCD services, and (5) shortage of HWs, especially in rural areas (Wami et al., 2022; Ashigbie et al., 2020; Rockers et al., 2018; Mwangi et al., 2021).

PHC workforce challenges

PHC worker density and distribution

In the PHC system, care is delivered by medical officers, clinical officers, nurses, laboratory and pharmaceutical technicians and CHWs across the three PHC levels. The Kenya Health Harmonized Facility Assessment 2018–2019 reports the national core health worker density to be 15.6/10 000, which is significantly below the WHO target of 23/10 000 (Table 3). The country faces a severe shortage of HWs, with only 31 142 employed against the MoH's goal of 138 266 (Miseda et al., 2017). The number of CHWs in the country was 91 653 in 2020 (MoH, 2020a). While the availability of all cadres of HWF at the PHC level is below the recommended standards (see Table 3), shortages of specialized cadres are more pronounced. For example, in the Kenya Health Harmonized Facility Assessment 2018–2019 Survey, 74 public PHC facilities reported having no medical doctor.

Table 3: Density of the Kenyan health workforce

HWF indicator	Status (per 10 000 people)	Target (per 10 000 people)
Core workforce density*	15.6	23
Doctor to population ratio	0.6	3.7
Nurse to population ratio	10	8.7
Clinical officer to population ratio	3	3.7

*Core workforce includes all cadres within the health workforce.

Source: Kenya Harmonized Health Facility Assessment, 2018

The maldistribution of HWs exacerbates their shortage. Their distribution is unbalanced among counties and between urban and rural areas, which is where most PHC facilities are located (Table 4). HWs in rural areas face several challenges, including inferior living conditions, poorly equipped facilities, lack of supervision from experienced specialists and limited opportunities for career advancement. These factors affect their motivation and retention at the PHC facilities.

Table 4: Distribution of health workers in Kenya

Cadre	Public facilities (%)	Private facilities (%)	Urban areas (%)	Rural areas (%)
Doctors	37.4	62.6	83.9	16.1
Clinical officers	52.5	47.5	52.1	47.9
Nurses	62.8	37.2	48.4	51.6
Total	58.1	41.9	52.7	47.3

Source: Kenya Health Service Delivery Indicator Survey, 2018

Funding and budgeting

The limited funding for HWF and the lack of sufficient data to inform their recruitment and deployment decisions pose as obstacles. Under the devolved governance system, county governments, which are responsible for health service delivery, receive block grants from the national level and budget for the various functions in their county, including funding for health workers. Their budgeting is programme based as opposed to line-item based. They perpetually face challenges with budget execution owing to the untimely nature of the funding flows from the national treasury. Financing for community health has been low, and only 3.5% of the health budget is allocated to community health and PHC in general. This will need to be increased in order to support NCD care integration into PHC (MoH, 2020a).

CHW training and remuneration

There is a shortage of CHWs to deliver community health services, with a gap of 66%. Inadequacies in mentorship, training and management of CHWs and the lack of an accreditation system for community health training are other key challenges. Furthermore, their renumeration is not standardized and no performance reward structures are in place (MoH, 2020a).

TSS use to strengthen PHC workforce for NCD care

Innovative approaches are needed to rapidly expand and optimize the HWF to respond to the PHC challenges relating to NCD care in Kenya (Nishtar & Ralston, 2013). TSS can facilitate the reorganization of the workforce to increase the efficiency of the available human resources. Task shifting refers to the process by which specific tasks are moved or shifted from highly qualified HWs to HWs with fewer qualifications (WHO, 2007). Task sharing is the delegation or sharing of tasks by physicians, nurses, dentists and other health professionals to others, including CHWs. Despite their slight differences, the two terms are often used interchangeably, as they both have the intent of ensuring the right mix of skills is available to provide quality care by optimizing the available HWF capacity (National Academy of Sciences, 2011).

TSS is also a useful option for managing the ballooning human resource wage bill and the inability to attract and retain highly skilled HWs, especially in the public sector and rural settings. In this case, tasks specific to NCD care can be strategically shared between the PHC workforce – who primarily are nurses – and CHWs. It is important to note that although TSS presents an option to address some HWF challenges, it is no panacea. Countries will still need to ensure that their recruitment and distribution policies and practices are responsive to their health systems' needs.

