



World Health
Organization

Integrating the prevention and control of noncommunicable diseases in HIV/AIDS, tuberculosis, and sexual and reproductive health programmes

Implementation guidance





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Every year, noncommunicable diseases (NCDs) claim the lives of 17 million people prematurely, resulting in the loss of one life every two seconds. Global attention and national action on NCDs over the past two decades have been insufficient to reduce their burden. Most of these deaths are preventable. This is a sobering reality.

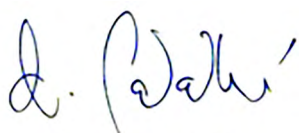
Millions of people – especially in low-income settings – cannot access the prevention, treatment and care that could prevent or delay NCDs and improve their well-being. This huge inequity undermines the human right to attain the highest attainable standard of health and drives poverty in all countries.

The coronavirus (COVID-19) pandemic has underscored the urgent need to strengthen health systems through radical reorientation towards primary health care. The approach reinforces primary health care as the foundation of progress towards universal health coverage, health security and health and well-being for all. Prevention and control of NCDs are integral to this reorientation, and therefore service delivery for NCDs must be integrated into primary health care at national, subnational and local levels, and NCDs included in universal health coverage.

Now, more than ever, countries require pragmatic guidance and recommendations to accelerate country responses, improve the integration of health services into primary health care and strengthen the design and implementation of policies to prevent and treat NCDs. This guidance is a response to that need. Its aim is to support Member States in implementing an integrated health services approach to delivery. It outlines how different health programmes – NCDs, mental health, HIV/AIDS and TB – can work together holistically, and it shows how NCD services can be improved and service delivery of all programmes be scaled up.

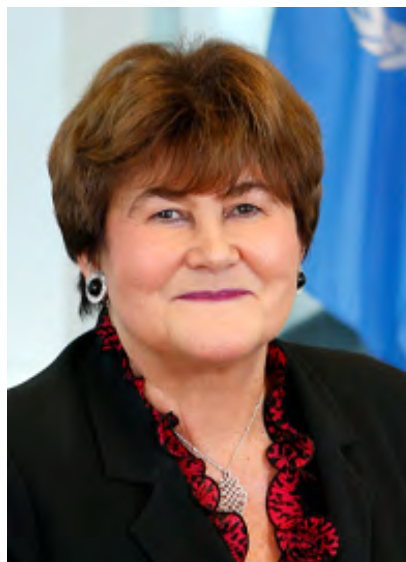
I urge international donors and partners to support the integration of NCDs into health programmes. Wide, rapid implementation of this approach will maximize the impact of health services and extend access to NCD care. This would reverse the growing burden of NCDs, while sustaining the gains of other health programmes.

It is time to stop the millions of needless deaths.



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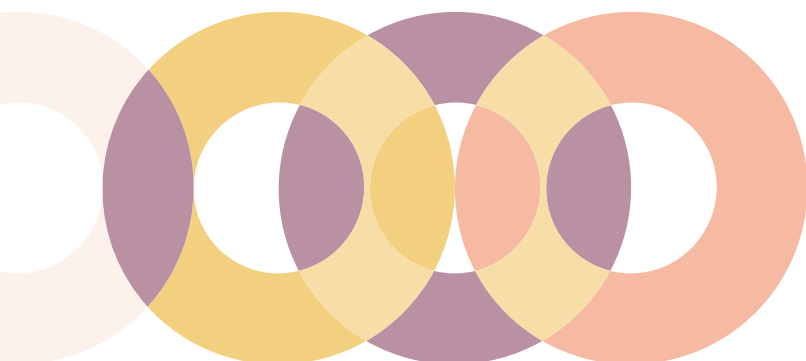
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Acronyms

COPD	chronic obstructive pulmonary disease
COVID-19	coronavirus disease
ICT	information communication technology
LMIC	low- and middle-income countries
NCD	noncommunicable disease
PEN	package of essential noncommunicable disease
PHC	primary health care
SDG	Sustainable Development Goal
SRH	sexual and reproductive health
TB	tuberculosis
UHC	universal health coverage



Glossary

Burden of disease: measurement of the gap between current health status and an ideal situation in which everyone lives into old age, free of disease and disability (1)

Community: unit of population, defined by a shared characteristic (for example, geography, interest, belief or social characteristic), that is the locus of basic political and social responsibility and in which everyday social interactions involving all or most of the spectrum of life activities of the people within it take place (2)

Co-morbidity: one or more additional diseases or disorders occurring concomitantly with a primary disease or disorder (3)

Fragmentation (of health services): (a) coexistence of units, facilities or programmes that are not integrated into the health network; (b) lack of service coverage of the entire range of promotion, prevention, diagnosis, treatment, rehabilitation and palliative care services; (c) lack of coordination among services on different platforms of care; or (d) lack of continuity of services over time (2)

Health service: any service (not limited to medical or clinical services) that contributes to maintenance or improvement of health or to the diagnosis, treatment or rehabilitation of individuals and populations (2)

Health system: comprises: (a) all activities of which the primary purpose is to promote, restore and/or maintain health; and (b) the people, institutions and resources, organized together in accordance with established policies, to improve the health of the population they serve, while responding to people's legitimate expectations and protecting them against the cost of ill-health through a variety of activities (1)

Integrated health services: health services that 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 among different levels and sites of care within and beyond the health sector and according to their needs throughout the life-course (4)

Model of care: conceptualization of how services should be delivered, including the processes of care, organization of providers and management of services; evolves to meet the health aims and priorities of the population and to improve the performance of the health system (2)

Multimorbidity: presence of two or more chronic medical conditions in one individual (3)

Noncommunicable disease: diseases and conditions including diabetes, cardiovascular diseases, cancer, chronic respiratory diseases, mental health conditions, rehabilitative care, sensory impairment (for example, hearing loss and vision loss), oral diseases and neglected diseases such as Chagas disease, rheumatic heart disease and sickle cell disease

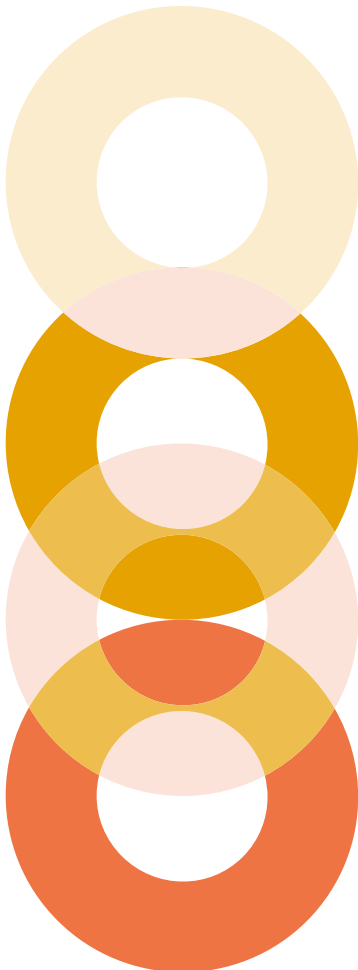
People-centred care: an approach to care in which the perspectives of individuals, carers, families and communities as participants in and beneficiaries of a trusted health system are consciously adopted to respond to their needs and preferences in humane and holistic ways. Also requires that people have the education and support they require to make decisions and participate in their own care (2)

People living with NCDs: a broad group of people who have or have had one or more NCD and also those who are closely connected to someone with an NCD, such as relatives, close friends and carers (5)

Primary health care: a whole-of-society approach to health intended to maximize the level and distribution of health and well-being through three components: (a) primary care and essential public health functions as the core of integrated health services; (b) multisectoral policy and action; and (c) empowered people and communities (2)

Telemedicine: delivery of health care services in circumstances in which distance is a critical factor by health care professionals using information and communication technology for exchanging valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation and for the continuing education of health-care providers, all in the interests of advancing the health of individuals and their communities (6)

Universal health coverage: ensured access for all people to health services of sufficient quality to be effective, while also ensuring that use of those services does not expose any users to financial hardship (2)



1 Background

The global community has made great progress in reducing major health burdens in recent decades, including advances in infectious disease control and treatment, maternal, newborn and child health care and sexual and reproductive health (SRH). These successes have contributed to worldwide gains in life expectancy, particularly in low- and middle-income countries (LMIC). The progress is increasingly threatened, however, by the burgeoning public health challenges of comorbidity and multimorbidity with noncommunicable diseases (NCDs), exacerbated further by challenges in implementing NCD programmes due to the coronavirus disease (COVID-19) pandemic (7).

We examine here experience in and barriers to integration of programmes for the prevention and treatment of NCDs into primary health care (PHC). This includes the experience of integrated delivery of HIV and NCD care in settings with a high prevalence of HIV and NCDs.

1.1 Overview of noncommunicable diseases

In 2019, NCDs caused over 41 million deaths, accounting for 74% of all deaths globally (8). In 2019, 17 million people died from a NCD between the ages of 30 and 69 years, and 86% of those “premature” deaths occurred in LMIC and could have been prevented (8,9). In 2018, the United Nations General Assembly at its third high-level meeting on NCDs called for extending the “NCD 4 x 4 agenda” to an “NCD 5 x 5 agenda”, which would include mental health and air pollution with the four modifiable behavioural risk factors – tobacco use, harmful use of alcohol, physical inactivity and an unhealthy diet – for the four main types of NCDs – cardiovascular diseases, cancer, chronic respiratory diseases and diabetes (10). There is also evidence of a growing prevalence of comorbid conditions among people with chronic diseases. Box 1 lists conditions that contribute to the increasing prevalence of NCDs.

Box 1

Socioeconomic and demographic conditions that contribute to the global burden of NCDs (9)

- globalization, such as marketing and trade of products deleterious to health (tobacco, alcohol and unhealthy foods);
- rapid urbanization, which contributes to physical inactivity and air pollution;
- growing inequity and poverty, setting barriers to access to safe, quality-assured, effective, affordable medicines, medical products and technology; and
- population ageing.

Source: WHO (9) NCD, noncommunicable diseases.

Many people with NCDs do not seek formal care, often because they cannot afford out-of-pocket spending on medicines and travel (11). The global increase in NCDs imposes a huge burden on health systems, undermining many aspects of national development, including workforce productivity, education and quality of life (9), especially in countries that are already struggling to respond to communicable diseases.

The interaction of two or more diseases associated with socioeconomic factors – “syndemics” – places further demands on health systems (12). The global syndemics of obesity and undernutrition and the social, economic, climate and environmental factors that drive them have severe implications in many countries. The COVID-19 pandemic has demonstrated the deadly interplay between communicable diseases and NCDs (13,14). Thus, individuals with NCDs are more vulnerable to severe disease and excess death not only because they are more susceptible to the virus that causes COVID-19 but also due to disruption of essential health services (15,16).

The World health statistics 2020 (17) report showed that, although considerable progress in the prevention and treatment of NCDs was made in 2000–2010, the momentum for change has since slowed in all countries. Generally, LMIC bear the greatest NCD burden, as people living in poverty are the most vulnerable and have the poorest access to health care. The projected cumulative cost of lost output due to major NCDs in LMIC for the period 2011–2025 is more than US\$ 47 trillion if no action is taken, referred to as the “cost of inaction” (18). Investment of an estimated additional US\$ 1.27 per person per year in LMIC could save 8.2 million lives, reduce premature mortality from NCDs by 15% and generate US\$ 350 billion in economic growth by 2030.

In 2015, the United Nations General Assembly prioritized NCD prevention and care in the 2030 Agenda for Sustainable Development (19) and the Sustainable Development Goals (SDGs). SDG target 3.4 is to reduce premature mortality from NCDs and enhance mental health and well-being through effective NCD prevention and control by whole-of-government, whole-of-society approaches throughout the life-course. This could be achieved by cost-effective, evidence-based interventions such as those outlined in the WHO Global NCD action plan 2013–2020 (extended until 2030) (10), the implementation road map for the WHO global action plan, the WHO “best buys” and other recommended interventions (Box 2) (20).

Box 2

Selected WHO global guidance on NCD prevention and control

The WHO Global NCD Action Plan 2013–2020 (extended until 2030) (10) provides guidance on strengthening NCD prevention and control through people-centred PHC and UHC.

Tackling NCDs: “best buys” and other recommended interventions for the prevention and control of NCDs (20) recommend policy options and cost-effective interventions for Member States to adapt to achieve SDG target 3.4.

The WHO PEN interventions for primary care (21) comprises cost-effective interventions that can be delivered at an acceptable quality. PEN-plus strategies are used in Africa in an integrated platform at first-referral hospitals and include additional priority conditions, such as diabetes type 1, rheumatic heart disease, sickle cell disease and palliative care.

The WHO Mental health gap action programme (22) provides evidence-based guidance and tools for integrated management of mental, neurological and substance use disorders in non-specialist health settings.

Sources: WHO (10), WHO (20), WHO (21), WHO (22).

NCD, noncommunicable diseases; PHC, primary health care; SDG, Sustainable Development Goal; UHC, universal health coverage; PEN, package of essential noncommunicable disease.

1.2 Global mandate for integration of noncommunicable diseases into other health programmes

In 2011, heads of state and government at the United Nations General Assembly formally acknowledged that NCDs are one of the major challenges to development (23) and committed themselves to integrate NCD prevention and control into other programmes, such as for HIV/AIDS and broader SRH and maternal and child health programmes, especially in PHC. The commitment to integrate NCDs into existing disease programmes was reaffirmed through resolutions at its third high-level meeting, in 2018.

1.3 Concept and framework of integration

Continuum of integration

Integration consists of the organization and management of health services so that people receive the care they need, when they need it, in ways that are user friendly, achieve the desired results and provide value for money. It encompasses the organization of the various tasks that are necessary to provide a population with good-quality health services to ensure continuity of care over time. This includes lifelong care for chronic conditions and a continuum of care along the stages of the life-course, through gestation, infancy, childhood, adolescence and adulthood.

Integration is thus a means to an end, not an end in itself, a continuum rather than the two extremes of integrated or not integrated. It shifts from fragmented, supply-oriented models of care towards UHC, ensuring access to high-quality health services for all, with consideration of social determinants of health and gender equity.

Fig. 1 illustrates the continuum of integration towards integrated, people-centred health services through PHC.

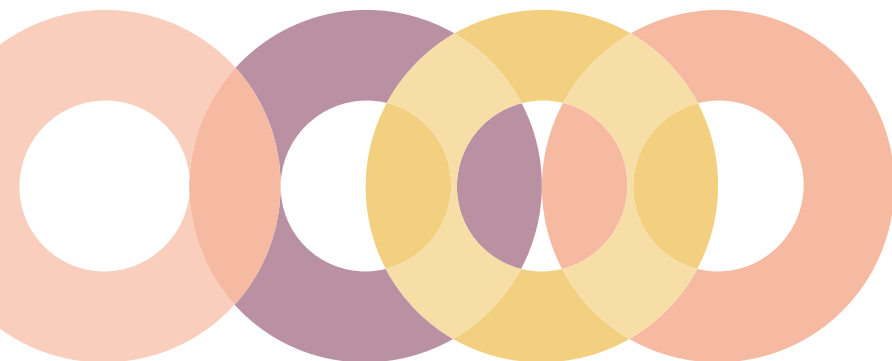
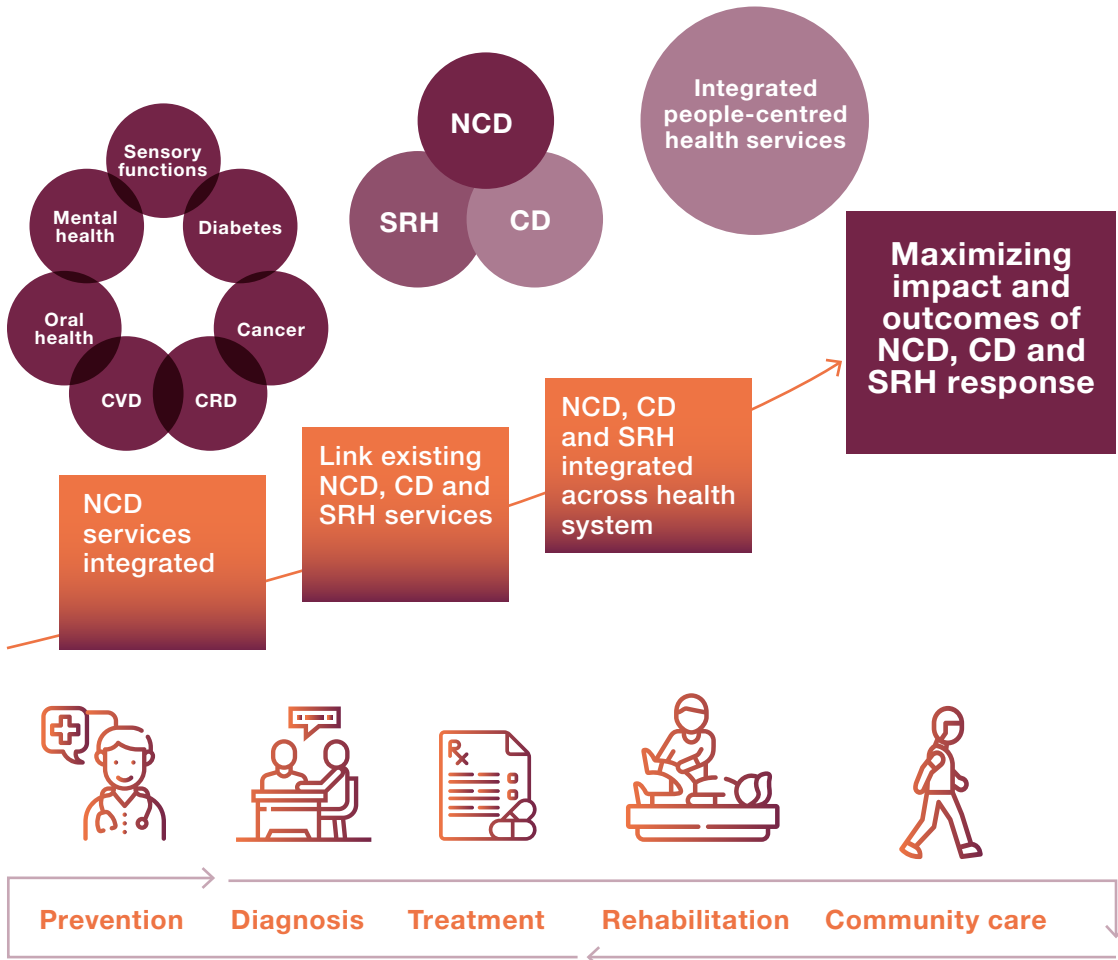


Fig. 1. Continuum of integration of noncommunicable diseases into people-centred health services



CD, communicable disease; CRD, chronic respiratory disease; CVD, cardiovascular disease; NCD, noncommunicable diseases; SRH, sexual and reproductive health.

Types of integration

“Integration” has different meanings and applications in different services, systems and programmes and across dimensions, with different providers working together to deliver services. Various types of integration have been defined (24,25), three of which are relevant to this guidance: functional, service and organizational (Table 1).

Table 1. Types of integrated care

Type of integration	Elements
Functional	Administrative and support functions and activities (financial, medicines, management and information systems) structured and integrated for the primary process of service delivery
Service	Integration, coordination and organization of (mainly) clinical health services
Organizational	Coordination of organizations through contracts, strategic alliances, knowledge networks or mergers to deliver comprehensive services to a defined population

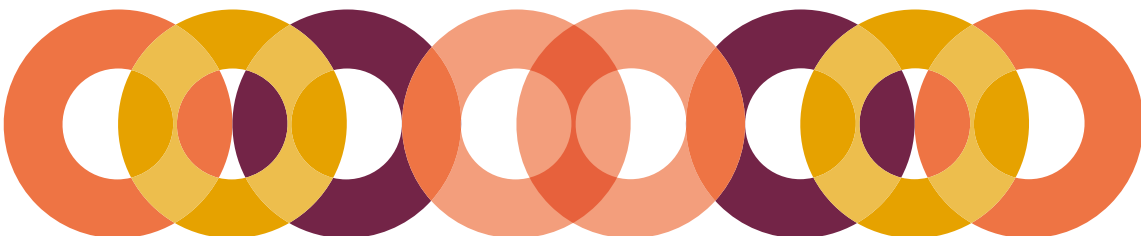
1.3 Integrated, people-centred health services

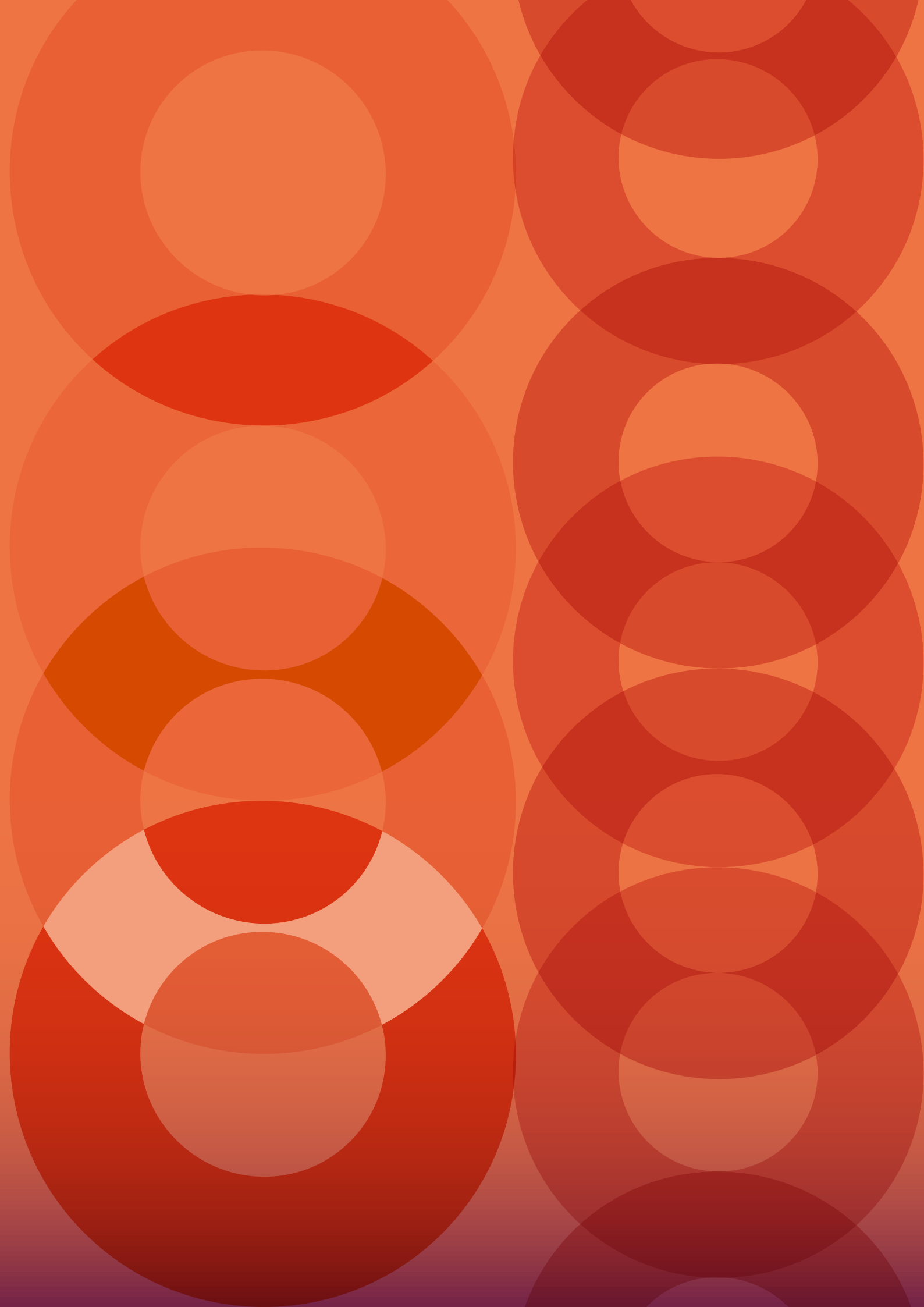
“People-centred care” is an approach to care in which the perspectives of individuals, carers, families and communities are consciously adopted, as they are participants in and beneficiaries of trusted health systems that are organized around the comprehensive needs of people rather than individual diseases and in which social preferences are respected. Integrated people-centred health services are a core component of PHC, which is a whole-of-society approach to maximizing the quality and distribution of health and well-being, as set forth in SDG 3.

Operationalization of PHC comprises placing primary care and essential public health functions at the core of integrated health services through a multisectoral policy and empowering people and communities, avoiding fragmentation of health systems and ensuring better coordination and collaboration with organizations and providers in all care settings to deliver health services that meet people’s needs.

The aim of Integrated health services is to increase efficiency and avoid duplication of efforts, maximize synergies and prevent and treat diseases with shared risk factors in common management frameworks (9). At global level, integration of health services is based on the Framework on integrated people-centred health services (4), which proposes five strategies: engaging and empowering people and communities, strengthening governance and accountability, reorienting the model of care, coordinating services among sectors and creating an enabling environment. The framework is useful for analysing integration initiatives.

This guidance is designed to facilitate the implementation of WHO integrated, people-centred health services (4) and the PHC operational framework (2) for NCDs. It describes learning from experience and actions for decisions. It provides pragmatic, holistic solutions, such as evidence-based checklists, practical considerations, case studies and tools for various stakeholders. It includes pragmatic recommendations for ensuring comprehensive, integrated NCD care in complex situations and settings.





2 Introduction

2.1 Objectives and target readership

This guidance outlines strategic actions and practical solutions for integrating NCD services into other programmes and broader health systems, as appropriate and relevant to the country context. The objective is to maximize the impact of health services and extend access to NCD care. The document describes experiences in implementation, barriers and pragmatic solutions for particular settings and contexts, particularly low-resource settings in both LMIC and high-income countries. The perspectives of front-line service providers and patients are key elements in integrating NCD services into PHC. The guidance also addresses interactions among front-line physicians, nurses, community health workers, patients and communities. The guidance is not intended to replace guidelines on individual clinical diseases or service packages or on the effectiveness of interventions.

The target readers are policy-makers, programme managers and health providers. The guidance should also be useful for WHO and international partners (including donors and banks) that champion integrated support for NCD service delivery and better management in countries.

2.2 Preparation of the guidance

The guidance was produced as a WHO “global public health good”, a public health product developed by WHO for the benefit of countries. Writing of the guidance was coordinated by the Integrated Service Delivery Unit of the WHO Department of Noncommunicable Diseases, with inputs (including planning, provision of documents and case studies) from a WHO technical working group comprising staff from relevant departments at headquarters and regional offices. All three levels of WHO were consulted during development and “packaging” of the guidelines. An external expert group reviewed and commented on the draft guidance and reviewed the method and findings. The expert group was selected for expertise relevant to the domains of recommended actions, diversity of disciplines and perspective, gender and geographical distribution as well as experience in complex settings. Conflicts of interest were managed according to the WHO rules.

Users and a wider audience were consulted through a public consultation on the WHO website, WHO webinars and other networks, including WHO collaborating centres.

The Framework on integrated people-centred health services and other WHO documents were instrumental in preparing the guidance. These included:

- a technical brief on Integrated health services – What and why? (26);
- health financing diagnostics and guidance system-wide approach to analysing efficiency across health programmes (27);
- final report of the working group on the inclusion of NCDs in other programmatic areas (9) for the WHO global coordination mechanism on the prevention and control of NCDs;
- a technical brief on Primary health care as an enabler for “ending the epidemics” of high-impact communicable diseases (28);
- an operational framework for primary health care (2); and
- publications on PHC and health system strengthening for NCD services by the WHO regional offices for the Americas (29), Europe (30) and the Eastern Mediterranean (31), supplemented by discussions of priorities for NCD service integration with other WHO regional and country offices.

This guidance was prepared in:

- WHO technical working group meetings and follow-up consultations with countries and regions;
- a commissioned review of models of integrated service delivery for NCD interventions in LMIC;
- a review of systematic reviews on use of the WHO working definition of integrated service delivery, frameworks, models and measurements (with the findings presented to working group meetings);
- a commissioned rapid qualitative systematic review on experience of factors and barriers that determine NCD service integration into PHC;
- other systematic and other reviews (see references);
- literature reviews and a synthesis of case studies, including evidence from evaluation studies, implementation research and realistic evaluations;
- grey literatures, such as field stories, unpublished reports and evaluations, such as integration of NCD services in conflict settings and/or in the context of the COVID-19 pandemic;
- an “appraisal through survey” by an external group of experts and an expert group consultation on the draft guidance;
- a public web consultation;
- WHO webinars, including a series of WHO NCD “hard talks”; and
- drafting group meetings on “packaging”, concept, structure, content and filling gaps.

This guidance is designed to be interactive and “living”, with the provision of updated and derivative products in 3–5-year cycles. A mechanism has been established to facilitate the collection and synthesis of emerging evidence in the literature and country application of this guidance.

2.3 Review of evidence

The evidence and content of this guidance (Table 2) were derived from a commissioned qualitative systematic review, a commissioned scoping review, literature reviews, a synthesis of case studies, which included evidence from realistic evaluations, implementation research, published models of integrated NCD service delivery, unpublished cases of country implementation and input from external experts and from WHO regional and country offices and working groups. About 10 systematic reviews and/or meta-analyses were used to complete the evidence and understanding of the content and provide practical knowledge.

