DESIGN AND EVIDENCE OF COMMUNITY-BASED PRIMARY HEALTH CARE PROGRAMS

UNIVERSITY OF WASHINGTON STRATEGIC ANALYSIS, RESEARCH & TRAINING (START) CENTER

REPORT TO THE GATES FOUNDATION

PRODUCED BY: OSONGO, CIRILUS

ACKNOWLEDGEMENT: MPINGAJIRA, S., PANERU, B., WELUYA, R., & MUKUMBANG, F.

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Department of Global Health | University of Washington

INTRODUCTION

FROM "DO CHWS WORK?" TO "HOW SHOULD THEY BE INSTITUTIONALIZED?"

Countries and global partners are increasingly seeking to institutionalize Community Health Workers (CHWs) as part of primary health care (PHC) and universal health coverage (UHC) agendas. While CHWs have long been recognized as essential for extending services to underserved populations, decision-makers face persistent uncertainty regarding how CHWs programs should be designed, governed, financed, and scaled within national systems. The question is no longer whether CHWs work, but how they can be institutionalized in ways that are both operationally effective and fiscally realistic, and sustainable over time.

This report addresses that question through two complementary lenses. First, we synthesize the global evidence on CHW effectiveness and cost-effectiveness to assess what is known about their health impact and economic value. Second, we examine how CHWs programs have evolved institutionally across selected countries to understand how governance arrangements, workforce models, financing structures, and scope expansion over time.

These lenses are intentionally linked. Cost-effectiveness evidence indicates whether CHWs deliver value relative to alternative delivery platforms, but it does not explain why some programs scale successfully while others stall. Institutional evolution, by contrast, reveals how policy decisions, workforce design, financing alignment, and system integration shape implementation fidelity, supervision quality, deployment density, and resilience over time. By combining economic evidence with country-level institutional trajectories, this report moves beyond isolated intervention results to identify cross-country patterns that inform sustainable CHWs scale.

The report proceeds in three stages:

1) A synthesis of the effectiveness and cost-effectiveness landscape.
2) A comparative analysis of five countries selected for variation in institutional pathways.
3) Cross-country patterns and strategic implications for CHW design, financing, and integration within PHC systems.

These analyses aim to inform pragmatic design and investment decisions for governments and partners seeking to institutionalize CHWs as a durable component of national health systems rather than parallel or donor-driven delivery platforms.

METHODS

To answer these questions, we combined global evidence synthesis with cross-country institutional analysis. The approach involved structured review, economic classification, geographic mapping, and in-depth country case analysis. The steps below summarize the analytic process.

I. **Scope and framing**: We aligned the analysis with the project brief and Gates priorities, focusing on institutionalized CHWs programs within community-based primary health care systems.
II. **Structured evidence review**: We reviewed peer-reviewed and grey literature across low- and middle-income countries, with emphasis on Sub-Saharan Africa and select South Asian settings.
III. **Inclusion criteria:** We prioritized studies examining CHWs scope of practice, workforce models, effectiveness, cost-effectiveness, and financing, excluding purely descriptive or short-term pilot studies without relevance to scale.
IV. **Economic evidence classification:** Economic evaluations were categorized as ICER-based cost-effectiveness analyses, partial cost analyses, or budget impact and affordability studies to assess both value and fiscal feasibility.
V. **Geography and program mapping:** Trials and modeled scenarios were mapped by region and health program area to identify concentrations and gaps in the evidence base.
VI. **Country selection:** From an initial pool of twelve countries, five were selected for in-depth comparative analysis to examine how institutional pathways shape CHWs performance, sustainability, and scale within PHC systems.
VII. **Policy-practice assessment:** For these countries, we compared policy intent with implementation realities across supervision, remuneration, deployment, and system integration.
VIII. **Cross-Country comparative analysis:** We identified recurring institutional, financing, scope expansion, and integration into primary health care systems patterns that informed high-level recommendations for sustainable scale.
IX. **Temporal trend analysis:** We analyzed two decades of economic evaluation methods to assess shifts in evidence generation and to highlight persistent gaps in affordability and fiscal sustainability as countries transition from pilot programs to national scale.

EFFECTIVENESS FINDINGS

We begin with health impact. Across disease areas, CHWs consistently improve coverage, reduce mortality, and strengthen continuity of care. The following summarizes key quantitative findings.

In RMNCH, community based educational interventions have significantly reduced overall neonatal mortality by 13%, early neonatal mortality by 26%, and late neonatal mortality by 46% compared to the control groups[6] 17% reduction in perinatal mortality, while increasing timely breastfeeding initiation by 56% compared to SOC[6], Community health education increased the utilization of ANC by 16%, and clean delivery by over 340% in Pakistan and India[6]

Hypertension control: Net reduction in SBP of 3-6 mmHg (US study) and 4-7 mmHg[7]. In South Africa, a 20% increase in adherence facilitated by CHWs is estimated to lead to a 4-mmHg BP reduction, which translated to a 22% reduction in CHD events and 41% reduction in stroke[7].

Malaria mortality: Pre-referral rectal artesunate administered by CHWs followed by in patient care reduced mortality from severe malaria by 49%[8] . In West Africa, CHW delivery of seasonal malaria chemoprevention (SMC) was associated with a protective effect, though specific percentage reductions vary by location; generally, CHW delivery is linked to high coverage and reduced incidence[1].

Mental health: Community based rehabilitation program decreased seizure frequency by88.8% after 15 months of program in Guinea-Bissau[9].

Epilepsy: A CHW-led intervention in South Africa is projected to result in 90% adherence levels within 2 years, leading to seizure freedom in 60% of patients, and 40% reduction[9].

Neglected tropical diseases (NTDs): ICCM by CHWs reduced diagnostic cost per patient by5-fold ($714 vs 3942), and treatment by 10-fold (1151 vs 13800) compared to vertical programs[4].

Integrated programs: Demonstrated 100% cost-effectiveness in improving service coverage across multiple diseases simultaneously[2].

