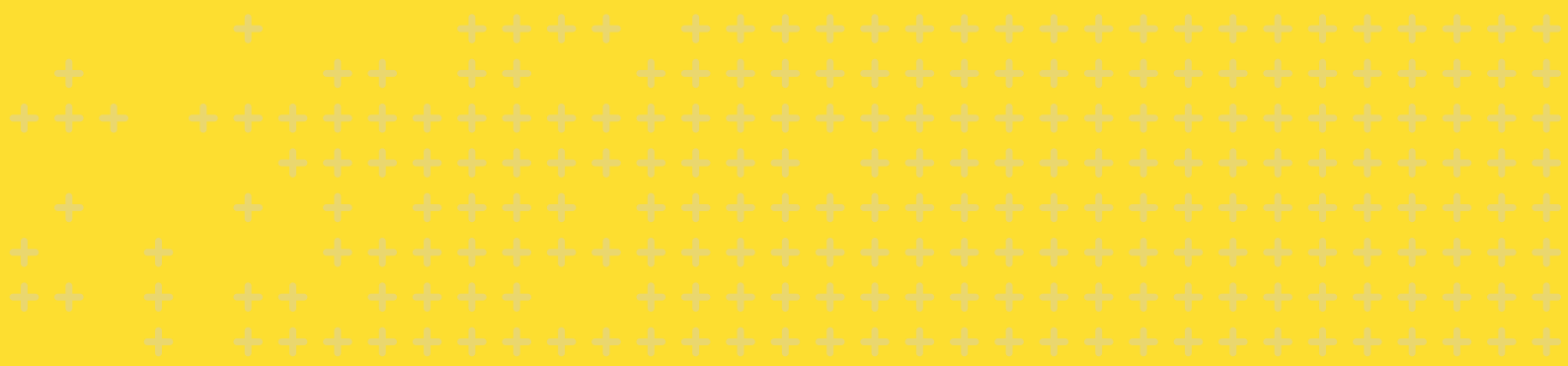




Health policy and system support
to optimize community
health worker programmes
for HIV, TB and malaria services:
an evidence guide



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Contents

Acknowledgements	1
Abbreviations	2
Executive summary	3
What is new in this evidence guide?	3
Who will deliver the services?	3
Where do we stand currently?	3
What guides the ambition to address the three diseases?	4
What support is available?	4
1. Introduction	7
2. HIV prevention, testing, treatment and care services	8
3. Tuberculosis prevention, diagnosis, treatment and care	12
4. Malaria chemoprevention, vector control, infection detection and case management	14
5. Support to optimize community health worker programmes	16
5.1 Policy development and implementation	16
5.2 Selection, training and certification	16
5.3 Management, supervision and remuneration	17
5.4 Health system integration and community engagement	18
6. Integrating community health worker programmes within the broader health workforce	20
7. Conclusion	21
8. Research agenda	22
8.1 HIV	22
8.2 Malaria	22
References	23

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Abbreviations

ACT	artemisinin-based combination therapy
AIDS	acquired immune deficiency syndrome
ART	antiretroviral treatment
ARV	antiretroviral (drugs)
CHW	community health worker
CSO	civil society organization
DOT(S)	directly-observed therapy (short-course)
HIV	human immunodeficiency virus
HRH	human resources for health
iCCM	integrated community case management of childhood diseases
IPTp	intermittent preventive treatment
ITN	insecticide-treated bed net
LLIN	long-lasting insecticidal net
MDA	mass drug administration
MDR	multidrug-resistant (TB)
MSM	men who have sex with men
NGO	nongovernmental organization
PEP	post-exposure prophylaxis
PHC	primary health care
PrEP	pre-exposure prophylaxis
RDT	rapid diagnostic test
RMNCAH	reproductive, maternal, newborn, child and adolescent health
SDG	Sustainable Development Goal
SMC	seasonal malaria chemoprevention
SRH	sexual and reproductive health
TB	tuberculosis
UHC	universal health coverage
WHO	World Health Organization

Executive summary

This century has seen remarkable global progress in improving the health of millions of people, including decreasing illness and death from infectious diseases like human immunodeficiency virus (HIV), tuberculosis (TB) and malaria. Rapid improvements in insecticide-treated bed net use and antiretroviral therapy for people living with HIV – likely has driven progress. In the past few years, the steady gains of the last decade, however, have stalled, in part due to the lack of trained health workers and access to essential health services linked to geography, poverty and social access barriers (1, 2). Communities have been a driving force behind much of the progress that has been achieved; strategic investments in integrated, multidisciplinary primary care teams, including community health workers (CHWs), are needed to regain the momentum.

Meeting global health commitments requires applying knowledge and best practice to reach people affected by HIV, TB and malaria – who are often the most vulnerable and least able to access health services. Numerous existing resources offer guidance on how to build effective CHW services to support HIV, TB and malaria programmes:

- Guidelines and evidence on effective health interventions for HIV, TB and malaria.
- Guidelines and evidence on selecting, training, deploying, supervising, remunerating, supplying and supporting CHWs.

What is new in this evidence guide?

This first WHO evidence guide pulls together the existing guidelines and bodies of evidence, combined with recommendations from WHO experts, to provide a first-ever evidence base for national governments and their partners to design, implement and sustain effective and cost-effective HIV, TB and malaria CHW programmes.

Who will deliver the services?

In many countries, CHWs are a key component of strategies and plans to address a variety of interventions for HIV, TB and malaria. There is substantial evidence that CHWs can deliver effectively a range of preventive, promotive, diagnostic, curative and supportive services for these three diseases. The first-ever WHO *Guideline on health policy and system support to optimize community health worker programmes* (3) outlines the measures needed.

Where do we stand currently?

Progress has been made through global leadership, resourcing and commitment; through advances in medicine; and through staunch and unremitting action and advocacy by communities. This progress has been uneven across regions, population groups and interventions.

- Evidence-informed **HIV** prevention, testing and treatment programmes – with committed global support – have accelerated progress, **but infection rates are far higher than targets**. 1.7 million people became infected with HIV in 2019 (4).

- **Tuberculosis** remains a leading global cause of death. Despite an overall reduction in infection rates, **there remain large gaps in detection and treatment. Though TB rates for men are higher than for women, detection and reporting rates in most** WHO regions are lower, due to lower care-seeking (5).
- Steady gains have been made in fighting **malaria, but progress has stalled for several years.** Though incidence fell between 2010–2014 from 71 to 57 cases per 1000 among at-risk populations, rates over the subsequent 4 years have remained steady (6).