TSS in Kenya

While Kenya's National NCD Strategic Plan 2021–2025 acknowledges that HWF will require strengthening to respond to the NCD burden, it does not explicitly include TSS as one of the strategies to achieve this. Recognizing the HWF challenges, MoH developed a TSS policy to optimize the existing workforce, though this was specifically for HIV care and other essential health services for universal health coverage. Kenya's Task sharing policy guidelines 2017–2030 provide a general overview of TSS and the key aims of the policy (MoH, 2017). They summarize the variety of tasks that may be shared among the cadres for both highly skilled and lower cadres, according to their scope of practice. Specifically, the guidelines list the NCD-related TSS activities for different cadres including for health promotion and screening. However, TSS interventions for NCDs in this policy are limited, as they do not include diagnosis and management of NCDs. The implementation of the policy was halted by the judiciary in 2019 after complaints from the Association of Kenya Medical Laboratory Scientific Officers.

Global evidence on TSS

Reviews of global evidence found that with NPHWs – in this case nurses and CHWs – TSS was a potentially effective strategy for improving access to care for NCDs (Appendix 1) (Joshi et al., 2014; Anand et al., 2019; Seidman & Atun, 2017; Martínez-González et al., 2014; Laurant et al., 2018). NPHWs in these studies performed tasks such as screening for and diagnosing and managing NCDs. In western Kenya, nurses delivered hypertension care at PHC facilities with good clinical outcomes (Vedanthan et al., 2020). In nurse-led NCD services introduced in all PHC clinics in a rural South African district, the nurses supported the management of 68% of the patients with hypertension and 82% of type 2 diabetes patients (Coleman et al., 1998). In a rural district in Eswatini, the management of diabetes and hypertension was effectively delivered by nurses in community clinics (Sharp et al., 2020). Similar findings were reported in Ethiopia (Shanko et al., 2018), Zimbabwe (Frieden et al., 2020), Ghana (Ogedegbe et al., 2018) and Cameroon (Labhardt et al., 2010). On a larger scale, Rwanda's national nurse-led NCD outpatient programme for PHC facilities was adopted well and was reported to be feasible (Niyonsenga et al., 2021).

The use of CHWs in providing NCD care also has been documented. A 2017 review found that CHWs were potentially effective in delivering preventative care for hypertension and diabetes in developing countries (Jeet et al., 2017). Furthermore, a review of randomized control trials (RCTs) for community-based interventions suggested that these interventions reduced the incidence of diabetes in high risk populations (Shirinzadeh et al., 2019). Findings from eight studies assessing the effectiveness of CHWs in identifying and controlling CVD risk factors found them to be effective in screening for the risk factors and to have good outcomes among the patients, such as reductions in systolic blood pressure (SBP) and improved diet and physical activity etc. (Khetan et al., 2017).

A study covering Bangladesh, Mexico, Guatemala and South Africa assessing the ability of CHWs to screen patients for CVD risks found that with adequate training they could screen and identify individuals at high risk of CVD (Gaziano et al., 2015). In western Kenya, while CHW care did not lead to significant reductions in blood pressure in hypertensive individuals, with the aid of smartphone technology, CHWs effectively linked patients to care (Vedanthan et al., 2019).

Facilitators of TSS

- **Training:** In Ghana, Cameroon and India training of NPHWs on hypertension and CVD screening and management significantly increased their knowledge levels in these topics (Labhardt et al., 2010; Kar et al., 2008; Gyamfi et al., 2017).
- **Adherence to guidelines and on the job training:** The adherence by nurses to the use of treatment guidelines for five NCDs was studied in PHC facilities in an informal urban settlement in Kenya, and the study found that the nurses adhered to the clinical disease management protocols (Some et al., 2016).
- **Support:** Leveraging of the existing infrastructure of vertical programmes, use of mobile technology to access decision support tools, and support from stakeholders were found to be helpful in TSS success in Kenya (Vedanthan et al., 2019).

Barriers to TSS

- **Legislation inadequacies:** The lack of legal and regulatory frameworks that enable NPHWs to prescribe medications reduces their scope of practice.

- **Staffing challenges:** High staff turnover and the inability to retain trained staff are key barriers to TSS. This means that there is constant training of new waves of NPHWs, which is time and resource consuming (Labhardt et al., 2010; Joshi et al., 2014; Vedanthan et al., 2020).
- **Resources shortages:** Even when NPHWs are available to provide care, the lack of medicines and diagnostic equipment is a barrier to the delivery of care (Sharp et al., 2020; Labhardt et al., 2010).

Figure 3: Addressing PHC Workforce Challenges through Task Sharing and Task Shifting: An Overview

Primary health care workforce challenges in Kenya

Staff:

- Low health worker to population ratio.
- Substantial shortage in community health workers.
- Health workforce unbalanced between counties.
- Rural areas struggle to attract and retain staff.
- Inefficient health worker skill mix.