COST-EFFECTIVENESS FINDINGS

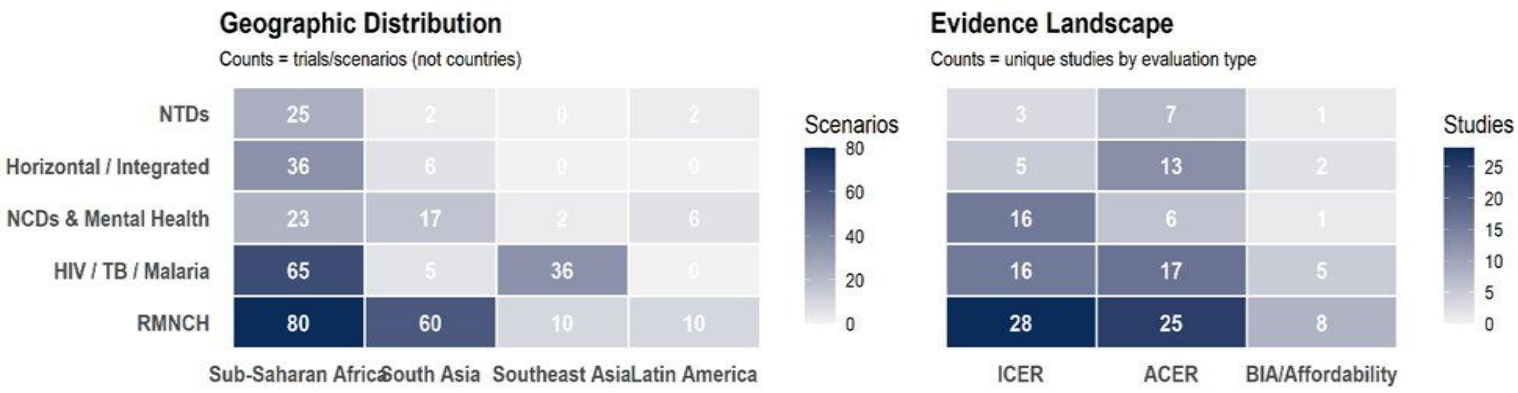
Beyond health outcomes, policymakers require evidence on economic value. We therefore examined the structure and distribution of cost-effectiveness evidence across disease areas and geographies.

Full cost-effectiveness analysis (ICER): Constitute about half (68 studies), followed closely by HIV/TB/Malaria and NCDs[1,3,5]. These evaluations utilize cost-utility analyses (Cost per DALY/QALY) to compare CHWs against facility-based standards of care, consistently finding that CHWs extend the reach of health systems to remote populations more efficiently than alternative delivery channels.

Partial economic evaluations (ACER): Partial evaluations, primarily cost analyses, make up the remaining half of the landscape, and serve as the primary source of evidence for horizontal programs and HIV/TB/Malaria interventions[1,2]. The downside of this evaluations is that they do not link cost to health outcomes, limiting their utility for allocative efficiency decisions.

Budget impact analysis (BIA) and affordability: Evidence regarding affordability remains the most critical gap with only 13% of studies assessing fiscal feasibility of CHWs programs within national budget constraints. Affordability assessment are nearly non-existent in horizontal and NCD domains, leaving policymakers with a "fiscal blind spot"[2,3,5]. This impact data required to scale these programs nationally.

CHWs COST-EFFECTIVENESS EVIDENCE: WHERE IT COMES FROM AND WHAT IT MEASURES



Abbreviations: ICER = Incremental Cost-Effectiveness Ratio; ACER = Average Cost-Effectiveness Ratio; BIA = Budget Impact Analysis.

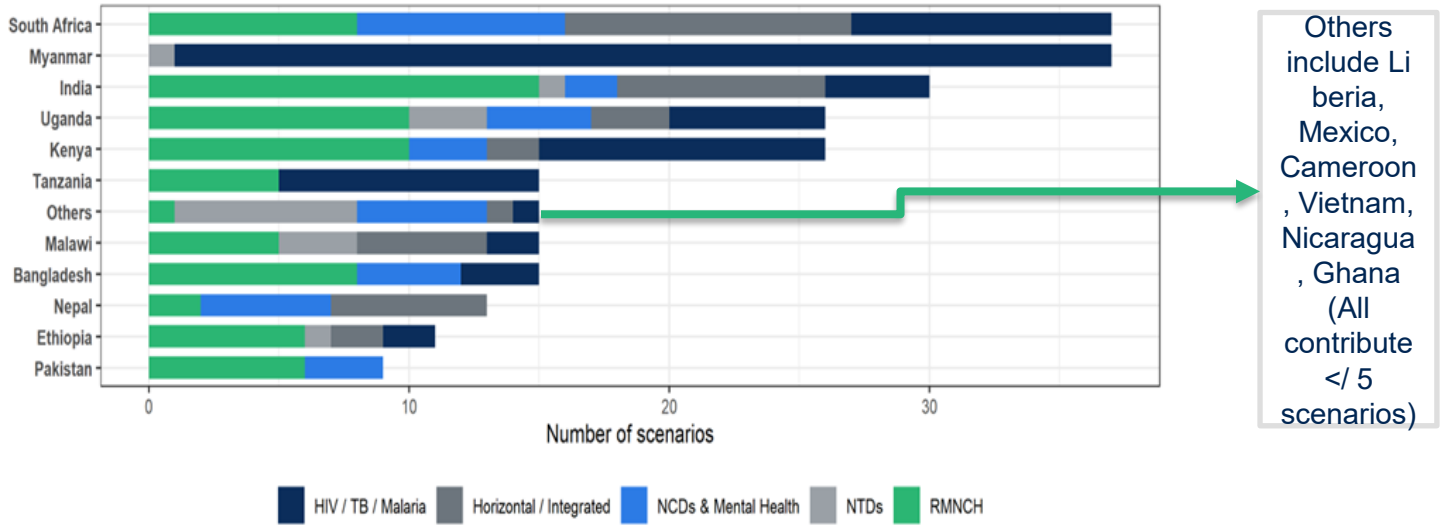
Having examined what CHW programs achieve and how their economic value is assessed, we next examine where this evidence originates and how it has evolved over time.

WHERE THE EVIDENCE COMES FROM

The strength of this evidence varies by geography and health domain. A small number of countries account for a disproportionate share of economic analyses.

Over the past two decades, the economic evidence on CHWs program has been generally unevenly across countries. A small number of settings account for a disproportionate share with SSA providing the most diverse evidence base, covering nearly every health area. While SA are the primary drivers for RMNCH. Myanmar's contribution is 97% concentrated in HIV/TB/malaria modeling[1], whereas South Africa presents a highly diverse portfolio spanning horizontal programs (30%)[2], NCDs (22%)[3], and infectious diseases. India serving as the primary driver for RMNCH evidence, while East Africa deliver substantial multi-disease evidence, focusing on HIV/TB/Malaria, NTDs and RNMCH[1, 4-6].

COUNTRIES DRIVING ECONOMIC EVIDENCE



TEMPORAL TRENDS

ICER: Early period (2004 - 2014)- foundational studies established cost-effectiveness of CHWs for key conditions(Manandhar et al. Trial in Nepal, 2004 & Gaziano et al. Hypertension model in South Africa[7]. Late period (2015 -2024) studies by Wagner et al. Epilepsy study[9], 2020 & Miyares et al. RMNCH review[5], 2026. This shows consistent growth and actively publishing of ICERs to prove CHWs offer value for money
Partial economic evaluations (ACER): Trend show steady and sustained growth. The studies which report "cost per beneficiary" or "cost per service" without a comparator, appears consistently throughout the two decades. High volume of recent partial evaluation (e.g., in the HIV/TB/malaria review[1]) suggest that implementers continue to prioritize operational cost data for budgeting over comparative efficiency
Budget impact analysis (BIA) and affordability: Trend shows this metric is lagging behind/stagnant. While we know CHWs are cost-effective, we increasingly lack current data on whether they are affordable (feasible within current MoH budgets). Miyares et al[5] review found 53 new studies, only 8 assessed affordability and O'Donovan et al[3] NCD review 2014-2024, identified 20 studies, but only one (Finkelstein et al., 2021) providing BIA.

