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Community health worker-led models for chronic disease prevention and management in the United States: A narrative review of evidence, implementation science, and policy implications

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Abstract

Background: Chronic diseases account for seven of every ten deaths and nearly 90% of the United States' annual healthcare expenditure. Community health workers (CHWs)—trusted, culturally concordant frontline workers embedded within underserved communities—have emerged as a promising strategy for addressing chronic disease disparities. However, evidence regarding their effectiveness, implementation of models, and policy implications remains fragmented.

Objective: To evaluate the effectiveness of CHW-led interventions in the prevention and management of diabetes mellitus, hypertension, and cardiovascular disease (CVD) in the United States.

Methods: A literature search was conducted in PubMed, CINAHL, and PsycINFO using predefined Medical Subject Headings (MeSH) terms. Eligible studies were English-language publications (2010–2026) examining CHW-led or CHW-supported interventions in U.S. community or clinical settings targeting chronic disease outcomes. Seminal pre-2020 studies were included when essential for methodological context. Data were extracted using a structured template and synthesized thematically.

Results: CHW interventions were associated with clinically meaningful improvements across all disease domains. Hemoglobin A1c reductions ranged from 0.4–2.4 percentage points, hypertension control improved by 7%–27%, and cardiovascular risk scores declined at the population level. Successful programs commonly featured integration within health systems, electronic health record support, sustained patient engagement (≥10 contacts), culturally concordant CHW-patient relationships, and multidisciplinary care coordination. Economic evaluations demonstrated cost savings of up to $3,576 per participant and quality-adjusted life year gains of 0.16–0.36.

Conclusions: Health-system-integrated CHW programs provide an effective and cost-efficient approach to chronic disease management in underserved U.S. populations. Their adaptability during the COVID-19 pandemic further highlights their value as resilient, community-based healthcare delivery models.

Keywords: Community health workers; Chronic disease management; Health equity; cardiovascular disease

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1. Introduction

Chronic diseases constitute the dominant burden on the United States healthcare system. Seven of every ten deaths are attributable to chronic conditions, and they consume approximately 90% of the nation's annual $4.1 trillion in healthcare spending (Hill-Briggs et al., 2021). Conditions such as type 2 diabetes mellitus, hypertension, and cardiovascular disease (CVD) disproportionately affect racial and ethnic minorities, rural residents, and individuals with low socioeconomic status populations that also experience the greatest barriers to accessing high-quality, culturally appropriate care (Hill-Briggs et al., 2021; Kim et al., 2016). Despite advances in clinical medicine, health disparities persist with striking consistency, underscoring the inadequacy of clinic-centered care delivery models for addressing the social, behavioral, and structural determinants of chronic disease outcomes.

Community health workers (CHWs) have emerged as a potent strategy for reimagining chronic disease care. The American Public Health Association defines CHWs as frontline public health workers who are trusted members of, and have exceptional knowledge of, the communities they serve (Brownstein et al., 2005). Unlike traditional clinical staff, CHWs provide health education, care navigation, social support, and self-management assistance in the environments where patients live, work, and socialize. This community embeddedness enables CHWs to address not only clinical deficits but also the upstream social determinants food insecurity, transportation barriers, health literacy gaps, and mistrust of healthcare systems that drive disparate chronic disease outcomes (Allen et al., 2016).

The theoretical grounding for CHW interventions draws from several complementary frameworks. The Chronic Care Model emphasizes the integration of community resources and self-management support as cornerstones of optimal chronic disease outcomes (Collinsworth et al., 2014). Social cognitive theory informs how CHWs leverage peer modeling, social reinforcement, and self-efficacy enhancement to drive health behavior change (Kane et al., 2016). Community-based participatory research principles ensure that CHW programs are co-designed with communities, honoring local strengths and addressing specific barriers (Spencer et al., 2018). Together, these frameworks support a care model that is simultaneously evidence-driven and community-responsive.