Funding:

- Limited health workforce funding.
- Inadequate community and primary health care budget.
- Untimely government funding flows.

Management:

- Health workforce mentorship, training, and supervision is lacking.
- No accreditation system for community health workers.
- Health worker pay is not standardized.
- No health worker performance incentives.
- Lack of data to inform recruitment and deployment.

Solution: 'task sharing and task shifting'

Task sharing - delegation of tasks by physicians, nurses, dentists and other health professionals.

Task shifting - tasks are moved or shifted from highly qualified health workers to :

- health workers with fewer qualifications
- a person without formal training, trained for a specific task;
- medical technology and;
- patients and/or their carers.

Task sharing and task shifting to optimise the health workforce and improve non-communicable disease care through:

- health education,
- screening high-risk individuals,
- diagnosis, and
- treatment.

7 facilitators of task sharing and task shifting: global evidence

1. Training
Mentorship, training, and supervision of non-physician health workers and community health workers.

2. Guidelines
Clear, tailored protocols for non-communicable disease management.

3. Support
Infrastructure, programmes, technology, and stakeholder buy-in.

4. Legislation
Enabling policy in alignment with existing frameworks.

5. Staff
Performance and training incentives.

6. Resources
Investment in medicines, equipment, and health workforce recruitment.

7. Evidence
Pilot studies on task sharing cost, effectiveness, and feasibility of scale-up.

Conclusion

Establishing a TSS approach

Integrating NCD care into PHC is an effective and equitable approach for addressing the rising burden of NCDs. However, for Kenya, significant progress is needed to strengthen the PHC system to accommodate quality NCD care. As the Government implements its suite of NCD-related strategies with the provision of PHC integrating NCD care as a key objective, TSS can be considered as one of the pathways to facilitate this process.

Based on the evidence, NPHWs such as nurses and CHWs can be used effectively to expand the delivery of CVD and diabetes services in PHC settings. These include preventative services such as health education, CVD screening for high risk individuals and CVD diagnosis and treatment. Evidence suggests that this may improve disease outcomes, facilitate linkage to and increased accessibility of care, and save on costs (Seidman & Atun, 2017). However, the evidence on the cost-effectiveness of these interventions is still inconclusive, and more studies are required.

The current national TSS policy and guidelines need to be updated to support the expanded roles in NCD care. This includes the development of appropriate regulatory frameworks that define the organization of service delivery and improve quality. However, TSS alone cannot fully address health workers' issues such as HWF maldistribution and shortages, recurring strikes and poor performance. In addition, implementing changes among HWF to accommodate NCD care at the PHC level will depend on, and has implications for, several other health system-related factors. Thus, it should not be addressed in isolation but rather should be assessed in the wider context of the health system.

Rigorous assessment and evaluation of TSS interventions for NCD care in the country must be conducted with the acknowledgement that different contexts and settings within the country will require tailored interventions.

Policy implications

For PHC facilities in Kenya, where most health workers are non-physicians, there is evidence to support the need for their enhanced role in controlling NCDs. In addition, NPHWs may be easier to recruit and retain than are medical doctors, especially in rural areas. TSS interventions will require careful consideration on staff recruitment; legal and regulatory frameworks to support the HWF expanded roles and enable efficient and safe TSS; adequate HWF training and support; availability of medical supplies; appropriate compensation; and reliable referral and information systems (Heller et al., 2019; Karimi-Shahanjarini et al., 2019).

The crucial role of NPHW and community buy-in in TSS success

Successful implementation of TSS will require buy-in from all stakeholders, as it will have implications for workloads and the hierarchy within cadres (Karimi-Shahanjarini et al., 2019), bearing in mind that sometimes the concept is viewed as offering an avenue for competition among HWs. In addition, without clear structures, tasks may not be appropriately or efficiently delegated. However, TSS is already practised in Kenya and should be guided by the TSS policy and guidelines (Oluoch et al., 2018; Mombo & Kaseje, 2015). Still, the guidelines need to be revised and expanded to include more advanced tasks for nurses.

While patients may be more amenable to receiving services such as health promotion from NPHWs, they may be less inclined to accept the more medical services from them (Karimi-Shahanjarini et al., 2019; Rashid, 2010). Therefore, buy-in from the community must be sought, as they will need to trust and accept the care from NPHWs in order to demand NCD care at PHC facilities. In addition, material incentives such as payment and non-material incentives such as opportunities to acquire new

skills and community recognition can be considered to increase acceptability of TSS amongst NPHWs. Although there is limited evidence on the cost-effectiveness of TSS among NPHWs in NCD services, Seidman & Atun (2017) found some evidence that TSS has the potential to save costs in activities related to NCDs. However, more studies will be needed.

