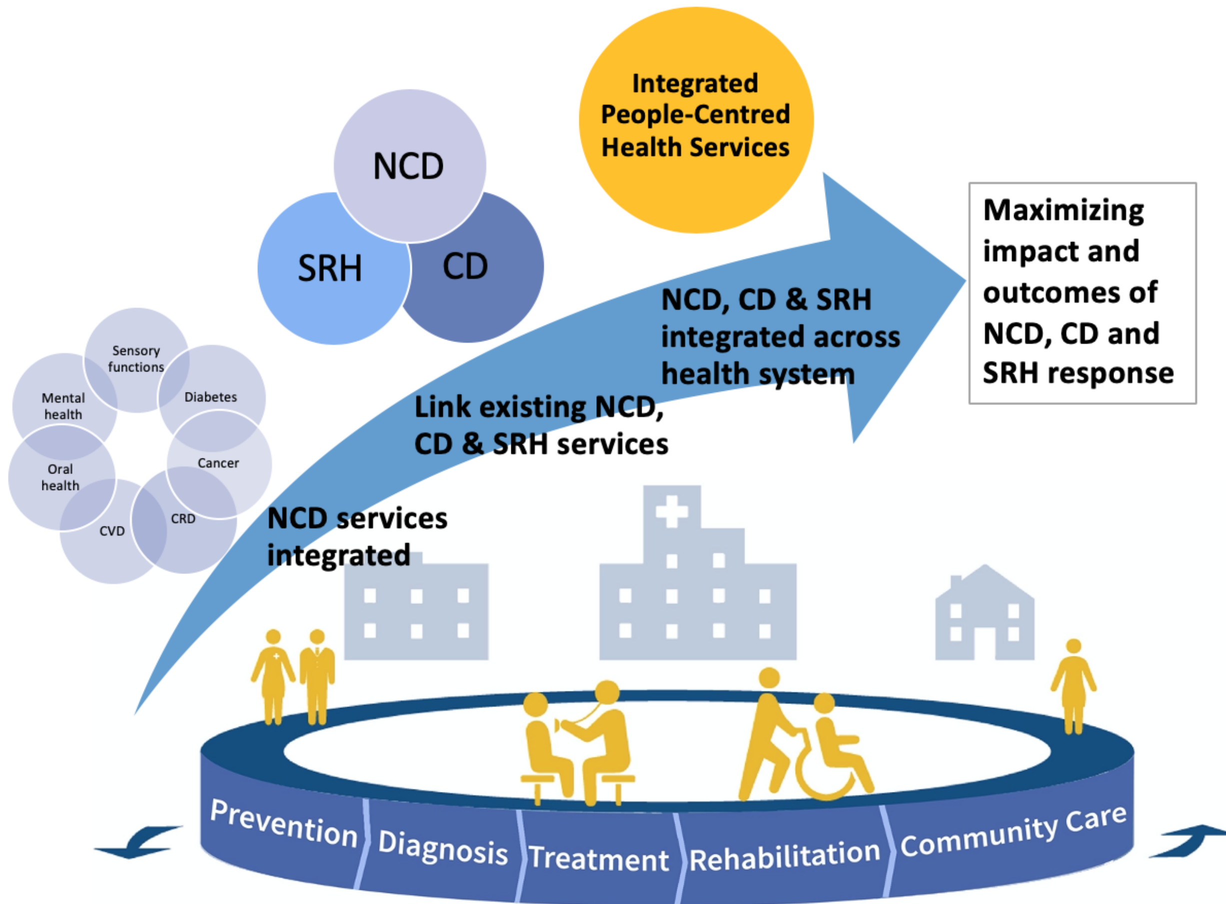
NCD SERVICES INTEGRATION: How implementation research can help

Dr Hongyi Xu, Noncommunicable Disease Department, WHO

xuh@who.int

Journey



The WHO working definition of integration is: *"The organization and management of health services so that people get the care they need, when they need it, in ways that are user friendly, achieve the desired results and provide value for money." (WHO, 2008).*

Integrated health services are those that are managed and delivered so that people receive comprehensive health promotion, diseases prevention, diagnosis, treatment, diseases management, rehabilitation, and palliative care services, coordinated across the different levels and sites of care within and beyond the health sector, and according to their needs throughout the life-course.