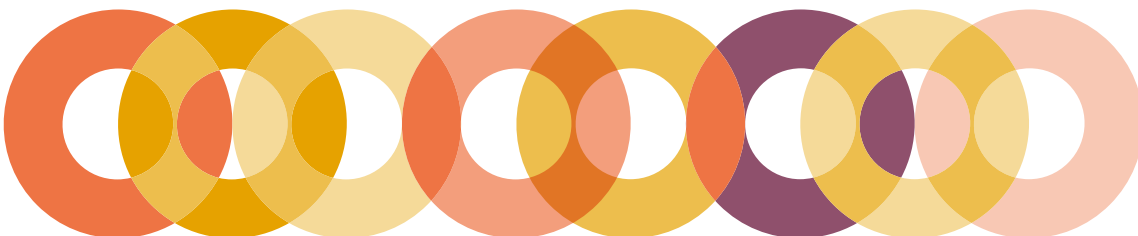


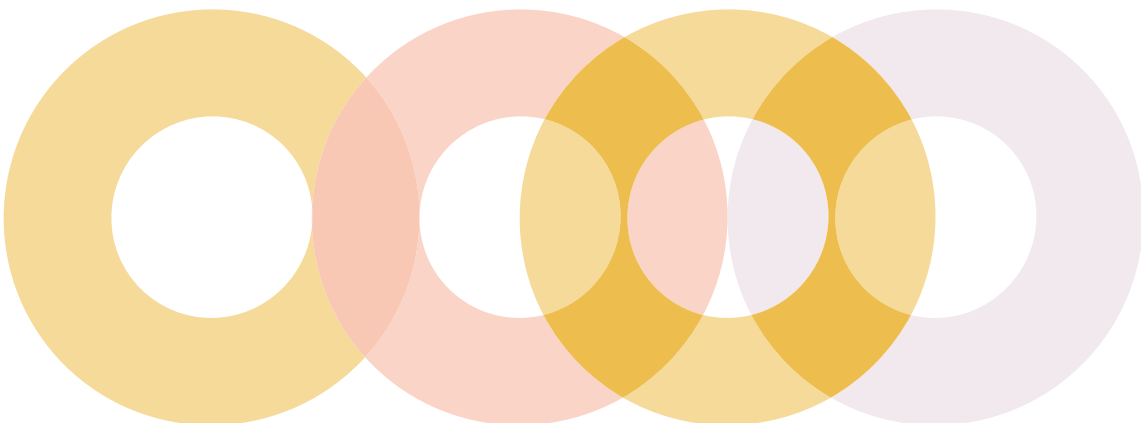
Table 2. Summary of evidence and process for developing the guidance

	WHO technical group consultation	Rapid qualitative review	Additional reviews and case studies	Expert group meeting	Appraisal through surveys	Public consultation	Others
Planning and scoping	✓						
Focus	✓						Desk review, review of systematic review
Objective	✓						
Method	✓			✓	✓		Desk review, review of systematic reviews Expert consultation, including WHO Science Department of Quality Assurance of Norms and Standards, and external experts
18 key considerations: evidence base	✓	✓	✓	✓	✓	Overall satisfaction, relevance, adaptability	Final survey (no objections) on 18 key considerations
Community and people		✓	✓✓	✓✓	✓		Grey literature, field stories
Policy and leadership		✓	✓✓	✓	✓		
Financing		✓	✓	✓	✓		WHO webinar, NCD “hard talks” WHO small expert group
Capacity and infrastructure		✓	✓	✓	✓		WHO webinar, NCD “hard talks”
Model of care		✓	✓✓	✓	✓		Grey literature, reports from conflict settings and during COVID-19
Other narratives including typology	✓		✓	✓		✓	WHO documents
Systematic reviews and meta-analyses	✓			✓	✓	✓	Small WHO expert group

NCD, noncommunicable diseases. One tick indicates contribution; two ticks indicates greater contribution.

The objective of the commissioned systematic review was to synthesize and appraise qualitative evidence on factors that affect integration of NCDs into PHC. The systematic review was conducted by standard methods and those of the Cochrane Collaboration for rapid systematic reviews of qualitative evidence, with adaptation to ensure robust synthesis of the evidence. The result of the review was then appraised with the WHO integrated, people-centred health services strategy, the PHC operational framework and other relevant NCD and health system guidance to ensure coherence and consistency.

The objective of the commissioned scoping review was to understand the models of integrated NCD service delivery in resource-constrained settings and patterns in the design and implementation of the models. The review comprised 219 models of integration of NCDs or neuropsychiatric conditions implemented in an LMIC described in 188 studies. The types of service integration were synthesized in narrative form.



3 Integration of services for noncommunicable diseases

The scientific review and evidence-based best practices resulted in 18 recommended actions, which were grouped into five domains aligned to the WHO PHC operational framework and integrated, people-centred health services. These actions are specific to NCD integration but applicable to other programmes of work. After the scientific review and evidence-based best practices, the recommended actions were described in more detail to ensure their use in countries, with specific actions, tools and relevant case studies (Table 3).

Table 3. Summary of actions, appropriate tools and case studies

Domain	Recommended action	Specific activities	Tools	Case studies (see Annex 1)
1. People and community	1.1 Engage and empower people living with NCDs and their communities.	1.1.1 Community mobilization 1.1.2 Community-led or -driven care 1.1.3 Community support groups for NCD services	Community engagement guide for UHC Tool on self-care ^a Community mobilization for NCD services ^a	1–5
	1.2 Develop patient-centred measures and monitoring systems.	1.2.1 Refine measures and monitoring systems 1.2.2 Monitor patient outcomes and experiences	Care cascade and patient pathway analytics tool Protocol: Assessment of patient experience and service provision culture Questionnaire for continuity of levels of care Survey: Measure patient experience	6–8
2. Policy and leadership	2.1 Provide policy directives for integration.	2.1.1 Legislation for universal access to health care 2.1.2 UHC policies; national essential or UHC benefits package 2.1.3 Policy directives for integrating programmes for several diseases 2.1.4 Broad policies for addressing the social determinants of health and health for all	Health interventions for UHC. PHC operational framework WHO 3-D priority-setting and decision-making framework Strengthening NCD service delivery through UHC benefits package report ^a	5, 9–13
	2.2 Align political, institutional and health systems with the necessary resources.	2.2.1 Align multisectoral NCD plans with national health sector plan 2.2.2 Cost national NCD plans, and align resources	Multisectoral planning tool One Health tool Strategizing national health in the 21st century: a handbook	14
	2.3 Provide transformational leadership and good change management.	2.3.1 Create and support a transformation team for NCD service integration 2.3.2 Conduct leadership training	NCD leadership course ^a	15

NCD, noncommunicable diseases; PHC, primary health care; UHC, universal health coverage.

^a In preparation.

Domain	Recommended action	Specific activities	Tools	Case studies (see Annex 1)
3. Financing	3.1 Align financing mechanisms and sources to ensure implementation of national health plans and NCD service integration objectives.	3.1.1 Leverage health financing for integrated care	Prioritization of NCD in UHC benefits design ^a Developing a national health financing strategy	11, 14, 16
	3.2 Ensure that financing is available for services, structural resources, processes and service models.	3.2.1 Develop budgets, and ensure resources for local implementation		11, 16–20
4. Capacity and infrastructure	4.1 Build multidisciplinary teams.	4.1.1 Create and sustain a multidisciplinary team	Establish a multidisciplinary team in steps	21–24
	4.2 Provide comprehensive, tailored, flexible, interactive training in integration.	4.2.1 Competence-based curriculum. 4.2.2 Training to provide integrated care	NCD learning framework ^a Integrated NCD care for front-line workers ^a	25–28
	4.3 Ensure strong operational management and human resources development.	4.3.1 Workforce planning	Health labour market analysis guidebook Task-sharing report ^a	24–25
	4.4 Provide adequate infrastructure for delivering integrated NCD care.	4.4.1 Infrastructure planning NCD leadership course ^a		29
	4.5 Develop strong procurement systems to meet the requirements of NCD services .	4.5.1 Develop and implement robust procurement policies	Medicines quantification tool ^a Access to NCD medicines: emergent issues during the COVID-19 pandemic and key structural factors ^a	30
	4.6 Ensure robust NCD information and technology for integration.	4.6.1 Use information and communication technology (ICT) systems for exchanging health information 4.6.2 Train providers in ICT 4.6.3 Maximize use of technology in service integration	District Health Information Software 2 (DHIS-2). WHO family of international classifications, including of diseases Primary health care monitoring framework of indicators NCD facility-based patient and programme monitoring ^a	31–33

^a In preparation.

Domain	Recommended action	Specific activities	Tools	Case studies (see Annex 1)
5. Models of care for NCDs	5.1 Assess health system functioning, strength and “readiness” for integration.	5.1.1 Assess with existing tools	Health systems performance assessment framework Service availability and readiness assessment Care cascade and patient pathway analytics tool WHO Regional Office for the Eastern Mediterranean differentiated framework and approaches to NCD integration	7, 13, 30, 34–36
	5.2 Ensure a system of NCD care that is compatible, acceptable, feasible and integrated into services.	5.2.1 Cooperatively create a model of care for NCD integration	Universal health coverage compendium Model of NCD integrated services ^a Protocol: A mixed-methods study to adapt and implement integrated mental health care	4, 14, 20, 28, 37–41
	5.3 Clarify the roles and functions of providers.	5.3.1 Role delineation 5.3.2 Private sector landscape	Private sector landscape in mixed health system Health system responsiveness tool	42
	5.4 Engage with managers and providers throughout integration.	5.4.1 Regular communication and collaboration		15, 25, 27
	5.5 Ensure effective coordination, supportive supervision and mentoring.	5.5.1 Supportive supervision and mentoring 5.5.2 Clinical mentorship	Measure service coordination among primary care, hospitals and long-term care services	2, 43, 44

^a In preparation.

Fig. 2. Integration of noncommunicable diseases

Readers can also use the above interactive figure (Fig. 2) to access the information easily.

In the following text, under each of the five domains, each recommended action is described, with recommendations for implementation and links to tools and case studies.

3.1 People and community

3.1.1 Engage and empower people living with NCDs and their communities

Integration of services must begin with the recipients of integrated health services – people. To improve patient- and people-centredness, it is critical to involve communities and people living with NCDs in planning, implementing, monitoring and shaping NCD and other services and ensuring accountability for outcomes (32).

Encouraging citizen and community participation through health education, self-care, social control and satisfaction surveys is an important aspect of integration strategies (29).

Community mobilization

Communities should be mobilized at various stages of planning and responding to care services. In a community model for hepatitis C elimination in rural Egypt, villages adopted four components (33):

- an educational and testing campaign, facilitated by a network of villagers;
- an educational campaign conducted by house-to-house visits and messages about safe practices to reduce transmission at public events;
- fund-raising from the local community; and
- free testing, with links to care and treatment for all eligible villagers.

Community-led or -driven care

Community support affects many aspects of services, ranging from access to survival. For example, a review on task-shifting among lay community health providers to achieve sustainable, integrated antiretroviral treatment in resource-limited settings with a high prevalence of HIV found a clear positive impact of community support on access, coverage, adherence, virological and immunological outcomes, patient retention and survival (34). Involving the community and adapting the WHO Mental health gap action programme guideline in Mozambique reduced the gap in treatment of epilepsy and made the programme sustainable (35). The outcomes of integrated care from the perspective of patients with complex health-care needs (36) were better access to care, collaborative relationships and personalized care.

Studies in Bangladesh, Oman and South Africa showed that the factors that determine access to care and use of health services by communities include affordability, health-seeking behaviour and perceived quality of care (37,38). The involvement of communities and their assumption of responsibility and also of health-care providers and governments are required for good-quality care and service integration (39).

Community support groups for NCD services

The community has a strong influence on peoples' lives and health. For instance, analysis of integrated community case management of malaria, pneumonia and diarrhoea in Rwanda showed that the perceived quality of services directly influenced community use of services (40). A study in Oman on the quality of integrated services for diabetes, including education on a healthy lifestyle and treatment in primary health centres, demonstrated the influence of community cultural beliefs, traditions, health awareness and public transport on diabetes care (39). Participation of municipal authorities and local government may be necessary to lead integration of NCD services, including prevention, and delivering wider social benefits (41,42).

Tools

- Community engagement guide for universal health coverage (43)



Case study 1: Involving patients and community health workers in the provision of integrated chronic care. Why does task-shifting work or not work? A realistic evaluation in South Africa

Case study 2: What does people-centred NCD care mean? The Bhutan PEN/HEARTS programme

Case study 3: Achieving meaningful youth participation in integrated sexual and reproductive health policy development in Bolivia (Plurinational State of)

Case study 4: Using a patient-centred approach to care for people with multiple chronic conditions in Germany

Case study 5: Lifecycle client centered integrated service package during COVID-19: Philippines



Implementation research on endemic disease targeting sustainable solutions than can be integrated in daily life in community, United Republic of Tanzania. Photo credit: WHO / Andy Craggs

3.1.2 Develop patient-centred measures and monitoring systems.

Refine measurements and monitoring systems

Measurement and monitoring systems should be refined to incorporate a patient-centred approach to facilitate measurement of patient use and experience in patient pathways, integrated services and their effects on patient health (29,32). This is particularly important when patients are moved from one level of care to another. Tools such as questionnaires could be used to measure patients' perceptions and satisfaction with integrated care.

The World Bank's care cascades and patient pathway analytics (44) are useful for understanding the main barriers in the care continuum, such as high rates of drop-out of patients.

Examples of patients' perceptions of the continuity of care to be rated as "always", "often", rarely" or "never" (45):

- **Transfer of medical information:** The professionals attending to me know my medical history.
- **My general practitioner or specialist** is aware of the instructions given to me by a specialist.
- **Coherence of care:** My general practitioner agrees with the specialist's instructions.
- **Access among levels:** My appointments with the specialist are arranged at the primary care centre.
- **Patient-provider relationship:** I have confidence in the professional ability of my general practitioner.

Monitor patient outcomes and experiences

Patient opinions and experiences are important for monitoring and adapting integration of NCD services and ensuring accountability (29,46-50). Bhutan's experience in implementing the WHO PEN (21) and WHO HEARTS (51) in districts showed that people-centred care can change the attitudes of health-care workers and managers.

Health Consumers Australia, an umbrella organization for patients, draws on patient and community knowledge in making decisions about health policy and programmes to ensure that patients are advocates and leaders of appropriate, equitable health care (52).

Tools

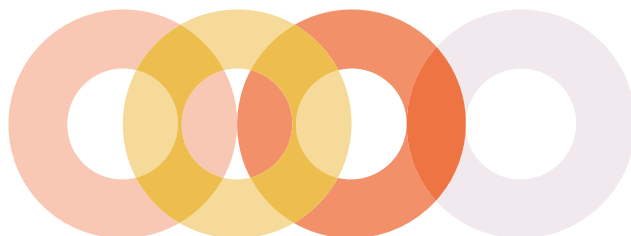
- Care cascade and patient pathway analytics tool (53)
- Protocol: Assessment of patient experience and service provision culture. A guide to clinic ethnography (54)
- Users' questionnaire: Questionnaire for care continuity across care levels (55)
- Measure patient experience: Development of a survey instrument to measure patient experience of integrated care (56)



Case study 6: Implementing a shared information exchange system to integrate and improve diabetes care and other NCD services in Canada

Case study 7: Coordination and integration of care for clinical and managerial decision-making and maintaining NCD essential service during COVID-19 in Oman

Case study 8: Measuring PHC system performance with a shared monitoring system in Chile



3.2 Policy and leadership

3.2.1 Provide policy directives for integration

PHC and health systems must be reformed in order to reorganize services and integrate NCD services, as reported in several countries. Policies for integration are the starting-point for breaking down silos and encouraging investment of the resources required for NCD services. Policy directives should address the macro issues that can be tackled by integration and PHC reform. Strategic policies and legislation then provide a legal foundation and guidance for management of integrated service delivery (57).

Integration strategies must be politically feasible for the country (29). A policy that does not change frequently increases the likelihood of successful integration, as it increases the confidence and commitment of stakeholders (29,49). While frequent changes are disruptive, however, they do not necessarily preclude integration, as seen in Germany's pragmatic policy reform, which changed from cost containment to enhancing efficiency and sustaining UHC (58). At the organizational level, a favourable environment for policy and implementation can encourage sustained integration through: (i) a shared perception that integrated care is supported and rewarded, (ii) agreement among providers and staff on integrated care and (iii) the readiness of the workforce to provide integrated care (32).

When there is no high-level policy, integration could begin as an informal agreement and subsequently evolve into a more formal agreement with the necessary political and legal basis (29). Any gaps in information or political commitment for NCD service integration should be addressed (50).

The following policy instruments are useful for integrating NCD and other services into the health system according to evidence and country experiences.

- **Legislation for universal access to health care**, with due attention to NCDs. Currently, 78 WHO Member States have legislation on UHC (59). These must include and emphasize NCDs and integration.
- **UHC policies for health systems strengthening and integration** can create an enabling environment for integrating NCD services (47). **A national essential or UHC benefits package** is a set of publicly financed, evidence-informed, prioritized individual and population-based interventions defined deliberately to account for people's health needs and the country's economic reality and social preferences. The strategies and activities in a national NCD plan should be translated into priority services in the national UHC benefits package, with other important disease programmes. The requirements for integration of NCD services must be reflected in workforce policies and planning as well as in procurement mechanisms for medicines and other health products.
- **A policy of integrating programmes for several diseases** creates a good environment. Examples are the integration of prevention of mother-to-child HIV transmission services into antenatal care and NCD into HIV programmes in Malawi and Uganda (60,61).
- **Broad policies for addressing the social determinants of health and health for all**, which include socioeconomic barriers to health and well-being and promote multisectoral collaboration, such as integration of mental health into PHC through information campaigns (including on stigmatization) and social welfare and income-generating initiatives (49).

Tools

- Health interventions for universal health coverage (62)
- Operational framework for primary health care (2)
- WHO 3-D priority-setting and decision-making framework (63)
- Strengthening NCD service delivery through UHC benefits package: technical meeting report (64)



Case study 5: Lifecycle client centred integrated service package during COVID-19: Philippines

Case study 9: Building on a national mental health initiative to address perinatal depression in primary care in Viet Nam

Case study 10: Leveraging federal telemedicine policy for an innovative home-based programme for patients with chronic obstructive pulmonary disease (COPD) in Denmark

Case study 11: Evolution of health financing legislation in Germany towards integrated, evidence-based health care

Case study 12: Scaling up a national telemedicine initiative to improve access to acute stroke care in France

Case study 13: NCD emergency kits in Afghanistan: an opportunity to integrate NCD services into PHC in crises

3.2.2 Align political, institutional and health systems with the necessary resources.

Appropriate governance (political, legal, and administrative), that includes an enabling policy environment and alignment across management levels, as well as alignment with health system and resources, are key to enable implementation and for sustainable integration reforms. Good collaboration and clear communication must be maintained among stakeholders (29,65,66).

Align multisectoral NCD plans with the national health sector plan

Much progress has been made in countries in preparing national multisectoral NCD plans and strategies, but not all plans are aligned with the WHO guidance nor congruent with national health sector plans. Over 110 LMIC had produced national multisectoral NCD action plans and uploaded them onto the WHO online NCD document repository by 2019. Although most were aligned with the WHO Global NCD Action Plan, they had not necessarily been implemented through the national health sector plan (67).

To ensure alignment of national NCD strategies and policy with the national health sector plan and health policy, national, provincial and local government stakeholders must be strongly engaged in policy dialogue to ensure convergence in developing costed action plans with specific roles and responsibilities for each sector, including health (68).

Cost national NCD plans, and align resources

An assessment of the NCD multisectoral action plans in the 110 LMIC found that half did not include the costs or priorities or an overall funding plan (60). Suggestions for aligning plans and policies with resources for implementation include:

- defining a health financing strategy (69,70) (See section 3.3);
- considering criteria and appropriate indicators to plan optimal, needs-based, equitable allocation of resources (71); and
- allocating resources in an annual government work plan and budget (68) (See section 3.3).

Tools

- NCD multisectoral action planning tool (72)
- One Health tool (73)
- Strategizing national health in the 21st century: a handbook (74)



Case study 14: Pioneering integrated, patient-centred models of care for elderly people with chronic conditions in Sweden

3.2.3 Provide transformational leadership and good change management.

Integration is a complex health reform that requires transformational leadership and good change management and strategies. A balance must be achieved between centralized, structured, directive leadership and more flexible, local, front-line leadership. Integration also requires an organizational and management culture that encourages participation, collective action and teamwork, especially among clinicians. While hierarchical management and a clinical or medical culture can promote standardization and control in integration, lack of flexibility may limit the ability of staff to overcome challenges (49).

Transformational leadership can balance a centralized, structured, directive leadership at the macro and meso levels with more flexible local, front-line leadership (29,32,49,66,75). It can also balance structured, directive plans for standardizing the type and form of integration with a more flexible approach that can be adapted locally and encourages innovation.

Organizational culture can facilitate or hinder health service integration. One that supports good-quality leadership, collective action and teamwork is required. Given the complexity of the changes required for integrated delivery of services, an organizational culture that is outward looking and open to innovation is essential (57). As a strong organizational culture is necessary for integration, sensitization and capacity-building are important.

Create and support a transformation team

A team responsible for integration at macro (country and system), meso (institution and organization) and micro (frontline and clinical) levels should be formed. It should have shared leadership, conduct strategic planning and coordination and be accountable for progress. A leader and champion of NCD should be included on the team. The team should make and enforce clear decisions and monitor progress (Table 5), and the leadership structure should ideally be aligned with responsibilities at each level – system, local government and decision-makers, facilities and clinical leadership (Fig. 3) (66–68).

Characteristics of transformational leadership and good change management are (29,49,66,77,78,79):

- Supports both the infrastructure, finance, human resources and supply systems and the values, attitudes, preferences and practices for integration.
- Engages providers and manages expectations; ensures stakeholder acceptance at the start and manages fluctuations in degrees of engagement during implementation.
- Facilitates meaningful, sustained partnerships among organizations, with commitments to collaborate and share resources.
- Ensures continuous monitoring and accountability; shares knowledge to improve integration.
- Demonstration of early gains and measurable results can encourage and sustain integration.

Fig. 3. Characteristics of leadership styles and tasks for different levels of integration (macro, meso, micro)



Source: Adapted from Nieuwboer et al. (76). IP, inter-professional.

There might be a bridging agent for change, such as an externally funded research agency (49) or a community–academic partnership for increasing knowledge, promoting buy-in and fostering the engagement of stakeholders (32). In this instance, there should be shared leadership, strategic planning and understanding of change management at all levels for coordinated action in integrating service delivery, as emphasized in the report of the Integration Joint Board in Scotland on integration of health and social care (80).

The agent of change at organizational level, with senior management, makes the business case for integration, secures the necessary resources and promotes collaboration among all levels of health service delivery (66). Facility managers should champion integration among health workers on the front line and manage change operationally. An evaluation in South Africa showed that task-shifting was effective only if clinical managers responded to the constantly changing system and to conflict among staff. Clinicians and champions are also important for ensuring the credibility of an intervention and acceptance by clinical staff (57,66,79). The skills required for clinical leadership (76) are relational and organizational and involve management of the process and the change, ideally by physicians.

Case study 15: Driving integration of diabetes care through collaboration of macro-, meso- and micro-level teams in the United Kingdom

Conduct training in leadership

Transformational leadership requires a range of competences and the ability to influence stakeholders, create collaborative environments in which effective policies can be implemented and work across sectors to mobilize resources for health. Strong leaders are skilled in negotiating, making visionary decisions on how to drive change management, allocating funds appropriately and coordinating to ensure that the required actions are planned and implemented for the ultimate provision of NCD services.

Leadership training will equip national NCD directors and programme managers with the essential competence for leadership and action towards strengthening health systems to deliver integrated people-centred NCD services.

3.3 Financing

3.3.1 Align financing mechanisms and sources to ensure implementation of national health plans and NCD service integration objectives.

Health financing should support and incentivize the delivery and use of integrated care. Financing sources and models should be aligned to ensure implementation of national health plans and policies for integrating NCD services. Furthermore, in LMIC, to avoid more fragmentation and inequity in the quality of services for different diseases, donor funding must be harmonized with government funding.

Leveraging health financing for integrated care

Health financing consists of the institutional arrangements that determine how resources are collected, pooled, allocated and used to purchase health services for the population. Health financing has a political dimension, as it determines who pays for and receives services, but also has a technical dimension: certain institutional arrangements can contribute better to UHC than others.

Decisions on health financing are made along a continuum: some are incremental, while others constitute major reforms. Health financing is a critical lever in terms of promoting or detracting from the objectives of integrated care. As a result, champions of integrated care must be aware of the technicalities while remaining ready to seize opportunities.

Some countries have a specific policy to develop a health financing strategy (69). Such national strategies cover all functions, policies, links and alignments in the health system and provide detailed country-specific objectives with a prioritized set of actions to address the problems identified within a specified period (e.g., 5–10 years). Such strategies also cover how reforms should be sequenced. Usually, development of a health financing strategy is participatory and is therefore an arena in which “integration champions” can ensure that integration is taken into account.

Leveraging health financing for integrated care requires attention to the three main areas of health financing (64,69,81): raising revenue, pooling revenues and strategic purchasing and design of benefits.

Raising revenue

Although this is a generic function, often at the level of general government, revenue-raising can be leveraged. General guidance is to limit out-of-pocket payment at the point of use and to promote mobilization through compulsory, pre-paid contributions, such as taxes. Advocacy for “sin taxes” on products and goods that are harmful to health and that contribute to increasing numbers of cases of NCDs is one way to promote health and increase general government revenues.

In general, funding of NCD services and their integration is the responsibility of domestic financing; however, foundations, development banks, international nongovernmental organizations and other aid actors can be approached to support integrated care. Advocacy can be used for integrating NCD services into aid for specific diseases. For example, the Global Fund to Fight AIDS, Tuberculosis and Malaria recently endorsed catalytic funding to strengthen integration of service delivery and to provide comprehensive health workforce support, with emphasis on patients with HIV, tuberculosis (TB) and NCDs (82). This reflects overall recognition of the issue of co-morbidity and the necessity of providing a comprehensive range of services that meet patients’ needs and not only those specific to one disease. The principle that integration is beneficial at the level of service delivery also applies to health financing. Donors should, as much as possible, channel their resources via “integrated channels” to support overall public finance management systems. As for any principle, there may be exceptions, with the recognition that project-oriented funding can be a catalyst for developing and pilot-testing new service delivery models, especially those for the most vulnerable populations.

Given reliance on public, pre-paid, pooled resources to achieve coverage objectives, in general, the availability of revenue in the form of “fiscal space” will determine the scope of services that can be funded and ultimately provided. Fiscal space is room in a government’s budget that allows it to provide resources for a desired purpose without jeopardizing the sustainability of its financial position or the stability of the economy (83).

Initiatives to increase fiscal space are generally directed to a ministry of finance. Champions of increasing revenues to enable NCD service integration and expansion should link their advocacy with increasing prioritization of health in the overall government budget.

Pooling revenues

“Pooling” refers to the accumulation of prepaid revenues on behalf of a population. Fragmented pooling sets a limit on the extent to which prepaid funds can be redistributed and raises a financial risk due to spread. Fragmentation of pooling also leads to inefficiency. Some points of leverage are listed below.

Pooling can be organized in various ways. A robust, well-funded public budget that guarantees free health services is one form of pooling. Social health insurance, private-for-profit insurance and community health insurance are other examples. Each model has pros and cons. General guidance has been provided by WHO and others.

A general rule is that pooling is designed to enhance solidarity between the sick and the healthy, the poor and the better-off and poor regions and rich ones. From a UHC perspective, the larger the pool, the better. Again, as highlighted above, champions for integrated care should promote integration of health financing by pooling mechanisms that cover large populations. Reducing fragmentation in each pool can simplify financial flow and enhance equity and efficiency, as exemplified in Germany and Sweden (30,58).

Pooling mechanisms should include engagement of private sector providers through contracting mechanisms. Purchasing agencies (e.g. in the form of social health insurance), ideally compulsory and universal, are an institutional mechanism pursued in many contexts to enable a link between public funds and private providers.

Strategic purchasing and design of benefits

“Purchasing” refers to the allocation of financial resources to health service providers. Purchasing is considered strategic when allocations of pooled funds are linked, at least partly, to information on provider performance and the health needs of the population they serve in order to gain efficiency, increase equitable distribution of resources and manage growing expenditure.

- Provider payment mechanisms (i.e. the rules and formulae used to determine how much a health provider is paid by a purchasing agency such as a ministry of health or a health insurance company) should be considered by champions of integrated care, as they set incentives and thus influence the strategic and daily behaviour of health facilities and individual staff.
- An increasing number of studies have addressed provider payment mechanisms, which are the most conducive to integrated care (84). Appropriate arrangements are not, however, in place in most countries, including high-income countries. For integrated care, provider payment methods should be preferred that cover all patients in a catchment area for a long period of care across all levels and sectors (including social care), with some sharing of risk (and earnings) by participating providers and covering all health needs (not disease specific) with attention to the quality of care.
- In many countries, a transition to purchasing arrangements that support integrated care will take time. The challenges to overcome include: resistance from some stakeholders, establishment of a supportive digital health information system and personalization of pathways to meet specific needs. It is generally recommended that payment mechanisms are blended progressively (58,85), with phasing-out of formulae that incentivize volume (e.g. fees for service) and moving towards models of more patient-centred care (e.g. capitation) (86). A good option could be to finance actors, individuals and mechanisms that connect providers (e.g. pay-for-coordination, financing welfare workers in hospitals) (85).
- The design of benefits can also be changed, such as exemption from co-payments or shorter waiting times in return for complying with gate-keeping rules for seeing a specialist (58); strengthening the system to reach vulnerable groups (for example, older people or those with disabilities or mental health conditions) (58,87); explicitly limiting yearly out-of-pocket payments by patients with chronic illnesses; orienting the purchasing function to finance integration of NCD services into PHC (88).

Tools

- Developing a national health financing strategy (81)



Case study 11: Evolution of health financing legislation in Germany towards integrated, evidence-based health care

Case study 14: Pioneering integrated, patient-centred models of care for elderly people with chronic conditions in Sweden

Case study 16: Creating a pay-for-performance scheme to achieve universal health coverage with a bank loan in partnerships with banks in Argentina

3.3.2 Ensure that financing is available for services, structural resources, processes and service models.

For effective integration of NCD services, financing should be available for both structural resources (e.g. infrastructure, human resources, medicine and equipment) and processes (e.g. for leadership and for collegial collaborative work in multidisciplinary teams).

Develop budgets, and ensure resources for local implementation.

Local and national integration policies must include the necessary financing (89,90) for infrastructure, human resources, medicine and equipment and for building a collegial, collaborative multidisciplinary team with supportive supervision (29,77,89,91).

- A key step is to define (and regularly update) a benefits package for the entire population according to their needs and to evaluate its feasibility, including funding (see, for example, addition of cardiac rehabilitation to the insurance benefits package in the Islamic Republic of Iran).
- Another possibility is to use PHC (88), for example, for screening, prevention and referral services, and to add nurses and family practitioners to the NCD workforce (Germany, Islamic Republic of Iran).
- In all countries, health service delivery models should be redesigned consistently as medical, pharmaceutical, digital and organizational innovations become available. Any redesign must be pilot-tested in a real situation before being scaled up, and such testing requires funding. The possible start-up costs of establishing integrated care should not be underestimated (see for instance, the experience in Rwanda (92)).
- In LMICs, dedicated budgets should be available at district level for integrated care for chronic conditions (49), and governments should provide more funding to sustain integration (29,65,93).

Case study 11: Evolution of health financing legislation in Germany towards integrated, evidence-based health care

Case study 16: Creating a pay-for-performance scheme to achieve universal health coverage with a bank loan in partnerships with banks in Argentina

Case study 17: Providing funding and structural resources during roll-out of a free, national check-up programme to prevent NCDs in Albania

Case study 18: Developing robust health financing systems to achieve equitable, sustainable, integrated NCD health services in Thailand

Case study 19: Tackling cardiovascular diseases through cardiac rehabilitation in Iran (Islamic Republic of)

Case study 20. Monitoring service integration and engaging stakeholders: experience from Uganda and the United Republic of Tanzania

3.4 Capacity and Infrastructure

3.4.1 Build multidisciplinary teams.

A multidisciplinary team comprises various health professionals from one or more organizations, who work together to deliver comprehensive patient care. Multidisciplinary teams should be built, with opportunities for inter-professional practice and management of any tensions among professional groups. The teams, composed of mid-level providers, auxiliaries and physicians, should have excellent, transformative leadership, a shared vision and evidence-based, integrated clinical guidelines.