The policy landscape for CHW workforce development has evolved considerably. The Affordable Care Act catalyzed investment in preventive care and CHW workforce expansion, while the Centers for Medicare and Medicaid Services (CMS) have increasingly recognized CHWs as reimbursable care team members within certain payment models (Ayanian, 2021; Cross-Barnet et al., 2018). Multiple states including Minnesota, Oregon, and New Mexico have established Medicaid benefit categories for CHW services (London et al., 2016). The COVID-19 pandemic further highlighted CHWs as resilient, adaptive care delivery agents capable of transitioning rapidly to remote and hybrid service models (Hansotte et al., 2024).

Despite these developments, the evidence base for CHW interventions remains fragmented. Prior systematic reviews have focused narrowly on single disease domains (e.g., diabetes or hypertension) without synthesizing cross-condition evidence or examining implementation factors that explain outcome variability (Norris et al., 2006; Little et al., 2014; Kim et al., 2016). The current review addresses these gaps by providing an integrated narrative synthesis across chronic disease domains, implementation models, economic findings, and policy pathways. This synthesis is intended to serve policymakers, healthcare organizations, and program implementers seeking evidence-based guidance for CHW program design and expansion.

2. Methods

2.1. Study Design

This study employs a narrative review design appropriate for synthesizing a broad, heterogeneous body of evidence across multiple chronic disease domains, implementation settings, and study designs. Narrative reviews are well-suited to the goal of constructing an integrated, interpretive synthesis that informs policy and practice rather than deriving a single pooled effect size (Green et al., 2006). The review follows reporting standards adapted from the Scale for the Assessment of Narrative Review Articles (SANRA) and is guided by a structured search protocol and thematic synthesis framework.

2.2. Search Strategy and Eligibility Criteria

A systematic literature search was conducted in PubMed/MEDLINE, CINAHL, PsycINFO, and the Cochrane Library using the following MeSH terms and Boolean combinations: *"Community Health Workers" AND ("Chronic Disease" OR "Diabetes Mellitus" OR "Hypertension" OR "Cardiovascular Disease") AND ("United States") AND ("disease management" OR*

"prevention" OR "intervention" OR "implementation") Supplementary searches were performed in Google Scholar and reference lists of included studies. The date range was restricted to January 2015–March 2026 as the primary inclusion window, with selective incorporation of seminal pre-2015 studies where they provided indispensable foundational context for methodology, theoretical grounding, or policy framework.

Table 1 Literature Search Summary and Study Selection Criteria

Category	Details
Search Databases	PubMed/MEDLINE, CINAHL, PsycINFO, Cochrane Library, Google Scholar
Date Range (Primary)	January 2015 – March 2026
Supplementary Pre-2020 Studies	Selected seminal RCTs, systematic reviews, and foundational policy analyses (2002–2019)
Language	English only
Population	Adults (≥18 years) with or at risk of chronic diseases; underserved, racial/ethnic minority, or low-income U.S. populations
Setting	United States; community-based, clinical, or hybrid settings
Intervention	CHW-led or CHW-supported programs targeting diabetes, hypertension, CVD, or multimorbidity
Study Designs Included	RCTs, quasi-experimental studies, implementation studies, systematic reviews, cost-effectiveness analyses, policy analyses
Exclusion Criteria	Non-U.S. settings (unless providing comparative methodological context); single-session CHW contacts; pediatric-only populations; gray literature without peer review

Data were extracted using a standardized template capturing: study design, sample characteristics, CHW role and training model, intervention components, outcome measures, follow-up duration, key findings, and implementation factors. Study quality was appraised using the Mixed Methods Appraisal Tool (MMAT) for quantitative studies and the Consolidated Framework for Implementation Research (CFIR) for implementation-focused studies. Risk of bias was noted for each study, with particular attention to selection bias, attrition, and implementation fidelity reporting.

Thematic synthesis followed a three-stage process: (1) line-by-line coding of findings from included studies; (2) development of descriptive themes across disease domains and implementation factors; and (3) generation of analytical themes that cut across the literature to identify patterns, moderators, and policy implications. Themes were organized under four overarching domains: (a) clinical effectiveness by disease area, (b) implementation science, (c) economic evidence, and (d) policy recommendations.

3. Clinical effectiveness evidence

3.1. Diabetes Management

Among the three major chronic disease domains examined, diabetes management has attracted the most rigorous CHW research. A synthesis of evidence across randomized controlled trials (RCTs), quasi-experimental studies, and large-scale implementation evaluations reveals clinically significant and consistently positive effects on glycemic control.