(WHO, 2016, -Framework of Integrated People Centered Health Services)

Typology of integrated care

Type of integration	Key elements
Functional integration	involves back-office and support functions and activities (i.e. financial, medicine, management and information systems) structured and integrated around the primary process of service delivery.
Service integration	refers to integrate and coordinate different health services (clinical services mostly) at an organizational level.
Organizational integration	brings together organisations through contracting, strategic alliances, knowledge networks or, mergers, to deliver comprehensive services to a defined population.

NCD integrated service models

What do we know?

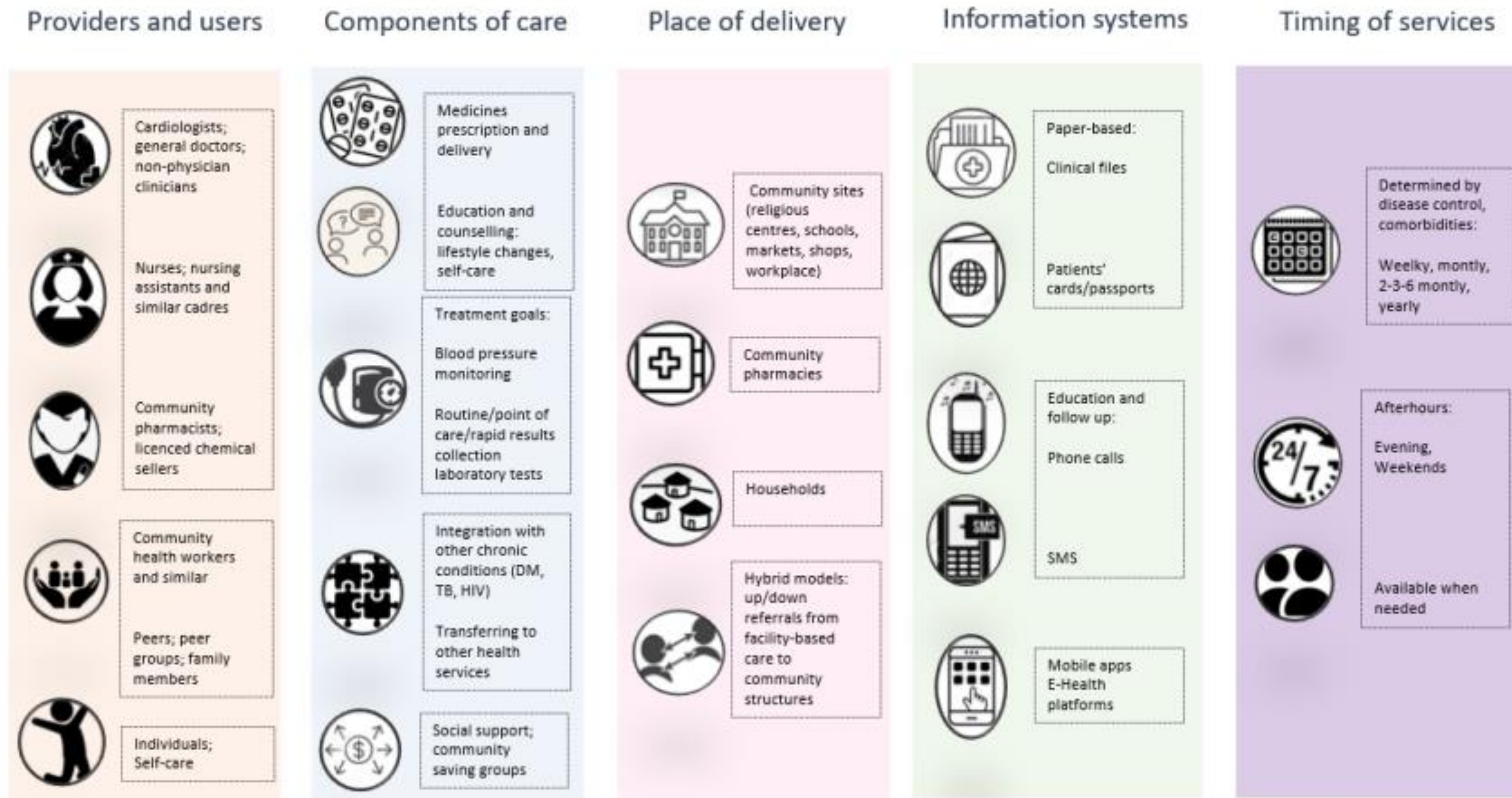
Integration types utilized in NCD service delivery models from LMIC