Lessons from pilot studies can inform successful integration

When considering TSS implementation, policy-makers could either introduce TSS at scale and integrate NCD care at all PHC facilities or use pilot projects in different counties with well-designed evaluation to inform the scaling up. Analysis of eight studies on TSS among NPHWs in low and middle income countries, including Kenya, found that pilot studies were critical in understanding the implementation considerations and feasibility, which could inform the approach of scaling up TSS to the national level (Joshi et al., 2018). Several pilots of PHC-centred NCD care delivery are currently going on in Kenya. Once completed, they will provide evidence on costs and further insight into the effectiveness, feasibility and implementation considerations for PHC-centred delivery of NCD care (Naanyu et al., 2021). Considering the vast health resource disparity between counties, TSS would also likely need to be tailored to specific regions or counties. When implemented effectively, TSS may contribute to improved NCD care in PHC systems.

Annex. Summary of a sample of studies on TSS to NPHWs

Author	Study types included	Countries	Intervention	Tasks performed	Outcomes	Facilitators	Barriers
Joshi et al., 2014	7 RCTs and 15 observational	Cameroon, India, South Africa, China, Ethiopia, Kenya, Philippines, Pakistan, Tanzania, Zimbabwe	TSS to NPHWs (nurses, midwives, and lay HWs)	Screening, algorithm-based management, management with medication, follow-up, diagnosis	**Process outcomes:** NPHWs can screen for CVDs and diabetes and other NCDs. Studies that permitted NPHWS to prescribe drugs showed that NPHWs can treat hypertension and diabetes according to protocols. Treatment concordance between physicians and NPHWs was high; decisions were the same for 87% of CVD cases in India. Four studies showed improved access to care at the community level. **Disease outcomes:** NPHWs could achieve control in 68% of hypertensive patients and 82% of diabetic patients	Training of NPHWs and provision of algorithms, protocols and guidelines	Staff attrition, drug supply irregularities, unavailability of equipment, lack of authority to prescribe
Anand et al., 2019	32 RCTs, 11 cluster randomized trials and 20 observational studies. 31 were included in meta-analysis	Asia, Africa, Latin America	TSS to NPHWs (nurses, pharmacists, dietitians and lay HWs)	Education for patients, follow-up care, algorithm-based management, non-physician drug prescription, referrals, organization of care	**Disease outcome:** SBP was decreased. Mean difference (MD) was −4·85 mm Hg (−6·12 to −3·57, I2 = 76%) overall	Use of management protocols, nurses having authority to prescribe, inclusion of follow-up interventions. The intervention was more effective if it targeted high risk individuals rather than the general population.	The impact was greater in countries with a better doctor to population ratio
Martínez-González et al., 2014	11 RCTs	UK, US, Netherlands, South Africa, Russia	TSS to nurses	Guideline-based management, initiation and prescription of treatment, development of action plans, provision of urgent care	**Disease outcomes:** Greater reductions in SBP in favour of nurse-led care (weighted MD: −4.27 mmHg, 95% CI −6.31 to −2.23)	Use of management guidelines and availability of nurses with specialized skills	Not reported
Laurant et al., 2018	18 randomized trials	UK, US, Netherlands, South Africa, Canada, Sweden, Spain	TSS to nurses	Urgent care, ongoing care, and follow-up	**Disease outcomes:** Compared to doctor-led care, nurse-led primary care probably slightly improves blood pressure control and probably had similar outcomes for diabetes indicators. Patient satisfaction was slightly higher in nurse-led primary care compared to doctor-led care	Not reported	Not reported
Ogedegbe et al., 2014	3 RCTs	Nigeria, China, Iran	TSS to NPHWs (nurses, pharmacists and CHWs)	Patient education, facilitation of clinic visits, treatment (with physician backup), medication initiation, medication adjustment, follow-up	**Disease outcomes:** Hypertension studies reported a significant mean blood pressure reduction (2/1 mm Hg and 30/15 mm Hg), and the diabetes trial reported a reduction in the glycated haemoglobin levels of 1.87%	Continuous training and feedback from higher level professionals, provision of treatment, algorithms/ guidelines, and bridging hospital care to home care	Lack of policy to support NPHWs to prescribe medication, lack of a referral system, low competency of NPHWs to manage uncomplicated CVD risk factors, lack of organizational structure to accommodate NPHWs as primary care providers
Ogedegbe et al., 2018	Pragmatic cluster randomized trial (n = 757)	Ghana	TSS to trained nurses plus provision of health insurance coverage (HIC) vs provision of HIC only	Patient education, initiation/ titration of antihypertensives, CVD risk assessment	**Disease outcomes:** The nurse-led plus HIC group had a greater SBP reduction (−20.4 mm Hg; 95% CI −25.2 to −15.6) than the HIC group (−16.8 mm Hg; 95% CI −19.2 to −15.6). Reduction was sustained at 24 months. Lifestyle behaviours did not change appreciably in either group	Provision of HIC increased access to services. Nurses had authority to initiate drug therapy	Nurses not being allowed to prescribe anti-hypertensives makes it difficult to scale up the programme across Ghana