A review of multidisciplinary collaboration in primary care (94) identified the three most important roles in primary care:

- the clinical leader, usually a general or family practitioner;
- the case manager, for coordination and continuity of complex care and referral to specialists; and
- expert consultants (specialists, family physician or general practitioner)

Team care offers an approach to optimizing human resources, with the following guiding core principles:¹

- remove inefficient use of space and staff to minimize incremental costs associated with improving and extending service delivery;
- ensure services to provide high-quality care, establish mentorship, strengthen referral pathways, and introduce supervisory structures while increasing access; and
- optimize specialization by grouping related tasks.

Create and sustain a multidisciplinary team

Building multidisciplinary teams can be a challenge, as professional groups may question each other's competence or be concerned that their roles will be usurped (57). Managing such tensions will require building of inter-professional practice (57,77), including a shared vision (38), although even a team with a shared vision may require guidance, such as a memorandum of understanding on collaborative work. The absence of such a memorandum was found to be a barrier to collaborative practice in a PHC service in Australia, as the initial focus was on managing the structural aspects of co-location, to the neglect of the "software" necessary to promote collaboration among co-located service organizations. This resulted in inter-professional practice within organizations but little among them (77). In some studies, polypharmacy management was stifled by lack of teamwork between doctors and pharmacists (57). Cross-disciplinary practice can be designed to promote care. In a polypharmacy management intervention in Catalonia, Spain, both doctors and pharmacists wrote prescriptions in order to increase trust in the competence of team members (57).

In some resource-constrained settings, phased implementation and progressive decentralization may be required to use the experience with multidisciplinary teams of district hospitals, which could serve as mentors and treat patients with complex conditions and those referred from primary clinics who require special care.¹ A three-step approach to creating teams could consist of identifying one individual to begin organizing care, then establishing a small core team and finally establishing a larger multidisciplinary team.

Case study 21: Provision of coordinated, comprehensive, continuous care for chronic conditions through multidisciplinary PHC teams in Brazil

Case study 22: Building collaborative teams to integrate care for patients with chronic diseases and multimorbidity in Spain

Case study 23: Integration of HIV and reproductive health services with multidisciplinary teams in Cambodia

Case study 24: Strengthening the workforce in integrated diabetes, hypertension and COPD services in Nepal

¹ Integration of NCD services policy brief, in press.

3.4.2 Provide comprehensive, tailored, flexible, interactive training in integration.

Training in integrated NCD services should be comprehensive, tailored, flexible and interactive, with a component on consultation skills.

Competence-based curriculum

The competence necessary for integration should be included in the training of health workers. Capacity-building to appropriate scale is necessary in most health systems with the growing double burden of communicable and noncommunicable diseases. The framework for assuring competence should be used to develop the curriculae for pre- and in-service courses.

Training in the provision of integrated care

In most integration initiatives, health-care workers may require a broader set of clinical skills. Training will increase their awareness of the value of integrating particular services and build their skills, confidence and motivation, resulting in a sense of self-efficacy for working with a more diverse group of patients. A continuous, proactive learning environment should be fostered. Continuing professional education and development are essential.

Considerations for providing training on integrated care include:

- high-quality, diverse, interdisciplinary content (78,79);
- training that is flexible and appropriate. For example, in Australia, a 16-week placement training for nurses in coordination of NCD care was extended to 20 weeks to allow nurses and a general practitioner practice to adjust to their new roles, and the length of the training module was doubled after their feedback (78);
- understanding that training may be resource intensive, especially at the beginning (93);
- training should be comprehensive, effective, tailored and repeated to cover the diverse topics and skills required (78,91) and to meet the needs of subgroups of staff;
- training should be interactive, with time for group work and planning (79);
- communication within the team and the organization on the scope of training and the expectations of new cadres of workers, e.g. community health workers, to ensure better teamwork (48);
- training in technical literacy if work on computers and with electronic records is required (29,35,78);
- training in community outreach to increase awareness of integrated services (47) and to educate patients about accessing the new services (89);
- continuous training, for example for new health-care workers in sub-Saharan Africa, where there is a high turnover (95); and
- training in simplified protocols for disease management, as seen in HIV services when clinical guidelines were adapted to standardized protocols for diagnosis, treatment, referral and patient monitoring, allowing a wider variety of health-care workers to deliver evidence-based care (95).

Case study 25: A collaborative, evidence-based strategy to strengthen diabetes preventive care in five health systems in the Pacific Islands

Case study 26: Training of non-physician clinicians for task-shifting in integrated hypertension and diabetes services in rural Cameroon

Case study 27: Training of primary-level clinicians in the prevention and management of diabetes and diabetic retinopathy in Fiji

Case study 28: Integrating oral health promotion in midwifery practice through human resources development in Australia

3.4.3 Ensure strong operational management and human resources development.

Good management and development of human resources ensure sufficient staffing levels, an appropriate mix of skills and optimal use of staff with effective, supportive management and distribution. This may include, for example, staff rotations, shift work and respect for staff preferences to account for absenteeism and different skills.

Workforce planning

Human resources (leadership and coordination, numbers, skills mix, staff distribution) are a major consideration in integration (46,93). Integration requires strategic realignment of financial and human resources to ensure reallocation of resources to meet the objectives (57). Organization of staffing, such as shifting employees' roles and responsibilities, requires careful management, as it includes individual skills and attitudes to changing roles and functions (32). When community health workers are involved in coordinating community care, aligns their work with that of facility health-care workers (48,96).

In a review of micro-level implementation of PHC by health workers in sub-Saharan Africa, where almost all interventions were delivered by non-physicians, the authors recommended caution in adding work or shifting tasks to health-care workers who already had a large number of cases of communicable diseases. Additional staffing and time must be planned for the increased workload of caring for NCD patients (95).

Shortages of human resources are often due to limited funding but may also be due to staff rotations, shift work, preferences, absenteeism and a shortage of skilled workers (49,89,90). Shortages of specialist staff to train others in a multidisciplinary team can slow the development of skills by front-line staff (49,90). In a number of case studies, facilities that performed better had better-matched patient loads; however, other factors, such as leadership and teamwork, also considerably affected success, even with limited resources (65).

Case study 24: Strengthening the workforce in integrated diabetes, hypertension and COPD services in Nepal

Case study 25: A collaborative, evidence-based strategy to strengthen diabetes preventive care in five health systems in the Pacific Islands

Tools

- Health labour market analysis guidebook (97)



3.4.4 Provide adequate infrastructure for delivering integrated NCD care.

Infrastructure and maintenance are often overlooked or neglected, particularly in primary care settings such as clinics and health centres (33). The elements of facility infrastructure include rooms, a reliable water supply, sanitation and waste disposal or recycling, telecommunications connectivity and a power supply.

Planning infrastructure

Adequate infrastructure for delivering integrated care includes sufficient office and clinical space, information communication and technology (ICT) for shared record-keeping and communication and team interaction (e.g. when primary care service organizations are in several locations).

Lack of a private consultation space is a major limiting factor for integrated services in resource-limited settings. Facility space is usually limited due to overcrowding (46,48), and there may also be limited space for integrated patient records in the absence of electronic information systems (98). In Australia, when services were located to a new building, the building design limited opportunities for social and chance encounters among service organizations (77).

Case study 29: Providing adequate private space for consultations when integrating mental health services into PHC in India

3.4.5 Develop strong procurement systems to meet the requirements of NCD services.

The availability and affordability of medicines to treat NCDs in vulnerable patients is central to achieving UHC. For instance, limited supplies and higher costs of screening, testing, preventive medicines and vaccines impeded provision of preventive services in integrated services (29), and stock-outs of essential medicines for HIV and TB care and shortages of personal protective equipment limited collaboration on HIV and TB in South Africa (46). An integrated approach to health system strengthening, supply chain management and affordability is necessary.

Develop and implement robust procurement policies.

Strong procurement systems are critical to ensuring the requirements of an integrated service, which include larger amounts and types of medicines and equipment. Policies for integrating NCD services should include plans and resources to ensure the necessary supplies.

For procurement, countries and regions have negotiated prices with pharmaceutical companies based on evidence from assessments of health technology (99–101). The decreases in price and increases in the volumes of medicines resulted in better access to medicines for cancers, rare disease and chronic diseases. Public–private partnerships and the private sector can also ensure functional integration of NCD services and improve access to medicines, diagnostics and therapeutics.

During the COVID-19 pandemic, maintaining the visibility of supply capacity in the public and private sectors and increasing intersectoral coordination were helpful for understanding the availability and distribution of the total stock for COVID-19 commodities.

Case study 30: The chronic medications programme: collaborative governance for NCD medication provision in Lebanon

3.4.6 Ensure robust NCD Information and technology for integration.

Use information communication technology (ICT) systems for exchanging patient information.

ICT systems are critical for exchanging health information in integrated service delivery. They include electronic medical records, telemonitoring systems (e.g. mobile phone technology) and web-based resources (e.g. educational sites and social networks).

WHO has provided general guidance on use of digital interventions for strengthening health systems (102) and on digital solutions for a number of NCDs (103). ICT systems are essential for delivery of integrated care (104) and are often used to coordinate care by interprofessional teams by providing longitudinal information and monitoring of patients as part of NCD management (29,79,104). Access to shared patient information on a single site facilitates integration within and across service systems (32,49,57,77,79,104).

Important considerations are:

- assessment of the necessary infrastructure, including electricity, Internet connectivity, services and hosting, hardware for end users;
- funding for devices, back-up solutions, training, Internet and SMS costs, support for users;
- institutional acceptance of long-term investment and planning;
- interoperability through organizational agreements among health-care services to ensure well-regulated information exchange (48,104,105);
- patient confidentiality and privacy (104) and data security ensured by local, national and international legislation and policies on privacy and data management;
- sufficient capacity and competence to plan, design, develop, support and use ICT; and
- monitoring and evaluation of the usefulness of ICT in integrated service delivery.

Use of ICT should be monitored, as barriers to access, poorly functioning technology and organizational and provider inertia can impede integrated service delivery. Lack of access to ICT and unequal access to information by professionals can also impede delivery of integrated care (29,77,79).

Interprofessional and organizational boundaries may limit access to data. In multidisciplinary teams, doctors may not have access to pharmacy or dispensing information, or hospitals may not have access to information from primary or home care (104).

Tools

- District Health Information Software 2 (DHIS-2) (<https://dhis2.org/>)
- WHO Family of international classifications, including International Classification of Disease coding (ICD-11) (<https://icd.who.int/dev11>)
- Indicators for monitoring primary health care (106)



Training of providers in ICT

Training in use of ICT should be given to ensure that providers can use the systems for managing and monitoring their work (29,79,104). Training may also be necessary to ensure that staff balance patient privacy with effective, efficient, collaborative care (48,77,104).

The challenges to ICT use may be similar in different settings, as they are often related to individual characteristics (personal values, work coherence, e-health literacy), the organizational environment (policy, culture and technical support), the external environment (regulations and policy for privacy and data access, links among organizations) and the characteristics of the technology (functionality, interoperability, usability) (104). The documentation required for integrated care may appear overwhelming for providers if too much information is demanded or if they have limited access to an electronic information system (48,79,96). Digital applications may be perceived by health workers as an extra burden.

Maximize use of technology for service integration.

Technology can facilitate NCD service integration, shape and evolve models of care and empower PHC providers, communities and patients during integration. Technology can be used in integration in a number of ways, including ICT systems, telemedicine and digitalized laboratory testing, diagnostics and supply chains, all of which can be integrated. Telemedicine ensures the continuity of services for diabetes and hypertension and was beneficial for community and patients during the COVID-19 pandemic (107).

Innovative integrated laboratory testing, such as point-of-care and self-testing of serology and viral load and tests for multiple diseases, improve access, care, system efficiency and cost-saving. Integrated diagnostics merge imaging, pathology and laboratory tests with advanced IT, allowing PHC providers (108) to make earlier, more accurate diagnoses, improve integration of PHC and specialists and also save human and economic resources. Remote blood pressure measurement, radiology and medical image reading and data transfer allow PHC teams to make diagnoses, monitor patients and provide continuous care (109).

Countries should assess their technology, their readiness to use it and the impact on integration before procurement or scaling-up. WHO has published considerations for the use of multi-disease testing devices in an integrated laboratory network (110).

Case study 31: Sharing patient information among primary care and community-based NCD services for older adults in New Zealand

Case study 32: Improving access to NCD diagnostic services through telemedicine for remote populations in Paraguay

Case study 33: Providing training and incentives to encourage provider uptake and use of an electronic information system in Croatia

3.5 Models of care for patients with noncommunicable diseases

3.5.1 Assess health system functioning, strength and “readiness” for integration.

Health system functioning, strength and readiness for change influence the success of integration. A new intervention for integration must be compatible with the current organizational environment.

Assess the readiness of the health system.

The readiness of a health system influences the success of integration (29,32,57,65,66,104). An assessment by the WHO Regional Office for Africa of implementation of the WHO PEN disease Interventions and HEARTS indicated that only 30% of countries had national guidelines for NCD management, and very few reported that all essential NCD medicines (13%) and technologies (11%) were available in PHC facilities (111).

Health system functioning and its readiness for change must be assessed before integration. Readiness is judged by assessing both structural resources and the organizational culture (values and motivation for change) (65). Facilitators and barriers should be assessed for both the organization of health services (patient awareness of service options, health literacy and perception of the quality of services) and the accessibility of health services (transport and costs, use of alternative and traditional health services) (29,47,49,50,91,93).

Once the functionality of the health system has been assessed, various frameworks for integration may be used. The WHO Regional Office for the Eastern Mediterranean has adopted differentiated approaches to integration according to the setting (Table 5). For instance, NCD service emergency kits were provided in Afghanistan and the Syrian Arab Republic to ensure medicines in crises, which provided an opportunity for integrating NCD services into PHC and inclusion of services for priority NCDs in essential health services packages (see case study).

Table 4. Differentiated approaches to NCD integration

Country group	Approach to NCD integration
Group 1. Countries with some resources and systems covering a relatively small population, with services that are not necessarily efficient	Rationalization and integration of providers
Group 2. Countries with large public health systems covering most of the population but with outdated management, strategies and paradigms	Reform and modernization, change in paradigms, with NCDs as the driver of reform
Group 3. Fragile, fragmented health systems that depend on external support	Build on existing systems, often defined by vertical provision, management and funding. Improve NCD service provision but without excessive pressure on the system.

From WHO Regional Office for the Eastern Mediterranean (31)

Some countries might have to be prioritized for health systems strengthening to avoid further fragmentation and uneven performance (31). To promote equity within universal coverage, the needs of the most vulnerable patients should be prioritized in integration (31).

Tools

- Health systems performance assessment tool (112)
- Service availability and readiness assessment (113)
- Care cascade and patient pathway analytics tool (44)



Case study 7: Coordination and integration of care for clinical and managerial decision-making and maintaining NCD essential services during COVID-19 in Oman

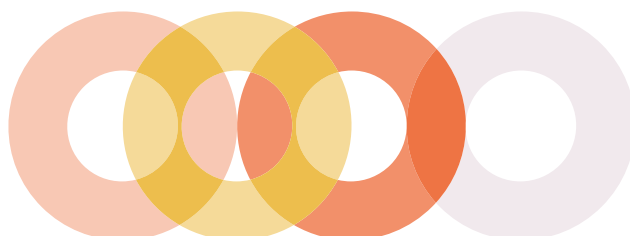
Case study 13: NCD emergency kits in Afghanistan: an opportunity to integrate NCD services into PHC in crises

Case study 30: The chronic medications programme: collaborative governance for NCD medication provision in Lebanon

Case study 34: Evaluating health system readiness for better delivery of NCD services in Sierra Leone

Case study 35: Integration of NCD and mental health care during a protracted emergency: Syrian Arab Republic

Case study 36: Integration of HIV and NCDs. What are the opportunities? Malawi's experience



3.5.2 Create a cooperative model of NCD care that ensures that integration is compatible, acceptable, feasible and fits well with existing services.

The acceptability and feasibility – or “goodness-of-fit” – of an integration intervention strongly influences its compatibility (32,46–50,57,65,66,77,79,89,91,96,104,114,115). In this context, goodness-of-fit is the degree to which the characteristics of the integrated care intervention are compatible with the organizational practices and environment (providers, patient groups and processes) (32). Box 3 lists some barriers to and enablers of the “goodness-of-fit” of NCD service integration initiatives.

Box 3.

Barriers to and facilitators of “goodness-of-fit”

Poorly managed changes in staff roles and responsibilities. Staff may be concerned about the competence of other team members or that their professional roles are being usurped (57). In a co-location initiative, staff were territorial about their physical space and collaborated more closely only after they had agreed that patients with complex needs were their priority (77).

Workload shifts may be seen as burdensome, with insufficient time for consultation with patients in integrated services (49,91,114). For example, community health workers in the United Republic of Tanzania who were responsible for both HIV and maternal health patients had difficulty in time management and in deciding which group to prioritize (96).

Poor patient-provider relationships may reduce patients' trust and their use of integrated services. For example, patients in China were distrustful of doctors' motives for prescribing preventive medicine for cardiovascular disease, suspecting they were driven by financial incentives (91).

Staff motivation for integration may be limited by reluctance to extend their work to unfamiliar areas and with unfamiliar patient groups (57).

Staff shortages due to insufficient funding may limit the training necessary for integration (49,90). For instance, a multidisciplinary team was not available to train others to integrate mental health into TB and maternal health services in South Africa (90) or to integrate mental health into PHC in a project for improving mental health care (49).

Financing models may not incentivize organizations to deliver integrated services. For instance, insurance reimbursement schemes are not always aligned with delivery and uptake of integrated services (91).

NCD programme managers often have fewer resources than those of other disease programmes and may not be empowered to engage meaningfully with programme stakeholders or to ensure that the requirements for feasibility and goodness-of-fit are met before integration.

Facilitators of goodness of fit

Good-quality, flexible training, mentoring and specialist support incentivized integrated service delivery (49,78).

Integrated clinical guidelines can promote collaborative practice (49,50). They simplified comprehensive care and improved patient flow and referral pathways for facility counsellors in South Africa (49).

Staff felt satisfaction in providing comprehensive care that better met patients' needs (49,78,89), and health workers in Nepal valued the potential of an integrated package for providing human rights-based care.

Greater clinical efficiency was seen with a positive shift in workload, with measurable improvement in patient management. Clinicians considered that “integrated medical adherence clubs” for HIV and NCDs freed them to concentrate on patients who required specialized clinical support; however, pharmacists were concerned about the increased workload of pre-packaging medication for such clubs (89).

Co-create a model of care for NCD integration.

A model of care is a conceptualization of how services should be delivered, including the processes of care, organization of providers and management of services, supported by identification of roles and responsibilities of different platforms and providers along the pathways of care. The model of care evolves in response to the changing health aims and priorities of a population to improve the performance of the health system. The model of care should be adapted to optimize effectiveness, equity and efficiency. In turn, the model of care has implications for the arrangement of structural elements (governance, financing, workforce, physical environment, information systems and health technologies), which should be used to facilitate the desired model of care. Different models of care can co-exist in one health system and be used for delivering various functions in a health system (2).

Amid rising health-care costs, growing pressure for better measures of quality and safety and increasing demand for more personalized care, a shift is being made from the provider-centred model of care towards one that is more responsive to the needs of people living with NCDs (116).

The WHO compendium of health interventions for UHC (62) can be used to establish links and to assess interventions in health facilities. Table 7 lists interventions and actions for NCD, TB and HIV services that could be integrated or linked. These include functions such as health promotion and prevention, screening, laboratory testing, counselling (by condition and integrated), diagnosis, management and monitoring, including screening for co-morbid conditions.

Table 5. Interventions that facilitate integration of services for noncommunicable diseases, tuberculosis and HIV

Intervention	NCDs	Tuberculosis	HIV
Health promotion and prevention	Integrate counselling on healthy diet, physical activity, weight management and alcohol and tobacco use; targeted behavioural modification for tobacco cessation; cervical cancer: vaccination against HPV, counselling on prevention of STIs, risk reduction and safer sex	Active finding of TB cases in at-risk populations; BCG vaccination; routine contact tracing to identify individuals exposed to TB; short-course preventive oral treatment regimens for TB	Counselling on safe sex, risk reduction, condom use, harm reduction, voluntary male circumcision, PEP and PrEP
Screening	Measure blood glucose in people with risk factors; measure blood pressure of all adults on routine visits to PHC facilities; screen for cervical cancer	Screening for TB among clinical at-risk and vulnerable populations by assessing symptoms and using tests, examinations or other rapid procedures	HIV testing of all or key populations; testing and counselling; HVB and HCV testing of most affected and all populations
Laboratory	Laboratory tests for diagnosis and periodic laboratory tests for monitoring	Laboratory tests for diagnosis and periodic laboratory tests for monitoring	Laboratory tests for diagnosis (major co-infections, including HBV and HCV), HIV staging (CD4 cell count) and periodic laboratory tests to monitor HIV treatment (viral load)
Management of disease, diagnosis and treatment Screening	Condition-specific nutrition assessment and counselling; counselling on healthy diet, physical activity, weight management and alcohol and tobacco use, foot care (diabetes), insulin use (diabetes); rehabilitation when indicated	Condition-specific nutrition assessment and counselling; integrated management of patients with HIV/AIDS, other conditions (including NCDs) and health risks associated with TB	Condition-specific nutrition assessment and counselling; vaccination (HVB, pneumococcal, HPV, influenza); assessment of depression
	Blood pressure measurement, blood glucose measurement, spirometry, peak flow measurement, cervical biopsy, endocervical curettage, colposcopy, oral medications, inhaled medications, subcutaneous medications	Oral anti-TB medications during intensive and continuation phases of treatment and/or expanded oral treatment regimen for drug-resistant TB	Antiretroviral treatment, antimicrobials (CTX prophylaxis, antifungal treatment), HBV and HCV treatment, TB preventive therapy
Monitoring	Home glucose monitoring, home blood pressure monitoring, electronic or telephonic transfer of home blood pressure readings with validated devices, treatment adherence, monitoring for toxicity	Clinical monitoring for adverse events, clinical course and treatment outcomes, microbiological response to treatment for drug-resistant TB, nutritional status, tracing of patients who interrupt treatment	Support for ARV treatment adherence; identify patients with treatment failure (HIV), community support for adherence (HIV), medical review and identify adverse drug reactions or drug interactions
Monitoring of co-morbid conditions	Systematic screening for TB in patients, measurement of blood pressure at every visit, screening for mental health conditions	Screening or identification of co-morbid conditions and health risks associated with TB, including undernutrition, diabetes, alcohol or drug abuse, smoking, silicosis, COPD and other NCDs, including mental health problems	Clinical assessment and diagnostic tests to assess toxicity, co-infections (e.g. systematic screening for TB), NCDs, depression and other co-morbid conditions

Sources: WHO (21,51,114,117,118,119).

ARV, antiretroviral; BCG, bacillus Calmette–Guérin; COPD, chronic obstructive pulmonary disease; CTX, co-trimoxazole; HBV, hepatitis B virus; HCV, hepatitis C virus; HPV, human papillomavirus; NCD, noncommunicable diseases; PrEP, pre-exposure prophylaxis; PEP, post-exposure prophylaxis; PHC, primary health care; STI, sexually transmitted infection; TB, tuberculosis

In a common pathway for integrated patient-centred care, actions may be indicated at different levels when care is mapped from first access through to continuity and coordination (120). For example, analysis of the diabetes care cascade by the World Bank in Ukraine indicated medication co-payment schemes and counselling to improve treatment adherence. They estimated that such expenditure could be recouped by reductions in patient monitoring costs (121).

Communication between primary and secondary care professionals at joint meetings, research on participatory action and clear referral and counter-referral mechanisms facilitate coordination and alignment of health-care provision among levels (45).

Acceptability and feasibility depend on the context. Integrated service models should be based on workflow patterns, competences, resources and infrastructure to optimize efficiency and quality while increasing access to care. Therefore, the acceptability of integration by stakeholders and patients should be determined for each new intervention. Feasibility, in terms of resources, training and incentives, should be assessed, and new services should be budgeted for, particularly in decentralized models, in which new services mapped to one level are also introduced at a lower level of the health system, such as when services are decentralized from hospitals to health centres or from health centres to the community.

The checklist in Table 6, adapted from a review (122) and a study (123), lists the parameters to be assessed and to be fit for three main types of intervention for integrated care for HIV and cardiovascular disease in LMIC when the HIV prevalence is still high.

Table 6. Parameters to be checked for goodness-of-fit of integration of HIV and cardiovascular disease in low- and medium-income countries

Intervention	Acceptability (agree, disagree)		Feasibility (not, partial, full)	
	Patients	Providers and stakeholders	Resource availability	Training required
Screening	<p>Patients willing to undergo screening</p> <p>Likelihood that patient would recommend screening to a friend or family member</p>	<p>Community-wide promotion of screening</p> <p>Provider and stakeholder approval of screening protocols</p>	Resources available for screening	Training requirements for screening are fulfilled
Referral or link to care	Patient compliance with enrolment	Providers' approval of enrolment, referral and link to care protocols	Resources available to support referral or link to care	Training requirements for referral or link to care fulfilled
Treatment	<p>Patient waiting time to receive service</p> <p>Likelihood that patient would recommend treatment to a friend or family member</p> <p>Effect of treatment on stigmatization</p>	<p>Effect of treatment on provider workload</p> <p>Effect of treatment on organization and capacity</p> <p>Early signals that treatment fits in the organization or setting</p>	Resources available to support treatment	Training requirements for treatment fulfilled

Sources: Ojo et al. (122) and Sy et al. (123).

Surveys and focus group discussions can be used to determine goodness-of-fit. In a mixed-methods study in the Philippines, delegation of both HIV counselling and testing of TB patients to community health workers was found to be feasible, but only delegation of HIV counselling was considered acceptable (123).

Several contextual elements in health systems influence the fit of a new intervention with existing practice. In a number of case studies on integration (44), goodness-of-fit was found to be influenced by the extent of:

- siloed (vertical) care before integration;
- stakeholder agreement on prioritizing integrated care and their sense that integration was aspirational but discordant with the reality of service delivery;
- acceptance by programme providers of the need for change, priorities and reconfiguration of services;
- collaboration and communication among leaders, providers and service stakeholders and agreement on the priority patient groups and how best to care for patients with complex needs, as reflected in gradual extension of the NCD service package in the German *Gesundes Kinzigtal* programme (124);
- a narrow rather than a broad “whole patient” focus by clinicians (the core principle of integrated care); and
- patient advocacy and involvement of the community (including community health workers) at all stages.

Tools

- Universal health coverage compendium (62)
- Understanding and classification of integrated NCD services model in LMIC (125)
- Integrated care models. Overview (WHO Regional Office for Europe) (126)
- Protocol: NCD care integration in Nepal (127)
- Protocol: A mixed-methods study to adapt and implement integrated mental health care for children with autism spectrum disorder (98)



Case study 4: Using a patient-centred approach to care for people with multiple chronic conditions in Germany

Case study 14: Pioneering integrated, patient-centred models of care for elderly people with chronic conditions in Sweden

Case study 20: Monitoring service integration and engaging stakeholders: experience from Uganda and the United Republic of Tanzania

Case study 28: Integrating oral health promotion in midwifery practice through human resources development in Australia

Case study 37: Assessment of health system functioning for integration of rehabilitation services in Georgia

Case study 38: Assessment of the “goodness-of-fit” of integrated mental health care for children with autism spectrum disorder in primary care in the USA

Case study 39: Ensuring the acceptability and feasibility of NCD service integration into a community-based HIV-testing campaign in Uganda

Case study 40: Leveraging HIV programme approaches, tools and systems to improve diabetes services in Ethiopia

Case study 41: Control of rheumatic heart disease: a civil society initiative in Sudan that became national

3.5.3 Clarify the roles and functions of providers.

The roles and functions of members of the multidisciplinary team must be clearly defined. Agreement on which patient groups are priorities (e.g. those with complex health needs and multimorbidity) can increase provider confidence and motivation for integrating NCD services.

Role delineation

Various individual and organizational characteristics of service providers determine their ability to provide integrated care (32). These include their knowledge, education or professional training and their confidence in providing integrated care.

In certain settings, there may be lack of awareness about and limited service and resources for NCDs and mental health, which may limit understanding of the value of integration, clinical skills and staff motivation for delivering a new service. This was found, for example, in integration of NCD services into PHC in Malawi (47), the low priority given to NCDs in Sierra Leone (50) and poor understanding of mental health issues among PHC staff in South Africa (90).

The awareness of health-care workers about the value of integrating services should be raised, with training to increase their skills, confidence and motivation to work with a more diverse set of patients (48,49,78) and provide integrated care. A broader set of clinical skills is required for most integration projects. In an intervention for integrated HIV and TB care in South Africa, inadequate training in prevention and control of TB infection obviated task-shifting from doctors to nurses (46). In Australia, inadequate training of community health workers in word processing and venipuncture frustrated them, as it delayed their work (48). Selective contractual arrangements could be made with groups of providers to provide services across sectoral boundaries (58).

Some staff may stigmatize patients with HIV or TB, often because of lack of awareness, confidence and skills (114). Staff may be unclear about their changed roles and may have different views on which patient groups to prioritize for integrated care (32). Clearly defined protocols and standard responsibilities should be imposed (128).

Private sector

In health, the “private sector” refers to all non-state actors involved in health: for-profit and not-for-profit, formal and informal and domestic and international. Almost all countries have mixed health systems, with goods and services provided by the public and the private sectors, and health consumers request these services from both sectors. The private sector’s involvement in health systems is significant in scale and scope and includes the provision of health-related services, medicines and other health products, health insurance, supply chain management, health workforce training, information technology and infrastructure and support services.

Patients’ perspectives on their experience with public and private providers are important for developing services (129). The government should be able to analyse and engage with private providers to hold them to high standards of care.

Tools

- Private sector landscape in mixed health systems (130)



Case study 42: Clarifying the roles of nurses and helpers in newly integrated chronic care services for elderly people in Bulgaria

3.5.4 Engage with managers and providers throughout integration.

Managers and providers must be motivated and well managed throughout integration, from planning to actual integration, and with the evolution of the types of care (49,75). Providers and other stakeholders must promote a sense of ownership (131).

Regular communication and collaboration

Continuous communication between managers and providers is essential throughout integration. This requires careful management of personal, social and organizational factors, including knowledge of the local culture and traditions.

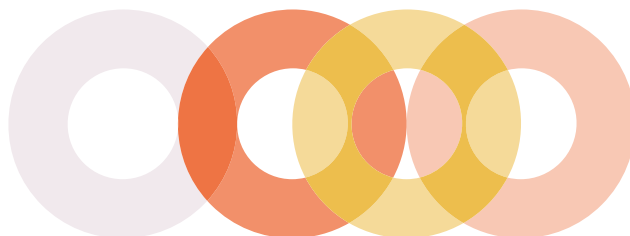
Botswana set a good example with its experience in integrating NCD services into PHC and fostering sustained system change (132). Their conclusions were as follows.