Integration type	Community N=55 n (%)	Health center N=93 n (%)	Secondary level N=31 n (%)	Tertiary level N=30 n (%)	Specialty outpatient clinic N=10 n (%)
New care delivery teams	17 (31)	19 (20)	7 (23)	9 (30)	2 (20)
Descriptions of previously existing delivery models	10 (18)	8 (9)	3 (10)	4 (13)	2 (20)
Task distribution within existing delivery models	1 (2)	6 (6)	2 (6)	2 (7)	0 (0)
New conditions integrated into existing delivery models	15 (27)	26 (28)	11 (35)	7 (23)	1 (10)
New services integrated into existing delivery models	6 (11)	19 (20)	4 (13)	5 (17)	3 (30)
New services and conditions integrated into existing delivery models	6 (11)	14 (15)	4 (13)	3 (10)	2 (20)
Not specified	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)

Type of Service:
Health promotion
Health education
Screening
Referral
Initial diagnosis
Adherence support
Peer group facilitation
Acute care
Home based care
Home based visits
Psychotherapy
Medication dispensing
Patient follow-up
Monitoring
Medication management

-According to review on 219 unique service delivery models from 188 studies in 44 countries (*Center for Integration Science in Global Health Delivery, Division of Global Health Equity, Brigham and Women's Hospital, University of Harvard)*