Accelerating effort requires harnessing advances in medicine that have yielded improved diagnostic and treatment tools and a better understanding of preventive measures. It also requires a health workforce that is trained, equipped, supported, culturally acceptable and present in communities.

What guides the ambition to address the three diseases?

TARGET 3-8



In 2015, global leaders committed to achieving a set of Sustainable Development Goals (SDGs) by 2030. Among these, Goal 3 aims to ensure healthy lives and promote well-being for all at all ages, which includes targets to end the epidemics of acquired immune deficiency syndrome (AIDS), TB, malaria and other communicable diseases and to achieve universal health coverage (UHC), including financial risk protection, access to quality essential health-care services, and access to safe, effective, quality and affordable essential medicines and vaccines for all.

The WHO Constitution identifies health as a fundamental human right. In 2019, at the United Nations High-Level Meeting on universal health coverage, countries reaffirmed their commitment to achieving UHC and the 2030 Agenda for Sustainable Development through a comprehensive approach that leaves no one behind, reaches those furthest behind first, and emphasizes the importance of health across all Sustainable Development Agenda goals and targets.

WHO Member States affirmed the need for political commitment and financing and identified addressing AIDS, TB and malaria as key focus areas. The *Primary health care on the road to universal health coverage: 2019 monitoring report (1)* welcomes this political commitment to: accelerating progress in areas that have seen improvements; removing barriers to accessing health services; and reducing financial hardship when accessing essential health care.

What support is available?

WHO country and regional offices are available to assist ministries of health to better define and strengthen CHW programmes and to work to integrate them in a coordinated and sustainable manner. This implementation guide should be used as a primary assessment point, followed by coordinated planning, implementation and continuous evaluation and improvement.

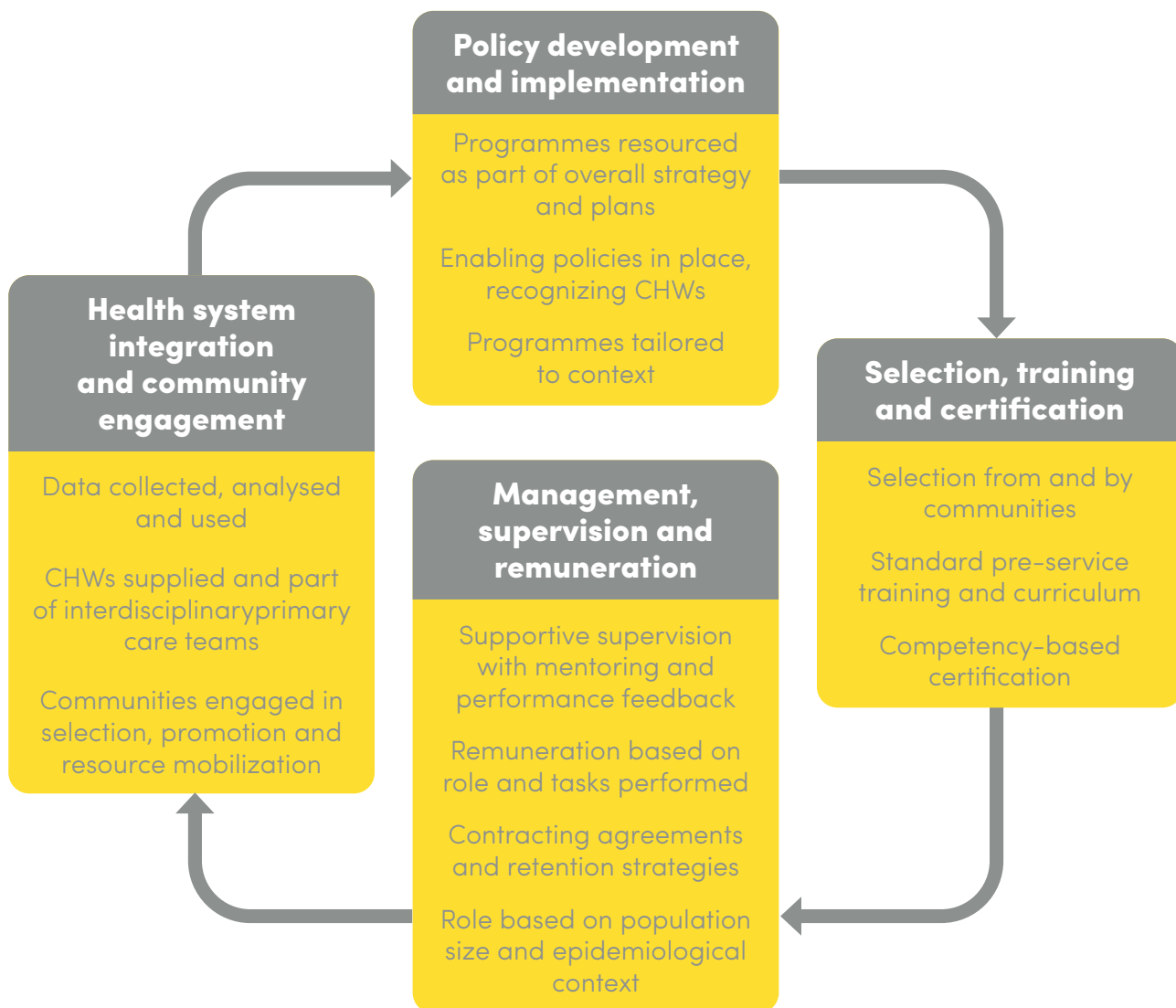
Figure 1. HIV, TB and malaria services for which there is evidence of CHW effectiveness