- Engage diverse stakeholders in writing the guidelines for integrated PHC.
- Engage policy-makers in prioritizing integration of NCD services into PHC in the national development plan.
- Engage health-care providers and district health managers in preparing the plan for integration.
- Phase integration in order to leverage the experience of personnel in district hospitals with multidisciplinary teams in managing patients with chronic conditions, who can therefore serve as mentors and also treat patients with complex conditions and those referred from primary clinics who require special care.
- Train and use local trainers to encourage nurses to participate, and ensure that their training is accredited for clinical professional development.

Case study 15: Driving integration of diabetes care through collaboration of macro-, meso- and micro-level teams in the United Kingdom

Case study 25: A collaborative, evidence-based strategy to strengthen diabetes preventive care in five health systems in the Pacific Islands

Case study 27: Training of primary-level clinicians in the prevention and management of diabetes and diabetic retinopathy in Fiji



3.5.5 Ensure effective coordination, supportive supervision and mentoring.

Supportive supervision and mentoring engage providers and ensure effective collaboration. Both structural resources (finance, human resources, infrastructure, medicines and equipment) and the organizational culture and relations (personal, social and behavioural elements) must be addressed for collegial, collaborative, multidisciplinary teamwork. Relational support builds trust among front-line colleagues and between front-line workers and management.

Supportive supervision and mentoring

Supportive supervision and mentoring engage providers and should ensure that “staff gain experience and skills in making decisions about patient care”, as opposed to an approach to supervision such as checking equipment and use of guidelines (65). These will require support for both structural resources and relational elements (49,65,75). Facilities with limited structural resources but with good leadership and teamwork can outperform facilities with good resources but poor leadership. Common elements in better-performing facilities with fewer structural resources include strong supportive supervision, regular rotation of staff among services and motivated, confident staff who can work in teams (65).

Clinical mentorship

Clinical mentorship of non-physician clinicians by physicians and of physicians by specialists is important. Studies in sub-Saharan Africa showed the importance of consulting senior health-care workers in managing patients with NCDs and of communicating with physicians or specialists when necessary. For instance, supportive supervision and mentorship may be necessary for titrating medication, for avoiding a scenario of “given responsibility without authority” (95). Sufficient mental health specialists should be available for integrated care in LMIC (49). Clinical audit and case conferences are important for improving the quality of health care.

Tools

- Measure service coordination (survey): Coordination between primary care, hospitals and long-term care services (133)



Case study 2: What does people-centred NCD care mean? The Bhutan PEN/Hearts programme

Case study 43: Supportive supervision to optimize integration of HIV and sexual and reproductive health services in Kenya

Case study 44: Training and mentoring providers during integration of oncology into decentralized NCD services in Rwanda

4 Operationalization of integration

This implementation guidance draws on a substantial body of evidence from diverse settings and programmes on the factors that influence integration of NCD services into primary health care. The case studies (Annex) in this guidance illustrate the various approaches that countries are using and indicate that NCD service integration is best seen as a spectrum rather than simply “integrated” or “not integrated”. Most countries have already begun integrating NCD services to some extent, and a few have taken most strategic actions and begun limited NCD service linkage and integration with other NCD services or with services for communicable diseases and SRH (111).

This section addresses some broader issues, such as the nature of NCD service integration, social determinants of NCDs and multimorbidity, differences in integration by geographical setting and income level, tailoring of guidance to national and local contexts, the strengths and limitations of the guidance and monitoring, evaluation and implementation research.

4.1 Process

Effective integration of NCD services into PHC can have various entry points but in essence involves three key processes:

- **upstream policy initiatives**, such as for strategic planning, resource allocation, benefits packages and payment systems;
- **engagement of service providers** for primary health service management, organization and coordination of essential health services in health-care facilities; and
- **ensuring resources and capacity**, particularly in settings with a limited health workforce and few financial resources.

For example, senior management must be engaged to improve coordination among different care platforms, such as hospitals and community services, and to ensure monitoring of performance and outcomes. This is illustrated in case studies in Chile (case study 8), Oman (case study 7) and Thailand (case study 18). When an intervention focuses on extension of NCD services to community services (e.g. to community health workers or new community nurse cadres), the roles must be defined, with collegial teamwork and appropriate remuneration. This is illustrated in case studies in Cameroon (case study 26), Ethiopia (case study 40) and India (case study 29).

Integration of NCD programmes into communicable diseases and SRH programmes does not necessarily imply replacement of vertical programmes but rather a context-specific balance between horizontal and vertical planning, budgeting and implementation of health services. For example, the linked response intervention in Cambodia (case study 23) illustrates how NCD services and the efficiency of the broader health system can be improved by strengthening referrals between a district hospital, satellite sites and linked health centres.

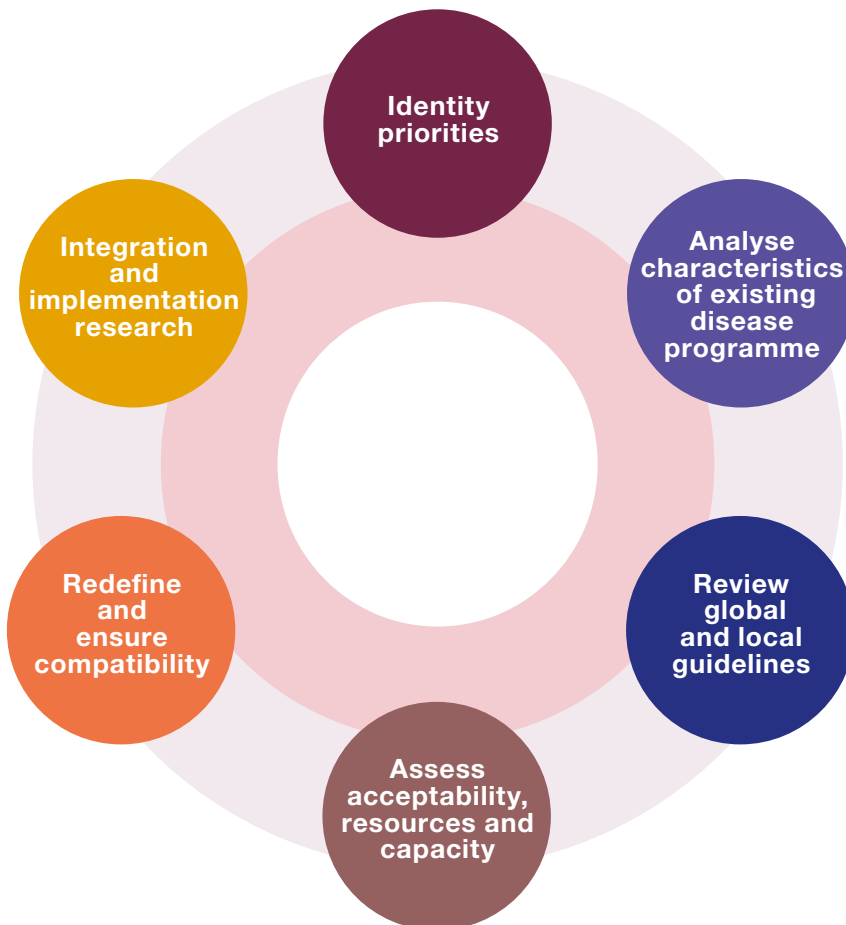
Managing changes in service delivery may require political, organizational, technical and administrative action. Ideally, NCD services are integrated comprehensively with preventive, curative and rehabilitation services and throughout the health system. Successful NCD service integration is, however, complex and may require many years of engagement, reconfiguration and expansion. For example, an intervention may begin with introduction of a minimum package, such as the WHO PEN (21) and then be extended gradually and strategically over time. Such long-term, incremental NCD service integration is illustrated by case studies in Brazil (case study 21), Germany (case study 4) and Rwanda (case study 44). The German programme, for instance, began in 2006–2007 with limited changes to NCD management and interventions to improve people’s lifestyles and broadened during the next decade by gradually extending the range of NCDs and social determinants while also improving infrastructure, such as introducing centralized electronic medical records.

4.2 Integration of services for noncommunicable diseases into other programmes

Comprehensive, systemic integration of preventive, curative and rehabilitative services for NCDs, communicable diseases and SRH in a people-centred approach can ensure that health systems deliver high-quality health services for all. The possibilities and options depend on the context. Linkages can be made with programmes for HIV, tuberculosis, hepatitis B and C, maternal and newborn health, child health and SRH.

National and local governments should systematically identify their priorities, including which NCDs to target. These should be prioritized according to their nature, scale and impact and the available resources. Priorities could be set by identifying the NCDs that have the greatest impact on population health and development, either alone or as multimorbid conditions; analysing the characteristics of existing NCD, communicable disease and SRH programmes, policies, legislation, capacity and resources and reviewing current global and local guideline on evidence-based interventions; and whether there are effective, appropriate, acceptable interventions to reduce the burdens of the diseases. The availability of resources and capacity to provide priority interventions equitably in the local context should also be considered. Fig. 4 summarizes the steps in integration of NCD services into other programmes.

Fig. 4. Steps in integrating services for noncommunicable diseases into other programmes



The multifaceted nature of NCD services facilitates their integration at different levels. Box 4 provides examples of ways in which NCD services can be integrated with those for communicable diseases and SRH.

Box 4.

WHO guidelines on NCD services that could be integrated with services for communicable diseases and SRH

The **Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection** (117) recommend conditionally that HIV services include screening and management for cardiovascular disease with the WHO PEN protocol (or the national standard protocol).

They also recommend screening for mental health conditions in people living with HIV as good practice, depending on feasibility, acceptability and cost-effectiveness.

1

The **WHO guidelines for screening and treatment of precancerous lesions for cervical cancer prevention** (134) recommend screen-and-treat strategies for women who are HIV-positive or of unknown HIV status in areas highly endemic for HIV infection.

2

WHO guidelines for the management of TB cover various aspects of prevention and care, including screening for TB and diabetes, tobacco control and lung health (135).

The WHO Framework for Collaborative Action on TB and Comorbidities addresses the needs for people-centered approach and integrated service delivery (136).

3

The WHO recommendations on antenatal care for a positive pregnancy experience (137) recommend counselling on healthy eating and physical activity, iron and folic acid supplements, calcium supplements (depending on the context) and screening for gestational diabetes mellitus, tobacco use, substance use, HIV and syphilis (in high-prevalence settings).

4

Hepatitis C elimination campaigns have been used in some countries to screen for diabetes and hypertension and referral for further routine diagnosis and treatment at health facilities. The **WHO HCV care and treatment guidelines** (138) recommend integration of hepatitis C testing, care and treatment with other services as good practice.

5

The **World report on hearing** (139) and the **WHO guidelines for integrated care for older people** (140) recommend simple screening procedures to identify hearing problems at primary level, including SRH and newborn services.

The method of screening at primary level is described in the Primary ear and hearing care training resource (141) and further detailed in the Hearing screening: considerations for implementation (142).

6

Integration of NCDs into SRH services such as family planning and antenatal and postnatal care presents opportunities for primary and secondary prevention of NCDs.

Management of NCDs in PHC also provides opportunities to screen for SRH services, including family planning, sexually transmitted infections and gender-based violence.

7

HCV, hepatitis C virus; NCD, noncommunicable diseases; PEN, package of essential noncommunicable disease; PHC, primary health care; SRH, sexual and reproductive health; TB, tuberculosis.

4.3 Addressing social determinants of health and increasing co- and multimorbidity

The global increase in the prevalence of co- and multimorbidity with several NCDs or with communicable diseases or SRH conditions (e.g. HIV, TB, hepatitis C) further complicates integration of NCD services into PHC. Co- and multimorbidity could be the reason for integrating NCD services, in order to reduce hospital visits, lower health costs, ration resources and improve efficiency (143). The case study in Spain (144) provides an approach to the management of patients with highly complex conditions, including tailored tasks and tools, intensive training of health professionals, improved communication among PHC teams in health-care centres, a home-care programme and hospital-at-home units.

Social determinants of health drive co- and multimorbidity and are estimated to account for about 80% of modifiable contributors to health outcomes in a population (145). Experiments and innovations are being tested for integrating social determinants of health into PHC, such as providing support for housing, income and nutrition, coordinating care and reaching out to communities. Integrated models of health care and social services, community and multisector partnerships are promising (146).

Some initiatives for disease elimination continue to ensure efficient use of resources and integrated solutions. For example, the Pan American Health Organization Initiative to eliminate neglected tropical diseases emphasizes integrated “pro-poor” and inter-sectoral approaches to improve education, housing, water, sanitation and other sectors (147). The WHO Regional Office for the Western Pacific has called for cost efficiency in the elimination of mother-to-child transmission of HIV, hepatitis B and syphilis on a shared platform (148).

4.4 Integration according to setting and income level

Although the reviews of qualitative evidence and case studies for this guidance included a wide range of countries, the findings are remarkably consistent, particularly with regard to the roles of policy, leadership, supportive supervision and support for health system functions. Leadership and management and structural, functional and relational elements must be strengthened for effective integration of NCD service delivery into PHC.

An issue that may be of particular relevance in LMIC is the readiness of the health system for integration in the presence of fragmented systems, weak management and external financing systems that promote vertical programmes. Of particular importance are commitment at a high political and management level, alignment of policy with resources, harmonization of government and donor funding, alignment of NCD service integration with national plans to prevent further fragmentation and adequate information and monitoring systems. Other factors that may be particularly relevant in LMIC are strengthening of health systems (especially governance and technical support for inter-professional practice); financing and support for human resource management and training and for the NCD medicine supply chain; evidence-based, integrated clinical guidelines; management of referral systems among levels of care; support for patient education and self-management; accessible record-keeping; and appropriate measures of outcomes in monitoring systems.

4.4.1 NCD service integration during health emergencies, including COVID-19

Case studies in the WHO Eastern Mediterranean Region (case studies 30 and 35) indicate the feasibility of integrating NCDs, mental health and psychosocial support into PHC, despite an emergency context. Recognizing the importance of maintaining essential health service (including for NCDs) during the COVID-19 pandemic (149), many countries have scaled up telemedicine, adopted new drug dispensation modalities, conducted outreach activities and contracted private service providers. These alternative service delivery methods facilitate the continuity of care and foster the adoption of functional and organizational integration.

WHO studies emphasize the importance of integration of NCDs with pandemic preparedness and response and the inclusion of NCDs in national essential health service and benefits packages.

4.5 Support from partners

Resolution WHA 62.12 of the Sixty-second World Health Assembly urged Member States

to encourage the development, integration and implementation of vertical programmes, including disease-specific programmes, in the context of integrated primary health care.

This signifies the importance of moving away from disease-specific packaged services to promoting integrated person-centred care. This will overcome the disease-specific team structure and ways of working in the organization of care in health systems and facilitate the introduction of new models of care that include NCD services. Organizations that support countries should ensure integration by developing guidelines for integrated clinical care and service delivery models to overcome fragmented care and strengthen the ability of their health systems to provide universal, financially sustainable care.

Donors can play a role in impeding or accelerating integration, as they influence agenda-setting in countries. For many years, donors have provided disease-specific, vertical programme funding for areas such as HIV/AIDS, maternal and child health, TB and malaria. This has resulted in disease-based care models that contribute to fragmented care. Donor commitment is necessary to allocate resources in ways that correspond to changing health needs, especially in LMIC with their increasing burden of NCDs, and to promote the use of their funds in an integrated, people-centred approach.

A positive lever is the Global action plan for healthy lives and well-being for all (150), which brought together 13 international agencies in 2019 to support sector-wide coordination and evolution of PHC. Recent progress includes collaboration among WHO, the World Bank and others to provide sustainable financing for UHC and PHC through health finance reform, UHC benefits packages and investment cases (in the Lao People's Democratic Republic and Pakistan).

Countries can also advocate for integration of NCD services by ensuring that they are consistent with a vision of integrated, people-centred health systems when they leverage external financial sources and develop innovative, sustainable financing mechanisms.

4.6 Guidance for specific national and local contexts

Integrated NCD service delivery involves complex health reforms that can be undertaken only after an assessment of readiness. Depending on the national and local contexts, there are several entry points for applying this guidance (Fig. 5).

Fig. 5. Entry points for applying guidance on integration of services for noncommunicable diseases

Start	Start from existing partnerships and/or disease initiatives to strengthen health system components
Improve	Technology, infrastructure and resource management
Improve	Improve linkage of NCD services to other programmes, such as communicable diseases, maternal and child health
Empower	Empower communities and people as part of the solution
Develop and mature	Develop and mature integrated service models

Examples are from the case studies in the Annex.

Countries should regularly reassess their priorities and programmes to ensure that they meet changing population needs. They should consider new trends in health and health services, social determinants, economic development, employment, migration, urbanization, conflict, environmental degradation and technological innovation. Science, strategic information and evidence of syndemics should continue to guide prioritization.

4.7 Monitoring, evaluation and implementation research

Monitoring systems should track progress in implementation and patient and population health outcomes with standard measures and should track referral and follow-up care throughout the health service (hospital, primary and community care) (32,49,57,66,77,79,90,93,104). Monitoring of progress can motivate health workers if it shows early gains and provides information to resolve issues. High-quality data on service use, including NCD services, covering both public and private facilities, may be required. There is strong demand for integration of national, district and facility health information systems through various routine information data platforms, such as DHIS-2, electronic medical record systems and manual paper systems (151,152).

4.7.1 Embed implementation research into the design, implementation and evaluation of integration of NCD services

Implementation research is crucial in implementing and improving an NCD programme and its adaptation to specific contexts (153). Institutions should conduct such research for designing, implementing and evaluating integration of NCD services and for collecting dynamic evidence in the context of complexity and diversity (45). The research could consist of:

- mixed methods, such as ethnographic observation, process evaluation and realistic evaluation, which are useful for assessing a multifaceted strategy for integrating NCD services (154,155);
- innovative longitudinal studies, especially if they are based on theory and ethnographic methods; and
- reporting local contextual influences to indicate whether a strategy could be replicated in other settings (case study 2 in Bhutan).

4.7.2 Future research and implementation research

Quantitative evidence on the effect of an integrated model of care for NCDs in LMIC is limited. The latest evidence on integration of HIV services with other services suggests that it can increase the sustainability of the global HIV response, increase the quality and coverage of other services such as NCD services, improve overall health system efficiency and save costs to patients and providers (156). It should not be assumed, however, that this will be the case in all contexts. Some strategies for integrating PHC services in LMIC might increase health service “outputs” (e.g. use) but not improve health “outcomes”.

Research should be conducted on:

- the longer-term effects of NCD service integration, in models with a wide range of indicators and measures, such as service demand, access, acceptability, quality, effective referral, uptake, outcomes (including surrogate outcomes such as quality of life and complications), cost-effectiveness and equity (e.g. distribution of effects);
- models of integrated care and their effects on the outcomes for people with multimorbidity;
- technology and innovations for redefining NCD services and care models during the COVID-19 pandemic and afterwards;
- the role of public–private partnerships in enabling NCD integration; and
- integrated NCD service models in the community and integrated service models for disease elimination, such as of cervical cancer (157).

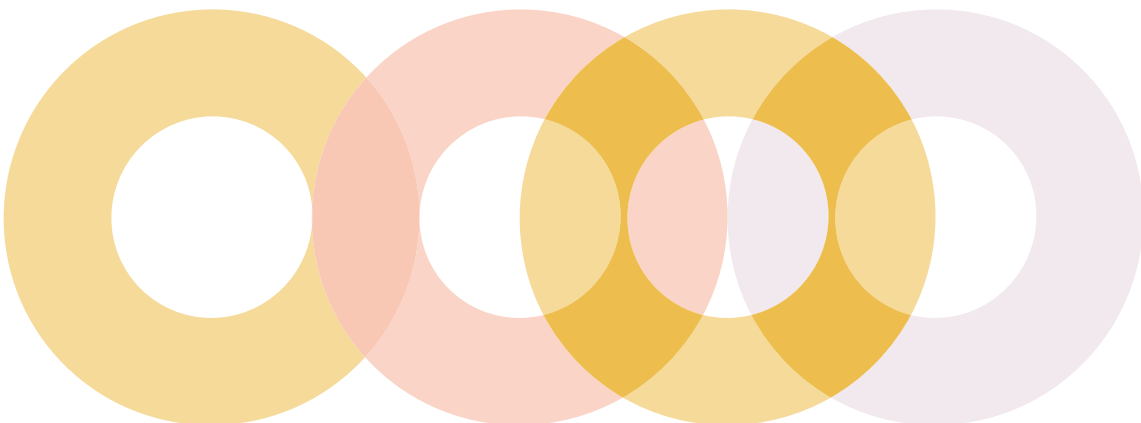
Tools

- A guide to implementation research in the prevention and control of noncommunicable diseases (158)



5 Conclusion

This implementation guidance is designed to guide a paradigm shift in health systems in order to maximize the impact of health services and extend access to NCD care. This comprises a change from addressing NCDs and other diseases vertically to addressing them in an integrated manner, from a clinical to a clinical and public health approach, guided by the principles of universal access and social justice. Wide, rapid implementation of such an approach, with strong political commitment and implementation research, could stall and reverse the growing burden of NCDs while complementing and sustaining gains in other programme areas.



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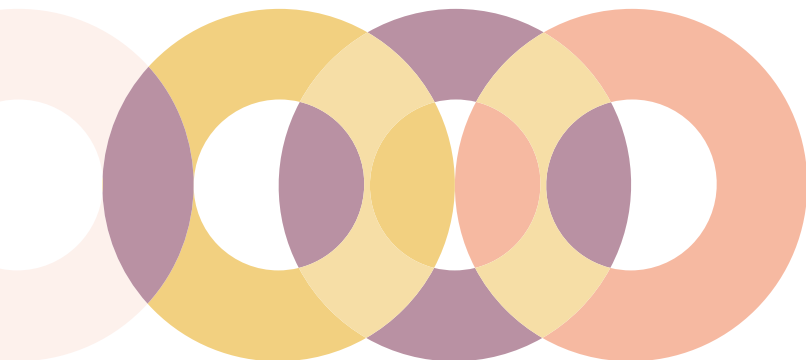
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Annex. **Case studies**

Acronyms

COPD	chronic obstructive pulmonary disease
mhGAP	mental health Gap Action Plan
NCD	noncommunicable disease
PEN	package of essential noncommunicable disease [interventions]
PHC	primary health care



Case studies mapped to WHO region and country income level

WHO region	Country/territories income level (1)			
	Low	Lower–middle	Upper–middle	High
African Region (n=9)	<p>Ethiopia, Malawi – NCDs in HIV</p> <p>Rwanda – Oncology in NCDs in hospitals</p> <p>Sierra Leone – NCDs in health system</p> <p>Uganda – HIV, chronic diseases and NCDs in community care; integration of monitoring for HIV, diabetes and hypertension</p>	<p>Cameroon – Diabetes and hypertension in facilities with non-physician clinicians</p> <p>Kenya – HIV and sexual and reproductive health in hospitals</p> <p>United Republic of Tanzania – Service integration for HIV, diabetes and hypertension</p>	<p>South Africa – HIV and NCDs in PHC</p>	
Region of the Americas (n=7)		<p>Bolivia (Plurinational State of) – Youth participation in sexual and reproductive health in health system</p>	<p>Argentina – Cancer, heart disease and other diseases in health system</p> <p>Brazil – Chronic conditions in PHC</p> <p>Paraguay – Epilepsy and other conditions in health system (telemedicine)</p>	<p>Canada – Diabetes and other diseases in health system</p> <p>Chile – Chronic conditions in PHC</p> <p>USA – Autism and mental health in PHC</p>
South-East Asian Region (n=4)		<p>Bhutan – People-centred care for NCDs</p> <p>India – Mental health in PHC</p> <p>Nepal – Diabetes, hypertension and COPD in PHC</p>	<p>Thailand – NCDs in PHC</p>	

WHO region	Country/territories income level (1)			
	Low	Lower–middle	Upper–middle	High
European Region (n=10)			<p>Albania – NCDs in PHC</p> <p>Bulgaria – Chronic conditions of the elderly in home care</p> <p>Georgia – Rehabilitation in health system</p>	<p>Croatia – Chronic conditions in health system</p> <p>Denmark – COPD and rehabilitation in home care (telemedicine)</p> <p>France – Stroke in health system (telemedicine)</p> <p>Germany – Chronic conditions in health system; Integrated, evidence-based care</p> <p>Spain - Chronic conditions and multimorbidity in health system</p> <p>Sweden – Chronic conditions of the elderly in health system</p> <p>United Kingdom – Diabetes in health system</p>
Eastern Mediterranean Region (n=6)	<p>Afghanistan – NCDs in PHC in crises</p> <p>Sudan – Rheumatic heart disease in child health and NCD programmes</p>	<p>Syrian Arab Republic – NCDs and mental health in PHC in a protracted emergency</p>	<p>Islamic Republic of Iran – CVDs and cardiac rehabilitation in health system</p> <p>Lebanon – Provision of medications for chronic diseases</p>	<p>Oman – NCDs in health system, COVID-19</p>
Western Pacific Region (n>6)		<p>Cambodia – HIV and reproductive health in health system</p> <p>Pacific Islands, including including the Federated States of Micronesia – NCDs in health system – NCDs in health system</p> <p>Viet Nam – Perinatal depression in PHC</p> <p>Philippines – Services integration during COVID-19</p>	<p>Fiji – Diabetes and diabetic retinopathy in PHC</p> <p>Pacific Islands, including American Samoa or Marshall Islands – multidisciplinary collaborative team NCD</p>	<p>Australia – Oral health in midwifery</p> <p>New Zealand – Elderly chronic conditions in community care</p> <p>Pacific Islands, including Palau, Guam, Mariana – Multidisciplinary collaborative team for NCDs</p>

(1) “Pacific Islands” includes three income categories.

CD, communicable disease; COPD, chronic obstructive pulmonary disease; NCD, noncommunicable disease; PHC, primary health care; SRH, sexual and reproductive health.

Case studies

Case study 1. Involving patients and community health workers in the provision of integrated chronic care. Why does task-shifting work or not work? A realistic evaluation in South Africa (2,3)

Background: NCDs accounted for 29% of all deaths in South Africa in 2008, and the rate increased to 43% in 2012. The increasing burden of NCDs is occurring against the background of gradually decreasing but persistent HIV infection. Tuberculosis is another serious public health issue.

Intervention: An integrated chronic disease management model was introduced as a response to the dual burden of HIV/AIDS and NCDs to leverage innovations in the HIV programme to improve the quality of care for chronic diseases. The model involves a diagonal approach to health systems strengthening, in which the vertical HIV programme is integrated within the horizontal general health system. A national pilot study of the model began in June 2011 in selected PHC facilities in three of South Africa's nine provinces – Gauteng, North West and Mpumalanga.

The components of the model were health facilities, communities and populations. The **health facility component** involved reorganization to improve operational efficiency and the quality of care. In communities, ward-based PHC outreach teams provided “assisted” self-management to promote individual responsibility. The **community outreach component** consisted of a team of one professional nurse, three staff nurses and six community health workers in the community served by the clinic. The team was responsible for 6000 individuals in 1500 households (250 households per community health worker) and was expected to manage at least 80% of defined health problems in the catchment population. The **population component** involved health promotion and screening. The priorities for facility reorganization were to improve the coherence of care, reduce waiting times, trace defaulters, set up appointment systems, supply critical medicines, pre-package medications and make appropriate referrals.

Outcomes: The innovative integrated chronic disease management model provided non-segregated services for patients with chronic diseases and appeared to have had some benefits, e.g. less stigmatization of people living with HIV.

Involving patients in monitoring and evaluating NCD integration: Interviews and focus group discussions with patients highlighted issues related to access, uptake, quality and stigmatization, including inadequate structures (malfunctioning blood pressure machines, staff shortages and stock-outs of anti-hypertension drugs), processes (irregular pre-packaging of drugs, suboptimal tracing of defaulters, an overly rigid clinic appointment system) and outcomes (long waiting times). HIV patients reported stigmatization in the community due to tracing of defaulters in home care. This illustrates the importance of involving patients in monitoring and evaluating NCD integration and has implications for nationwide scaling-up of the model in South Africa.

Involving community health workers: Task-shifting of interventions to lay health workers in order to support clinical staff in chronic disease care in rural South Africa was used to overcome the shortage of health-care personnel and the rapidly increasing numbers of users of chronic care services. Task-shifting from nurses to lay health workers improved the appointment systems, filing and pre-packaging of medications, managing chronic care and patients' adherence to their appointments, and thus strengthened the functioning of PHC clinics.

Why is task-shifting working or not working? Lay health workers can be valuable members of a clinic team and an important resource for managing increasing patient demand for PHC. A realistic evaluation found, however, that task-shifting is effective only if clinic managers respond to the constantly changing system and manage conflicts among staff. Strengthening facility management and leadership skills is important for service integration.

Case study 2. What does people-centred NCD care mean? The Bhutan PEN/HEARTS programme

Background: Bhutan used the WHO Package of Essential NCD (PEN) interventions and the HEARTS package in a patient-centred approach in several districts and evaluated the outcome in a mixed-methods, phased, quasi-experimental study. A facility checklist, a health worker survey, patient records and in-depth interviews were used to collect quantitative and qualitative data. Before implementation of people-centred PEN/HEARTS, the practices were as follows:

- no standard-of-care practices or outreach services provided for patients with chronic diseases living in communities; health workers visited patients in communities only at the request of patients or carers;
- patients who required medicine refills for hypertension and diabetes who visited basic health units were simply directed to hospitals by health assistants, obliging most patients to undertake many hours of travel, sometimes by foot, for even a simple medicine, leaving behind farm work;
- no patient reminder or recall system to reach patients who interrupted care;
- patients treated at hospital were not generally referred back to the basic health unit;
- medical officers and hospital teams generally disengaged from basic health unit services, except during certain emergencies and outbreaks; and
- no joint supervisory visits to basic health units by district health officers or medical officers.

Interventions: The people-centred interventions had seven components: refill, recall and follow-up, referrals, team care, mentoring and support, laboratory diagnosis and outreach.

Field story: The Central Monastic Body has established a residential retreat for elderly monks in Tsochsa under Limbukha Geog. Of the 20 elderly monks at the centre, nine were being treated for hypertension and were expected to visit Punakha Hospital for medicine refills. The centre, located on a hillock away from the main road, posed a challenge; as a result, many monks interrupted their treatment.

After introduction of the people-centred concept of NCD services, a health assistant from the nearby Tsochasa basic health unit visited the centre on the 28th of every month to provide follow-up and medicine refills and also coordinated blood sample collection by a laboratory technician from the Hospital.

Evaluation: The evaluation addressed the following questions:

<p>Question 1. Was implementation of the PEN and HEARTS delivered as planned?</p>	<p>Did training take place as planned, and was it effective? Were team-building, monitoring and supportive supervision implemented as planned? Were essential elements of a patient-oriented approach implemented as planned? What challenges were encountered during implementation of the protocols? What facilitators supported implementation of the programme?</p>
<p>Question 2. Have the PEN and HEARTS programmes had a measurable effect on provision of care for NCDs and patient outcomes? Did the programme lead to:</p>	<ul style="list-style-type: none"> • effective record-keeping at the facility to support care and treatment of NCD patients? • more patient-centred care? • adequate stocks of medications and diagnostic tools for the care and treatment of hypertension and diabetes? • positive views by NCD patients about their care and treatment at facilities, such as ease of access to treatment and their motivation to adhere to treatment? • better control of hypertension and diabetes, measured as numbers of patients started on treatment at basic health units and district hospitals in the past 6–12 months?