Community-based integrated models

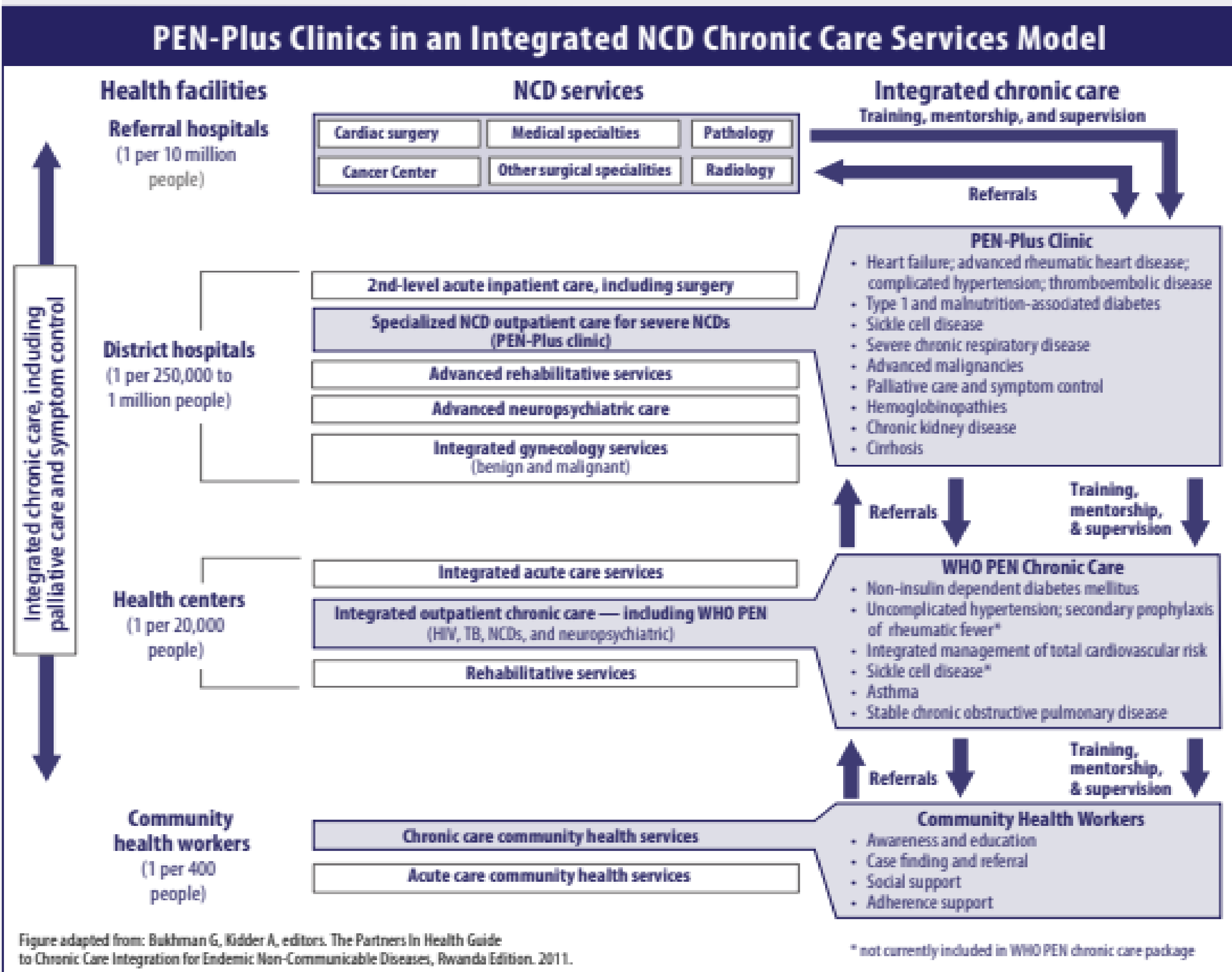


Source: COMMUNITY-BASED CARE MODELS FOR ARTERIAL HYPERTENSION MANAGEMENT IN NON-PREGNANT ADULTS IN SUB-SAHARAN AFRICA: SCOPING REVIEW (Lucia González Fernández, Niklaus Labhardt, Swiss Tropical and Public Health Institute)

District hospital as part of solutions (PEN-Plus Model)

Start-Up Costs		
Construction of NCD clinic	12,633	26%
Baseline NCD training (training cost per nurse, transportation, accommodations etc.	10,824	23%
Clinic equipment and supplies (BP cuff, peak flow meter, glucometer, ultrasound equipment, INR machine, HbA1c POC machine, office equipment & supplies)	24,519	51%
Total start-up costs	**47,976**	**100%**
Operating Costs		
Labor 2 nurses (50% effort), physician (30%), social worker (30%), pharmacist (20%), lab technician (20%), additional support staff (8 positions @ ≤ 8%), supervising consultants (5%)	36,980	54%
Medications	11,420	17%
Facility & maintenance	8,528	12%
Social services (transportation, food packages)	5,786	8%
Laboratory testing	4497	6%
Miscellaneous consumables	1316	2%
NCD refresher training (two nurses)	448	1%
Total annual operating costs	**68,975**	**100%**

* Costs for start-up and operation of a PEN-Plus clinic providing integrated chronic care services for severe NCDs at a district hospital with a catchment area of roughly 300,000 people. In the year of the study, the clinic had 632 enrolled patients.