Selection from communities (including key populations)		
Standardized training curriculum including service package, health system links, interpersonal skills		
HIV	Tuberculosis	Malaria
Prevention & Health promotion		
Delivery of health information; education on preventive measures and harm reduction		
Provide advice and information to groups at high risk of infection		
Distribute preventive commodities		
Condoms, lubricant, needles, syringes		insecticide-treated bed nets, seasonal malaria chemoprevention, mass drug administration
Provide specialized information for pregnant women		
Use adolescent-friendly approaches to sexual and reproductive health education	Conduct behaviour change communication and community mobilization	Deliver intermittent preventive treatment to pregnant women
Provide counseling, advice and information, including use of pre-exposure prophylaxis, safer sex and injection practices	Lead local advocacy activities	Promote vector control activities
Promote health-seeking activity and early treatment		
Case identification & testing		
Provide simple point-of-care rapid diagnostic testing		
Collect samples for laboratory testing, communicate test results and provide referrals to prevention, treatment and care services		
Increase access to and uptake of HIV testing	Refer community members for diagnosis	Within integrated community case management, identify and refer children with severe malnutrition
Discuss voluntary disclosure and conduct partner notification		
Conduct active case finding and contact tracing		
Treatment & care		
Clinical support services, including triage, assessing clinical symptoms, screening for and recognition of co-morbidities		Administer artemisinin-combined therapy (ACT)
Improve linkage to and initiation of treatment, encourage adherence and enhance treatment outcomes		
Counsel patients on benefits and risks of ART and dispense routine ART between clinical visits	Initiate and provide treatment for TB; support care for co-morbidities	Manage malaria cases
Support transition into differentiated care, including providing multi-month refills	Provide TB/ART co-treatment for patients with sputum-positive pulmonary TB	Conduct iCCM for malaria, pneumonia and diarrhoea among children under 5 years of age: administer pre-approved medications and antibiotics
Conduct clinical monitoring	Conduct TB activities within HIV programmes	
Recognize drug side-effects and treatment failure; refer and, at times provide, enhanced adherence support		
Advise on home care, perform home visits and provide palliative care		
Support services		
Enhance emotional support and provide lay counselling and peer support groups		
Encourage enrolment in specific HIV/TB programmes, services and support groups		
Provide home-based palliative care		Advise on home care
	Provide psychosocial support for multidrug-resistant TB	Perform home visits and stay informed about mothers and children
Manage drug supply logistics, including monitoring for stock outs and expiration		
Conduct cross-cutting education and counselling to address stigma and discrimination		
Coordinate social and livelihood support (including food supplementation)		
Manage patient records		
Collect and use data and conduct surveillance activities		
Health system integration, including as part of interdisciplinary primary care teams		
Data collection and analysis used to inform strategies, decision-making, surveillance		
Community embeddedness: community selects, accepts, promotes services, support, and expects feedback		

Practical, blended training, conducted close to the community, with formal competency-based certification
 Appropriate role definition and workload, relative to population size and epidemiological burden
 Remuneration appropriate to roles, tasks and hours worked, with contracts for full-time CHWs

Adequate, consistent supplies, integrated in the overall supply chain
 Supported through routine supervision, mentoring and performance feedback
 Health needs and target populations identified

Figure 2. Support to optimize community health worker programmes



1. Introduction

- In 2019, 24% more people were living with HIV; there were 23% fewer new HIV infections and **39% fewer deaths annually** than in 2010 AND **39% fewer new diagnoses and 51% fewer deaths annually than in 2000** (4).
- Every day, over 4000 people die from tuberculosis (TB) and nearly 30 000 people fall ill with the disease, **but since 2000, 58 million lives have been saved from TB** (5).
- There were an estimated 219 million cases of malaria and 435 000 related deaths in 2017, **but between 2000–2017, malaria deaths were reduced by 60%** (6).

The past two decades have seen unprecedented progress in fighting HIV, TB and malaria, although a further acceleration is required to achieve national and global goals. Progress has been uneven across regions, population groups and interventions. Achieving the ambitious goals of the Sustainable Development Agenda requires leveraging lessons learned and scientific progress, including efforts to scale up cost-effective approaches that reach key populations through wider primary health care (PHC) and health systems strengthening strategies, and ensuring adequate levels of domestic funding, complemented, where required, by development partner support.

This document is rooted in the principle that people affected by these three diseases require services delivered that adhere to quality of care and patient safety standards. It provides guidance on which interventions can be effectively provided by community health workers (CHWs) in prevention, promotion, testing, treatment and care, and retention and support services for HIV, TB and malaria (**Sections 2, 3, 4**). It also covers how to design, implement and optimize CHW programmes, as part of broader health workforce strategies, that are acceptable to communities and embedded in a sustainable health systems agenda (**Sections 5 and 6**). Finally, it outlines key knowledge gaps to be addressed through further research (**Section 8**).

2. HIV prevention, testing, treatment and care services

Community health workers provide HIV services in many contexts and play a vital role in achieving HIV targets in national plans, as well as advancing progress on ambitious global 90–90–90 and 95–95–95 targets. Evidence from a breadth of socioeconomic settings establishes a range of HIV activities in which CHWs effectively and cost-effectively provide people-centred quality care, including promoting disease prevention and distributing preventive commodities; increasing access to and uptake of HIV testing; enhancing emotional support; increasing treatment initiation, adherence and retention in care; linking people with HIV to health systems; enhancing dignity and quality of life for people living with HIV; dispensing ART between clinical visits; and amplifying preventive and promotive messages (**Table 2.1**).

HIV services should be adapted across the prevention, testing, treatment and care cascade, to reflect the needs, preferences and expectations of various population groups and people living with HIV, while also reducing unnecessary burdens on the health system. The CHW role has expanded with the implementation of “test and start” policies, advancement of differentiated care models and decentralization of HIV services like community-based ART distribution. Though HIV care starts at the health facility, most care for those who are not sick takes place in the home and the community (7). CHWs are key providers of primary care services in many communities and, as HIV services are integrated into PHC, represent in some contexts the most appropriate workforce to deliver community-based services.

Prevention, which is fundamental to ending HIV, often begins at community level. Community health workers conduct education and counselling on HIV, safer sex practices, condom demonstration and injection practices, as well as distributing preventive commodities like condoms, lubricant, needles and syringes. Adolescent-friendly approaches should be used when providing sexual and reproductive health (SRH) education, counselling and HIV information, including to girls of childbearing age (8, 9). Advising groups at high risk of exposure to HIV should include harm reduction practices. Community health workers can recommend pre-exposure prophylaxis (PrEP) for people at high risk of exposure.

There is clear evidence showing the effectiveness of CHWs in increasing uptake of HIV testing. National policies should be revised or updated as necessary to allow trained and supervised CHWs to provide HIV testing services using rapid diagnostic tests (RDTs) (10). In non-laboratory settings, CHWs can perform sample collection, including blood, oral fluid, finger/heel stick, and simple point-of-care testing (11). Evidence now supports appropriately trained and supported CHWs performing point-of-care CD4 cell count, cryptococcal antigen testing, and urine LF-LAM testing at peripheral sites. Subsequently, relevant samples are shipped or delivered to laboratories, and CHWs can collect results from the laboratory, communicate those test results and perform intensified post-test and follow-up counselling (10). Community health workers can demonstrate, deliver and help clients with post-test support for linkage to prevention, care and treatment services. They should offer appropriate repeat testing to those who receive negative results and promote self-testing.