Taken together, the evidence base is strong but uneven — demonstrating value for money while leaving important gaps in affordability and long-term fiscal sustainability.

FROM ECONOMIC EVIDENCE TO INSTITUTIONAL DESIGN

While the cost-effectiveness evidence provides insight into whether CHWs deliver value, it does not explain why some programs scale successfully while others stall. To understand sustainability, we turn to institutional evolution, examining how governance, workforce design, financing alignment, and supervision structures shape performance over time.

While the preceding section examined whether CHWs deliver health impact and economic value, sustainable scale ultimately depends on how CHW programs are structured and institutionalized within national systems. Cost-effectiveness evidence alone does not explain why some CHW programs mature into durable components of primary health care (PHC), while others remain fragmented, under-supported, or vulnerable to financing shocks. To understand these differences, we turn to institutional evolution.
From an initial pool of twelve countries identified through the structured review, selected for geographic diversity, program maturity, and availability of policy and implementation documentation, five were chosen for in-depth comparative analysis: **Burkina Faso, Kenya, Malawi, Mozambique, and Tanzania**. These countries were selected not as exemplars, but to maximize variation in governance models, workforce formalization, financing structures, and reform sequencing. Together, they illustrate distinct pathways through which CHW programs have evolved within PHC systems.
Across these settings, we examined two interrelated dimensions: **scope of practice** and **management model design**, tracing how each has changed over time.

Scope of practice was analyzed not as a static job description, but as an evolving set of responsibilities. In all five countries, CHWs initially focused on promotive and preventive services; over time, many programs expanded to include integrated community case management (iCCM), maternal and newborn care, HIV and TB services, NCD screening, disease surveillance, referral coordination, and in some cases limited curative care. We also documented how the formal titles and classifications of CHWs changed across reform periods, reflecting shifts from volunteer-based roles to nationally recognized cadres, and in some cases, reclassification under new community health policies.

Management model components were assessed systematically across countries, including:

i. **Recruitment processes** (community-based selection, formal hiring, harmonization with local government systems)
ii. **Training and accreditation** (duration, certification, integration into formal training institutions)
iii. **Supervision structures** (facility-linked, district-managed, donor-supported, or integrated PHC oversight)
iv. **Remuneration models** (volunteer stipends, performance-linked payments, payroll integration, standardized compensation)
v. **Career progression and advancement pathways**
vi. **Data reporting systems**, including integration into national health information systems and the use of digital tools for data collection and reporting
vii. **Integration into national Human Resources for Health (HRH) frameworks**
viii. **Supply chain alignment**, particularly access to medicines, commodities, and essential equipment

By tracing how these elements evolved, and whether reforms in scope were matched by parallel investments in supervision, financing, data systems, and supply chains, we assessed the degree of institutional alignment within each country.

The country deep-dives that follow highlight key turning points, reform phases, and implementation realities within each context. Rather than presenting static snapshots, they examine how sequencing, financing alignment, workforce formalization, and system integration shaped performance, resilience, and scalability over time.

Together, these cases provide comparative insight into how CHW programs transition from community-based initiatives to institutionalized components of national PHC systems, and where fragility emerges when governance and financing structures lag behind scope expansion.

MALAWI: EARLY FORMALIZATION AND SYSTEM-EMBEDDED PROFESSIONALISM

Malawi's Health Surveillance Assistants (HSAs) represent one of the earliest formalized national CHW cadres in sub-Saharan Africa. Initially recruited as community-based volunteers for outbreak control and vaccination campaigns, HSAs were progressively formalized into the government payroll system with standardized training, certification, and integration into district health structures.

SCOPE OF PRACTICE EVOLUTION

Health Surveillance Assistants

↑

Vaccinators

The HSAs main scope of practice comprises of community based preventive health services such as vaccination, outbreak response, hygiene and sanitation services. More recently scope has been expanded to include curative services for minor ailments particulars in HIV, malaria, diarrhea and pneumonia through expansion of the Integrated Community Case Management that has now being incorporated in the HSA training curriculum. They also provide maternal and child health services through community based antenatal and under-five clinics. Key to their name, they are critical to disease surveillance. All reportable diseases fall under their jurisdiction: TB, cholera, etc.

EFFECTIVENESS

CHW EVOLUTION

1960-2000

- Setting up
- Volunteers from community to support outbreak control
- Informal: need based recruitment
- In kind incentives

2000-2010

- Formalization into health system
- Recruited formally
- Payroll introduction
- Formal training for 12 weeks
- Scope expansion to include some curative services

2015-2020

- Scope expansion to include ART, ICCM, ART, TB, ANC, malaria
- Recruitment harmonization with local councils
- Training school establishment, training extended to 6 months

2026

Strategic goals

- Human resource: I CHW to 1000 population
- Digitalization of reporting
- Support services such as bicycles

MANAGEMENT MODEL COMPONENTS

- **Recruitment:** public via local councils
- **Training/Accreditation**: Formal certification. Entry requirement is O level. They get post O-level diploma after 6-month training
- **Supervision:** Assistant Environmental health Officers at facility level
- **Incentives**: Government payroll
- **Equipment and supplies:** Access supplies at the facility but must be returned after clinics i.e EPI, malaria treatment etc
- **Opportunity for advancement**: Yes
- **Data reporting**: Mostly paper based. Digital systems are being piloted in few districts
- **Linkages to national health systems:** Via health facility to secondary and tertiary facilities
- Primary Care Networks that link community care with level 2 and 3 facilities

EFFECTIVENESS

- CHW decreased by 20% defaulters to NCD clinics; increased ANC attendance by 30% reduced peadiatric malnutrition by 10%[11]
- Malaria prevalence reduced by 52% between 2011 and 2021; incidence and mortality has reduced by 12% and 63% respectively between 2016 and 2021[12]
- HIV prevalence and incidence have decreased from 10.6% and 0.37% in 2015-16 to 8.6% and 0.22% in 2002-21 respectively[13]

KEY TAKEAWAYS

- The CHW program in Malawi has gone through significant evolution
- Major milestones achieved on effectiveness on the program in disease areas, but scope expansion has outpaced system capacity, creating pressure on supervision, workload, and supply chain support.
- Formal payroll integration and HRH alignment strengthened durability, yet limited career progression and resource constraints constrain adaptive flexibility.
- Current strategic goal include to digitize reporting and support with mode of transportation to hard-to-reach areas as well expanding the human resource

KENYA: GRADUAL REFORM AND UHC-DRIVEN WORKFORCE INTEGRATION

Kenya illustrates a decades-long trajectory from informal volunteerism to formalized integration under universal health coverage reforms. Early community health volunteers (CHVs) operated as facility-linked extensions; successive policies progressively clarified governance, remuneration, and role definitions.