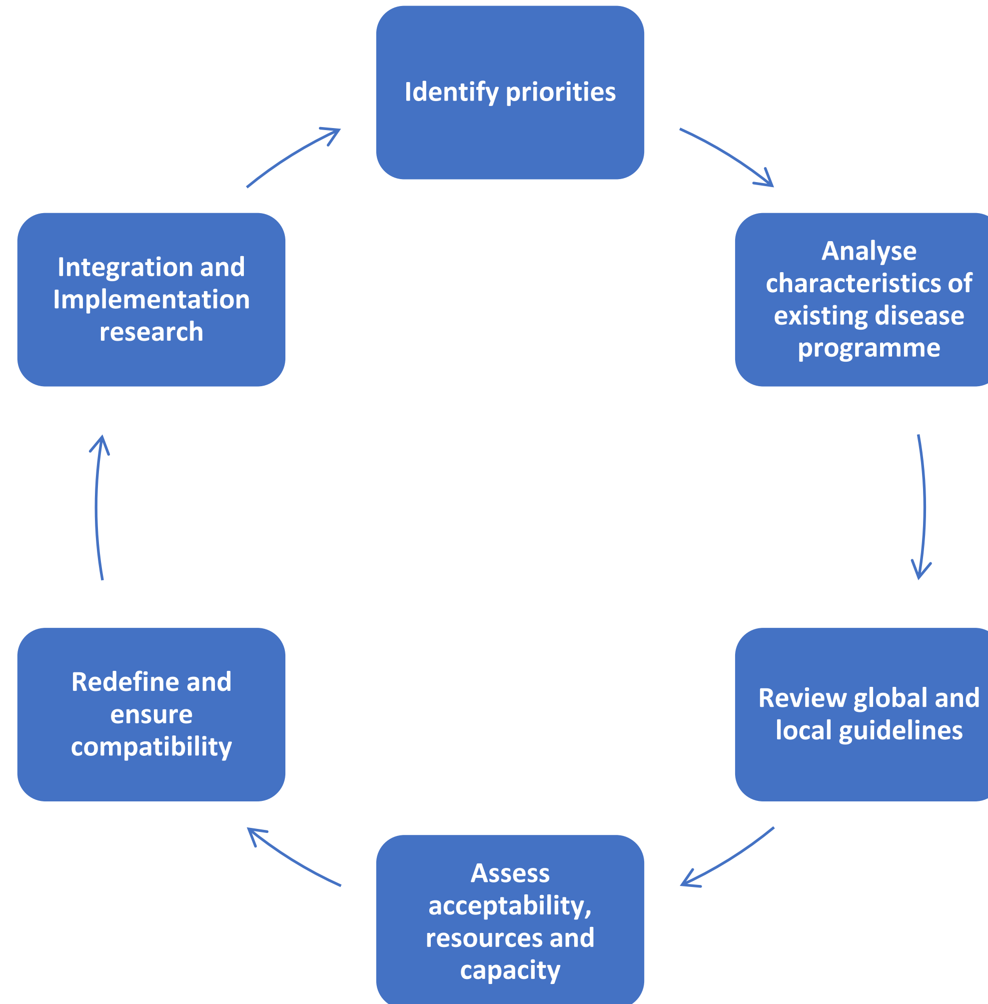
Eberly LA, Rusangwa C, Ng'ang'a L, et al. Cost of integrated chronic care for severe non-communicable diseases at district hospitals in rural Rwanda. BMJ Global Health 2019;4:e001449. doi:10.1136/ bmjgh-2019-001449

NCD SERVICES INTEGRATION GUIDANCE (Draft)

-Guidance on the inclusion of NCD prevention and control within national responses for HIV/AIDS, TB, reproductive health, and national programmes to strengthen health systems

Domain	Actions
1.People and Community	1.1 Engage and empower people living with NCDs (PLWNCDs) and communities
	1.2 Develop measurements and monitoring systems that are patient-centred
2.Policy and leadership	2.1 Provide policy directives for integration
	2.2 Align political, institutional and health systems with the necessary resources
	2.3 Provide transformational leadership and good change management
3.Financing	3.1 Align financing mechanisms and sources to enable implementation of national health plans and NCD service integration objectives
	3.2 Ensure that financing is available for services, structural resources, processes and service models
4.Capacity and Infrastructure	4.1 Build multidisciplinary teams
	4.2 Provide comprehensive, tailored, flexible, interactive training on integration
	4.3 Ensure strong operational management and human resources development
	4.4 Provide adequate infrastructure for delivering integrated NCD care
	4.5 Develop strong procurement systems to meet the requirements of NCD services
	4.6 Ensure robust NCD information and technology for integration
5.Models of care for NCDs	5.1 Assess health system functioning, strength and ‘readiness for’ integration
	5.2 Co-create a model of NCD care that ensures integration is compatible, acceptable, feasible and fits well with existing services