Community health workers play a central role in accessing and providing services to key populations who may not use the formal health system due to financial, access or political-cultural barriers. Evidence links interpersonal relationships between CHWs and patients as a factor in retaining people in care; ART adherence; and uptake of health education, counselling and outreach activities (10). For example, CHWs who are members of a community play an important role in HIV partner notification, a confidential and voluntary process that involves asking people diagnosed with HIV about their sexual partners or drug-injecting partners and, with the consent of the HIV-positive client, offering voluntary HIV testing to the partners (12).

In clinical settings, optimizing the distribution of roles and tasks can contribute to streamlining patient waiting times and can reduce other health worker burdens without sacrificing quality of care. Trained and supervised CHWs, while not a substitute for higher level health professionals, can improve clinical service delivery.

Viewing HIV services through a chronic disease lens and ensuring sustainability of client-centred delivery requires long-term disease management approaches that maintain viral suppression. As national programmes expand the use of CHWs delivering HIV services, a clear understanding and articulated expectations of responsibilities for HIV will enable performance and impact.

Table 2.1 HIV services that CHWs can provide effectively

HIV PREVENTION (13)
<p>Basic</p> <ul style="list-style-type: none"> ■ Provide information materials and educate on HIV and safe sex or injection practices. ■ Distribute prevention commodities (condoms, lubricant, needles, syringes). ■ Educate and counsel on sexual and reproductive health (SRH), including on sexually transmitted infections.
<p>Pregnant women (10)</p> <ul style="list-style-type: none"> ■ Counsel mothers on infant feeding options and interventions to reduce transmission risks. ■ Advise and counsel on family planning, safer sex and network testing. ■ Promote antenatal care. ■ Provide active follow up of mothers and infants.
<p>Use of pre-exposure prophylaxis (PrEP) (14)</p> <ul style="list-style-type: none"> ■ Provide information about PrEP and where to access it. ■ Assess type of exposure for risk of HIV infection. ■ Identify special considerations in cases of sexual violence, including referral to post-rape services.
<p>Use of post-exposure prophylaxis (PEP) (14)</p> <ul style="list-style-type: none"> ■ Provide information about PEP, including discussing risks and benefits. ■ Recognize people at high risk of continuous/frequent exposure to HIV. ■ Manage self-limiting side-effects of antiretroviral (ARV) drugs. ■ Support adherence. ■ Provide counselling and support, and refer to formal psychological counselling as needed. ■ Refer for gender-based violence, rape or PEP services.
<p>Specific population groups (e.g. men who have sex with men [MSM], sex workers, people who inject drugs, transgender populations and people in prison settings) (14)</p> <ul style="list-style-type: none"> ■ Educate and advise on HIV prevention, including sexual prevention (condoms and lubricants), PrEP sexually transmitted infection management, prevention of mother to-child transmission, and harm reduction for people who inject drugs (needle/syringe programmes and naloxone distribution). ■ Encourage enrolment in specific HIV programmes, services and support groups. ■ Discuss voluntary disclosure and encourage partner, index case, social network or family testing. ■ Recognize needs for referral and support engagement in other services like mental health and family planning or contraception.

HIV TESTING (11, 14)

- Provide health education/information and recommend/offer HIV testing.
- Conduct simple point-of-care testing.
- Ship relevant samples to laboratory and collect results.
- Communicate HIV/test results post-test counselling.
- Encourage and offer HIV testing for sexual partners, drug-injecting partners and social networks, children and other family members (through partner services, index testing and social network testing).
- Discussing voluntary disclosure.
- Demonstrate, deliver and help clients with post-test support for linkage to prevention, care and treatment services.
- Offer appropriate repeat testing to people who test negative.
- Promote self-testing (12, 15).

Country examples can be found in Annex 3 of the WHO *Consolidated guidelines on HIV testing services* (15).

CLINICAL MANAGEMENT OF HIV (12)

Patient visit and clinical review

- Register patients and triage health worker consultations.
- Take vital signs.
- Assess clinical signs and symptoms.
- Assess pregnancy status, family planning and HIV status of partners and children.
- Register results and fill in laboratory result forms.
- Provide psychological support and counselling.

Support the management of specific opportunistic infections and other co-morbidities

- Screen for and provide health education on chronic disease co-morbidities (hypertension, diabetes, chronic obstructive pulmonary disease).
- Provide appropriate primary or secondary antimicrobial prophylaxis.

Specific co-infections

- TB: conduct TB screening, including cough and other signs and symptoms (see Table 3.1 within HIV programmes, for key roles), and refer people with TB symptoms for diagnosis.
- Viral hepatitis: perform rapid test for hepatitis B virus infection and hepatitis C virus infection.
- Recognize signs and symptoms of liver disease and advise relevant diagnostic tests.
- Recognize common side-effects of drugs for treating HIV and common co-infections.
- Monitor effectiveness of treatment response.

TREATMENT SUPPORT

Treatment

- Improve linkage to treatment.
- Support treatment initiation.
- Maintain patient outcomes, including treatment adherence.

Antiretroviral therapy (14)

- Counsel patients on benefits and risks of ART and importance of adherence.
- Explain food/other diet restrictions where needed.
- Recognize the potential for drug-interactions with other medications or substances, including food supplements and traditional medicine products.
- Manage registration and file maintenance.
- Complete paper and electronic medical records.
- Distribute prescribed ARV routine refills at community or facility level, including pre-packs.

Adherence support (10, 11)

- Conduct self-reported adherence checks and organize and convene facility ART clubs.
- Provide health talks, education and support.
- Support transition into differentiated care models, including providing multi-month refills.
- Provide enhanced adherence counselling and support.
- Active and passive tracing of clients who are lost to care.

Clinical monitoring (10)

- Take vital signs.
- Collect finger/heel stick blood samples for viral load testing and/or CD4 cell count.
- Order viral load tests and/or CD4 cell count where viral load is not available.
- Prepare and ship dried blood spot specimens.
- Conduct simple point-of-care testing.
- Collect results from laboratory.
- Communicate viral load results to clients.
- Ask clients to present to facility for detectable viral load results.

Management of treatment failure (10, 14)

- Recognize self-limiting ARV drug side-effects and encourage clinic visits where necessary.
- Recognize treatment failure from clinical symptoms.
- Refer for, and at times provide, enhanced adherence support.
- Order additional tests for treatment failure suspects.
- Collect blood samples or dry blood spots for drug sensitivity testing.

CROSS-CUTTING: EDUCATION AND COUNSELLING, STIGMA, DISCRIMINATION

- Increase HIV knowledge in the community, thereby reducing HIV-related stigma.
- Improve family support.