Outcomes of patient-centred care: The intervention resulted in a fundamental shift in the mindset of health-care workers and managers. Health workers found it easier to solve problems related to the care and treatment with patients. During the interviews, both health workers and patients described ways in which care had been improved. Health workers reported easier tracking of patients and management of diseases and refills and ensuring that patients received the services they required in a timely fashion. Patients reported that health workers were attentive to their needs, provided clear information about their medications and illness and facilitated access to medications (e.g. home delivery or reminders to pick up refills).

Outcomes of team-based care, mentorship and support: Health workers reported overall support, supervision and mentoring by senior leadership, consisting primarily of frequent communication and timely feedback via social media and in-person visits. The health workers found this support not only beneficial to the care they provided to patients but also supportive for them in their practice. One health worker reported:

All the basic health units and the hospital participate freely (on We-Chat) in discussing patient cases and problems and share their feedback and comments immediately.... For example, when an uncontrolled hypertension client came to the basic health unit last time, I wrote down his complaints and vital signs and shared it in We-Chat forum. Dr X responded immediately and gave detailed instructions on how to treat and manage this patient.

Data collected at the district basic health unit indicated improvements in the control of hypertension and diabetes and in rates of patient retention. The qualitative data indicated that health workers found difficulty in four main areas: staff shortages, medicine shortages, equipment failure and cumbersome record-keeping. They also mentioned inability to measure the continuity of individual care.

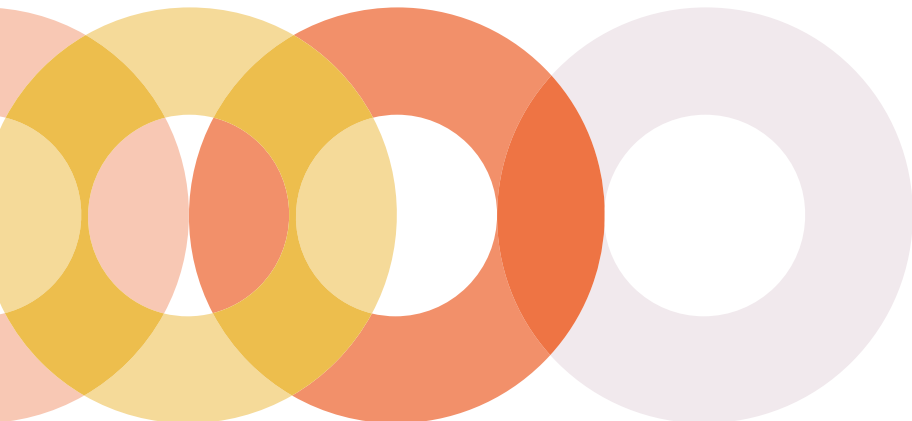
Information and photos, with permission to use, compiled from field notes and a Bhutan PEN/HEART evaluation by Khesar Gyalpo, University of Medical Sciences, Bhutan

Case study 3. Achieving meaningful youth participation in integrated sexual and reproductive health policy development in Bolivia (Plurinational State of) (4,5)

Background: Young people aged 10–24 years account for more than one third of the Bolivian population. Their concerns with regard to sexual and reproductive health include barriers to access to contraception, unwanted pregnancies, HIV/AIDS and other sexually transmitted infections. Adolescents comprise 25% of people living with HIV and other sexually transmitted infections in the Bolivia (Plurinational State of).

Intervention: The Centre for Investigation, Education and Services, which reaches populations that are geographically isolated or living in peri-urban areas through mobile health units and provides free services, organized youth groups in five regions to raise awareness about their rights and to build the necessary skills in advocacy to demand their fulfilment by the Government. Nearly 500 young people were trained in rights, social participation and accountability.

Evaluation and outcomes: The young people contributed to passage of the National Youth Law, which upholds sexual and reproductive health, comprehensive sexual education and access to youth-friendly health services. Further, 18 policies have also been enacted sub-nationally to guarantee sexuality education and access to health services for adolescents. The Ministry of Health issued a resolution to promote the participation of young people in the nation's health system, and a national decree was passed to ensure access to the legal system and fair legal process for young people who are victims of violence. The Centre for Investigation, Education and Services youth networks also contributed to allocation of local budgets to improve service provision.



Case study 4. Using a patient-centred approach to care for people with multiple chronic conditions in Germany (6)

Background: In 2013, an estimated 30% of the German population aged 16–64 years reported having at least one long-standing illness or health problem, and an estimated 42% of those aged ≥ 50 years reported multimorbidity. Moreover, the population is ageing, and changes in lifestyle will probably increase the numbers of patients with multiple chronic diseases.

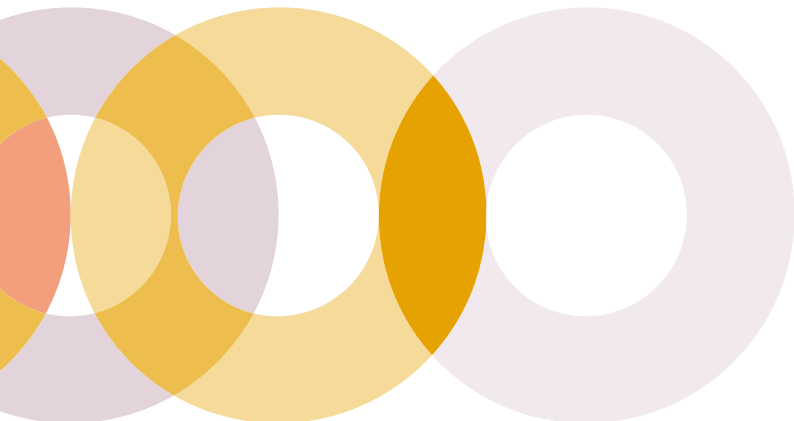
Intervention: The *Gesundes Kinzigtal* programme is based in rural south-western Germany. It is a comprehensive, population-based, integrated care programme that is a joint venture of a health sciences management company and an interdisciplinary physician and psychotherapist network. It is open to the entire *Kinzigtal* population, regardless of disease or age. The programme's main elements are: support for self-management, prevention, patient-centred care and an electronic networking system. Specific care for people with multimorbidity is offered, comprising polypharmacy, prevention and training in self-management. The programme has a patient-centred approach, including:

- treatment plans for each member or patient;
- shared goal-setting agreements between physicians and members and patients;
- better patient self-management and shared decision-making;
- adoption of the chronic care model, patient coaching and follow-up care provided by a trusted physician;
- involvement of patients in development of the programme (patient advisory board); and
- a patients' ombudsman to ensure that members' interests are carefully considered.

The programme has been improved continuously over time to ensure greater complexity, coverage and efficiency, as shown for the decade 2006–2015 in Table 4 in the main text.

Evaluation: The *Gesundes Kinzigtal* programme has been evaluated internally and externally continuously since its inception, including a patient satisfaction survey every 2 years.

Outcomes: Monitoring and evaluation have shown an overall positive trend since the programme began, and there are plans to extend it to three other regions in Baden-Württemberg. The 2014 patient survey indicated that patients who agreed upon shared treatment goals had a healthier lifestyle and were more successful in achieving their goals than patients who had not set such goals.



Case study 5. Use of a life-cycle, client-centred, integrated service package during COVID-19: Philippines

Background: The health challenges introduced by coronavirus disease (COVID-19) are overwhelming and have placed enormous pressure on the health system, affecting in particular routine delivery of public health services, as health workers were heavily burdened with the response to COVID-19. It was therefore essential to streamline the provision of health services to ensure that they were continuously available and accessible, especially for vulnerable populations. In a client-centred, life-cycle approach, the Western Visayas Center of Health and Development, Department of Health, developed interim guidelines to reach the unreached, to deliver essential, integrated health services through the health provider network.

How this was achieved: The Center operationalized the interim guidelines in circulars and memoranda.

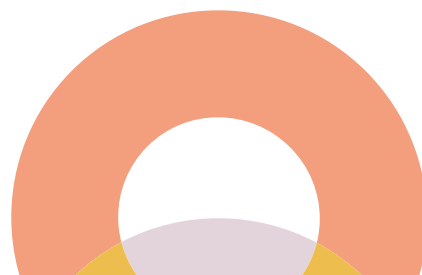
Essential services for adolescents (10–18 years) were defined, which included: immunization; iron and folic acid supplementation; de-worming; psychosocial risk assessment and provision of education on a healthy lifestyle, injury prevention and coping with distance learning and stress; and psychiatric screening. The steps in delivery of the integrated public health service package for adolescents were: profiling, assessment, education on prevention, service provision and referral. The service delivery strategy was changed from schools to communities, with strict observance of infection prevention and control measures, including administration at fixed sites, outreach campaigns and home visits.

To maintain the quality of services, programme standards and clinical practice guidelines continued to be followed. The minimum protocol for service delivery was observed. Health facilities changed their scheduled days for service delivery to daily provision. Physical distancing was strictly observed, and gatherings were controlled. To overcome health system constraints in supply and financing, roles and responsibilities were defined for three levels of service providers. Funding was allocated through designated sources, and fund mobilization and allocation were arranged. Caravan mobile services were added to address service disruption.

Health workers profiled all members of households during community and field visits. Adults (20 years and over) were screened for various health conditions (oral health, immunization status, tuberculosis, COVID-19, proper hygiene and disposal of personal protective equipment, HIV, mental health, safe motherhood, family planning, NCDs). Basic essential services were provided, and two-way referrals were established. Master lists of clients were used for planning and monitoring.

Conclusion: These activities helped to manage the extra burden of COVID-19 and showed the value of integrating services in a client-based approach focused on reaching the unreached.

The information for this case study was provided by the Western Visayas Center of Health and Development, Department of Health, Philippines.

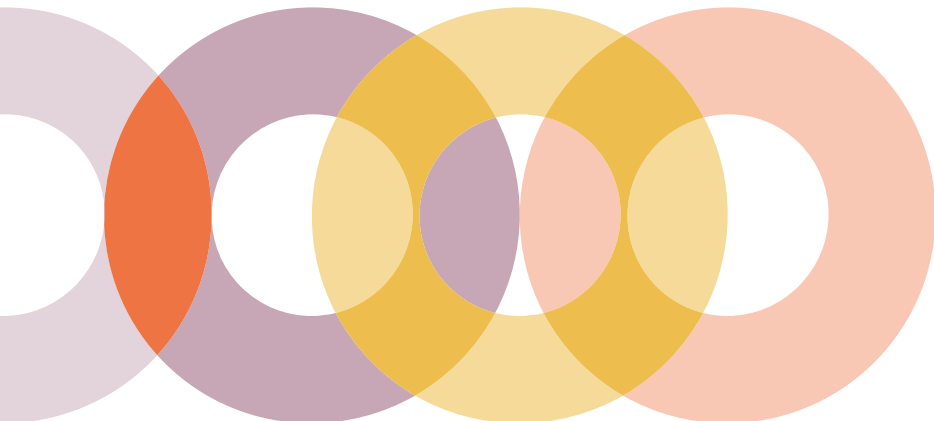


Case study 6. Implementing a shared information exchange system to integrate and improve diabetes care and other NCD services in Canada (7)

Background: In Taber, Alberta, until recently, health-care practices were based on the advice of numerous separate clinical working groups in the management of chronic diseases (e.g. asthma, diabetes and hypertension). In addition, only laboratory results and hospital admissions were available to physicians electronically; otherwise, paper charting and electronic billing and scheduling were used.

Intervention: The Taber Integrated Primary Healthcare Project was a 3-year PHC renewal initiative involving rural physicians in the Chinook Health Region. During the intervention, the approach to diabetes and other NCD services was shifted from one based in facilities to a “community wellness” approach. Allied health-care professionals organized training in use of diagnostic equipment and patient education and facilitated links with external resources. Another component of the intervention was a move to electronic charting and an electronic information system.

Evaluation and outcomes: Process evaluation identified a move towards the “one patient, one chart” approach for providing effective interdisciplinary care. This was particularly effective in programmes such as for diabetes. The integrated electronic information system made patient information available to physicians in both clinics and hospitals. For example, clinical charts were available when patients presented to an emergency department after working hours. In response to community requests for access to health care through a single point of entry, the electronic information system also allowed patients to make appointments with different providers simultaneously, e.g. with both a physician and a chronic disease educator.



Case study 7. Coordination and integration of care for clinical and managerial decision-making and maintaining NCD essential services during COVID-19 in Oman (8,9)

Background: Oman has a population of 5 million people and a prevalence of diabetes that is among the 10 highest in the world. The country's health-care system is dominated by Government services, which are used by 85% of the population, while private health care is used mainly by expatriates working and residing in the country. The country has six tertiary hospitals, eight secondary care hospitals and an extensive network of 241 PHC facilities.

Evaluation: The WHO Regional Office for the Eastern Mediterranean assessed health care in Oman against its regional framework for NCD control. A situation analysis was conducted of the extent of NCD integration into PHC, synergies and challenges through a literature review, a country visit, meetings with informants and visits to facilities to collect structured data.

Outcomes: The researchers found good breadth and depth of NCD service coverage nationally and a well-performing gate-keeping system to ensure cost efficiency in tackling NCDs as compared with those of other countries in the Region.

Integration of NCD services into PHC: The Ministry of Health had a well-structured, well-staffed NCD surveillance and control department. There are few insurance mechanisms in Oman, and the Government financed 90% of all health expenditure, with 10% attributed to out-of-pocket expenditure. The Ministry of Health's budget was financed entirely from the public sector budget and was increased incrementally on recommendations from the NCD unit. Plans and budgets for activities were prepared by the NCD unit, integrated into the PHC budget and operationalized after approval.

Delivery of NCD services was integrated horizontally into the Government primary care infrastructure and increased with extension of the PHC structure. There was a well-established system of screening and filtration of less complicated cases at PHC facilities before referral to hospitals, which was backed by counter-referral from hospitals to PHC facilities for further management (see flow chart below). Drugs were supplied for cases that were referred back from hospitals to primary facilities.

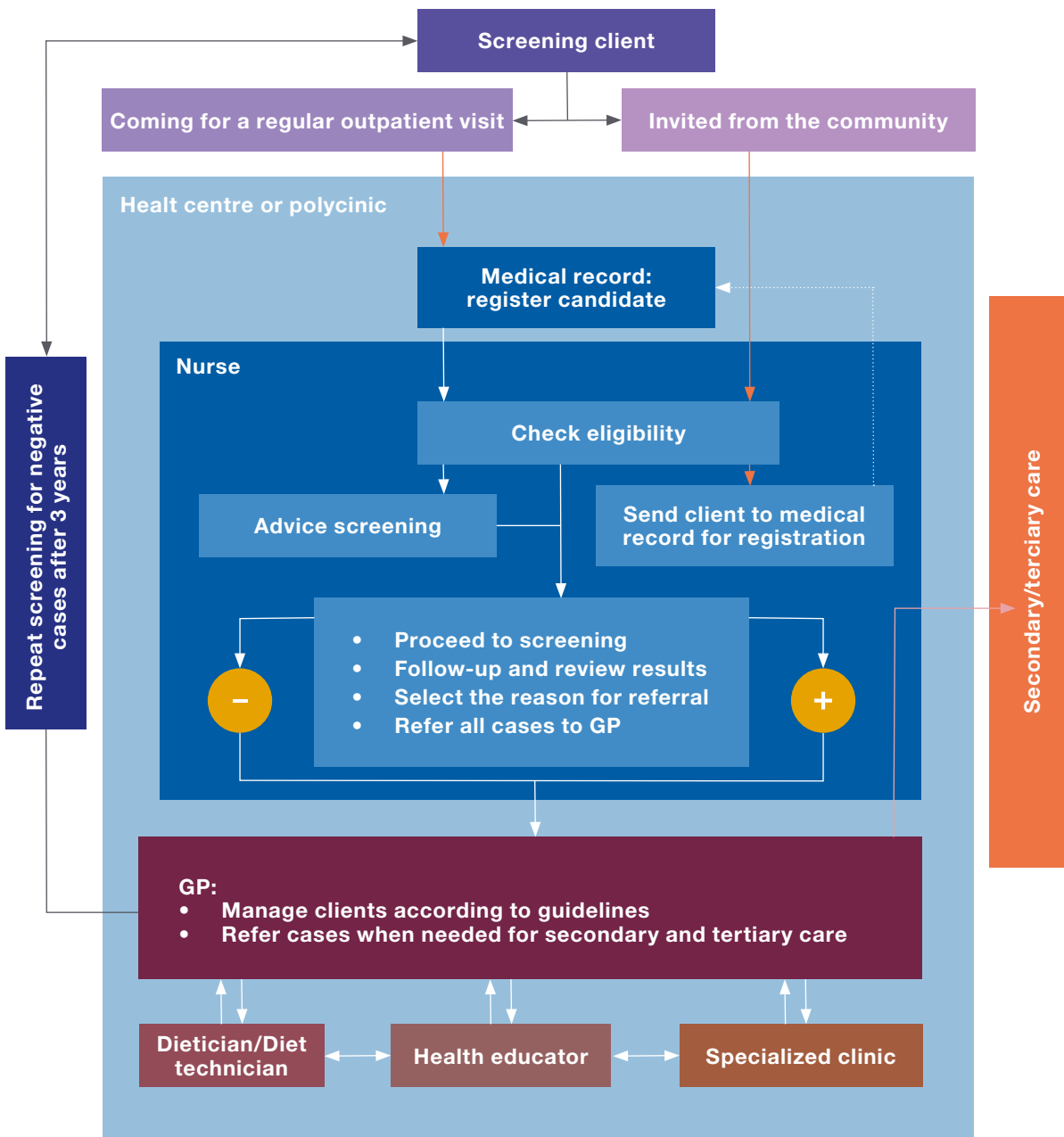
A good range of services was provided at PHC centres, from health education and diet to diagnosis and treatment, by a team of "well-being providers". A typical team consisted of physicians, nurses, dieticians, health educators, pharmacists, a psychologist and a medical orderly. The PHC centres reported monthly on diabetes and hypertension, and these conditions were included in the national management information system, which was computerized and connected among facilities. The system recorded patient information and data from consultations and referrals and was available for clinical and managerial decision-making, such as on procurement of medicines and equipment. The information was also available to the NCD unit at the Ministry of Health for clinical decision-making.

Reorganization of PHC service delivery and integration and maintenance of NCD essential services during COVID-19:

The first case of COVID-19 in the Muscat Governorate was confirmed on 23 February 2020 in a traveller from abroad. The number of cases then increased exponentially, reaching 832 cases in mid-April. Adaptations of primary, secondary and tertiary care services included strengthening emergency response mechanisms, risk communication and community engagement, public health measures, infection prevention and control, case management and drills with simulation exercises. Delivery of PHC services was adapted in each phase. Phase 1: No cases (preparedness): revise essential health-care needs, human resources and working hours, and liaise with hospitals. Phase 2: First case detected: identify a COVID-19 primary care centre (North Al Khuwair). Phase 3: Clusters of secondary local transmission: strengthen referral protocols, infection prevention and control, swab-taking and transfer of specimens to central laboratories. Phase 4: Clusters of cases. Phase 5: Cluster of community transmission: extend services at Muttrah Health Centre, prepare community areas or tents for surveillance in Muttrah, identify outreach teams, and extend isolation facilities, especially for foreigners.

Despite a reduction in outpatient visits, from 115 324 in January to 109 719 in March, essential health services were ensured in all health centres, with priority for vulnerable groups, women and children. The Ministry of Health urged people living with NCDs to take extra preventive and precautionary measures to control their conditions and to take their medications regularly as instructed. In NCD PHC services, staff were asked to remind patients of approaching appointments and confirm their health. Patients whose disease was not controlled received medications on the specified date, while medicines were prescribed for 2 months for patients whose disease was controlled, and each could nominate a person to whom they should be sent.

Fig. A1. Flow chart of integrated care



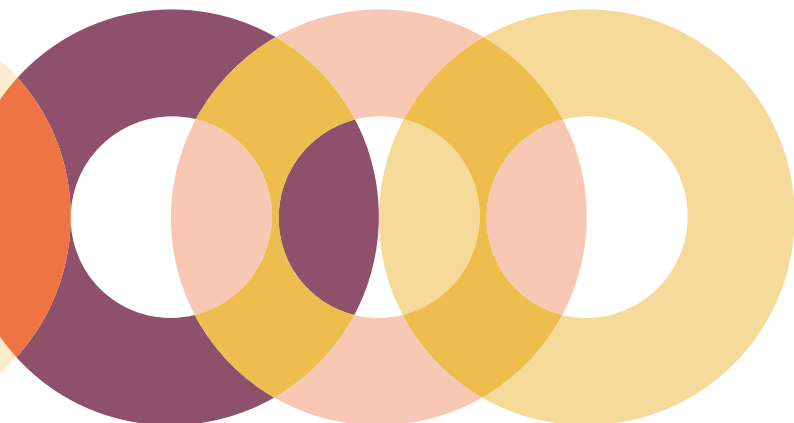
Case study 8. Measuring PHC system performance with a shared monitoring system in Chile (4,10,11)

Background: In Chile, stroke, heart disease and dementia are the major causes of death. Integrated NCD care might therefore be critical to reduce the burden of chronic diseases, and monitoring and evaluating these activities is essential for continuing improvement.

Intervention: Chile developed a national plan for monitoring the performance of its PHC system, with two “parsimonious” sets of indicators: health goals and indicators, which provided an economic incentive for front-line providers to meet service delivery targets, and activity indicators, which ensured financial transparency and the accountability of municipalities for the health of their populations.

Evaluation: Collection of data for both sets of indicators was standardized throughout the country. All clinicians (medical doctors, dentists, nurses, nutritionists, physiotherapists, psychologists and others in the PHC team) were required to keep clinical records, which are electronic in almost 80% of PHC facilities. Through the Department of Health Statistics and Information, the Ministry of Health reported the results of all indicators online. A qualitative study was used to evaluate the integrated health-care networks and the strategies for care coordination in the public health system. Semi-structured interviews were conducted with public health policy-makers and academics, complemented by documentary analysis and bibliographic review.

Outcomes: Overall, the country achieved institutionalization of instruments for care coordination, e.g. referral maps, a physician who manages clinical priorities, electronic records and, mainly, definition of protocols. Chile’s monitoring system is a good example of how diverse stakeholders can work together to establish a simple method for assessing the overall performance of a PHC system to promote accountability, incentivize quality and drive improvement. The monitoring system made it possible to identify gaps and weaknesses in the system. For example, turnover of professionals, especially physicians, in PHC requires continuous training in operating the network, derivative maps, flows and clinical protocols. Research suggests that use of information and communication technology helped to minimize problems related to turnover by coordinating information and providing clinical practice guides and derivative maps on office computers. In contrast, newly computerized referral and counter-referral systems for sharing clinical information between PHC and hospitals was of limited effectiveness, as it was implemented in only some areas and hospitals.



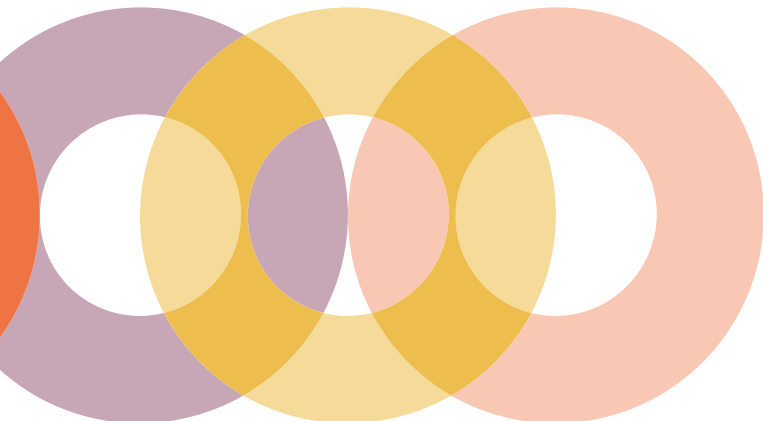
Case study 9. Building on a national mental health initiative to address perinatal depression in primary care in Viet Nam (12)

Background: In Viet Nam, national policy-makers have emphasized the delivery of health care through the public health system. The National Mental Health Initiative for primary care, in which depression is a target, provides an opportunity to leverage regional resources for integrating mental health services.

Intervention: A project in Can Tho, Viet Nam, provided screening and treatment for perinatal depression in primary care. The aim was to improve screening and care for common perinatal mental health disorders through an integrated care approach. The strategy used was a community–academic partnership with participatory development.

Evaluation: The authors solicited information from researchers who were investigating integrated health care and interpreted their results in the “exploration–preparation–implementation–sustainment” framework (13).

Outcomes: Before the intervention, providers were unaware of the symptoms of perinatal depression but subsequently perceived the importance of the intervention and aligned it with the goals of health facilities. The national policy initiative provided a strong impetus for the project.

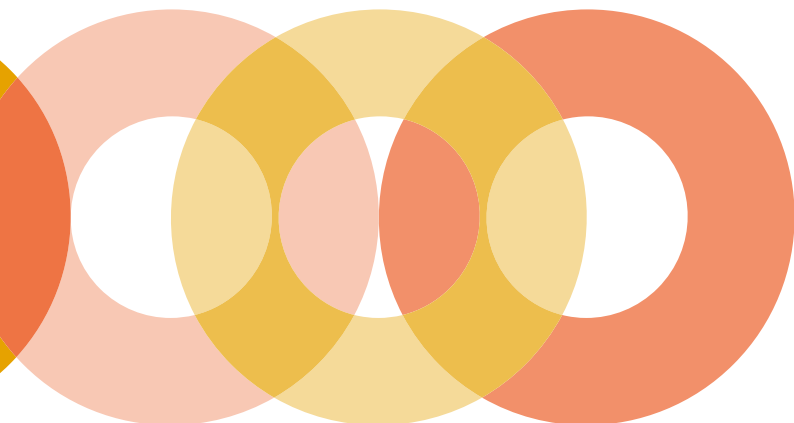


Case study 10. Leveraging federal telemedicine policy for an innovative home-based programme for patients with chronic obstructive pulmonary disease (COPD) in Denmark (14)

Background: In Denmark, the Government has gradually increased use of information technology in health services, and legislation is being prepared to drive innovation and promote the use of such technology. Almost all health-care documents are now exchanged electronically. In addition, the Ministry of Health is guiding development of telemedicine, with a national action plan for dissemination. Government funds, such as the Public Welfare Technology Foundation, provide financing for promising telemedicine initiatives.

Intervention: A new NCD service delivery model was developed to reduce hospital readmission of patients with COPD by promoting home rehabilitation, in which patients manage their disease at home with telemedicine services. Patients first received education on COPD self-management and were given a monitoring device to collect and enter data on their blood pressure, oxygen saturation and lung function. The data were uploaded onto a joint web portal for health providers to share information. District nurses regularly monitored patient data on the portal, provided personal feedback on the results and initiated referrals or treatment when necessary.

Evaluation and outcomes: The hospital readmission rate for COPD patients was 54% lower among participants than in the control group. Most patients reported a better quality of life and felt trust, security, empowerment and more knowledgeable about tele-home care.



Case study 11. Evolution of health financing legislation in Germany towards integrated, evidence-based health care (15)

Background: The German health system moved towards integrated care and evidence-based health care in the late 1990s. Some major legislation has been adopted, with increased emphasis on competition, access, quality and efficiency (Table A2).

Table A2. Health financing legislation for integrated health care

Legislation and reform (year)	Recipients	Subject	Purpose
Financial incentive schemes (2000)	Sickness funds and providers	Selective contractual arrangements for integrated care Introduction of family doctor care models Increased selective contracting in statutory health insurance expenditure Removal of ineffective or disputed technologies and pharmaceuticals Separate budgets for general practitioners and specialists in ambulatory care	To improve the quality and efficiency of care To reduce fragmentation and contain costs
Benefits package expansion (1994, 2000)	Statutory health insurance	Included palliative care, introduced long-term care insurance	To ensure equal access
Mandatory universal coverage (2007)	Statutory health insurance or private health insurance		
Statutory Health Insurance Care Structures Act (2011)	Health care financing	New regulations for supplementary premiums and introduction of social adjustment in health-care financing Reform of health workforce planning for doctors in ambulatory care	
Pharmaceutical Market Reform Act (2011)	Pharmaceutical	Regulation of reimbursement of new pharmaceutical products Introduction of benefit assessment and value-based pricing	
Further development of financial structure and quality in the Statutory Health Insurance Act (2014)	Statutory health insurance institute	New regulation for contribution rate Founding of the Institute for Quality and Efficiency in Health Care	To develop financial structure and quality
Statutory Health Insurance Care Provision Strengthening Act (2015)		Several measures for better access to ambulatory care	To improve access
Hospital Structure Reform Act (2016)	Hospital	Selective contracting between sickness funds and hospitals Financial support for hospitals to employ more nurses New emergency out-of-hours practices in or near hospitals	

Case study 12. Scaling up a national telemedicine initiative to improve access to acute stroke care in France (16–18)

Background: Telemedicine consists of the provision of remote clinical services via real-time two-way communication between patients and health-care providers by electronic, audio and visual means. France has more than 10 telemedicine platforms for patients, indicating that telemedicine can be commercially viable. In early 2018, the French Government made provisions for refunding 70% of teleconsultation services and up to 100% for chronic conditions in recognition of the huge burden of these diseases on the health-care system. Telemedicine has become especially important during the COVID-19 pandemic, which has overwhelmed health systems worldwide.

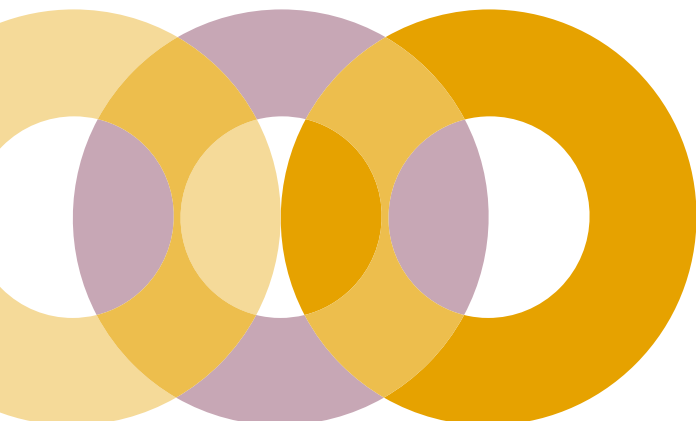
Stroke is a public health priority in France and “telestroke” is currently being implemented to improve access to acute stroke care, including thrombolysis.