Key steps in integration of NCD services with other programmes



List of interventions that facilitate integration of NCD-TB-HIV services

Interventions	NCD (examples: Diabetes, Hypertension, COPD, Cervical Cancer)	TB	HIV
Health promotion and prevention	Integrated counselling on healthy diet, physical activity, weight management, and alcohol and tobacco use; Targeted behavioral modification for tobacco cessation; (Cervical cancer: HPV vaccination; Counselling on STI prevention, risk reduction and safer sex)	Active case finding for TB among at-risk populations; BCG vaccination; Perform routine contact tracing to identify individuals exposed to TB; Provide short-course preventive oral treatment regimens for TB	Couseling on safe sex; risk reduction; condom use; Harm reduction; Voluntary medical male circumcision; PEP and PrEP
Screening	Measure blood glucose in those with risk factors; Measure blood pressure of all adults on routine visits to primary health care facilities; Cervical cancer screening	Screen for tuberculosis among clinical at risk groups and vulnerable populations by assessing symptoms and using tests, examinations or other procedures that can be applied rapidly	HIV testing targeting all populations or key populations; testing and counselling; Hepatitis B/Hepatitis C testing targeting most affected and all populations
Laboratory	Laboratory tests for diagnosis, and periodical laboratory tests for monitoring	Laboratory tests for diagnosis, and periodical laboratory tests for monitoring	Laboratory tests for diagnosis (major co-infections, including HBV and HCV), HIV staging (CD4 cell count) and periodical laboratory tests for HIV treatment monitoring (Viral load)
Management of disease, Diagnosis and treatment	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 where indicated	Condition-specific nutrition assessment and counselling; Provide integrated management for patients with HIV/AIDS, other co-morbidities (including NCDs) and health risks associated with TB	Condition-specific nutrition assessment and counselling; Vaccinations (Hepatitis B, 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 & HCV treatment, TB preventive therapy

Parameters to be checked for compatibility in integration of HIV and cardiovascular disease in LMIC (example)

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

Entry points to apply the NCD service integration guidance

Start	Start from existing partnerships and/or diseases initiatives, to fix key health system components
Improve	Improve technology, infrastructure and resource management
Improve	Improve linkage of NCD services to responses of specific diseases 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

Financing: GFATM, Banks

1. GFATM Country Coordination Mechanism to **include NCD as key stakeholders** to ensures linkages and resources harmonizing, at proposal and planning phrase
2. To further sensitize the needs **for service goodness of fit and reprogramming** during implementation to consider the needs of HIV/TB patients with NCD commorbidites
3. To differentiate and support countries with poor UHC implementation for **inequity** caused by NCDs
4. Infrastructures and service models for NCDs scale-up

Integrating NCD services

- A long, complex process
- Addressing social determinants of health and increasing co- and multimorbidity
- Integration in different settings and income levels
- Tailoring the guidance to national and local contexts
- Monitoring and evaluation, Implementation research

Future research/implementation research needs

- ❑ study the longer term effects of NCD service integration models, and measurements:

-service demand, access, acceptability, quality, effective referral, uptake, outcomes (including surrogate outcomes such as quality of life and complications), cost-effectiveness, and inequity (e.g. distribution of effects);

- ❑ integrated care models and their effects on the outcomes for people with multimorbidity;
- ❑ evaluate technology and innovations for redefining NCD services and care models during the pandemic and afterwards;
- ❑ explore public-private partnerships in enabling NCD integration; and
- ❑ study community integrated NCD service models, and integrated service models for disease elimination, such as cervical cancer elimination
- ❑ Others: quality, sustainability, pragmatic evidence generation

Some published protocols on NCDs service integration

1. Implementing combined WHO mhGAP and adapted group interpersonal psychotherapy to address depression and mental health needs of pregnant adolescents in Kenyan primary health care settings (INSPIRE): a study protocol for pilot feasibility trial of the integrated intervention in LMIC settings | Pilot and Feasibility Studies | Full Text (biomedcentral.com)

2. Protocol for the evaluation of a pilot implementation of essential interventions for the prevention of cardiovascular diseases in primary healthcare in the Republic of Moldova - PMC (nih.gov)

3. Community-based intervention for management of diabetes in Nepal (COBIN-D trial): study protocol for a cluster-randomized controlled trial - PubMed (nih.gov)

Resources and network

- WHO Technical Advisory Group of Experts on NCD-related Research and Innovation (TAG-NCD-R&I)

https://www.who.int/groups/who-technical-advisory-group-of-experts-on-ncd-research-and-innovation#:~:text=The%20TAG%2DNCD%2DR%26I%20was,prevention%20and%20control%20of%20NCDs.

- Implementation research programme, capacity building and grant opportunity in Global Alliance for Chronic Diseases

https://www.gacd.org/about

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

https://apps.who.int/iris/bitstream/handle/10665/252626/9789241511803-eng.pdf

- WHO collaboration centers and network

https://www.who.int/about/collaboration/collaborating-centres

Thank you

Questions and comments:
xuh@who.int