Author	Study types included	Countries	Intervention	Tasks performed	Outcomes	Facilitators	Barriers
Vedanthan et al., 2020	Single observation study (n = 1 051)	Kenya	TSS to nurses	Patient education, prescription of initial medication, escalation of medication based on algorithm, referral to higher level care	**Disease outcomes:** SBP decreased from baseline to 3 months: slope -4.95 mmHg/month (–6.55 to –3.35). Retention in care was 42%	Leveraging the existing infrastructure and task redistribution strategy implemented by AMPATH for the treatment and prevention of HIV, clinical support tools, consistent medical supply, linkage and retention activities, stakeholder engagement, social support for patients	Low retention
Sharp et al., 2020	Single observation study (n = 1 125)	South Africa	TSS to nurses	Identification and screening of patients, diagnosis, patient education, treatment, referral	**Disease outcomes:** There was a significant reduction in mean BP among hypertensive patients of 9.9 mmHg systolic and 4.7 mmHg diastolic (p = 0.01) after four visits, and a non-significant reduction in fasting blood glucose among diabetic patients of 1.2 mmol/l (p = 0.2)	Availability of specialist nurse supervision	Stockouts of medication
Labhardt et al., 2010	Single observation study (75 clinics)	Cameroon	TSS to nurses	Preventative care, diagnosis, treatment of hypertension and diabetes	**Disease outcomes:** Among hypertensive patients with ≥ 2 documented visits (n = 493), SBP decreased by 22.8 mmHg (95% CI: -20.6 to -24.9 with p < 0.0001) and diastolic BP by 12.4 mmHg (-10.9 to -13.9 with p < 0.0001). Among diabetic patients (n = 79) FPG decreased by 3.4 mmol/l (-2.3 to -4.5 with p < 0.001)	Training of nurses and availability of equipment to manage hypertension and diabetes	Reallocation of trained staff, medicine availability interruption, high levels of loss to follow-up
Jeet et al., 2017	16 RCTs	China, India, Iran, Nigeria, South Africa, Pakistan, American Samoa, Ghana, Thailand, Costa Rica	TSS to CHWs	Preventative care addressing risk factors	**Behavioural outcomes:** Tobacco cessation in the intervention arm was significantly different from standard care (RR:2.0, 95% CI: 1.11,3.58). Quality of evidence on increased physical activities was very low, and quality of evidence on changes in dietary behaviour was low. **Disease outcomes:** Significant reduction in systolic and diastolic blood pressure (MD [SBP]: -4.03, 95% CI: -5.02, -3.04; MD [DBP]: -2.38; 95% CI: -3.27, -1.49); and in blood sugar levels [glycated haemoglobin] MD: -0.83%, 95%CI: -1.25, -0.41)	Not reported	Not reported
Khetan et al., 2017	4 RCTs, 3 quasi-experimental studies, 3 cross-sectional studies and 1 retrospective analysis	South Africa, Kenya, India, Bangladesh, Pakistan, Iran, Ghana, Mexico, Guatemala	TSS to CHWs	Risk assessment/screening for risk factors	**Disease outcomes:** Of the 11 studies, eight reported that CHWs were able to screen for CVD risk factors, decrease SBP, decrease fasting blood glucose, increase quit rates for smoking, decrease weight and improve diet and physical activity. Due to study heterogeneity, pooled results were not reported	Not reported	Low levels of numeracy and literacy among CHWs, lack of trust in CHWs to conduct cardiovascular risk assessment and make referrals
Vedanthan et al., 2019	Single RCT	Kenya	TSS to CHWs with training and smart phone technology	Encourage linkage to care	**Disease outcomes:** No significant improvement of SBP, linkage to care was reported as 49% overall	CHWs were equipped with smartphone technology that had real-time decision support and data entry and provided tailored messaging and recommendations	Not reported

Note: CHWs = community health workers, HIC = health insurance coverage, HW = health worker, MD = mean difference, NPHWs = non-physician health workers, RCTs = randomized controlled trials, SBP = systolic blood pressure, TSS = task sharing and task shifting

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