Intervention and health policy stages model: To create a national telestroke network, the national agenda was set between 2003 and 2007, and policy was formulated between 2008 and 2009 on the basis of official reports on telemedicine, telehealth and stroke. Consultations lasted from 2010 and 2012 and resulted in the National Stroke Plan, the National Telemedicine Implementation Strategy and an administrative document on organization of telestroke. Implementation began in 2011, with dedicated public funding for regional introduction, support for regional pilot studies and methodological resources.

Evaluation: The cost-effectiveness of the French telestroke network was evaluated later in 2020 in a decision analysis model based on population-based data. Comparisons were made between short-term clinical outcomes and the costs of managing acute ischaemic stroke and the results after implementation from the viewpoint of the national health insurance system. Three measures of effectiveness were used: hospital deaths, deaths at 3 months and severe disability 3 months after a stroke (assessed on a modified Rankin scale). Most of the clinical and economic parameters were obtained from the medical files of 742 patients included retrospectively. Sensitivity analyses were performed.

Outcomes: The telestroke strategy was found to be more effective and slightly more costly than the reference strategy, with 25 cases of disability, 6.7 hospital deaths and 13 deaths avoided per 1000 at 3 months for an extra cost of € 97, € 138 and € 154, respectively. The results remained robust in the sensitivity analyses.

The evaluation is crucial for examining integration of telestroke into stroke care in France, including critical information for deciding whether the telestroke network should be extended.



Case study 13. NCD emergency kits in Afghanistan: an opportunity for integrating NCD services into PHC in crises

Background: In order to address its burden of NCDs, Afghanistan is testing use of NCD emergency kits in four clinics in provinces with emergency situations as the country's first attempt to integrate NCD care into PHC and to combine emergency and NCD care. The kits enable clinics to diagnose and treat patients with the most common, manageable NCDs (diabetes, hypertension, chronic respiratory disease) and selected mental health conditions. Each NCD emergency kit contains a regular supply of medicines and medical devices for the NCD needs of 10 000 people for 3 months.

Context and emergency setting: Afghanistan's basic package of health services for PHC does not include NCD interventions, and humanitarian responses to emergencies generally focus on management of acute conditions. The continuing conflict in Afghanistan therefore results in insufficient access to diagnosis and treatment for people with NCDs, placing them at risk of premature death from avoidable complications.

Initiative: In July 2019, WHO pilot-tested integration of NCD care into PHC, with initial funding from the Central Emergency Response Fund. As the Ministry of Public Health's capacity to deliver services was limited, whereas the Afghanistan Red Crescent Society has strong community links and programmes in the country, WHO collaborated with the Society and with the International Federation of Red Cross and Red Crescent Societies to introduce 27 NCD emergency kits into four PHC clinics run by the Red Crescent Society in provinces in which emergency aid is being provided. The project's goal was to overcome supply chain disruption while ensuring continuity of care, monitoring and follow-up. A third partner, Primary Care International, trained staff at the four clinics in NCD management. WHO and the Red Crescent Society conducted joint visits to the four clinics to monitor training, use of medicine, use of guidelines and registering and reporting.

Outcomes and lessons learnt

Data: The four clinics in which the project was tested registered 3080 NCD patients and dispensed 18 types of medicine for the most common, most manageable NCDs over 4 months (July–November 2019). Of the registered NCD patients, 54% had cardiovascular diseases, 34% hypertension, 3% asthma, 2% diabetes, 1% COPD and 6% other NCDs. Feasibility: Integrating interventions for a set of priority NCDs into PHC with an NCD emergency kit is feasible and was accepted by health-care professionals and beneficiaries. Use of the health facilities increased, and the trust between patients and community health facilities was enhanced. The project made the case for inclusion of NCD services in the basic package of health services for PHC. Entry point: The NCD emergency kit is an entry point for inclusion of NCD interventions in PHC and also bridges gaps in NCD medicine procurement and the drug supply chain in crisis settings.

Opportunities: As the Ministry of Public Health is designing a new health service package, the NCD emergency kit can help the country to prioritize NCD interventions in PHC.

Source: Information was provided by Rohullah Niazi, National Professional Officer, WHO Country Office in Afghanistan.

Case study 14. Pioneering integrated, patient-centred models of care for elderly people with chronic conditions in Sweden (14)

Background: Health and social services in Sweden are delivered by both regional councils, which are responsible for primary care and hospital services, and municipal authorities, which are responsible for elderly and social care. With rising chronicity in an ageing population, however, new challenges and pressures have been seen in the delivery of health services.

Intervention: An integrated care organization was established in the municipality of Ängelholm to combine primary care, hospital services and elderly and social care. The organization employed 600 health professionals (500 from local hospitals, 65 from primary care and 35 from municipal care), and the health workforce was given additional training in palliative and end-of-life care. Regional and municipal resources were pooled in a joint budget.

Care was reorganized to meet patient needs, and new patient-centred care models were tested by trial and error. New projects included introduction of mobile care teams, electronic medical records and e-health technologies. For example, two interdisciplinary mobile teams, one for emergencies and one for the community, delivered care to patients in their homes. Memoranda of understanding were passed between the regional council and municipalities, and laws were revised to allow sharing of medical records.

Evaluation: The Centre for Ageing and Supportive Environments at Lund University is studying the impact of the intervention to determine whether the quality of health services has improved.

Outcomes: Early results indicate fewer unnecessary hospitalizations, cost savings and high patient satisfaction with services, e.g. 100% of patients reported satisfaction with care from the emergency mobile team.



Case study 15. Driving integration of diabetes care through collaboration of macro-, meso- and micro-level teams in the United Kingdom (19,20)

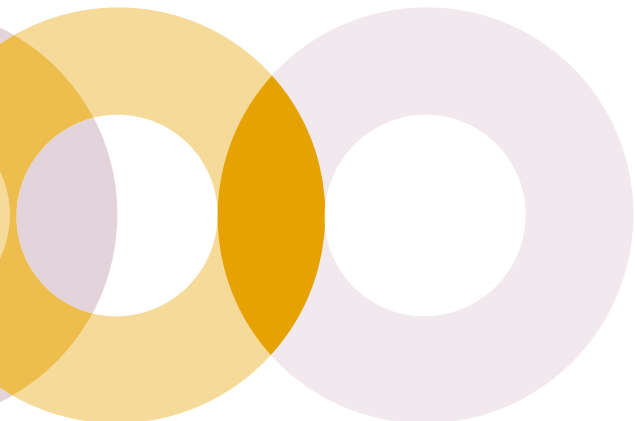
Background: The population of north-west London has a prevalence of diabetes (35%) that is higher than average, mainly among people originating from the Indian subcontinent, Africa and the Caribbean. Integrating diabetes care into primary, acute, community, mental health and social care services could significantly reduce this burden.

Intervention: The North West London Integrated Care Pilot was a large-scale, innovative programme to integrate care for people with diabetes and/or those aged ≥ 75 years. The programme linked nearly 100 general practices, three community service providers, two mental health providers, two acute care providers and five local authorities. It involved care planning, multidisciplinary case reviews, information-sharing and support for project management.

Strategically, the Integrated Care Pilot was managed by teams at the macro level (Integrated Management Board), meso level (five supporting committees) and micro level (operations team that provided day-to-day support). At the micro level, multidisciplinary group meetings were held among representatives of the Integrated Care Pilot provider organizations, such as general practitioners, acute care providers and mental health care, community nursing, social care and other allied health care professionals. The meetings were chaired by general practitioners but were managed and run by coordinators, who were the first contact points for stakeholders to signal areas in which there were bottlenecks in the clinical pathway and to find solutions.

Evaluation: The mixed-methods evaluation involved interviews, direct observation and documentary analysis to understand the policy and local contextual factors that shaped the design and implementation of the intervention and to examine the effectiveness of the governance structures and aligned financial incentives. In addition, focus groups and surveys were used to explore the experience of staff and patients participating in the pilot study and to determine whether the multidisciplinary groups were improving collaboration and information-sharing among professionals.

Outcomes: There was early evidence of improvements in diabetes care and an increase in finding cases of dementia. The pilot study involved provider organizations, created a shared strategic vision and established governance structures; however, engagement of clinicians varied, and there was no evidence of a significant reduction in emergency admissions. There was some evidence of changes in care processes. The study suggests that it is possible to engage a diverse range of organizations in large-scale change programmes if there is strong leadership and resources and if governance and financial structures are carefully designed and agreed at the outset. Moreover, any large-scale project must be based on a strong, clear vision that is shared at all levels, particularly among middle managers and clinicians, who deliver the change. It is essential that engagement be continuous.



Case study 16. Creating a pay-for-performance scheme to achieve universal health coverage with a bank loan in partnership with banks in Argentina (21)

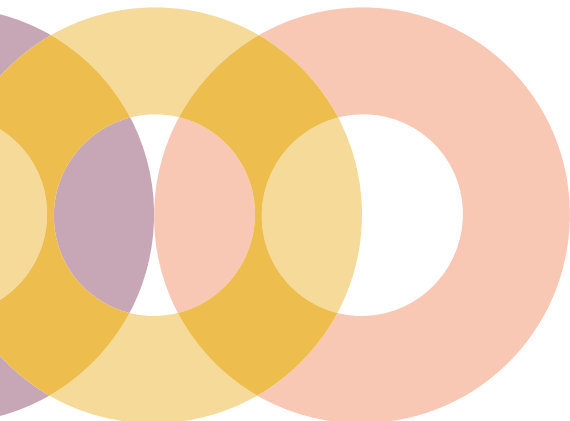
Background: Argentina is a federal nation made up of 23 provinces and the city of Buenos Aires, with a population of over 43 million. By 2004, Argentina had theoretically achieved universal health coverage, but there were large differences in key outcomes in practice, such as the infant mortality rate in the social security (employed) and public sectors.

Intervention: In 2004, the World Bank Health Results and Innovation Trust Fund, financed by Norway and the United Kingdom, provided a loan for Programa Sumar, which was initiated by the Ministry of Health to address gaps in effective coverage of the public sector and to align the priorities of and relations between the national and provincial governments and between the provinces and health facility networks. Programa Sumar defined three elements of effective coverage: enrolment, access and quality. The programme was a combination of public insurance and a pay-for-performance scheme, with capitated payments to provinces according to the number of targeted beneficiaries enrolled and the percentage of those beneficiaries who received care for at least one of the 10 tracer conditions at or above the quality threshold.

The programme was introduced in phases to new areas, sub-populations and conditions (e.g. detection of congenital heart disease in infants and of breast cancer in women) in a results-based financing approach. At each phase, the Ministry team conducted training and supportive supervision for provincial health teams to ensure that they accurately collected the necessary data and used the results to improve service delivery.

Evaluation: Programa Sumar, in collaboration with the World Bank Group, compiled and analysed a set indicators of health service utilization to assess coverage at national level. The performance indicators included the proportion of eligible women aged 25–64 years who had been screened at least once for cervical cancer every 2 years and the proportion of eligible men with effective health-care coverage.

Harmonization and contributions of donors: The results-based financing approach incentivized the provision of national health insurance and effective health coverage for uninsured people, including the poor and the vulnerable. An evaluation agenda was established to ensure that an impact evaluation, strategic extension of the programme, fine-tuning and institutionalization were completed.



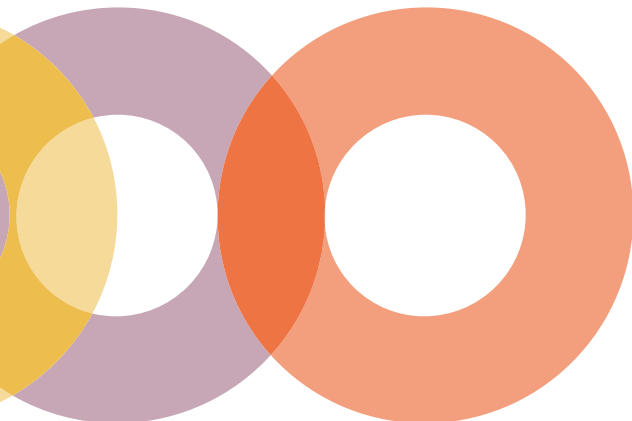
Case study 17. Providing funding and structural resources during introduction of a free national check-up programme to prevent NCDs in Albania (14)

Background: In Albania, NCDs are the leading cause of mortality: cardiovascular disease alone accounted for 50% of mortality in 2010. As several lifestyle-related risk factors, including poor dietary habits, high tobacco use and high blood pressure, are largely responsible for the NCD burden, attention has been called to strengthening health promotion and NCD prevention services.

Intervention: In 2014, as part of the newly elected government's 4-year agenda, a free check-up programme was launched to extend prevention services within a wider strategy for achieving universal health coverage. The Ministry of Health led development of the programme in partnership with the Health Insurance Institute, under the guidance of an expert working group. The programme offered free screening for chronic conditions such as high blood pressure, diabetes, certain cancers and depression to all citizens aged 40–65 years.

Eligible citizens were invited to participate in screening at their local PHC centre and were offered health education, a motivational interview and brief interventions to convince them to adopt healthier behaviour. Screening was conducted by a team of primary care nurses and family physicians. The nurses assessed patients by taking measurements, collecting samples, performing electrocardiograms and applying questionnaires. The family physicians interpreted the results of the tests, gave them to patients and organized any follow-up care required. Short training was provided to primary care providers by the Swiss Agency for Cooperation and Development, which was a partner in the initiative. A detailed manual and dedicated risk assessment tools and questionnaires guided programme delivery. Health centres were modernized and equipped with an Internet connection, computers, refrigerators, scales and electrocardiograms.

Evaluation and outcomes: The free check-up programme was available in 360 of 415 primary health centres, and an additional 14 centres were being equipped. The programme is being introduced nationally, with more health centres joining the initiative as resources become available. No information is yet available on its impact. Sustainability and the long-term availability of resources are concerns.

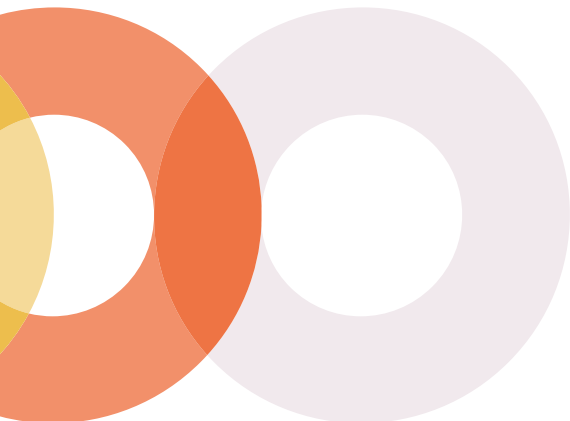


Case study 18. Developing robust health financing systems to achieve equitable, sustainable, integrated NCD health services in Thailand (22,23)

Background: Thailand is an upper-middle-income country with a population of 67 million, where the NCD burden is rising rapidly. NCDs are responsible for 71% of all deaths; the probability of premature death from cardiovascular disease, cancer, diabetes or chronic respiratory disease is 16%. Thailand has a large network of over 9000 primary care sub-district health centres in which nurses and non-physician health workers provide comprehensive promotive, preventive, curative and rehabilitative services. This strong level of primary care is connected to over 700 community hospitals for secondary care and over 100 public and 300 private hospitals for tertiary care. Given the large, increasing share of health costs for NCDs, robust health financing systems are necessary to ensure equity and the sustainability of essential, core NCD interventions.

Intervention: A large public insurance scheme, the “universal coverage scheme”, was introduced to cover the majority of the Thai population, in parallel with an increase in total health expenditure (4% of gross domestic product) and Government contributions to health-care financing, including for NCDs. Revenue for NCD prevention and care comes from various sources, including general tax, pay-roll taxes and out-of-pocket payments, and an innovative financing mechanism was set up of earmarking 2% from taxes on alcohol and tobacco. A mixed approach of capitation and pay-for-performance is used to pay for outpatient services, including screening and management of diabetes, hypertension and other NCDs. Essential NCD interventions were prioritized and scaled up through primary care. Starting with hypertension and diabetes, the Government improved early detection and management of the most common NCDs, with specific targets for NCD screening and care. The roles and competence of PHC providers were extended.

Evaluation and outcomes: Monitoring with process indicators showed improved access, detection and management of hypertension and diabetes in the past 5 years. The innovative financing mechanism provided more reliable funding for population-level interventions, and the health providers’ financing schemes give financial incentives to improve health-care coverage and quality.



Case study 19. Tackling cardiovascular diseases through cardiac rehabilitation in Iran (Islamic Republic of)

Background: The Islamic Republic of Iran views health as a national priority, and its health system has undergone several reforms in the past three decades, notably extension of the PHC network to rural areas and introduction of a family physician and rural insurance programme in 2005 and a health transformation plan in 2014. About 90% of Iranians have some form of health insurance. A high burden of cardiovascular diseases led the country to introduce innovative forms of cardiac rehabilitation. Since 1996, this has evolved to include health promotion, patient involvement and empowerment strategies, new financing methods and inclusion in congresses, research and medical education.

Initiative: Cardiac rehabilitation is based on a variety of protocols, from patient risk assessment, training in physical exercise, dietary counselling, psychosocial advice to interventions to modify risk factors (excess lipids, smoking, high blood pressure, high blood glucose, overweight and diabetes mellitus). The first comprehensive centre for supervised cardiac rehabilitation was established in 1996 at the Isfahan cardiovascular research centre, and new units were established throughout the country after training at the first centre. As there were few cardiac rehabilitation services and little referral to such services, the country decided to extend the services by strategic planning. In 2000, insurance companies agreed to cover part of the costs of cardiac rehabilitation to increase their affordability and improve access, and attendance rates have gradually increased.

The cardiac rehabilitation initiative drew the interest of civil society and patients, with creation of a nongovernmental organization, Heart Friends Association, by patients and families in 2000, and of research centres, with establishment of the Cardiovascular Research Institute in 2010. The first congress on cardiac rehabilitation was held in 2014. Innovative cardiac rehabilitation strategies were developed in 2016, including hybrid and home programmes, with virtual online groups created to facilitate communication. The three main types of strategy are:

- comprehensive, centralized cardiac rehabilitation, in which high-risk patients were given individualized physical activity programmes under the supervision of a cardiac rehabilitation team, cognitive behavioural therapy by psychiatrists, heart monitoring and visits from cardiologists, dietitians and sports medicine specialists;
- hybrid cardiac rehabilitation, in which a cardiologist assesses each patient's risk, followed by three to five sessions of supervised cardiac rehabilitation and the remaining sessions at home with telephone follow-up; and
- home cardiac rehabilitation targeted to moderate- and low-risk patients, consisting of a comprehensive education programme involving patients' families, followed by cardiac rehabilitation sessions at home and follow-up by telephone.

Outcomes and lessons learnt:

- Engage stakeholders, including service users. The stakeholders included user groups, health-care providers, insurance companies, academic and scientific organizations, providers of rehabilitation equipment and policy-makers such as the Government and the Ministry of Health and Medical Education. The programme empowered patients and their families with self-care plans, with various events to encourage healthy behaviour.
- Innovate and address barriers to access. The cardiac rehabilitation services were innovative, including affordable home and hybrid programmes and tailored programmes for women, encouraged patient-physician communication, extended financing for rehabilitation through insurance and improved physician referrals.

The information for this case study was provided by Masoumeh Sadeghi, Director of Cardiac Rehabilitation Research Centre, and Zahra Teimouri-Jervekani, Cardiovascular Research Institute, Isfahan University of Medical Sciences, Isfahan.

Case study 20. Monitoring service integration and engaging stakeholders: experience from Uganda and the United Republic of Tanzania (24,25)

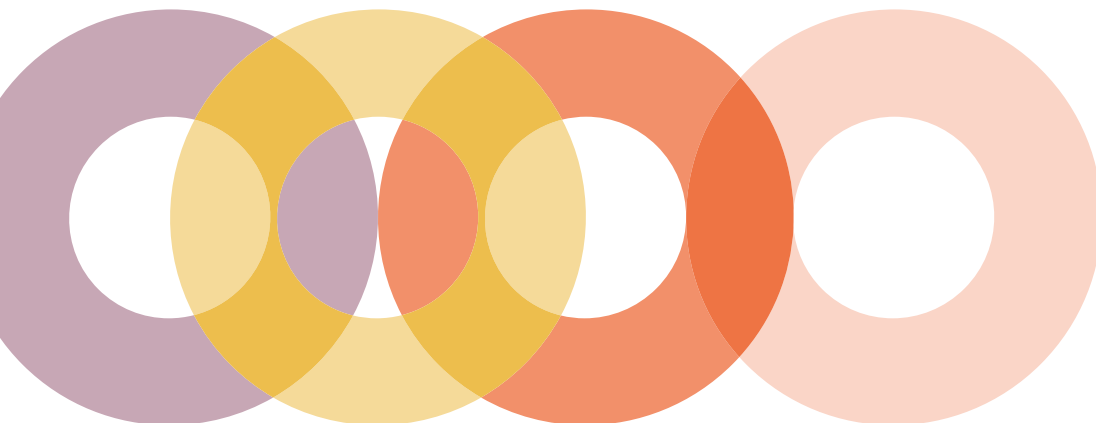
Background: Although integration of services for HIV and NCDs has been proven to improve compliance, evidence for the socioeconomic consequences, such as economies of scale for providers and patients, is lacking. This study addressed use of clinical resources, staff time, relative service efficiency and overall social costs associated with integrating HIV, diabetes and hypertension services in single one-stop clinics for the management of one or more of those conditions.

Interventions: In 10 primary health facilities in Uganda and the United Republic of Tanzania, 2273 patients with HIV, diabetes or hypertension or several of those conditions were enrolled and followed up for up to 12 months. The integrated care clinics were organized and run by health-care staff. Patients with one or more of the diseases used the same waiting area, saw the same physicians in the same consultation rooms and received their treatment from the same pharmacy. Clinical management was similar to that in the usual health services and was provided by government clinical staff. In order to ensure equity in service provision, basic measures were introduced to strengthen medicines supply, and counselling and telephone follow-up were provided for patients who failed to attend scheduled appointments. Training was provided to all health-care staff to ensure common understanding of clinical management of HIV, diabetes and hypertension.

Evaluations: Data on the resources used were obtained from all participants, and costing was studied at each facility. The time spent by health workers per participant was assessed, with mean health service cost for managing one, two or three conditions in a single participant per month, out-of-pocket costs per participant visit and the efficiency of the integrated services. The budgetary consequences of integration were estimated for the populations of both countries.

The average retention of patients after 1 year was 83% among those living with HIV, 85% among those with diabetes, 79% among those with hypertension and 91% among those with more than one of the conditions. The mean cost per month of managing several conditions in a single participant was 34% lower than for managing any two conditions separately, and the cost of managing all three conditions was 49% lower than for managing each one separately. The score for mean efficiency in the integrated clinics was 0.86, which suggests that they could serve more patients without compromising the quality of care provided. The estimated budgetary consequences of managing multimorbidity in such integrated clinics is projected to increase by 21.5% in the next 5 years, with substantial savings in the provision of integrated care for vulnerable patients with multimorbidity.

Conclusions: Integration of HIV services with diabetes and hypertension control substantially reduced the costs for both health services and households, indicating that this is an efficient, equitable way to address the increasing health burden of Africa's ageing populations.



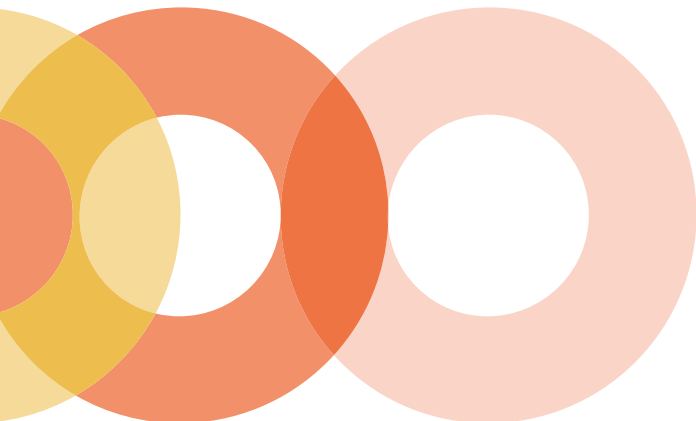
Case study 21. Provision of coordinated, comprehensive, continuous care for chronic conditions through multidisciplinary PHC teams in Brazil (26)

Background: Since the mid-1980s, Brazil has strengthened PHC for NCDs such as diabetes and hypertension in order to promote and ensure access to health services for its entire population, including those who did not previously have access to high-quality services.

Intervention: The structure of the Brazil PHC workforce was transformed to assign patients to a PHC team, as a core strategy for delivering high-quality care. Each family health team was composed of one physician, one nurse and four to six local community health agents. The teams addressed needs from community to facility and from prevention and surveillance to medical treatment. For example, for chronic conditions such as diabetes and hypertension, community health agents provided health promotion, prevention, education, screening, data collection and referral. Separate PHC support teams including included nutritionists, social workers, psychologists, obstetricians, gynaecologists and public health workers coordinated with the basic clinical staff in family health teams to provide additional care to patients.

Evaluation and outcomes: After over 20 years of monitoring and evaluation, the Brazilian PHC model, with the family health team at its core, was found to have substantially improved service coverage and health outcomes. The most dramatic improvements were seen in the poorest municipalities. Positive outcomes included:

- a 25% decrease in hospital admissions for diabetes;
- decreased hospitalization and/or mortality due to cardiovascular disease;
- a 67% decrease in underweight in children under 5 years; and
- decreases in infant and child mortality rates.

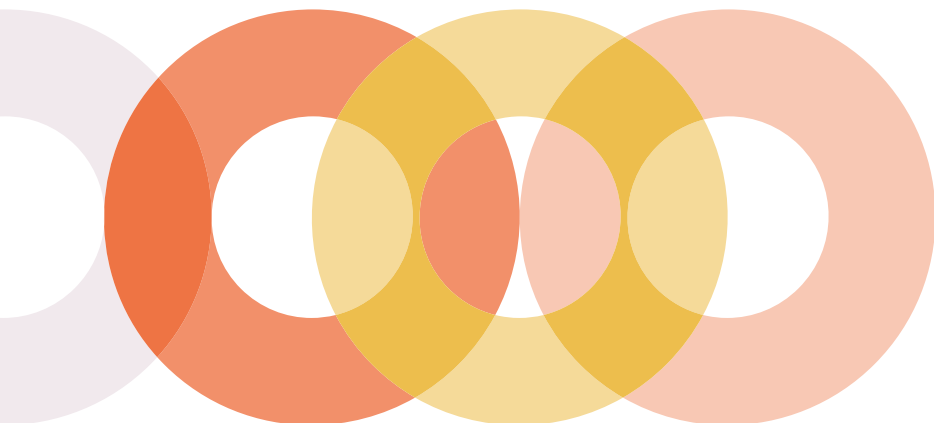


Case study 22. Building collaborative teams to integrate care for patients with chronic diseases and multimorbidity in Spain (27)

Background: In 2013, it was estimated that 23% of Spanish people aged 16–64 years had at least one long-standing illness or health problem and that 51% of those aged ≥ 50 had a chronic disease or multimorbidity. Before 2014, in the Valencia region, the health and social sectors were totally separated, which presented problems between and within the health care system, including lack of continuity of care between PHC centres and hospital-at-home units for highly complex home-care patients (estimated to be 2.68% of the 4.7 million population of the region).

Intervention: In 2014, a strategy in the Valencia Region addressed patients with chronic multimorbidity through an integrated model of care for complex cases to promote continuity of care and strong collaboration between hospital and community nurse case managers. The new approach to case management involved reorganizing care with tailored tasks and tools, population risk stratification, an information system, intensive training of health professionals and improved communication systems. Those involved in the innovative integrated care model were PHC teams in health-care centres, the home-care programme and the hospital-at-home units.

Evaluation and outcomes: Monitoring and evaluation indicated that the integrated care model was successful, with benefits for patients, professionals and the health sector. The approach optimized resources and improved the appropriateness of chronic care. Medium- and long-term sustainability plans were designed to continue the single health management system for all hospital and primary health services.



Case study 23. Integration of HIV and reproductive health services with multidisciplinary teams in Cambodia (28,29)

Background: Although Cambodia had already made significant progress in reducing the prevalence of HIV, a review in 2007 indicated that poor referral mechanisms, decentralized services, poor geographical access and inadequate transport were barriers to pregnant women to attend testing for HIV and contributed to loss to follow-up of HIV-positive pregnant women and their infants before they received antiretroviral therapy.

Intervention: In 2008, a “linked response” intervention was conducted in five districts, which created strong referrals between:

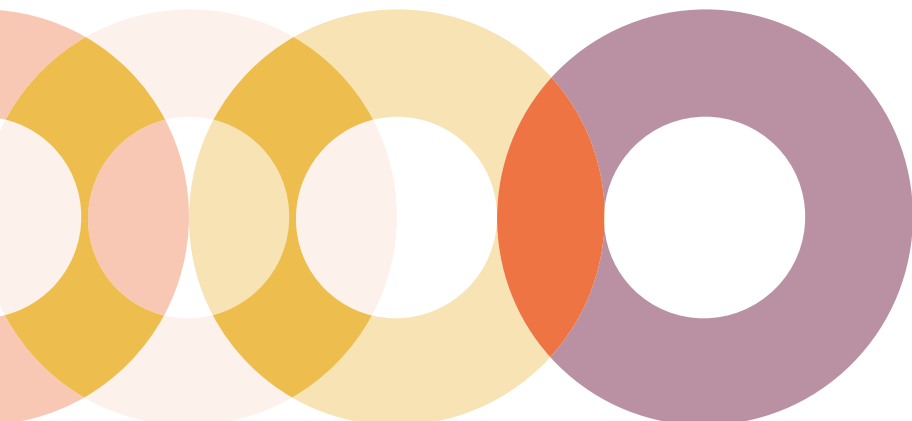
- a district hospital “hub” that provided the full package of services (including treatment of opportunistic infections and antiretroviral therapy);
- “satellite” sites, which provided a comprehensive package of services (e.g. voluntary counselling and testing and prevention of mother-to-child HIV transmission); and
- “linked” health centres, which offered a minimum package of services (e.g. antenatal care, delivery care and HIV counselling and testing, with blood samples referred to satellites for laboratory testing).

In addition, the intervention strengthened links between community organizations and health facilities and among community services, such as referral of pregnant women to health facilities, and facilitated the follow-up of HIV-positive women and exposed infants. Trained “guides” were introduced to facilitate clients in navigating various hospital services and to alleviate the burden on health professionals, who were usually responsible for assisting clients in using the range of integrated services. Pregnant women or mothers who had had positive experiences were involved in communities to explain the services and how they functioned and to encourage other women to use them.

Evaluation: Routine data on prevention, testing, care and treatment of sexually transmitted infections and HIV and links within and between public health facilities and community services were collected and analysed over 18 months, complemented by a qualitative evaluation with service providers.