Patient record and data management

3. Tuberculosis prevention, diagnosis, treatment and care

Tuberculosis remains a leading global cause of death from a single disease agent, with most new cases occurring in low- and middle-income countries. The WHO *Global tuberculosis report 2019* (5) highlights that, despite successes, there are still large and persistent gaps in detection and treatment, including human rights and gender barriers. Community health workers are a key component of human resources for health (HRH) strategies to tackle and control the TB epidemic, engaging and involving affected persons and communities, and integrating prevention and care services for the disease with relevant community-based health and development activities.

Community-based care is an acceptable, effective and cost-effective approach to deliver TB services, when implemented as part of a national TB control programme (16, 17). Community health worker interventions can contribute to finding missing people with TB and to improving TB treatment outcomes, and eventually contribute to decreasing TB incidence, burden and costs (14, 17) through: stigma reduction, awareness raising of TB signs and symptoms, and psychosocial support (18); improving early case finding and notifications, and treatment support (19); and household contact tracing, preventing transmission, and facilitating access to TB services, including referral of persons with presumptive TB.

Community health worker programmes should recognize human rights factors that influence vulnerability to TB, detection and access to treatment. TB is a disease of poverty: unsanitary living conditions, overcrowding, inadequate ventilation and poor nutrition increase transmission. Community health worker programmes can help overcome issues related to stigma, discrimination and exclusion through outreach, peer and community support for treatment adherence, and training on human rights issues. Men are more likely to contract and die from TB, due to occupational working conditions and lower detection and reporting. Conversely, women may have less access to prevention and treatment services, as their health may be considered in some contexts to be less worthy of investment (20). As trusted community agents, CHWs can impact and help address these barriers and imbalances.

Case example: Côte d'Ivoire

Facing a deficit of TB diagnosis and treatment facilities, a decision was made to decentralize and scale up TB service coverage. The ENGAGE-TB approach included a situation analysis, development of operational guidelines for community activities and CHW training. Community health workers conducted suspected case referral, awareness raising, home visits, sample collection and transport and treatment adherence support. Within 1 year, treatment outcomes increased from 81% to 83%; case detection by CHWs increased from 12.5% to 23.4%; and detection rates by CHWs among key populations increased from 37% of total cases to 63.4% (21).

TB should be addressed not only as a disease but as a more comprehensive socioeconomic and community problem (16), noting that poverty and lack of food and nutrition provide ideal conditions for this infectious disease (22). Where possible, CHW programmes should integrate TB services with community-based work and in other disease programmes, including HIV – where TB is the most common opportunistic infection for people living with HIV, causing one in three HIV-related deaths (10). The ENGAGE-TB approach (23) highlights areas where CHWs working in HIV programmes can play a role in strengthening approaches to identification, diagnosis and referral of people with TB symptoms (see **Table 3.1**). While CHWs do not perform the full range of services in all contexts, task-sharing approaches

within interdisciplinary PHC teams can be considered. As addressed further in **Chapter 5**, it is critical that CHWs are given appropriate competency-based training, supportive supervision and management.

Table 3.1 TB services that CHWs can provide effectively (23)

COMMUNITY OUTREACH (19)
<ul style="list-style-type: none"> ■ Raise awareness and reduce stigma and discrimination. ■ Conduct household contact tracing and investigations. ■ Provide psychosocial support for persons with TB and MDR-TB. ■ Conduct behaviour change communication and community mobilization. ■ Refer people with presumptive TB for diagnosis of TB and related diseases. ■ Lead local advocacy activities
TESTING, TREATMENT SUPPORT, SUPPORT SERVICES
<ul style="list-style-type: none"> ■ Screen for TB and TB-related morbidity (HIV counselling and testing; diabetes screening), including through home visits. ■ Facilitate access to diagnostic services (e.g. sputum/specimen collection and transport, accompanying persons with presumptive TB to diagnostic services).
<p>Treatment support</p> <ul style="list-style-type: none"> ■ Improve treatment outcomes (increasing numbers cured; reduced loss to follow up). ■ Initiate and provide TB prevention measures (TB preventative therapy, TB infection control). ■ Provide treatment and support to persons undergoing treatment for TB and co-morbidities.
<p>Support services</p> <ul style="list-style-type: none"> ■ Deliver treatment adherence support through peer support, education and individual follow up. ■ Coordinate social and livelihood support (e.g. food supplementation, income-generation activities). ■ Provide home-based palliative care for TB and related diseases.
WITHIN HIV PROGRAMMES
<ul style="list-style-type: none"> ■ Provide TB preventative therapy. ■ Identify TB-related symptoms like cough, fever and/or weight loss. ■ Provide TB/ART co-treatment to the those co-infected with TB and HIV. ■ Monitor TB treatment response (clinical and laboratory). ■ Recognize side-effects of TB and/or HIV medications and encourage/assist consultation or clinic visits when necessary. ■ Educate clients on TB when they attend HIV care services. ■ Use tailored TB/HIV community engagement strategies to address TB/HIV stigma, and to promote cough hygiene, TB preventive treatment and HIV prevention, and testing and treatment service availability. ■ Facilitate HIV/TB client referrals, including access to transport between ART site and TB centres, to health clinics that have capacity and resources to accept and treat clients. ■ Provide TB treatment adherence support in HIV settings, including home-based care. ■ Address stigma, encourage care-seeking and identify other relevant support mechanisms. ■ Cross-check data on TB and HIV-referred patients between the TB and HIV services.

4. Malaria chemoprevention, vector control, infection detection and case management

Approximately 70% of the world's malaria burden is concentrated in 11 countries, and children under 5 years of age are the most vulnerable group affected by malaria, accounting for 61% of malaria deaths worldwide (24). To support addressing this burden, CHWs can effectively deliver a range of promotive, preventive and curative interventions as shown in **Table 4.1**. Community health worker programmes can represent an effective approach for malaria diagnosis and treatment, delivering services closer to home and overcoming physical and financial treatment barriers (25).

Community health worker activities can reduce malaria transmission, particularly through maximizing ownership and use of insecticide-treated bed nets (ITNs) and other vector control activities. Community health workers can engage in other preventive activities that can decrease both the incidence and costs of malaria, particularly seasonal malaria chemoprevention (SMC) for children (3–59 months) (26). Community health workers can deliver SMC via the intermittent administration of sulfadoxine-pyrimethamine plus amodiaquine to prevent illness in children under 5 in areas with highly seasonal malaria transmission where these medicines are effective. The drug's strict delivery timing, once every 30 days, is best suited to community delivery; community health workers reach each household monthly during the campaign period. Seasonal malaria chemoprevention delivered door-to-door by CHWs can increase coverage compared with SMC delivery via fixed point distribution by health personnel at health centres.