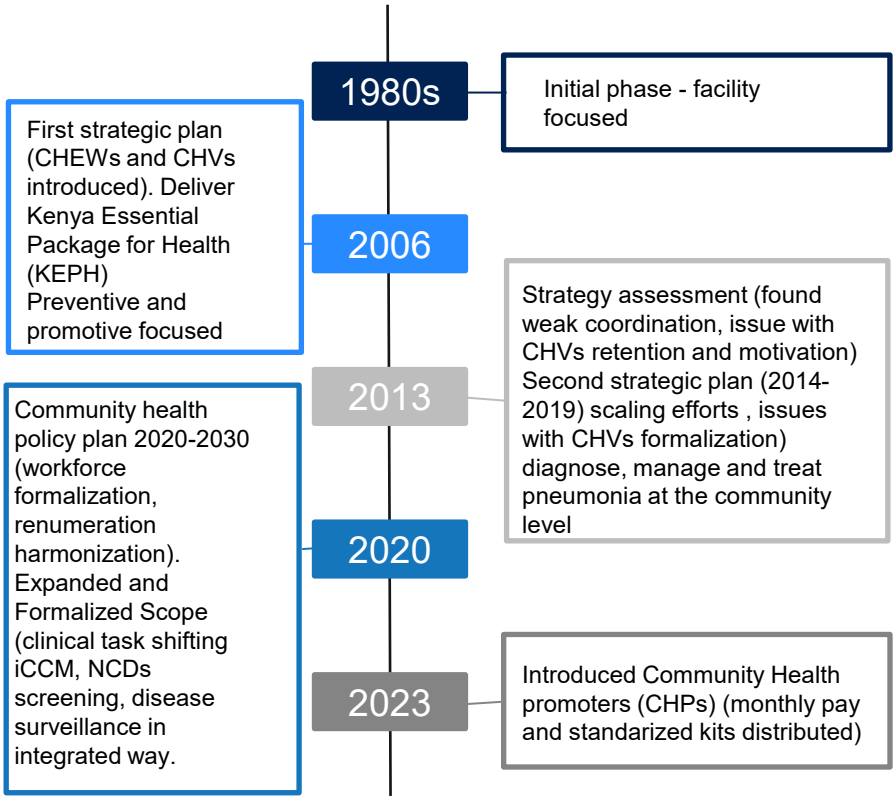
SCOPE OF PRACTICE EVOLUTION

Community Health Promoters(CHPs)
↑
Community Health Volunteers(CHVs)
↑
Village health helpers(VHHs) 'Nyamrerwas'

Initially focused on promotive and preventive services, CHVs and later Community Health Promoters (CHPs) expanded into iCCM, NCD screening, maternal health tracking, surveillance, and referral coordination. Scope expansion was sequenced alongside policy reform and digital reporting integration.

EFFECTIVENESS

CHW EVOLUTION



MANAGEMENT MODEL

Kenya gradually harmonized recruitment, standardized training, introduced stipends and later monthly compensation for CHPs, strengthened supervision structures, integrated reporting into national health information systems, and aligned CHWs with county-level governance structures.

- **Recruitment:** CHPs appointed national and county government initiatives with each CHP responsible for 100 households; community-based ;county oversight.
- **Training/Accreditation**: Formal Certification. The curriculum is now a formal "Level 1" accreditation
- **Incentives**: Standardized monthly stipends linked to eCHIS
- **Community involvement:** community leaders and health committees involved
- **Equipment and supplies:** The 2023 "Afya Bora Mashinani" Kit:
- **Data reporting**: eCHIS/electronic systems to capture household data, linked to national health information systems, enabling real-time tracking of community health service delivery.
- **Linkages to national health systems:** Primary Care Networks that link community care with level 2 and 3 facilities,

EFFECTIVENESS

- CHPs facilitating Chamas spent fewer volunteer hours per month compared to those performing standard door-to-door visits (3 vs. 7.5 hours) while achieving a greater number of total women contacts (12 vs. 9 CHP contacts)[14]
- Usage of CHPs increased in proportion of facility deliveries (65-70% to 94-98%)[14]

KEY TAKEAWAYS

- Long-standing national strategy with clear CHP guidelines.
- 47 counties manage their own kits and top-ups. Impact: Strong local ownership but a massive monitoring burden to ensure standardized quality across borders.

MOZAMBIQUE: COLLAPSE, INSTITUTIIONAL FRAGILITY, AND REBUILIDING

Mozambique represents a model with Interrupted trajectory followed by re-institutionalization. a program that was built, collapsed, and had to be rebuilt, revealing just how fragile community health infrastructure becomes when it is not anchored in sustained state commitment. It illustrates fragility, financing dependence, and the challenges of rebuilding at scale

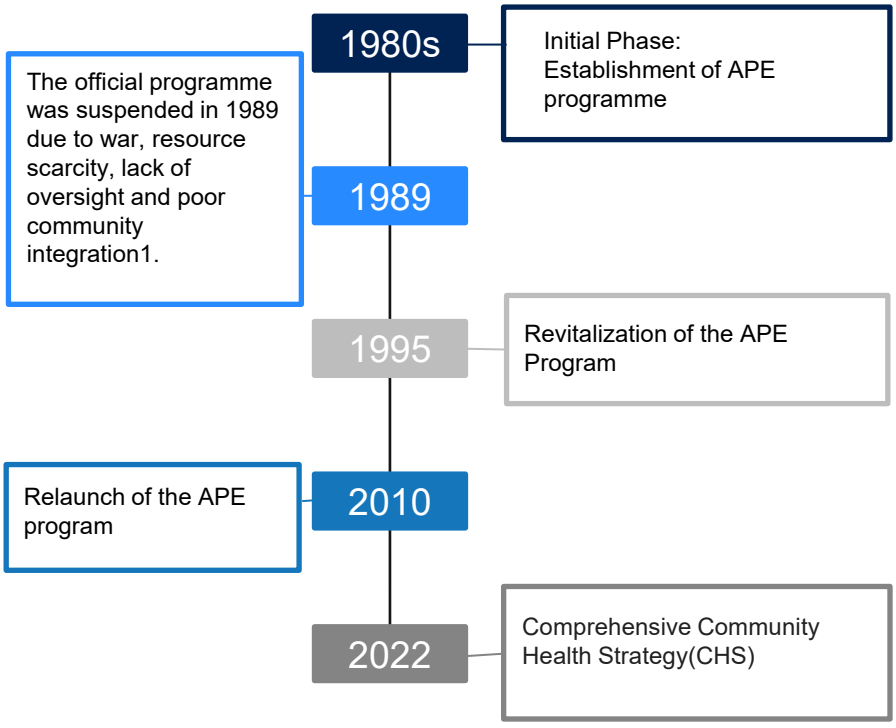
SCOPE OF PRACTICE EVOLUTION

Agentes Polivalentes Elementares (APEs)

The program delivers preventive education and immunization, treats common childhood illnesses through iCCM, provides basic maternal and child health services, and supports disease surveillance, outbreak response, and TB/HIV follow-up..