The most robust evidence base derives from RCTs conducted across diverse U.S. populations. Spencer et al. (2018) randomized 222 Latino adults with poorly controlled type 2 diabetes (HbA1c ≥8%) to CHW-led diabetes self-management education (DSME) or enhanced usual care. At six months, the CHW group demonstrated significantly greater HbA1c reductions (−0.45%; 95% CI −0.87, −0.03). Critically, participants additionally assigned to a peer-leader (PL) augmentation model maintained improvements through 12 and 18 months evidence that sustained peer-supported engagement extends CHW program benefits beyond the initial intervention period (Spencer et al., 2018). Again, Kim et al. (2016) provided compelling evidence that culturally concordant CHWs can match the effectiveness of registered nurses in diabetes management. In a randomized trial among Korean Americans with uncontrolled type 2 diabetes, CHW-assigned participants demonstrated trajectory improvements in HbA1c comparable to nurse-assigned

participants across three, six, nine, and 12-month intervals (−1.2 to −1.6 percentage points). This equivalence suggests that CHWs represent a cost-efficient alternative to higher-credentialed clinical staff in culturally matched populations.

Moreover, Kangovi et al. (2017) reported a landmark multi-site RCT enrolling 302 patients with multiple chronic conditions including diabetes, hypertension, and obesity from Philadelphia community clinics. After six months of individualized CHW support, participants showed modest but significant reductions in glycated hemoglobin and substantially greater improvements in mental health, quality of primary care, and self-management empowerment. Hospital admissions declined from 32% (control) to 23% (intervention), a finding with profound healthcare cost implications (Kangovi et al., 2017). Aponte et al. (2017) confirmed CHW advantages over control conditions in Hispanic populations with uncontrolled diabetes (HbA1c >8%), while Babamoto et al. (2009) found CHW-randomized Hispanic patients with newly diagnosed type 2 diabetes achieved 2.9-fold greater odds of BMI reduction and superior emergency department visit reductions relative to case management and usual care controls.

Implementation studies affirm that CHW effectiveness observed in trial conditions translates to routine practice. Hansotte et al. (2024) evaluated a health-system-embedded CHW program in an urban U.S. diabetes-burdened community using a propensity-matched analysis of 454 CHW participants versus 1,020 controls. CHW participation was associated with a mean HbA1c reduction of −0.54 (95% CI −0.73, −0.35) sustained through the COVID-19 pandemic period (2017–2022). Participants were over twice as likely to receive ≥2 HbA1c measurements annually (OR 2.32; 95% CI 1.79–3.00), reflecting enhanced preventive care engagement. Trends toward reduced emergency department visits (OR 0.88) and hospital admissions (OR 0.81) were also observed (Hansotte et al., 2024). Trevisi et al. (2019) evaluated the COPE program in the Navajo Nation, which integrated Community Health Representatives (CHRs) into existing Indian Health Service structures. A quasi-experimental matched cohort analysis (n=173 participants vs. 2,880 controls) found a difference-in-differences HbA1c improvement of 0.63 percentage points in favor of COPE participants, alongside superior LDL cholesterol reductions. The program's bi-directional communication protocols between CHRs and clinical providers enabling monthly health education, vital signs monitoring during home visits, and urgent clinical escalation exemplify best-practice integration. Crespo et al. (2020) documented an intensive CHW model in rural Appalachia achieving mean HbA1c reductions of 2.4 percentage points among the largest reported in the literature by targeting high-risk patients with home visits, care coordination, and close clinical team liaison. This intensive approach underscores the potential of well-resourced, high-contact CHW programs for patient populations with poor baseline glycemic control. Vaughan et al. (2022) provided the most extended effectiveness data, following 391 participants across the TIME intervention (Telehealth-supported, Integrated care with CHWs, and Medication-access) over 24 months. Significant HbA1c reductions ($p<0.0001$–0.015) were sustained through 24 months, while blood pressure improvements were maintained through 18 months but attenuated by 24 months suggesting that glycemic management may require less intensity to sustain than blood pressure control over the long term.