Under specific situations, such as to control epidemics and address complex emergencies, or as targeted deployment in areas approaching elimination, CHWs also can conduct mass drug administration (MDA) campaigns, where they administer antimalarial medicines, irrespective of the presence of symptoms or infection, to a defined population living in a defined geographical area (27). The mass distribution of medicine should occur at approximately the same time for the whole targeted population and then be repeated at set intervals to reduce malaria burden and transmission.

Surveillance, a core malaria intervention and the basis of operational activities in settings of any level of transmission, often involves CHWs in case identification, diagnosis, treatment, active case detection and reporting. Prompt treatment by CHWs of RDT-confirmed, non-severe cases can decrease loss of patients in the referral process. In areas with relatively high caseloads, CHWs may report aggregated data monthly. In elimination settings, they should be capable of immediate diagnosis, treatment and case notification and, when possible, should participate in passive and active case detection and support case and focus investigations. Cases detected by CHWs are considered passive if patients visit a CHW's home for consultation, but active if identified by a CHW at regular visits to patients' houses. Mobile health applications have made it possible to establish efficient surveillance systems involving CHWs (28).

Community health workers can extend access to curative malaria services in remote places with poor access to PHC facilities by providing malaria diagnosis using RDTs and malaria treatment using artemisinin-based combination therapy (ACT), as well as referral of severe cases to health facilities. Integrated community case management (iCCM) is recognized across sub-Saharan Africa as an effective strategy for child survival (29, 30), with CHWs providing access to diagnosis and treatment for childhood cases of malaria, pneumonia and diarrhoea, as well as malnutrition. WHO and UNICEF recommend that national malaria programmes expand iCCM to accelerate progress towards universal access to curative services (29, 30). Integrating treatment of diarrhoea and pneumonia improves the cost-effectiveness of

malaria interventions. WHO guidelines for iCCM and community management of sick children (29, 30) identify nine components of well-functioning health systems to implement maternal child health packages: organization, coordination and policy setting; human resources; supply chain management; service delivery and referral; advocacy and sensitization; community mobilization and promotion of recommended home care practices; supervision and quality assurance; monitoring, evaluation and research; and budgeting, costing and financing.

Table 4.1 Malaria services CHWs can provide effectively (24)

<p>PROMOTION (27, 31)</p> <ul style="list-style-type: none"> ■ Promote vector control activities. ■ Ensure that there is an insecticide treated net (ITN) over each sleeping space in each house and long-lasting insecticidal nets (LLINs) are provided to everyone who stays overnight in the community (e.g. potential imported cases). Distribute LLINs and ITNs.
<p>PREVENTION (25, 27, 31)</p> <ul style="list-style-type: none"> ■ Deliver seasonal malaria chemoprevention (SMC) in eligible communities (25). ■ Counsel communities on malaria prevention, case detection, early treatment and improving health-seeking behaviour. ■ Provide health education about malaria complications, prevention and treatment.
<p>INFECTION, DETECTION (28)</p> <ul style="list-style-type: none"> ■ Conduct case detection, diagnosis with RDTs and administer treatment, including passive detection, when community members make home visits for fever management and active detection. ■ Report cases to health facilities, either through monthly reporting or proactive detection and referral.
<p>CASE MANAGEMENT (24)</p> <ul style="list-style-type: none"> ■ Manage malaria cases: assess fever, perform RDTs, dispense ACT and counsel patients. ■ Refer severe cases and accompany patients to the health facility.
<p>INTEGRATED COMMUNITY CASE MANAGEMENT (25, 28, 29, 30)</p> <ul style="list-style-type: none"> ■ Use RDTs to diagnose malaria. Administer ACT to children with positive RDTs. Counsel on when to return. ■ Use respiratory timers to diagnose pneumonia and administer amoxicillin to children with pneumonia. ■ Administer oral rehydration solution to children with diarrhoea. ■ Identify danger signs, give pre-referral treatment (e.g. rectal artesunate), and refer children with severe febrile illness, severe pneumonia or diarrhoea with severe dehydration to health facilities. ■ Identify and refer children with severe malnutrition or other problems that need medical attention to a health facility. ■ Advise on completion of treatment at home and prevention of illness. ■ Manage drug supply logistics, ensuring that no drugs are expired or out of stock.
<p>DATA AND EVIDENCE (25, 29)</p> <ul style="list-style-type: none"> ■ Provide surveillance information about malaria morbidity and mortality, as well as pneumonia, diarrhoea and malnutrition, when involved in iCCM.

5. Support to optimize community health worker programmes

5.1 Policy development and implementation

Community health worker programmes should be aligned with and part of broader national health and health workforce policies, and resource allocation mechanisms. Ministries of health should clearly identify the system level and programmatic areas that anchor the CHW programme, whether in HRH, community health, or within or interlinked with programmes that address one or more of the three diseases. As relevant, CHW programmes should also be linked with national education, labour, finance and community development sectoral or sub-sectoral policies and frameworks.

As a starting point, CHW strategies can be developed to facilitate harmonization and alignment. However, these should be embedded quickly into national HRH policies that consider CHWs as part of the health workforce and address their labour rights. The WHO CHW guideline recommends institutionalizing CHWs through policy and defining at individual country or jurisdiction level the services they can provide and the medications they can safely deliver.

In tailoring strategies to country contexts, ministries of health should consider which interventions to prioritize and, within overall HRH planning, which roles CHWs can play as part of integrated primary care teams to contribute to overall health objectives. Similarly, development partners involved in funding programme implementation should ensure WHO CHW guideline recommendations are incorporated into their grant agreements, planning, discussions with ministries of health and implementation.

The policy options recommended by WHO in the CHW guideline have considerable cost implications and require long-term dedicated financing, which in turn requires political will. Countries at all levels of socioeconomic development have demonstrated the feasibility of prioritizing investments in large-scale CHW initiatives. Overall, CHW programmes should be viewed not as costs, but as investments in health outcomes, employment, equity and economic development.

5.2 Selection, training and certification

Human resources for health strategies and plans should include adequate resources to train, supervise, monitor and evaluate CHWs to provide promotive, preventive and curative services, across multiple diseases and interventions. This requires evidence-based models for selecting, training and certifying; managing and supervising; embedding CHWs into health systems; and ensuring the support by and integration within communities.

The performance of CHW programmes can be optimized by adopting evidence-based policies on selection, training – including duration, competency-based curriculum and delivery modalities – and certification of CHWs. There is a need to ensure the inclusion of relevant competencies for the three diseases in pre-service education curricula, in-service training activities and licensing requirements.