EFFECTIVENESS

CHWS EVOLUTION



MANAGEMENT MODEL COMPONENTS

Recruitment, training, supervision, and remuneration have evolved through multiple reform cycles. While integration into national strategies has improved, financing volatility, supply chain constraints, and supervisory capacity continue to expose structural fragility

- **Recruitment:** gender balancing,
- **Training/Accreditation:** Training adopted blended/digital learning through the UPSCALE and Leap mobile applications, COVID-19 modules
- **Supervision:** team approach introduced
- **Incentives:** transition toward government ownership of subsidies. Still heavily partner supported
- **Community involvement**: Informal trust
- **Equipment and supplies:** Medicine Kit C (including artemether/lumefantrine and amoxicillin)
- **Opportunity for advancement**: N/A
- **Data reporting:** Paper
- **Linkages to national health systems:** APEs can refer to their supervising health facility, receive commodities through the facility, and sit on co-management committees

EFFECTIVENESS

- Appropriate iCCM coverage increase(+26% overall)[1].
- APEs achieved 63.9% timely antimalarial treatment for febrile kids (vs. 37.5% controls) and 77.4% full 3-day adherence (vs. 54.6% facilities)[15]
- Workforce grew from 3,380 (2018) to 8,300 APEs (2022) [16]
- Household coverage doubled to 3.6 million. inSCALE tech raised iCCM treatment by 26%[17]
- One million malaria cases managed (2018)

KEY TAKEAWAYS

- Practice shows scaling progress but ongoing challenges in data systems, supervision, and full provincial rollout via partners
- Mozambique's historical dependence on donor financing for APE. Funding disruptions caused program suspension

TANZANIA: POLICY AMBITION AND PERSISTENT POLICY-PRACTICE GAPS

Tanzania transitioned from volunteer-based village health workers to a formal national cadre under the WAJA and later integrated CHW reforms. Policy intent emphasized integrated PHC roles and standardized training. The Tanzania CHWs program is a formalized national cadre delivering an integrated package of promotive, preventive, and basic curative services, supported by standardized six-month training and a regular monthly stipend.

SCOPE OF PRACTICE EVOLUTION

Community Health Worker (Current)
↑
Community Health Agents (WAJA)
↑
Community-Directed Distributors (CDDs)
↑
Village Health Workers (Earlier)

Preventive/promotive: Integrated Health Promotion and demand creation, counseling
Curative: iCCM (Malaria, Diarrhea, Pneumonia, Malnutrition) , Antenatal Care, Postnatal Care
Dispensing (Depot Holder): dispensing materials such as male or female condoms, oral contraceptive pills, emergency contraceptive pills, and calendar 'cycle beads'
Social welfare activities: Gender based violence, child protection

EFFECTIVENESS

CHW EVOLUTION

1960s — Initial phase - first village-based volunteer health workers

1995 — Introduced African Programme for Onchocerciasis Control (APOC)

Mobilized community-Directed Distributors (CDDs)

2007 — Develop single, official, national cadre of CHW with focus to deliver integrated Maternal, Newborn, & Child Health (MNCH)

2012 — Pilot Implementation project called Connect project(5 years project) to evaluate paid CHW in improving maternal and child health [2]

2024 — Official Launch of the iCCHW Programme. It aims to support Universal health coverage and reduce preventable maternal and child deaths by 2030
Introduced digital payment system

MANAGEMENT MODEL COMPONENTS

- **Recruitment:** Requirement - Residents (≥3 years), primary education, and community acceptance The Village or Mtaa Executive Officer(VEO/MEO) advertises; Village Health Committee (VHC) screens; Village Council/Assembly confirms.
- **Training and Accreditation:**6-month formal training (6 modules) + certification.
- **Supervision:** Dual Supervision Model: CHWs receive administrative supervision from the Village Executive Officer (VEO) and technical supervision from the Health Facility in-charge. Meets monthly with HF in charges.
- **Integration into HRH:** Not integrated but mentioned in strategy that the Ministry of Health and PO-RALG will integrate CHWs into national human resource systems through supportive guidelines.
- **Supply Chain:** Health facility in-charges are responsible for maintaining an adequate stock of working tools and medicines
- **Reporting/ Digitization:**
- **Remuneration model:** Monthly stipends; performance-based payments[20]

EFFECTIVENESS

Child Health: Community health workers experienced a larger reduction in under-five mortality (81.3 to 73.2 per1,000 live births) over four years compared to standard care 82.7 to 77.4 per1,000[18]

Maternal Health: No significant improvements in facility-level maternal health indicators (e.g., institutional deliveries, antenatal visits[19]

KEY TAKEAWAYS

- Policy ambition expanded CHW scope, but financing and supervisory alignment lagged, resulting in persistent policy-practice gaps.
- Standardized training and stipends improved formalization, yet incomplete HRH and supply chain integration constrain performance consistency

BURKINA FASO: RAPID SCALE-UP AND ACCELERATED PROFESSIONALIZATION

ASBCs supported by national volunteers, deliver integrated curative, preventive, and promotive services, particularly in urban and insecure areas. They receive short 19 days initial training, and a modest performance-linked monthly stipend with additional campaign payments. Burkina Faso was selected to align with Gates Foundation programmatic interests, combining settings of active investment with contexts prioritized for learning to inform future health systems strengthening efforts.

SCOPE OF PRACTICE EVOLUTION

Agents de Santé à BaseCommunautaire (ASBCs)(Current)
↑
Village Health Workers
↑
Village midwife(Earlier)

Minimum Package of Activities
Clinical: (malaria, diarrhea, and pneumonia treatment in children), **Preventive and promotional services** (malnutrition screening, vaccination follow-up, and distribution of insecticide-treated nets), and promotional activities (family planning support and essential family health practices)

EFFECTIVENESS

CHW EVOLUTION

1979 — Started midwives/Traditional Birth Attendants to deliver Community-based services

1980s — One village one health post operation: Staff every village with a health worker and midwife

2009 — In 2009, launch Rapid Scale-Up(RSU) program to deliver integrated MNCH packages initiated by ASBC[21]

In 2016, Formal transition phase from VHWs/Midwives to ASBC . Launch of the National Community Health Strategy (2016–2018)

2023 — Implement National Volunteers called "National Volunteers-Agent de Santé à Base Communautaire (VN-ASBC)" to reinforce community health in urban areas and security-challenged regions .

2024 — National Community Health Strategy (NCHS) ; On the way to full digitization, functionality through CHW management platforms /PGA platforms)

MANAGEMENT MODEL COMPONENTS

The program formalized recruitment processes, short but standardized training, performance-linked remuneration, national volunteer integration, and increasing digitization of reporting systems. However, remuneration levels and long-term financing remain areas of ongoing reform.