Outcomes: Indicators and follow-up of sexually transmitted infections and HIV improved dramatically after the intervention. For example, the proportion of pregnant women tested for HIV increased from 6% (1261 of 21 376) in 2007 to 86% (18 394 of 21 478) in 2009. The coverage of testing for syphilis, introduced later, reached a similar level (85%). Reproductive indicators also increased: antenatal care coverage (at least one visit) from 80% to 100%, delivery in a public health facility from 26% to 46% and use of contraceptives from 24% to 28%. Use of antiretroviral therapy was high among HIV-positive mothers and exposed infants (84% and 95%, respectively), and 3 of 36 (8%) infants tested positive for HIV.

Service providers in the intervention district reported better collaboration and coordination of services, more effective referral and a positive impact of the proximity of HIV testing at integrated local facilities). Community support teams for people living with HIV welcomed their extended role, were valued by families receiving their assistance and had an important role in referral, follow-up of prevention of mother-to-child transmission and countering stigmatization.



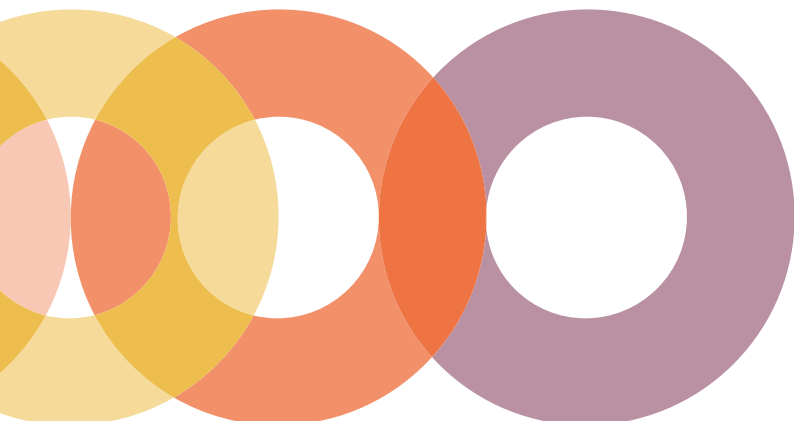
Case study 24. Strengthening the workforce in integrated diabetes, hypertension and COPD services in Nepal (30)

Background: Nepal, like other low- and middle-income countries, is facing a growing epidemic of NCDs. One barrier to longitudinal follow-up for high-quality NCD management is a workforce shortage. A possible solution was considered to be a move from care provided by physicians to management of NCDs by mid-level practitioners.

Intervention: An integrated NCD service intervention was introduced in rural Nepal, which was based on the principles of first-contact access, care coordination, comprehensiveness and continuity. Mid-level practitioners and community health workers were recruited to provide PHC. The goals were to optimize first-contact access at facilities and in communities, improve the continuity and coordination of care and develop a network of providers for integrated NCD service delivery.

Evaluation: An 18-month retrospective study was conducted to assess the intervention for patients with type-2 diabetes, hypertension or COPD. Feasibility was assessed by measuring facility and community follow-up as proxy measures, and effectiveness was assessed with “at-goal” metrics for each condition.

Outcomes: Patients were followed up for diabetes, hypertension and COPD at medians of six, six and seven visits to facilities and 10, 10 and 11 community visits, respectively (0.9 monthly patient contacts). The rates of loss to follow-up were 16%, 19% and 22%, respectively. The median time between visits was approximately 2 months for facility visits and 1 month for community visits. The “at-goal” status of patients with COPD, but not of those with diabetes or hypertension, improved between baseline and the end of follow-up ($P = 0.01$).



Case study 25. A collaborative, evidence-based strategy to strengthen diabetes preventive care in five health systems in the Pacific Islands (31)

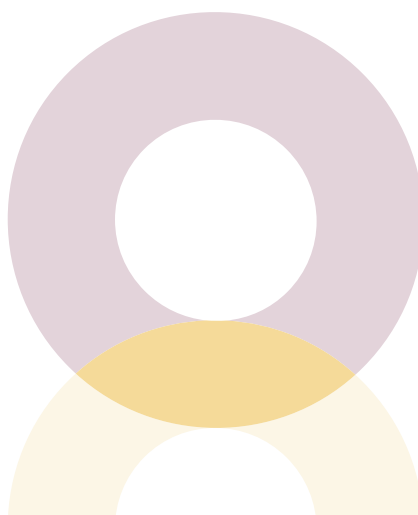
Background: The USA-associated Pacific Islands – American Samoa, Guam, the Marshall Islands, the Federated State of Micronesia, the Northern Mariana Islands and Palau – are facing increasing burdens of NCDs, particularly diabetes and CVD. Since 2009, the Pacific Chronic Disease Council of the National Association of Chronic Disease Directors has led development of an NCD collaborative model to proactively change health systems and extend population outreach. In 2010, the Pacific Island Health Officers Association declared a state of emergency due to the epidemic of NCDs, which encouraged the collaborative work necessary to combat the burden of NCDs.

Intervention: In several States, five collaborative teams of three to five members each (a physician, a nurse, data staff and a senior administrator) were established in health systems (e.g. community health centres and hospital systems). Grounded on the principles of community partnerships, each of the teams participated in a cycle of interactive 3-day training sessions, followed by action periods (for 4–6 months) according to a continuous quality improvement process (e.g. “plan, do, study, act”) to improve health systems. The training sessions were coordinated by the Pacific Chronic Disease Council and provided by local professional trainers familiar with the US Health Resources and Services Administration Health Disparities Collaborative approach.

Evaluation: Each site used the Chronic Disease Electronic Management System, an open-source patient registry and data management software application, to track diabetes outcome measures. Teams were also asked to submit monthly reports to measure progress in their site-specific quality improvement action plans. Using this collaborative approach, the teams showed evidence of partnerships between clinical systems and public health programmes, use of clinical data for patient follow-up and monitoring and availability of aggregated data for use in health planning and evaluation.

Outcomes: All the measures of diabetes care outcomes improved at all sites, with median improvements ranging from 14 percentage points for blood pressure control to 72 percentage points for annual foot examinations and 76 percentage points for attaining self-management goals. Mapping of facilitators and challenges reported by the team members provided valuable information, including:

- support in leveraging and sustaining system change by ministers and directors of health involved in the NCD collaborative process;
- strong peer networks, communication and team activation activated by learning environments with local trainers;
- strengthening and acceleration of consensus-building and adoption of evidence-based standards of care and best practices by the involvement of experts familiar with NCD prevention and management in low-resource settings;
- increased availability of self-management support and resources by multi-sector community partners;
- consistency in quality improvement as staffing changed due to orientation to the NCD collaborative process; and
- establishment of diabetes registries, input data and clinical reports by team members with use of software in the public domain.



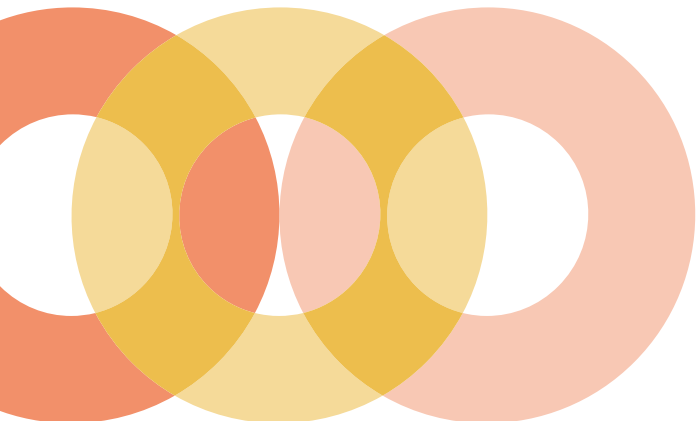
Case study 26. Training of non-physician clinicians for task-shifting in integrated hypertension and diabetes services in rural Cameroon (32,33)

Background: The burden of chronic NCDs such as hypertension and diabetes is increasing in Cameroon, but the majority of the rural population does not have access to adequate care.

Intervention: In eight rural districts, care for hypertension and type-2 diabetes was integrated by task-shifting to non-physician clinicians in facilities. Of 75 such facilities in the area, 69 (87%) received basic equipment and training in hypertension and diabetes care, and 130 non-physician clinicians were trained in five 3-day modules. The training comprised prevention, diagnosis and treatment of hypertension and type-2 diabetes, mainly based on protocols. In addition, the trained non-physician clinicians attended a 1-day refresher course twice a year, where they presented the records of their newly identified patients.

Evaluation: Regular supervision was conducted by the district health committee, which also checked equipment and patient records. The effectiveness of the intervention was assessed after 2 years on the basis of the status of equipment, the knowledge of trained non-physician clinicians, the number of newly detected cases, retention of patients under care, treatment costs to patients and changes in their blood pressure and fasting plasma glucose.

Outcomes: After 2 years, the performance of non-physician clinicians on a multiple-choice knowledge test was significantly improved. During the 2 years, trained non-physician clinicians initiated treatment for 796 patients with hypertension and/or diabetes. The retention of treated patients at 1 year was 18%. Among 493 hypertensive patients with two or more documented visits, systolic blood pressure decreased by 22.8 mm Hg (95% CI: -20.6 to -24.9; $P < 0.0001$) and diastolic blood pressure by 12.4 mm Hg (95% CI: -10.9 to -13.9; $P < 0.0001$). Among 79 patients with diabetes, fasting plasma glucose decreased by 3.4 mmol/L (95% CI: -2.3; -4.5; $P < 0.001$).

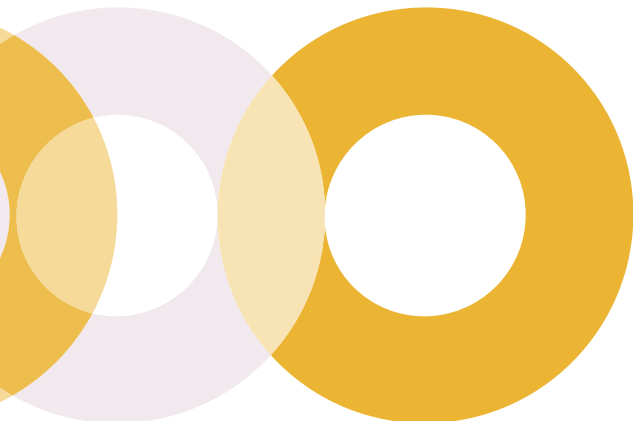


Case study 27. Training of primary-level clinicians in the prevention and management of diabetes and diabetic retinopathy in Fiji (34)

Background: The prevalence rate of diabetes in Fijians aged ≥ 40 years has been estimated to be 41%. Approximately 60% of cases of diabetes in Fiji are undiagnosed, especially among people in rural areas. Every person with diabetes is at a risk of diabetic retinopathy. As many people are not aware that they have diabetes and diabetic retinopathy is often asymptomatic, cases must be diagnosed and referred for retinal screening in a timely manner. As primary-level clinicians are usually the first point of medical contact for patients, they are pivotal in diabetes management.

Intervention: In 2015, a programme was launched to train 80% of community health nurses in prevention and management of diabetes and diabetic retinopathy. Two days of training were given to primary-level clinicians, including community health nurses, ward nurses, reproductive health nurses and some general practitioners. Training was conducted in all divisions in Fiji by a senior nurse diabetic retinopathy coordinator, supported by the lead ophthalmologist. The training covered diabetes management, awareness, screening and management of diabetic retinopathy, visual acuity testing, referral pathways, use of referral forms and data management. During the workshops, participants were provided with essential course equipment, such as Snellen charts, occluders, referral forms and health promotion material. Further infrastructural support was provided, including essential diagnostic equipment. A diabetic retinopathy practice manual was developed so that the training programme could be used in five other Pacific Island countries.

Evaluation and outcomes: Since 2015, 382 primary-level clinicians have been trained, comprising over 75% of community health nurses. An average of 96% of respondents rated the training as either “excellent” or “very good” on several measures. Between 2014 and 2017, the number of new cases of diabetes detected by the diabetes outreach programme in health centres and specialist outpatient clinics at subdivisional hospitals increased by 58%. Factors that contributed to the programme’s success included the delivery of training by a team of local NCD nurses, eye care nurses and ophthalmologists and establishment of referral pathways throughout the country, including a skilled eye care workforce capable of screening and treating diabetic retinopathy.



Case study 28. Integrating oral health promotion into midwifery practice through human resources development in Australia (35–38)

Background: In Australia, the fact that oral health can be addressed by all health professionals has contributed to new policies and guidelines for such integration. Midwives are particularly important in such initiatives, because they have close, long-term relationships with pregnant women.

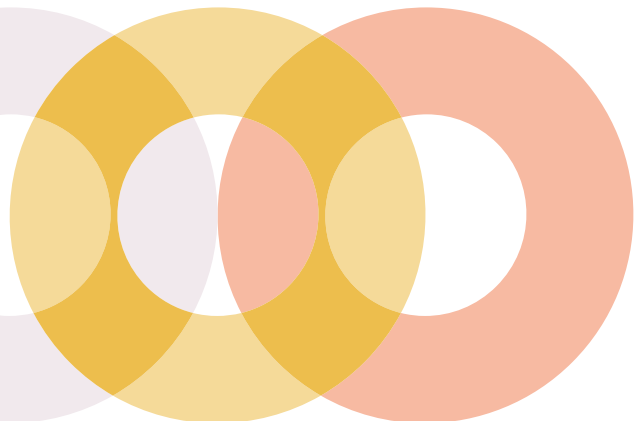
Intervention: The Midwifery Initiated Oral Health programme was developed to train antenatal care workers in oral health education, screening and referrals. The programme was pilot-tested, revised and then endorsed by the Australian College of Midwives.

Evaluation: Several evaluations were conducted. In the first, midwives in maternity services completed pre- and post-tests. In the second, programme implementation was evaluated in a multi-centre randomized controlled trial, in which participants were allocated to one of three groups: a control group, a group that received only the oral health promotion programme and a group that received the programme plus a dental intervention component provided by a trained dentist using a standardized dental treatment protocol. A third study was conducted to determine whether the programme could be scaled up.

Outcomes: The studies indicated that the programme could be introduced into midwifery practice and could improve use of dental services and knowledge about oral health. The pre- and post-test study found significant improvements in the scores of patients for knowledge about oral health after introduction of the intervention, from 15 (62%) before to 20 (83%) after the intervention, although there was markedly little improvement in knowledge on risk factors for early childhood caries and no improvement in knowledge on baby teeth and the consequences of untreated dental caries (with a slight reduction in knowledge). Likewise, only 46% of midwives were confident in conducting a visual mouth check on a pregnant woman, even after the intervention.

In the randomized controlled trial, women in the dental intervention group were significantly more likely to see a dentist during their pregnancy and showed the greatest increase in knowledge, although all groups showed increases. In the research on scaling up, midwives reported that the oral health programme was acceptable and could be scaled up. Trust in midwives was found to be an important factor in oral health promotion, and the capacity-building programme increased knowledge and awareness. Concern was raised about undertaking a visual oral inspection; more general barriers included cost and persisting misconceptions.

The information for this case study was provided by Bradley Christian, La Trobe University, Australia, and Ruth Anne Castro, WHO Regional Office for Africa.



Case study 29. Integrating mental health services into PHC in India (39,40)

Background: India, with a population of 1.3 billion, has 0.07 psychiatrists and 1.46 psychiatric beds per 100 000 population, and only 0.06% of its national health budget is dedicated to mental health. It was considered that integration of mental health services into PHC at district level might increase their provision.

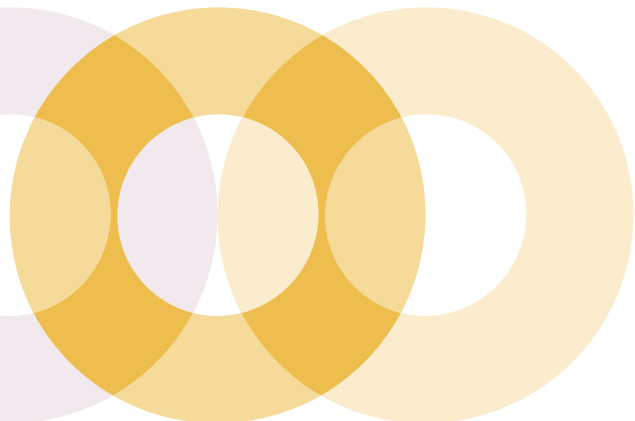
Intervention: The Programme for Improving Mental (PRIME) health approach was adopted to develop, implement, evaluate and scale up integrated packages of care for priority mental disorders. Medical officers in community health centres and civil hospitals participated in WHO training in delivering pharmacological treatment. Nurses were trained to screen and provide psychosocial intervention packages, including the healthy activity programme for depression, counselling for alcohol problems and psychoeducation for psychosis. PHC facilities were expected to have sufficient infrastructure and space to provide private consultations.

Evaluation: Semi-structured interviews conducted with managers and service providers were transcribed and analysed according to the Consolidated Framework for Implementation Research and WHO health system building blocks. The availability and supply of psychotropic medication and infrastructure for the provision of mental health care in PHC, especially counselling space, were explored.

Outcomes: All mental health assessments and psychosocial interventions were delivered in separate, private consultation rooms. Participants reported acceptable relationships and communications between nurses and psychiatrists. Organizational incentives and rewards that were found to promote integrated care included training and specialist support from PRIME teams. PHC providers reported greater self-efficacy to respond to patients with mental disorders.

The collaborative approach, with national to local health ministry stakeholders, was considered crucial for acceptance. Facility managers were identified as important champions of integration because of their influence with front-line workers. A change agent was considered important to drive integration and continuous quality improvement by engaging staff in emerging challenges and empowering them to make the necessary changes to the system to accommodate the intervention.

The Indian experience and similar studies in other countries revealed the importance of dedicated mental health staff in the health system and of introducing a “vertical” component in the form of a mental health case manager in community health centres to support horizontal integration of mental health services into primary care.



Case study 30. The chronic medications programme: collaborative governance for NCD medication provision in Lebanon (41)

Background: The demand for NCD medications in Lebanon has increased progressively over the past 8 years. The Lebanese health system is characterized by a public–private mix, with a dominant private sector and very active nongovernmental organizations, which run 1000 PHC centres and dispensaries.

Initiative: Most of Lebanon’s PHC centres are owned and managed by nongovernmental organizations, and 230 PHC centres and about 220 dispensaries are involved in a programme to provide medicines for chronic NCDs, organized jointly by the Ministry of Public Health and the Young Men’s Christian Association (YMCA), one of the country’s leading non-profit civil society organizations. The chronic medications programme was established in 1994 and is a partnership in which the Ministry of Public Health contracted the YMCA after international bidding to procure and manage the supply of medications. The YMCA is also responsible for storage, distribution and reporting of medications in facilities. Since 2014, WHO has been monitoring the management, storage and dispensing of medications for chronic conditions in facilities and supporting training and capacity-building of staff. The Ministry of Public Health has an annual budget allocation to cover the costs of those medications, and WHO has secured temporary funds from donors to fill gaps left by recent budget cuts.

Outcomes: Today, essential medications for NCD care are provided throughout the country in 450 PHC centres and dispensaries. In 2011, at the start of the Syrian refugee crisis, the programme served about 78 000 Lebanese beneficiaries; today, it serves about 190 000 Lebanese and Syrian beneficiaries.

The initiative improved access to high-quality NCD medications for both Lebanese nationals and Syrian refugees and bridged a significant gap at PHC level by making NCD medication available to those who would otherwise have been unable to afford it. The success of this programme, which serves increasing numbers of beneficiaries, illustrates the importance of civil society involvement.

Lessons learnt: The programme’s most innovative feature was bringing together public and private stakeholders in consensus networks, in Lebanon’s model of “collaborative governance”. It illustrates a successful, lasting collaboration between a government entity and a nongovernmental organization and the importance of decentralization, with programmes in 450 PHC centres and dispensaries located throughout the country.

The trend in prescription in Lebanon was skewed towards high-cost medications, and PHC physicians tended to prescribe medicines that are not on the list of essential drugs, which are subsidized by the Ministry of Public Health. Training and capacity-building of physicians at PHC centres and better monitoring helped align physicians’ practices and kept costs down.

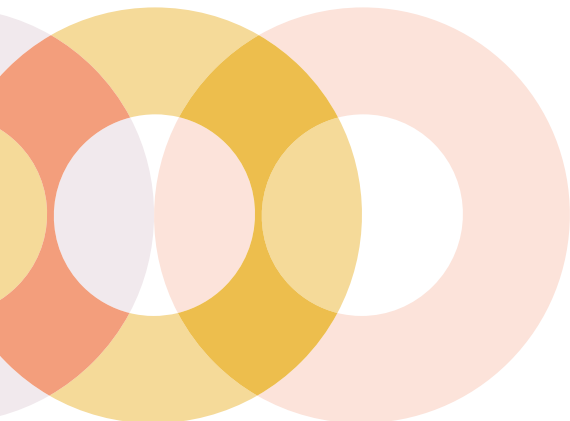
The information for this case study was provided by Edwina Zoghbi, National Professional Officer in Noncommunicable Diseases and Mental Health, WHO Country Office in Lebanon.

Case study 31. Sharing patient information between primary care and community NCD services for older adults in New Zealand (42,43)

Background: Integration of NCD services into community primary health care, including strategic use of information and communication technology, could improve the coordination of care in New Zealand, particularly for older adults with complex care needs because of frailty, multiple chronic diseases, cognitive disorders and/or social isolation.

Intervention: The Manawanui Whai Ora Kaitiaki programme consisted of six teams of a nurse and a *kaiawhina* (community health worker). One team in each of six general practices covered about 12 000 patients in remote rural areas, rural service towns and one regional city. The population includes a high proportion of Maori (34%) and people in the lowest socio-economic quintile (36%). The programme was an extension of the Hauraki Primary Health Organization, which comprises 32 general practices with about 112 000 patients enrolled at the end of 2015. The service was designed to improve access to services, mainly by visiting patients at home, and to increase the intensity and coordination of services. Although prescriptions could be provided only by a general practitioner or hospital doctor, the general practice and Manawanui Whai Ora Kaitiaki teams interacted with and referred patients to the same hospital inpatient services, hospital outpatient medical and allied health services, home care and Government and nongovernmental social agencies. Medical records remained in one location in the general practice, and Manawanui Whai Ora Kaitiaki staff came to the practice to view or add data.

Evaluation and outcomes: Information and communication technology were used for information-sharing and follow-up among sectors by giving community providers access to primary care electronic medical records systems. The project also connected primary care to community resources by other means, such as embedded professionals (like the *kaiawhina*), personal relationships and informal connections among providers.

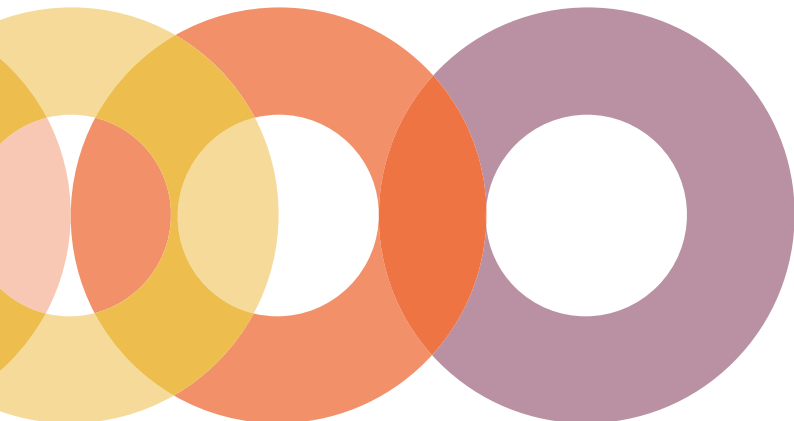


Case study 32. Improving access to NCD diagnostic services through telemedicine for remote populations in Paraguay (44)

Background: Populations living in rural and remote Paraguay had no access to specialist care or high-quality diagnostic services for NCDs such as epilepsy, cardiovascular diseases, cancer and maternal health problems and depended on the low response capacity of their local health systems, which did not include tertiary hospitals.

Intervention: The Ministry of Health and Social Well-being and partners introduced a telemedicine system for three diagnostic services: tomography, electrocardiography and ultrasound. Using a software system, health professionals at first and secondary health centres in remote areas captured images on medical devices and transmitted them to specialists in tertiary hospitals hundreds of kilometres away. The specialists reviewed the images, wrote their diagnoses and sent them back to the health professionals in the first- and second-level health centres who had contacted them. Specialists who participated in the project received incentives for each diagnostic report sent to the health service delivery network, ensuring that the PHC teams could provide continuity of care to their patients.

Evaluation and outcomes: The response capacity of local integrated health service delivery networks was improved by providing access to tertiary-level diagnostic services by specialists. Patient surveys showed a high level of satisfaction, with a tendency to increase uptake of the services.

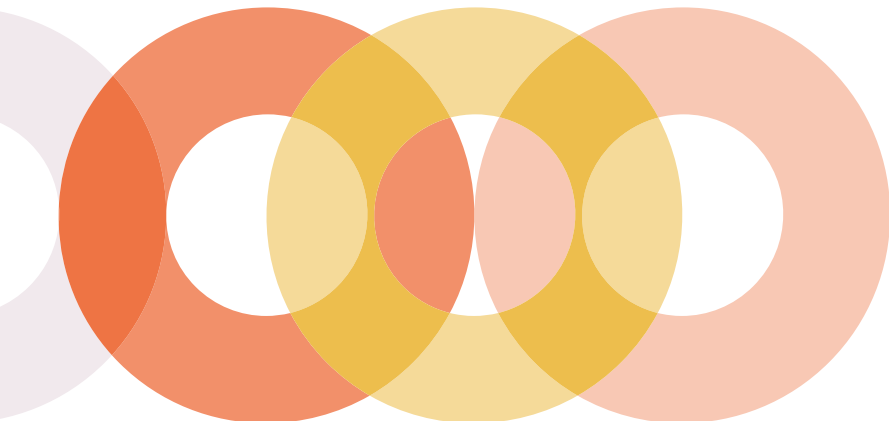


Case study 33. Providing training and incentives to encourage provider uptake and use of an electronic information system in Croatia (14)

Background: Croatia has a growing burden of chronic diseases, such as heart disease, cerebrovascular disease, cancer, diabetes and mental health problems. This has been attributed partly to disparities in access to and the quality and efficiency of health services. Furthermore, misaligned payment incentives have contributed to overprovision of services in secondary and tertiary settings, to the disadvantage of effective health promotion and disease prevention.

Intervention: In the early 2000s, the Government established a central electronic health information system to provide real-time data on patients and providers and to connect stakeholders. Management and regulation of the system were the responsibility of the Health Insurance Fund, under the direction of the Ministry of Health. All general practitioners were connected to the system, with plans to integrate other professionals. Ad-hoc training was offered to providers to navigate the information system and to take advantage of new technologies. A provider portal created opportunities for professional networking and made educational materials available. Numerous technological applications were developed within the central health information system to improve efficiency, such as e-prescriptions, e-referrals and e-waiting lists. A new payment model for primary care providers gave an incentive for greater quality and efficiency, promoted reorganization of providers into group practices, encouraged the delivery of care in primary health settings and increased health promotion and disease prevention services.

Evaluation and outcomes: Collection of data and indicators through the e-health system improved performance. Provider training encouraged uptake and use of new technologies. Alignment of financial incentives also encouraged changes in clinical practice. Use of the electronic information system supported maintenance of essential health services during the COVID-19 pandemic.



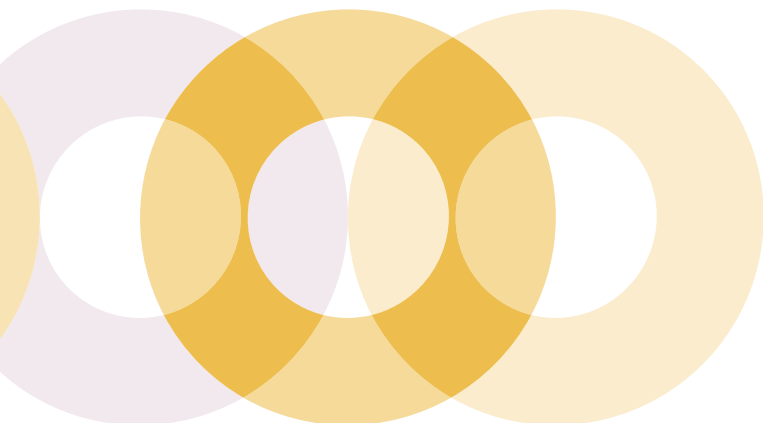
Case study 34. Evaluating health system readiness for better delivery of NCD services in Sierra Leone (45)

Background: In Sierra Leone, a country that has recently experienced both armed conflict and an epidemic of Ebola virus disease, about 30% of adult men and women have raised blood pressure.

Assessment: Opportunities and challenges in the provision of NCD prevention and care and health system readiness for change were assessed. A needs assessment was based on a combination of participatory group model building in national and district rural and urban districts, 28 interviews and a review of secondary data and documents. Data were analysed according to WHO's health system assessment guide for NCDs.

Outcomes: The challenges included little commitment by the Government and donors to finance or implement the national NCD policy and strategy, a limited, poorly distributed health workforce and pharmaceuticals, high financial barriers for users and lack of access to quality-assured medicines, with consequent extensive recourse to private and informal care.

Promising findings included identification of modest means to strengthen the system, including improved clinical guides and tools, more effective community engagement and regulatory and fiscal measures. Political will and commitment should be strengthened, more effort should be made to secure resources and to integrate NCD services, and in-depth exploratory and implementation research should be conducted to ensure effective NCD interventions in this fragile, post-conflict setting.



Case study 35. Integration of NCD and mental health care during a protracted emergency: Syrian Arab Republic

Background: When the conflict in the Syrian Arab Republic began in 2011, the health system collapsed, and it has been revived only with the support of international and local nongovernmental organizations, backed by donors and United Nations agencies. In 2016, WHO established a hub in Gaziantep, in northwest Turkey, to introduce management of NCDs, despite the ongoing conflict, with adaptation of its PEN interventions. Mental health and psychosocial support were added in 2016, and programmes were initiated to improve NCD drug distribution, capacity-building, diagnosis, management and treatment of the most common NCDs and mental health disorders. Over 200 PHC physicians in Idlib and Aleppo in the Syrian Arab Republic were trained in providing the PEN interventions and the mhGAP in formerly besieged areas such as eastern Ghouta and rural Damascus.

Initiative: With the support of the WHO Regional Office for the Eastern Mediterranean, the WHO Gaziantep hub standardized NCD and mental health diagnosis, management and treatment and tested the NCD emergency kit in three PHC centres in 2018 and nine additional centres in northwest Syrian Arab Republic in 2019. Integration of NCDs was also tested in the additional centres by establishing a system of NCD care, adaptation of the WHO PEN and in accordance with the HEARTS package for the prevention and management of cardiovascular diseases. Dedicated NCD care teams were formed in the nine PHC centres, and a field monitoring team provided regular on-the-job training and supervision. PHC physicians were also trained in mhGAP, enabling them to treat mental health disorders as well as the mental consequences of other NCDs. Monthly monitoring ensured the quality of the NCD care delivered at PHC facilities, including proper use of NCD emergency kits.