Selection of CHWs should follow criteria related to basic level of education and personal capacities and skills. It is important to recruit CHWs from rural communities and underserved populations who are more likely to provide services acceptable to those communities and practise in these areas post-training.

This approach also expands education and employment opportunities in disadvantaged areas. It is also important to consider community membership to identify candidates in a certain geography and/or disease community. For instance, people living with HIV or “TB-experienced people” (cured TB patients or TB-affected individuals) (32) know what it is like to be infected, undergo treatment, live with the challenges and communicate the benefits of seeking health services. Selecting these individuals from key populations for training as treatment adherence supporters may increase equity and acceptability (19).

When considering pre- and in-service training, programmes should strive for integrated training related to HIV, TB and malaria, together with related interventions such as iCCM and reproductive, maternal, newborn, child and adolescent health (RMNCAH) services. However, where epidemiological needs require it, CHWs can be trained to deliver disease-specific interventions.

Pre-service and in-service training to develop these capacities should be standardized and aligned with national training packages and delivery mechanisms. Evidence also shows that delivering pre-service training that includes behaviour change communication, community engagement strategies and competencies, stigma reduction, and counselling skills can increase case detection, as well as trust between CHWs and communities (33). Through training modalities like role play, CHWs can demonstrate skills acquisition and understand important linkages with other members of the PHC team. Training must balance, however, the logic and efficacy of integrated service delivery with the capacities, skills and learning abilities of individuals selected from and by the communities to perform various roles. Activities and knowledge taught through classroom learning and clinical practice must be fully supported and reinforced when CHWs are deployed. Community health worker supervisors also should receive standardized training on intervention packages, as well as management to achieve quality outcomes.

The optimal design of CHW programmes should include mechanisms for competency-based certification, i.e. a formal recognition that CHWs have completed the required pre-service education and have learned and can demonstrate the competencies needed to perform the tasks for which they have been trained. Also, this can provide the basis for future training and be used as evidence to meet admission criteria for future training. Additionally, the benefits of certification can include increased motivation and self-esteem of CHWs, respect from other health workers and legitimization in the eyes of communities.

5.3 Management, supervision and remuneration

Management, supervision and adequate remuneration are essential to delivering quality health interventions and improving HIV, TB and malaria outcomes, and to ensuring decent work and increasing qualified employment opportunities for members of key populations and vulnerable groups. Countries should model CHW human resources management functions on those used for other health workers and/or on international benchmarks and good practice. Streamlining these approaches supports quality work and reinforces links between CHWs, key populations, communities and health systems. Acute challenges in this area include inadequate resources and time for supportive supervision; inadequate, irregular or non-existent remuneration of CHWs; and low motivation and retention.

Supportive supervision reinforces skills through timely and regular performance feedback. National CHW programmes should provide standard tools like supervision checklists and job aids. Community health worker programmes should identify how appropriate supervisor-CHW ratios will be resourced, including through supervisor training, time allocation to perform duties and physical or financial resources for travel. A clear accountability structure should be established between supervisors, CHWs and the community. Establishing end-user feedback mechanisms can improve performance and accountability and contribute to community system strengthening.

Case example: South Africa

In South Africa, a pictorial-based TB booklet was provided to CHWs to reinforce knowledge and facilitate patient counselling. After three months, overall CHW knowledge increased from 70.6% to 85.3% and CHWs reported using the booklet during patient communication and education. When combined with supervision and training, pictorially enhanced written information can improve CHW practice and strengthen patient communication by guiding CHWs and thus promoting adherence with guidelines (18).

Remuneration for CHWs should be based on and contextualized within an overall health labour market analysis. Financial packages for CHW remuneration should be aligned with job demands, complexity, hours worked, training and roles undertaken, and be harmonized across all national CHW programmes, including those managed by nongovernmental organizations (NGOs) and civil society organizations (CSOs), to avoid skewing efforts toward higher remunerated tasks or disease programmes and away from equitable service distribution.

While CHWs should receive financial packages commensurate to roles undertaken and skills, national budgets may be insufficient in the short term in some low-income countries and challenging operating environments to cover basic recurrent costs. To retain balance across disease programmes, CHW remuneration should be harmonized across employers – government as well as NGOs and CSOs – that are important to provide services to key populations. Consideration should also be given to other ways to motivate health workers, including adequate supervision from health facility staff, access to in-service training and potential career ladders, and improving working conditions.

Case example: Liberia

In Liberia, a one-year demonstration project built upon the existing community health volunteer programme showed that the addition of systematic supervision, monetary incentives and inclusion of CHW commodities and medicines in the national supply chain system increased overall treatment rates. The project informed the national Community Health Assistant Program, which aims to recruit, train and support more than 4000 CHWs and 400 supervisors by 2020 across all 15 counties to provide health care services to the roughly 1.2 million people (29% of the country's population) living more than 5 km from a health facility (33).

Case example: Eswatini

Analysis of the donor-supported health workforce inventory and mapping in Eswatini revealed opportunities for harmonizing training and in remuneration policies across development partners, and to align them with government policies. Work is under way to align these elements of the CHW programme, including converging towards a common adoption of government salary scales (34).

5.4 Health system integration and community engagement

Supervision and the regular provision and replenishment of consumable supplies are two ways that CHW programmes link with the health system. While regular contact with supervisors can facilitate health facility readiness to accept referrals, emphasis also must be placed on including consistent and adequate medicines and other consumables needed by CHWs to perform their work within national supply chains. Evidence shows that access to diagnostic tests, medicines and commodities for the three diseases is critical to effective CHW delivery; stock outs can negatively affect credibility and community confidence.

Planning is critical for the deployment of appropriate types of CHWs that can best support service provision to adequately meet population needs. Planners and managers of CHW programmes should calculate time

requirements based on health service(s) to be delivered, target population, disease burden and population accessibility to identify CHW requirements. While polyvalent CHWs delivering integrated services across the three diseases and for related conditions should be the starting point in most settings and circumstances, more specialized learning pathways and scopes of practice may be considered in some contexts to address specific disease needs. Community health worker knowledge, capacity and skills must be considered, however, with critical attention to overtasking and overburdening.

Community health workers can also be a valuable resource of data and should be included in routine data collection to inform service delivery improvement. Data collection and use must be appropriately conceptualized and consider potential sensitivities, especially for HIV and TB services. People living with HIV include high-risk populations that may have concerns about data collection and confidentiality, such as MSM, sex workers, migrants, and alcohol and substance users. Specific training and guidance should be designed for CHWs and communicated to target populations. Data also must also be shared with communities to initiate discussions on service quality and delivery.