- **Recruitment: Based on** Village population size. Community-selected with support from health staff and municipalities **Eligibility:** primary education, age 20 to 50, literate in French
- **Training and Accreditation:**19 days. Refresher every 2 years but not systematic
- **Supervision:** twice a month and quarterly supervision; Irregular and mostly without clinical observation
- **Integration into HRH:** Not mentioned in literatures clearly
- **Supply Chain:** Standard technical kits from health facilities
- **Reporting/ Digitization:** paper based + Digital through eSanteCoM.. Created a national roadmap for community health digitization
- **Remuneration model:** They operate on a stipend model, receiving a monthly "motivation" of 20,000 FCFA[22]

EFFECTIVENESS

- RSU program did observe a small but statistically significant increase in the treatment of diarrhea with zinc in the program area (from 4.0% [95% CI: 2.8–5.8] to 8.3% [95% CI: 6.2–11.0]) but not in the comparison area but declined in service uptake in antimalarial treatment for fever, and antibiotics for suspected pneumonia [21]
- Only 36% of sick children correctly treated by ASBCs; 18% of children with diarrhea and 34% of children with pneumonia were correctly managed[21]

KEY TAKEAWAYS

- Deliberate professionalization and national strategy alignment accelerated CHW formalization and integration into PHC
- Rapid scale-up and digitization efforts signal institutional commitment, though remuneration levels and sustainable financing remain evolving.

CROSS-COUNTRY PATTERNS IN CHWS INSTITUTIONALIZATION

Comparing these five trajectories reveals recurring structural patterns that cut across governance sequencing, financing alignment, scope expansion, and workforce protection. These patterns inform the strategic implications presented below.

1 Formalization and institutional anchoring matter more than scope alone

Across the five countries, CHW programs that established clear governance, supervision structures, financing arrangements, and defined roles before expanding scope demonstrated more consistent performance and resilience over time. In contrast, programs that expanded tasks first and institutionalized later faced fragmentation, uneven quality, and implementation gaps[23-26].

Strategic implication: Investments that prioritize governance, financing, and supervision are more likely to yield sustained impact than those focused on scope expansion alone

2 Scope of practice tends to expand faster than management systems can adapt

Expansion into NCDs, surveillance, and integrated PHC functions has been effective where training, supervision, and accountability systems were already functional. Where governance and supervision lagged, expanded scope increased workload without proportional gains in performance[27].

Strategic Implication: Sustainable CHWs program scale requires management reform to move in parallel with scope, not after it.
Expanded roles should follow system strengthening, not substitute for it.

3 CHWs effectiveness increasingly manifests as system contribution, not just clinical outcomes

Across countries, CHW impact is increasingly reflected in improved coverage, referral completion, surveillance integration, and continuity of care rather than isolated disease-specific outcomes. CHWs function as health system infrastructure, not merely as delivery agents for individual interventions[28-33].

Strategic Implication: CHWs should be designed, funded, and evaluated for how they extend reach, strengthen information flow, and build trust across the health system, not only for clinical outcomes.

4 Financing stability and purchasing mechanisms shape program resilience

Countries with explicit budget lines and clearer integration into domestic financing structures (e.g., Malawi, Burkina Faso) show more stable deployment and supervision systems than those reliant on fragmented or donor-driven financing (e.g., Mozambique, Tanzania)[34-39]. Planned-versus-deployed workforce gaps are strongly correlated with financing constraints, not lack of policy ambition.

Strategic Implication: CHWs system resilience is less about “more donor funding” and more about how financing is structured and aligned: on-budget public financing, clear purchasing mechanisms, coordinated partner support are the strongest predictors of stability, coverage, and retention.

5 Policy recognition does not guarantee workforce protection

All five countries formally recognize CHWs in national policy, yet remuneration, social protection, PPE guarantees, and labor protections remain uneven or incomplete[40-42]. Formalization in name does not consistently translate into professional protections in practice.

Strategic Implication: The policy-practice gap varies significantly across contexts, influenced by governance structures, financing mechanisms, and institutional capacity. Cross-country learning should focus on how policies are operationalized, not just what they state.

6 No single "best" CHWs model, countries reflect different trade-offs

Countries entered reform processes from very different starting points, ranging from dense, professionalized cadres to low-density, partially formalized systems[43-47]. These baseline differences explain why similar policy reforms produce different outcomes.

Strategic Implication: CHW system design is a portfolio of trade-offs across four dimensions: stability vs. flexibility, speed of institutionalization, coordination burden, and fiscal sustainability**.** The policy question is not “Which model is best?” but “Which mix fits country context and how do we actively mitigate the downsides?”

FINAL RECOMMENDATIONS

These recommendations synthesize insights from both the economic evidence and the institutional analysis. They emphasize sequencing, financing realism, and system integration as central to sustainable scale.

1. **CHWs consistently expand access and strengthen primary health care across contexts**: Across all five countries, CHWs play a central role in extending preventive, promotive, and selected curative services to underserved populations.
2. **Institutionalization matters more than scope expansion alone:** Programs with clear national roles, supervision, and financing (e.g., Malawi, Burkina Faso) show more reliable performance than those with broad scope but weaker governance (e.g., Tanzania).
3. **Cost-effectiveness evidence is strong but unevenly distributed:** The densest evidence is in HIV, TB, malaria, and selected NCDs, with many studies showing CHWs to be cost-effective or cost-saving, evidence on affordability, budget impact, and long-term financing remains limited across all program areas.
4. **CHWs effectiveness increasingly manifests as system contribution:** Evidence points to gains in coverage, continuity, surveillance, and referral rather than isolated clinical outcomes alone. CHWs function as health system infrastructure, not just delivery agents for individual interventions.
5. **Design CHWs as part of the health system workforce, not parallel delivery programs**: Sustained impact depends on embedding CHWs within workforce, financing, and accountability systems, aligning with recruitment, renumeration, training, supervision, and protections with broader PHC structures.

LIMITATIONS AND OPPORTUNITIES FOR FURTHER RESEARCH

The findings of this report demonstrate both the strengths and structural limitations of the current evidence base on community health worker programs. While the literature strongly supports CHWs as cost-effective across priority disease areas a small number of countries account for a disproportionate share of modeled scenarios and full economic evaluations, limiting generalizability to underrepresented regions. In addition, although cost-effectiveness findings are frequently favorable, affordability, budget impact, and long-term fiscal sustainability analyses remain rare, leaving a critical gap between demonstrating value for money and informing national financing decisions. Heterogeneity in cost-effectiveness thresholds, reliance on grant-funded pilot programs, and inconsistent reporting of implementation fidelity further constrain comparability across studies. Moreover, much of the evidence focuses on disease-specific outcomes, with fewer studies systematically measuring CHWs' system-level contributions, such as referral completion, surveillance integration, and continuity of care. Addressing these gaps will require greater investment in standardized economic reporting, expanded affordability and budget impact analyses, and more longitudinal studies that track CHW programs through institutionalization and national scale. Strengthening evidence on financing realism and system integration will be essential for translating cost-effectiveness findings into sustainable policy and investment decisions.

REPORT REFERENCES

1. O'Donovan J, Baskin C, Stansert Katzen L, Ballard M, Kok M, Jimenez A, et al. (2025) Costs and cost-effectiveness of community health worker programs focussed on HIV, TB and malaria infectious diseases in low- and middle-income countries (2015–2024): A scoping literature review. PLOS Glob Public Health 5(5): e0004596. https://doi.org/10.1371/journal.pgph.0004596.

2. O' Donovan J, *Kumar MB, Ballard M, et al.* Costs and cost- effectiveness of integrated horizontal community health worker programmes in low- and middle- income countries (2015–2024): a scoping literature *review. BMJ Glob Health* 2025;10:e017852. doi:10.1136/ bmjgh-2024-017852.