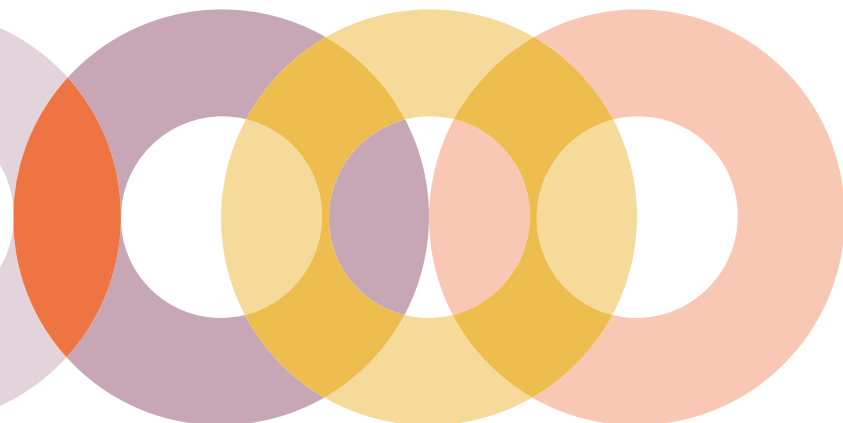
Table A3. Contents of the NCD kit tools

PHC attendance logbook	PNC-NCD patient satisfaction survey form
Patient record card	PHC incident report
Cardiovascular diseases screening form	Cleaning record form
Patient personal identification card	Cleaning inventory for the PHC cleaner
Foot care algorithm	Algorithm of a PHC guard
Annual diabetes foot examination record form	SOP for PHC guard
WHO risk prediction charts 1 and 2	Algorithm of a PHC cleaner
Laboratory request form	SOP for a PHC cleaner
Laboratory logbook	Algorithm of a PHC registration clerk
Pharmacy logbook	SOP for a PHC registration clerk
Pharmacy room and refrigerator temperature daily check form	Algorithm for a PHC data officer
NCD kit drugs and supplies weekly Inventory	SOP for a PHC data officer
Weekly NC/PEN morbidity report form	Algorithm for the PHC triage nurse
Algorithm for a pharmacist/pharmacist assistant for drug dispensing	SOP for a PHC triage nurse
Algorithm for a pharmacist/pharmacist assistant for drug dispensing	Algorithm for a PHC laboratory technician
SOP for a pharmacist/pharmacist assistant	SOP for a PHC laboratory technician

Outcomes: Despite the conflict and frequent airstrikes, which required transfer to safer facilities, the nine centres covered approximately 126 000 people and saw 23 457 new and follow-up cases in 8 months. In this period, 23 096 people aged ≥ 40 years were screened for cardiovascular diseases with the CVD screening form and risk charts by a triage nurse, who initiated screening for completion by a PHC physician. The WHO Gaziantep hub screened patients aged ≥ 40 for cardiovascular disease and conducted clinical and pharmaceutical management and also developed standard operating procedures, work algorithms, an NCD monitoring tool checklist, record forms, NCD patient identity cards and management forms for guards and hired data clerks, reception clerks, triage nurses, laboratory technicians, cleaners and pharmacists to ensure high-quality NCD care. Integration of NCDs into the PHC centres improved patient adherence to medications, follow-up, blood pressure control and patient outcomes. The initiative provided comprehensive NCD care, as partner nongovernmental organizations supported integration of NCDs into their PHC centres, including mhGAP.

Potential for scaling up: The success of the initiative demonstrates the feasibility of integrating NCDs and mental health and psychosocial support into PHC, despite the challenges of an emergency context. WHO PEN and mhGAP are useful for integration. The large impact of the initiative in only 8 months indicates its potential for scaling up.

The information and the table for this case study were provided by Manuel Torres de Lara, Public Health Officer for NCDs, mental health and psychosocial support for northwest Syrian Arab Republic.



Case study 36. Integration of HIV and NCD care. What are the opportunities? Malawi's experience (46,47)

Background: Access to care is exceptionally limited in Malawi, and there is a high proportion of untreated hypertension. Malawi has integrated hypertension screening and care into its national antiretroviral programme package.

Intervention: The Lighthouse Clinics offered integrated service delivery, including cervical cancer screening and treatment (cryotherapy, thermocoagulation), comprehensive tuberculosis care, Kaposi's sarcoma diagnosis and treatment, nutritional and psychosocial counselling and support and differentiated service delivery comprising six multi-monthly refills, advanced HIV disease, teen clubs and a nurse led-community antiretroviral programme.

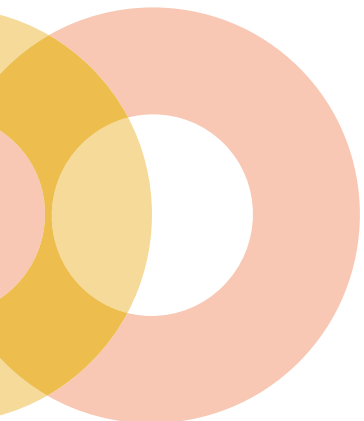
Proper screening for NCDs started in 2012 with blood pressure measurements. Subsequently, all patients were screened at a "vital signs station" for weight, height and blood pressure and a recommendation for annual cervical cancer screening on site. All medical products required for hypertension, diabetes and epilepsy treatment were available in the Lighthouse pharmacy for patients on antiretroviral treatment.

Outcomes: Screening of patients on antiretroviral treatment for hypertension increased from 45% in 2015 to 96% in 2018; coverage in January 2019 was 79%. Two blood pressure measurements on at least two occasions were required for a diagnosis of hypertension. Of the 3448 people with diagnosed hypertension, 53% were males aged 40–49 years. Adherence to antiretroviral medication of hypertensive patients receiving hypertension medications was comparable with that of patients not on hypertension medications (80% versus 79%).

A retrospective cohort study of integration of chronic care into primary care, with a hospital team visiting routinely to reinforce staffing, showed favourable clinical outcomes and retention in care.

Conclusions: The opportunities are that: successful HIV clinical structures could be used for other chronic diseases; and HIV infection could be normalized as a chronic disease, with a possible reduction in stigmatization. The challenges are that: (i) screening for other conditions such as hyperlipidaemia and diabetes is useful only when there is access to adequate treatment after diagnosis; (ii) there are tensions between differentiated models of care; and (iii) hypertension medicine is often lacking, and blood pressure measuring devices frequently break.

The information for this case study was provided by Dr Sam Phiri and Dr Beatrice Mwangomba, Lighthouse Trust.



Case study 37. Assessment of health system functioning for integration of rehabilitation services in Georgia (48)

Background: Rehabilitation is increasingly necessary worldwide, as populations age, the prevalence of chronic diseases and disability increases and the long-term consequences of COVID-19 appear. Rehabilitation enables individuals with health conditions to become as independent as possible (see photo) and to contribute socially and economically in their communities. In Georgia, NCDs are estimated to account for 93% of all deaths, and the 2014 census found that 35% of the Georgian population have difficulty in functioning.

Intervention and evaluation: In February 2020, the Government of Georgia completed a situation assessment of overall health system functioning, reviewed existing rehabilitation services and resources and identified possible barriers and facilitators to integrating rehabilitation into the health system. WHO's Rehabilitation in Health Systems (39) cites four phases for effective, sustainable integration of rehabilitation services: 1, a situation assessment; 2, strategic planning; 3, monitoring and evaluation; and 4, implementing the strategic plan. The situation assessment covered the country's leadership, governance, financing, human resources, infrastructure, assistive technology, information and emergency preparedness for rehabilitation. The assessment was conducted collaboratively, with input from over 100 stakeholders in interviews, meetings, focus groups and site visits. A model was used to assess the maturity of current rehabilitation provision and to identify challenges and priorities for improving it.

Outcomes: The challenges identified included no systematic coordination of rehabilitation, under-development of rehabilitation for adults, absence of rehabilitation from the universal health care programme, absence of a national strategy and little integration of rehabilitation into health policies. The Government is now developing a strategic plan to strengthen the health system to ensure high-quality rehabilitation services.

Information for this case study was provided by Satish Mishra, WHO Regional Office for Europe. Permission received to reproduce the photograph.



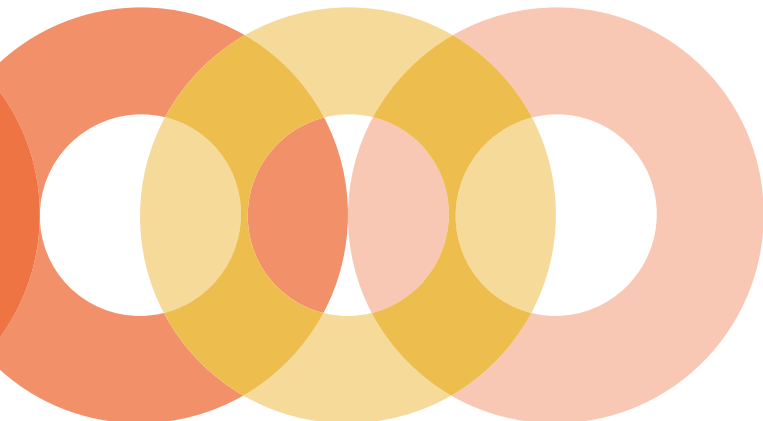
Photo credit: WHO / Sebastian Liste Noor

Case study 38. Assessment of the “goodness-of-fit” of integrated mental health care for children with autism spectrum disorder in primary care in the USA (49,50)

Background: Children with autism spectrum disorder require many services, including effective mental health care, in view of the high rates of psychiatric conditions. Paediatric primary care is well positioned to identify mental health concerns and facilitate linkage to mental health services for children with autistic spectrum disorder. Identification of such cases is, however, often overlooked and varies widely according to the organization of primary care. In California, USA, a mixed-methods needs assessment was conducted with leaders of health-care organizations, providers of paediatric primary care and caregivers of integration of mental health care into primary care services for children with autism spectrum disorder and linkage to specialist mental health care. The perspectives of caregivers on the feasibility and acceptability of an integrated intervention were integrated into a large, hybrid implementation pilot study.

Intervention: In response to the needs assessment, an adapted integrated care model was proposed to link paediatric primary care and mental health care. The first strategy was to establish a community–academic partnership to promote implementation and train paediatric primary care providers in tailored mental health screening and referral practices.

Evaluation and outcomes: Preliminary qualitative data indicate that the factors that ensure programme implementation are the current extent of integrated care and the ability to adapt components of health-care delivery within the limitations of the structure of the health-care organization.



Case study 39. Ensuring the acceptability and feasibility of NCD service integration into a community HIV-testing campaign in Uganda (51)

Background: The Ugandan population has a high burden of undiagnosed HIV, and NCDs such as hypertension and diabetes are also pressing concerns. Rapid community HIV testing and referral campaigns offer an opportunity for identification of NCDs and for referring cases to services.

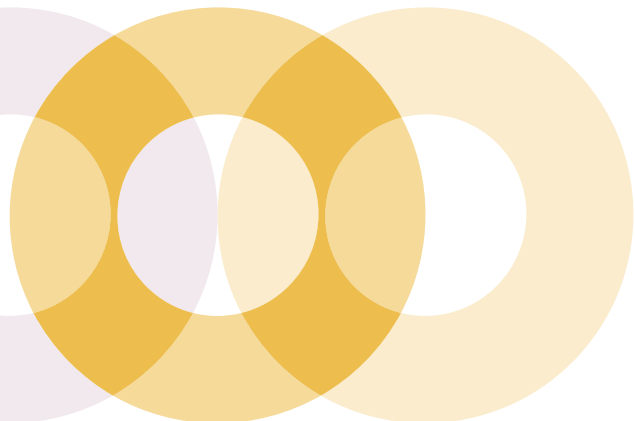
Intervention: In 2011, a 5-day campaign in a rural parish offered diagnostic, preventive, treatment and referral services for several diseases, including point-of-care screening for HIV, malaria, tuberculosis, hypertension and diabetes. HIV-infected adults met clinic staff and peer counsellors on site, and those with a CD4 cell count < 100/mL were given intensive counselling and rapid referral for antiretroviral therapy.

Evaluation: Laboratory testing was conducted in the field and in a central laboratory. Community participation, case-finding yield and linkage to care were evaluated 3 months after the intervention.

Outcomes: Of the 6300 residents, 3150 participated, comprising 2323 (74%) adults and 2020 (69%) children. The prevalence of HIV in adults was 78%, 46% of whom were newly diagnosed; of those newly diagnosed, 39% were linked to care. Hypertension and diabetes were identified in 28% and 4% of the adults screened, respectively. Of these, 65% of the diagnoses of hypertension and 23% of the diagnoses of diabetes were new, and 43% and 61% were linked to care, respectively. Screening identified suspected tuberculosis in 87% of HIV-infected and 19% of HIV-uninfected adults; 52% of the suspected cases in HIV-uninfected adults were linked to care. The campaign demonstrated the feasibility of integrating services for hypertension, diabetes and communicable diseases into HIV initiatives. The cost-effectiveness of adding NCD screening was not assessed, but the cost was relatively low (US\$ 2.41/person).

Linkage to care was not sufficient: Some HIV patients were not linked to NCD care because they could not be located, had moved, were linked only to HIV care, feared stigmatization, could not pay for transport or did not believe their diagnosis. Better linkage of patients with a CD4 cell count < 100/mL, however, resulted in rapid referral (< 2 weeks after the campaign) and expedited counselling and initiation of antiretroviral therapy at the first clinic visit.

Although well-established HIV testing and referral infrastructure in rural Africa could be used to find and engage unidentified NCD patients, the capacity for treatment and sustained care is still limited. Delays in seeking care may be due to perceived lack of affordability or because patients seek care in non-government facilities.



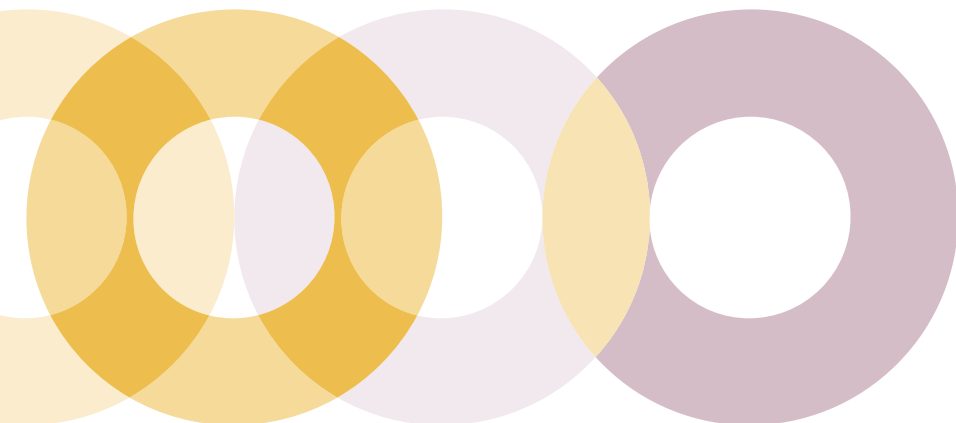
Case study 40. Leveraging HIV programme approaches, tools and systems to improve diabetes services in Ethiopia (52)

Background: In Ethiopia, strategies, systems and tools developed to support life-long HIV care and treatment have been scaled up and are now locally owned and contextually appropriate. They can be adapted to continue care for NCDs such as diabetes mellitus, the prevalence of which is 3.5% in Ethiopia.

Intervention: The Federal Ministry of Health, the Ethiopian Diabetes Association and the International Center for AIDS Care and Treatment Programs at Columbia University (USA) developed a multicomponent intervention at an urban referral hospital. The approaches, tools and systems used in the hospital's HIV clinic were adapted to include outpatient services for diabetes. The strategies included introduction of a package of essential services, use of step-by-step protocols, emphasis on family care, point-of-service diagnosis and use of simple, useful indicators for monitoring and evaluation. The systems included appointments, clinical mentoring and use of peer educators. The tools included appointment books, charting tools, flow sheets, job aids, logbooks and registers.

Evaluation: The proof-of-concept study design included surveys of 45 clinicians (5 doctors, 37 nurses and 3 other) and 260 patient charts in a single time series (a baseline assessment, the multicomponent intervention and a 6-month follow-up assessment). The baseline assessment comprised systematic observation of diabetes mellitus services in the outpatient department. Patient flow was mapped, patient encounters were observed, and interviews were conducted with hospital leaders, clinicians and patients. A chart abstraction tool was developed and tested, and a baseline chart review was conducted for 261 adult patients living with diabetes who had visited the outpatient department in the previous 3 months. The chart review and interviews were repeated 6 months later.

Outcomes: Documented service delivery increased markedly, and there were significant improvements in standards of care with no added staff. For example, documentation of blood pressure increased from 45% to 80%, and documentation of fundoscopic, foot and neurological examinations increased from 1% to 50%, 3% to 81% and 3% to 56%, respectively. Adherence was documented on 2% of charts before the intervention and 77% afterwards, and recording of the next appointment rose from 17% to 81%.



Case study 41. Control of rheumatic heart disease: a civil society initiative in Sudan that became national

Context: Sudan has a decentralized health system, each of its 18 states having its own system. As part of health system reform, NCDs are the responsibility of the disease control directorate, which also covers some communicable diseases, which facilitates pooling of funds received for globally funded communicable disease projects. NCDs were, however, poorly represented and therefore received less priority.

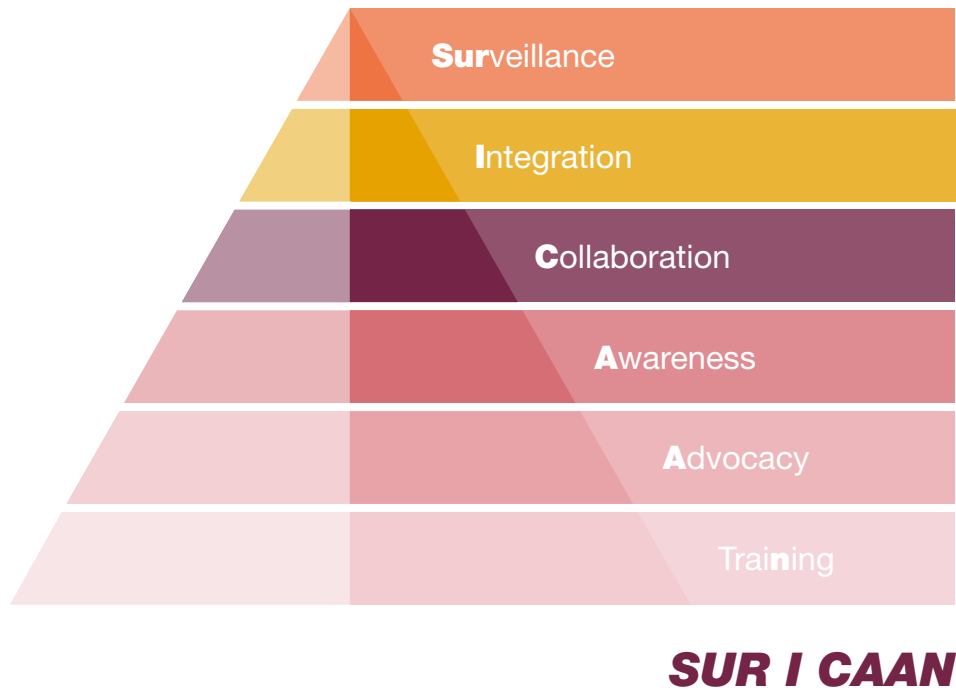
There is a high burden of rheumatic heart disease in Sudan, and most patients are children and young adults with severe forms of the disease. According to the annual health statistic report for 2018, 2100 patients with rheumatic heart disease were admitted to hospital, and 149 died.

Initiative: In 2012, a programme for control of rheumatic heart disease was initiated by a group of paediatric and adult cardiologists. The programme guidelines were approved by the Federal Ministry of Health but implemented by nongovernmental organizations with unconventional funding resources, as it did not receive allocated funding until 2019. The programme comprised a framework of surveillance, integration, collaboration, awareness, advocacy and training (SUR I CAAN).

- Surveillance: includes an electronic registry for two referral centres (1200 patients) and screening by hand-held echocardiography for 1200 patients in five states
- Integration: into other programmes within the PEN and also included in nursing and medical curricula.
- Collaboration: with nongovernmental organizations and WHO. In 2019, Sudan participated in the WHO Eastern Mediterranean regional meeting on rheumatic heart disease and discussed a plan of action after approval of a resolution on rheumatic heart disease by the World Health Assembly in 2018.
- Awareness: development and distribution of various health education materials and many awareness campaigns in high-burden areas through local media
- Advocacy: for medical, social and political groups
- Training: materials developed to train physicians, medical assistants, other health workers and the public, with training modules for the health workforce and lay health workers.

The SUR I CAAN framework was implemented in the Kordofan Rheumatic Heart Disease Control Centre, in a region with a high burden of the disease. It is led by a community nurse and three physicians, who train health workers, raise public awareness and perform echocardiography screening in districts in North Kordofan. The Centre has conducted nine training workshops for 500 health workers and echocardiography sessions and public awareness campaigns in four districts.

Fig. A2. The SUR I CAAN framework



Outcomes and lesson learnt: The initiative influenced national policy-making, and a new subunit for rheumatic heart disease prevention was introduced into the disease control directorate organogram in February 2019, with a designated person. Although the impact on patient health outcomes has not yet been measured, improvement in case detection is expected.

The programme has been introduced into the operational packages of the Ministry of Health, and there are plans to add it to the Integrated Management of Childhood Illness programme. The inclusion of up-to-date management protocols endorsed by the Ministry of Health facilitated integration of rheumatic heart disease into all NCD training packages for family physicians, medical assistants and health promoters.

The most successful feature of the initiative was collaboration among partners. The programme and the SUR I CAAN framework were devised by cardiologists and civil society, and its success and spread illustrate the power of nongovernmental entities to develop and implement interventions for health. Community and PHC interventions should be prioritized in order to ensure access. Future plans for the initiative include assessing the capacity of medical assistants and the health system to provide benzathine penicillin G in PHC.

Information for this case study was provided by Nazik Izzeldin, head of the rheumatic heart disease and cancer prevention subunit, Ministry of Health, and Sulafa Ali, paediatric cardiologist.

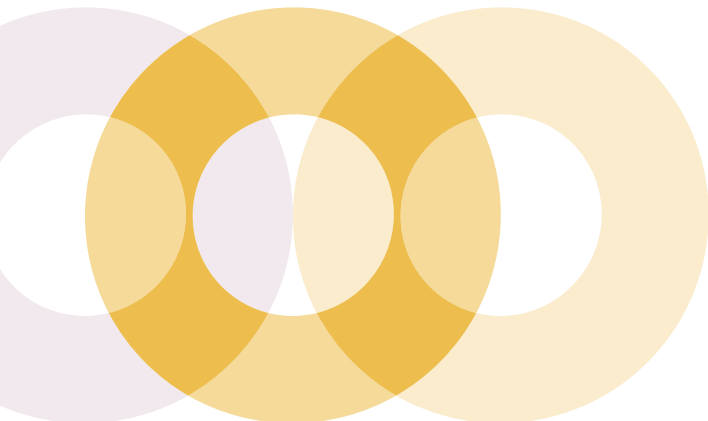
Case study 42. Clarifying the roles of nurses and helpers in newly integrated chronic care services for elderly people in Bulgaria (14)

Background: Bulgaria has a rapidly ageing population, with nearly 20% aged > 65 in 2011. The country also has a high, rising prevalence of co-morbidity, disability and chronic diseases. In the past, the scope of services was too narrow to manage the full range of older people's health and social care needs. Restricted access to providers led to overuse of expensive institutional or specialized services.

Intervention: An initiative was devised to introduce home care into the Bulgarian health system. In partnership with the Swiss Red Cross and a non-profit home-care organization, an integrated model for providing health and social care services to elderly patients in their homes was proposed. Twelve home-care centres were opened, which employed nurses and home-helpers, who were required to complete national licensed training upon hire. Home helpers were expected to complete 120 classes and nurses 160 classes. The training for nurses included additional specialized topics, such as assessing needs, developing care plans and supervising home helpers. Centre employees worked as a team to provide services, with nurses coordinating patient care. Home helpers assisted patients in daily tasks, such as personal hygiene, preparing meals and house-cleaning. Nurses provided services such as blood pressure monitoring, heart checks, bandage changes, wound care and other primary care services.

Evaluation: Criteria were set for the quality of service delivery from international models and early operational experience. Software programmes were developed by technical universities in partnership with the Bulgarian Red Cross for data collection, which was introduced only recently.

Outcomes: Integrated community health and social services were introduced for the first time in Bulgaria. Twelve home care centres were established in the country that provide services to over 800 patients. Patients were given the necessary care in their homes by trained nurses and helpers with clearly defined roles and functions.



Case study 43. Supportive supervision to optimize integration of HIV and sexual and reproductive health services in Kenya (53,54)

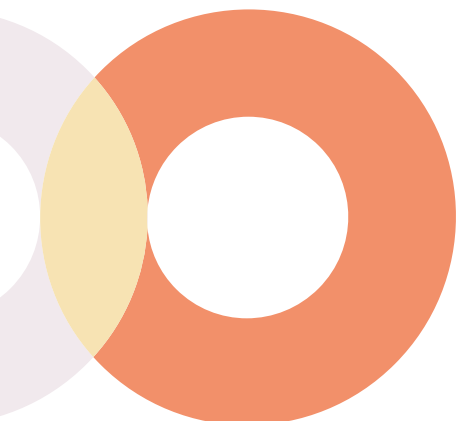
Background: In countries with a high prevalence of HIV, such as Kenya, access to HIV testing and treatment services has improved systematically since 2000 in both mainstream and specialist health facilities. Integration of HIV services with sexual and reproductive health services can strengthen health systems, improve efficiency, ensure holistic care, increase uptake of services and improve patient outcomes. Kenya is one of a few countries in sub-Saharan Africa that has adopted a national policy framework on integration of services for HIV and sexual and reproductive health.

Intervention: Integration of HIV into sexual and reproductive health care comprised receipt of an HIV care service (e.g. counselling, testing, antiretroviral therapy and CD4 cell count) and a contraceptive method (e.g. condoms, short- or long-term methods) in the same visit. The Integra Initiative integrated care in many facilities in Kenya. From 2008, the staff in a moderately sized rural sub-district hospital that was ranked as a high-performing integrated facility, controlled spending, managed their resources well and had no serious stock-outs or shortages of drugs, supplies (for HIV or family planning) or equipment, although staff reported they could do with more. The facility had three rooms in a maternal and child health and family planning unit, a stand-alone comprehensive HIV care centre with a room for HIV counselling and testing and a 24-h emergency and outpatient department. Maternal and child health and HIV counselling and testing were provided Monday–Friday and comprehensive HIV care services officially on 2 days per week, although patients were seen any day they came. For pregnant women, prevention of mother-to-child HIV transmission services were offered on Wednesdays, although women who came at other times were also tested. Nurses rotated quarterly among maternal and child health services, wards and outpatients. Usually, three nurses were assigned to each department. There were two clinical officers, one of whom worked exclusively in the comprehensive HIV care centre, with regular visits to maternal and child health for prevention of mother-to-child HIV transmission. The management was clearly committed to department-wide HIV testing and to a model for complete integration of pregnant women with HIV into the maternal and child health unit until several months post partum.

Evaluation: A review of routine facility data, one in-depth interview with a managing clinician and seven structured interviews with other providers were conducted.

Outcomes: A large increase in the number of clients for HIV care was seen, with only a modest increase in the number of staff. External support was limited during the study and was provided mainly for non-clinical infrastructure (e.g. filing cabinets). Despite the constraints, all but one of the staff interviewed said they considered that integration had reduced the length of visits to the facility, increased staff awareness of their responsibilities and given them a chance to practise more skills than before. More than half considered that service efficiency had improved, and all the staff interviewed said that teamwork and provider communications had improved after integration. Staff reported regular supervision and were satisfied with the supervision they received. The manager, who was interviewed in depth, described the importance of supporting agency and self-confidence in the staff to enable them to manage structural deficits (such as the lack of rooms) for integrated client-based care.

Another study of patients' perception of HIV services and family planning indicated the importance of a same-day visit for all the necessary services. The authors emphasized that management systems should support providers in making flexible decisions and facilitate better coordination and communication among clinics within facilities.



Case study 44. Integration of oncology into decentralized NCD services in Rwanda (26)

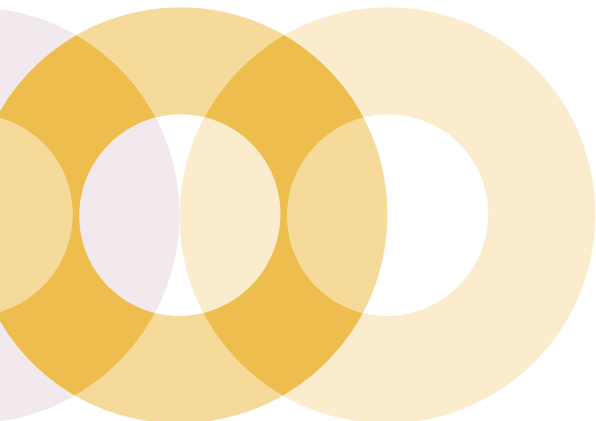
Background: Rwanda provides decentralized care for severe chronic NCDs in district hospitals. The programme includes management of both severe and less complex chronic NCDs, such as heart failure, advanced hypertension, types 1 and 2 diabetes, chronic respiratory diseases and end-stage liver and kidney diseases, in a single, resource-efficient delivery platform. A nurse-led clinic provides initial diagnoses, long-term follow-up and patient education through adaptation of carefully selected evidence-based interventions appropriate for resource-limited settings. Before 2011, cancer diagnosis and treatment were not included in this programme and were limited to referral hospitals for only a few types of cancer.

Intervention: In 2011, oncology was integrated into the broader NCD services platform. This required staff training, mentorship and referral patterns. Two phases of care were created for oncology patients. In the first phase, diagnosis and treatment plans were established, usually by generalist physicians, with training and mentorship by district hospital providers in specialized skills such as biopsy and interpretation of pathology results. In the second phase, part of the responsibility of care was shifted to nurses, who provided palliative care, management of chronic medical deliverables and psychosocial support for stable patients.

Mentoring was conducted mainly by oncologists outside Rwanda because of the limited availability of oncologists in the country. Nearly daily access to technical support is critical for the provision of high-quality care that has been task-shifted to non-oncologists, and routine support from the Dana-Farber/Brigham and Women's Cancer Center in the USA was critical for implementation of the programme.

Evaluation: Data were extracted from the medical records of all patients who enrolled in the NCD clinic between 1 July 2012 and 30 June 2014 for 15 months after the first clinic visit. Descriptive statistics of patient characteristics and retention were compiled.

Outcomes: Of the 347 patients enrolled during the study period, 72% received oncology services, with a retention rate of 82% after 12 months. As 71% of the patients presented from outside the hospital catchment area, the hospital served effectively as a regional cancer referral centre, before the strengthening of cancer care at other facilities. Oncology patients represented a substantial proportion (47%) of patients with severe chronic NCDs in the district hospital's catchment area.



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