Community health workers can play an important role in facilitating linkages to care at the facility level, as well as to other community resources like food security interventions, government grants and social welfare support, income-generation activities and succession planning. They can also help people link to community-based organizations, which play a significant role in raising HIV, TB and malaria awareness at the community level. Representatives from geographic and key population communities have been key to identifying population health needs, appropriate outreach strategies, creating demand, reducing stigma and discrimination and increasing uptake.

Case example: Costa Rica

In its HIV programming, Costa Rica has engaged community members from key populations, including MSM and transgender people, to develop and implement sustainability and transition plans that ensure continuity of HIV services. The plans aim to reduce human rights-related service barriers and inequities by delivering programming through community key population organizations (34).

Case example: Ethiopia

A pilot programme in Ethiopia, designed to reduce loss to follow-up and developed after discussions with key stakeholders, including local public health officials, HIV clinicians, community leaders and people living with HIV associations, used specific recruitment processes to select and train HIV-positive individuals as community health support workers to provide HIV and health education, counselling/ social support and facilitate communication with HIV clinics. Over 12 months, the retention rate (including seven deaths and three transfers) was 94% with no clients lost to follow-up (35).

6. Integrating community health worker programmes within the broader health workforce

Ending HIV, TB and malaria relies on health systems that deliver integrated, people-centred health services that address barriers to access and prioritize providing services to key populations. Programme design should identify approaches that are integrated across disease programmes at all levels of the health system, including governance, financing, systems management and service delivery.

Community health worker programmes increasingly should be incorporated into the broader health workforce, as the CHW occupational group needs to be rationalized within the broader system. As a starting point, a health labour market analysis should be conducted to assess CHW acceptability and relevance. This includes an assessment of the scope and scale of the CHW programme, how CHW functions can be rationalized within the PHC team, and a trend analysis of the resources required to support the programme compared with available fiscal space. Stakeholders that should be consulted as part of this process include members of key populations living with the three diseases, community organizations and leaders, NGOs and CSOs, the private sector, HRH and disease programmes and other ministries, including finance, labour and education.

Embedding CHW programmes in health systems and aligning them with broader national health and health workforce policies and disease programmes is essential for quality service delivery and system strengthening. CHW programmes also should be linked with national education, labour, finance and community development sectoral or sub-sectoral policies and frameworks, as relevant. National programme managers should use a combination of CHW policies and related interventions based on the objectives, context and architecture of each health system. Similarly, development partners involved in funding programme implementation should ensure that the support provided to CHW programmes is harmonized across development partners and aligned with the national policy frameworks and mechanisms.

Where external resources are required to meet short- and medium-term needs, sustainable planning should envision eventual shifts to domestic funding, including the transition of the CHW recurrent costs to the national wage bill or health budget, as applicable to the circumstances.

7. Conclusion

Strengthening CHW programmes entails adopting innovative and cost-effective strategies to address inequitable distribution and shortages. Support may be prioritized where CHW challenges pose a barrier to the availability, accessibility, acceptability or quality of preventive, diagnostic, treatment and care services for the three diseases. Interventions supported can include strengthening policy-making and implementation capacity; pre- and in-service training, and motivation and retention interventions to improve performance, and in certain contexts, support for CHW remuneration.

Programmes should be designed based on country context, with a long-term vision of implementation and resourcing for maximum impact. Support for CHWs should consider sustainability and align with HRH labour market conditions and health system requirements. To improve efficiency and effectiveness, it is important to consider integration across the disease programmes at all levels of the health system, including governance, financing, systems management, health workforce and service delivery. The starting point should be convening stakeholders to identify health needs, resource gaps and system constraints. Improved quality of care and patient safety standards are essential considerations for improving effectiveness.

Funding requests to support CHW programmes should be based on a health labour market analysis that includes an explicit focus on CHWs, epidemiological needs assessment and an understanding of the national policies on which interventions can effectively and cost-effectively be supplied by CHWs in a given context. Where possible, funding applications should support CHWs who provide quality health services across the three diseases and for other health outcomes, including exploiting synergies with RMNCAH and adolescent health and iCCM, as part of national PHC strategies.

8. Research agenda

Further research can strengthen the evidence base on CHW programmes and their effectiveness, investigating not only what works, but also the contextual factors and enablers (how, for whom, under what circumstances) and broader health system requirements and implications of supporting the implementation of several interventions simultaneously. For example, although evidence exists that broad strategies like competency-based certification, supportive supervision, and payment, are effective, this evidence is not sufficiently granular to recommend specific interventions, such as which education approaches, supervision strategies, or bundles of financial and non-financial incentives, are most effective or more effective than others – and in which contexts.

Similarly, while there is evidence that CHWs can deliver a range of interventions and therefore considering polyvalent CHWs is a starting point, insufficient evidence is available to determine the ideal span of training to support quality service delivery and skills retention. Additional research and evaluation is needed to determine which tools can be used in various settings, as well as optimal ratios for distribution of CHWs in different populations. To accelerate progress against HIV, TB and malaria, a keener understanding and greater body of evidence should inform the most equitable and cost-effective ways to reach key populations and those in remote areas. Digitally enabled innovations, popular among implementers, can be successful enablers of certain management and clinical functions, but must be better understood, particularly in relation to feasibility in a variety of settings, and to cost-benefit analyses.

8.1 HIV

There are feasibility and ethical issues related to CHWs delivering some of the more specialized interventions related to adolescent SRH, including HIV, for which further research is needed (36). Research on service delivery needs of adolescents living with HIV should examine models of delivery at different service levels, including for key populations and pregnant adolescents living with HIV; the integration of SRH in ART services for adolescents; interventions to support safe disclosure; treatment literacy; interventions to address mental health; and the impact of provider training and peer interventions.

8.2 Malaria

Many countries deliver SMC campaign-style by CHWs who bring antimalarial drugs from health facilities to villages over several days. This approach may impose unnecessary time constraints and uses top-up incentives, which may incentivize SMC at the expense of other high-impact interventions like iCCM, which targets malaria in an integrated manner. Additional evidence is needed to evaluate an alternative approach of integrating SMC into routine CHW work. Given that in some countries 20% of external support grants are for SMC, there is a need and opportunity to test non-campaign delivery models that are programmatically, financially and epidemiologically sound (34).

Programme managers and implementers are encouraged to share research, evidence and data and to seek relevant partnerships with academia and other organizations to address these research priorities.

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