3. O' Donovan J et al. Costs and cost-effectiveness of community health worker programmes focused on non-communicable diseases in low- and middle-income countries (2015–2024): a scoping lite**rature review.** BMJ Glob Health . 2025 Dec 10;10(12):e018035. doi: 10.1136/bmjgh-2024-018035

4. Stansert Katzen L, Miyares M, Vaughan K, Baskin C, Ballard M, Kok M, et al. (2025) Economic evaluations of community health worker programs focussed on neglected tropical diseases in low- and middle-income countries (2015–2024): A scoping literature review. PLOS Glob Public Health 5(12): e0005551. https://doi.org/10.1371/journal. pgph.0005551.

5. Madelyn Miyares et al. Costs and cost-effectiveness of community health worker programs on reproductive, maternal, newborn and child health in low- and middle-income countries (2015-2024): A scoping review. PLOS Glob Public Health. 2026 Jan 22;6(1): e0004893. doi: 10.1371/journal.pgph.0004893. eCollection 2026.

6. Lassi ZS, Kedzior SGE, Bhutta ZA. Community-based maternal and newborn educational care packages for improving neonatal health and survival in low- and middle-income countries. *Cochrane Database of Systematic Reviews 2019, Issue 11. Art. No.: CD007647.* DOI: 10.1002/14651858.CD007647.pub2

7. Gaziano et al. Hypertension education and adherence in South Africa: a cost-effectiveness analysis of community health workers. BMC Public Health 2014, 14:240 http://www.biomedcentral.com/1471-2458/14/240.

8. Rakuomi et al. Cost effectiveness of pre-referral antimalarial treatment in severe malaria among children in sub-Saharan Africa*. Cost Eff Resour Alloc (2017) 15:14* DOI 10.1186/s12962-017-0076-5.

9. Ryan G. Wagner et al. Community health workers to improve adherence to anti-seizure medication in rural South Africa: Is it cost-effective? DOI: 10.1111/epi.16756.

10. Linnea Stansert Katzen et al. Time to prioritise community health workers: a decade of cost-effectiveness evidence. Lancet Prim Care 2025; **1: 100076. https://doi.org/10.1016/ j.lanprc.2025.100076**

REPORT REFERENCES

11. Wroe EB, Nhlema B, Dunbar EL, Kulinkina AV, Kachimanga C, Aron M, et al. A household-based community health worker programme for non-communicable disease, malnutrition, tuberculosis, HIV and maternal health: a stepped-wedge cluster randomised controlled trial in Neno District, Malawi. BMJ Glob Health. 2021;6: e006535. doi:10.1136/bmjgh-2021-006535

12. Mategula D, Mitambo C, Sheahan W, Masingi Mbeye N, Gumbo A, Kwizombe C, et al. Malaria Burden Stratification in Malawi- A report of a consultative workshop to inform the 2023-2030 Malawi Malaria Strategic Plan. Wellcome Open Res. 2023;8: 178. doi:10.12688/wellcomeopenres.19110.1

13.Payne D, Wadonda-Kabondo N, Wang A, Smith-Sreen J, Kabaghe A, Bello G, et al. Trends in HIV prevalence, incidence, and progress towards the UNAIDS 95-95-95 targets in Malawi among individuals aged 15–64 years: population-based HIV impact assessments, 2015−16 and 2020−21. Lancet HIV. 2023;10: e597–e605. doi:10.1016/S2352-3018(23)00144-3

14. Maldonado LY, Bone J, Scanlon ML, et al. *Improving maternal, newborn and child health outcomes through a community-based women's health education program: a cluster randomised controlled trial in western Kenya.* BMJ Glob Health. 2020;5:e003370. (Demonstrates higher facility-based delivery rates among Chamas participants).

15. Guenther, T., Sadruddin, S., Finnegan, K., Wetzler, E., Ibo, F., Rapaz, P., Koepsell, J., Khan, I. U., & Amouzou, A. (2017). Contribution of community health workers to improving access to timely and appropriate case management of childhood fever in Mozambique. Journal of Global Health, 7(1), Article 010402. https://doi.org/10.7189/jogh.07.010402

16. World Bank Group. (2025). Working toward better health: Expanding community health services in Mozambique. https://www.worldbank.org/en/results/2025/04/15/working-toward-better-health-expanding-community-health-services-in-mozambique

17. Soremekun, S., Källander, K., Lingam, R., et al. (2023). Improving outcomes for children with malaria, diarrhoea and pneumonia in Mozambique: A cluster randomised controlled trial of the inSCALE technology innovation. PLOS Digital Health, 2(6): e0000235. https://doi.org/10.1371/journal.pdig.0000235

18. Kanté, A.M., Exavery, A., Jackson, E.F. et al. The impact of paid community health worker deployment on child survival: the connect randomized cluster trial in rural Tanzania. BMC Health Serv Res 19, 492 (2019). https://doi.org/10.1186/s12913-019-4203-1

19. Baynes, C., Mboya, D., Likasi, S., Maganga, D., Pemba, S., Baraka, J., Ramsey, K., & Semu, H. (2018). Quality of sick child-care delivered by community health workers in Tanzania. International Journal of Health Policy and Management, 7(12), 1097–1109. https://doi.org/10.15171/ijhpm.2018.63

20. The United Republic of Tanzania Ministry of Health. (2021). National Operational Guideline for Community-Based Health Services: Towards sustainable community health and social welfare services — leaving no one behind (CBHS Operational Guideline). Government of Tanzania. https://hssrc.tamisemi.go.tz/storage/app/uploads/public/636/259/2d6/6362592d642dd250982263.pdf

21. Munos M, Guiella G, Roberton T, Maïga A, Tiendrebeogo A, Tam Y, Bryce J, Baya B. Independent Evaluation of the Rapid Scale-Up Program to Reduce Under-Five Mortality in Burkina Faso. Am J Trop Med Hyg. 2016 Mar;94(3):584-595. doi: 10.4269/ajtmh.15-0585. Epub 2016 Jan 19. PMID: 26787147; PMCID: PMC4775895..

22. Ministère de la Santé et de l'Hygiène Publique. (2024). Stratégie nationale de santé communautaire 2024–2028. Gouvernement du Burkina Faso. https://www.sante.gov.bf/fileadmin/bfa_strategie_nationale_de_sante_communautaire_2024-2028.pdf

REPORT REFERENCES

23. Bradley, S., Kamwendo, F., Masanja, H. *et al.* District health managers' perceptions of supervision in Malawi and Tanzania. *Hum Resour Health* **11**, 43 (2013). https://doi.org/10.1186/1478-4491-11-43

24. Kate E Gilroy, Jennifer A Callaghan-Koru, Cristina V Cardemil, Humphreys Nsona, Agbessi Amouzou, Angella Mtimuni, Bernadette Daelmans, Leslie Mgalula, Jennifer Bryce, on behalf of the CCM-Malawi Quality of Care Working Group, Quality of sick child care delivered by Health Surveillance Assistants in Malawi, *Health Policy and Planning*, Volume 28, Issue 6, September 2013, Pages 573–585, https://doi.org/10.1093/heapol/czs095

25. Baynes, C., Semu, H., Baraka, J., Mushi, H., Ramsey, K., Kante, A.M., *et al*. (2016) An Exploration of the Feasibility, Acceptability, and Effectiveness of Professional, Multitasked Community Health Workers in Tanzania. *Global Public Health*, 12, 1018-1032. https://doi.org/10.1080/17441692.2015.1080750

26. Kanté, A.M., Exavery, A., Jackson, E.F. *et al.* The impact of paid community health worker deployment on child survival: the connect randomized cluster trial in rural Tanzania. *BMC Health Serv Res* **19**, 492 (2019). https://doi.org/10.1186/s12913-019-4203-1

27. Munos M, Guiella G, Roberton T, Maïga A, Tiendrebeogo A, Tam Y, Bryce J, Baya B. Independent Evaluation of the Rapid Scale-Up Program to Reduce Under-Five Mortality in Burkina Faso. Am J Trop Med Hyg. 2016 Mar;94(3):584-595. doi: 10.4269/ajtmh.15-0585. Epub 2016 Jan 19. PMID: 26787147; PMCID: PMC4775895.

28. Mogaka K et al, 2025. Challenges Hindering the Accessibility of Tanzania's Health Service: A Literature Review. doi:10.5539/ijef.v8n8p242. URL: http://dx.doi.org/10.5539/ijef.v8n8p242

29. UNICEF. (2025). Mapping Tanzania's Community Health Workforce: A Step Toward Universal Health Coverage | DAMAX Solutions

30. WHO (2025). Bringing Health Care Closer: Tackling Malaria and Childhood Illness in Tanzania | WHO | Regional Office for Africa

31. Ouedraogo, L., Habonimana, D., Nkurunziza, T. *et al.* Towards achieving the family planning targets in the African region: a rapid review of task sharing policies. *Reprod Health* **18**, 22 (2021). https://doi.org/10.1186/s12978-020-01038-y

32. Sripad P, McClair TL, Casseus A, Hossain S, Abuya T, Gottert A. Measuring client trust in community health workers: A multi-country validation study. J Glob Health. 2021 Mar 10;11:07009. doi: 10.7189/jogh.11.07009. PMID: 33763223; PMCID: PMC7956104.

33. Kisia, J., Nelima, F., Otieno, D.O. *et al.* Factors associated with utilization of community health workers in improving access to malaria treatment among children in Kenya. *Malar J* **11**, 248 (2012). https://doi.org/10.1186/1475-2875-11-248.

34. Baynes C, Semu H, Baraka J, Mushi H, Ramsey K, Kante AM, Phillips JF. An exploration of the feasibility, acceptability, and effectiveness of professional, multitasked community health workers in Tanzania. Glob Public Health. 2017 Aug;12(8):1018-1032. doi: 10.1080/17441692.2015.1080750. Epub 2016 Feb 19. PMID: 26895138.

35. Ndima SD, Sidat M, Give C, Ormel H, Kok MC, Taegtmeyer M. Supervision of community health workers in Mozambique: a qualitative study of factors influencing motivation and programme implementation. Hum Resour Health. 2015 Sep 1;13:63. doi: 10.1186/s12960-015-0063-x. PMID: 26323970; PMCID: PMC4556309.

36. Chilundo BG, Cliff JL, Mariano AR, Rodríguez DC, George A. Relaunch of the official community health worker programme in Mozambique: is there a sustainable basis for iCCM policy? Health Policy Plan. 2015 Dec;30 Suppl 2(Suppl 2):ii54-ii64. doi: 10.1093/heapol/czv036. PMID: 26516151; PMCID: PMC4625760.

37. World Bank Group. (2025). Working Toward Better Health: Expanding Community Health Services in Mozambique

38. Davis AL, Flomen L, Ahmed J, Arouna DM, Asiedu A, Badamassi MB, Badolo O, Bonkoungou M, Franco C, Jezman Z, Kalota V, Kamate B, Koko D, Munthali J, Ntumy R, Sichalwe P, Yattara O. Documenting Community Health Worker Compensation Schemes and Their Perceived Effectiveness in Seven sub-Saharan African Countries: A Qualitative Study. Glob Health Sci Pract. 2024 Jun 27;12(3):e2400008. doi: 10.9745/GHSP-D-24-00008. PMID: 38936960; PMCID: PMC11216702.

39. **Elizabeth Davlantes, Humberto Rodrigues, and Rose Zulliger.** Mozambique's Agentes Polivalentes Elementares

40. Singh A, Ndiath MM, Toure D, Dissieka R, Bazira LK, Wanyonyi C, Klemm RD. Assessing the gap between policy and practice: community health workers' contributions to nutrition services in Sub-Saharan Africa. BMC Health Serv Res. 2025 Jul 1;25(1):838. doi: 10.1186/s12913-025-13044-6. PMID: 40598517; PMCID: PMC12211232.

41. Rafiq MY, Wheatley H, Mushi HP, Baynes C. Who are CHWs? An ethnographic study of the multiple identities of community health workers in three rural Districts in Tanzania. BMC Health Serv Res. 2019 Oct 21;19(1):712. doi: 10.1186/s12913-019-4563-6. PMID: 31638989; PMCID: PMC6802175.

42. Ridde V, Yaogo M, Zongo S, Somé PA, Turcotte-Tremblay AM. Twelve months of implementation of health care performance-based financing in Burkina Faso: A qualitative multiple case study. Int J Health Plann Manage. 2018 Jan;33(1):e153-e167. doi: 10.1002/hpm.2439. Epub 2017 Jul 3. PMID: 28671285; PMCID: PMC5900741.

43. Chikaphupha KR, Kok MC, Nyirenda L, Namakhoma I, Theobald S. Motivation of health surveillance assistants in Malawi: A qualitative study. Malawi Med J. 2016 Jun;28(2):37-42. doi: 10.4314/mmj.v28i2.2. PMID: 27895826; PMCID: PMC5117097.

44. Steenland M, Robyn PJ, Compaore P, Kabore M, Tapsoba B, Zongo A, Haidara OD, Fink G. Performance-based financing to increase utilization of maternal health services: Evidence from Burkina Faso. SSM Popul Health. 2017 Jan 10;3:179-184. doi: 10.1016/j.ssmph.2017.01.001. PMID: 29349214; PMCID: PMC5769027.

45. Give, C.S., Sidat, M., Ormel, H. *et al.* Exploring competing experiences and expectations of the revitalized community health worker programme in Mozambique: an equity analysis. *Hum Resour Health* **13**, 54 (2015). https://doi.org/10.1186/s12960-015-0044-0

46. **Katharine Shelley, Gasto Frumence, and Amalberga Kasangala.** Tanzania's Community-based Health Program

47. Davlantes, E., Salomao, C., Wate, F. *et al.* Malaria case management commodity supply and use by community health workers in Mozambique, 2017. *Malar J* **18**, 47 (2019). https://doi.org/10.1186/s12936-019-2682-5