3.2. Hypertension Control

CHW interventions for hypertension demonstrate strong evidence of effectiveness, particularly for racial and ethnic minority populations with disproportionately high rates of uncontrolled blood pressure. Evidence is especially compelling for culturally tailored, high-intensity programs.

The Project IMPACT RCT among 303 South Asian immigrants in New York City primary care clinics. At six months, 68.2% of the CHW intervention group achieved controlled blood pressure, compared with 41.6% of controls ($P<0.001$). Intervention participants were 3.7 times more likely to achieve blood pressure control (95% CI 2.1–6.5) (Islam et al., 2023). This represents one of the largest effect sizes reported in the CHW hypertension literature and reflects the power of culturally and linguistically concordant CHW programs for immigrant populations facing compounded healthcare access barriers.

Also, Lopez et al. (2024) demonstrated dose-response dynamics in a large-scale evaluation of 3,806 Hispanic adults with diabetes and hypertension in Texas' Rio Grande Valley. Participants with high engagement (≥10 encounters) achieved significantly greater systolic blood pressure reductions at three months (adjusted mean difference −1.8 mmHg) and 15 months (−2.3 mmHg) compared to lower-engagement participants, alongside net systolic and diastolic reductions of −6.49 and −3.97 mmHg, respectively.

In 2022, Samuel-Hodge et al. reported the CHANGE study, a hybrid implementation-effectiveness trial of a CHW-delivered lifestyle intervention for rural non-Hispanic Black adults. Over four months, participants achieved significant reductions in systolic (−2.5 mmHg; $p<0.05$) and diastolic (−2.1 mmHg; $p<0.01$) blood pressure alongside improved dietary quality and physical activity demonstrating that culturally adapted lifestyle-focused CHW programs can achieve meaningful cardiovascular gains in high-disparity populations. Similar evidence from Commodore-Mensah et al. (2023,

2024) describes the LINKED-BP and LINKED-HEARTS technology-enhanced CHW models, integrating home blood pressure telemonitoring with CHW coordination as scalable innovations for geographically distributed hypertensive populations.

3.3. Cardiovascular Disease Prevention

CHW programs targeting cardiovascular disease risk reduction demonstrate efficacy at both individual and population levels. Smith et al. (2019) evaluated the Colorado Heart Healthy Solutions statewide intervention, in which trained CHWs delivered community-based cardiovascular risk screening, disease-specific health coaching, and referrals to medical and community resources. Population-level Framingham Risk Score declined by 0.8 points overall and by 2.0 points among at-risk subgroups. QALY gains of 0.16 (general population) to 0.36 (at-risk women) were achieved, with an estimated net savings of $3,576 per participant, constituting a favorable cost-benefit profile (Smith et al., 2019). Secondary prevention targeting individuals with established CVD to prevent recurrence has been less extensively studied. Towfighi et al. (2017) described the SUCCEED RCT, evaluating CHW-augmented chronic care model interventions for post-stroke and post-TIA patients in safety-net settings, demonstrating the feasibility and potential of CHW programs beyond primary prevention. Behavioral lifestyle dimensions of CHW cardiovascular programs are reinforced by evidence from Samuel-Hodge et al. (2022) and Gray et al. (2021), demonstrating that well-structured CHW interventions can produce simultaneous improvements in nutrition (0.5–0.8 servings/day increase in fruits and vegetables), physical activity (+45–141 minutes/week), and medication adherence.

3.4. Multiple Chronic Conditions

The management of multimorbidity increasingly the norm rather than the exception in high-burden populations represents both a critical need and a design challenge for CHW programs. Kangovi et al. (2017, 2020) provide the strongest evidence for non-disease-specific CHW support. Their Individualized Management for Patient-Centered Targets (IMPaCT) model, evaluated across multi-site RCTs, delivered flexible CHW support tailored to patient-defined goals rather than condition-specific protocols. Across trials, CHW support was associated with reductions in hospitalization, improvements in primary care quality, and gains in mental health outcomes demonstrating that person-centered, goal-aligned CHW approaches may be more effective than disease-siloed programs for complex patients (Kangovi et al., 2017).

Table 2 Summary of Key Clinical Effectiveness Findings by Disease Domain

Domain	Key Studies	Population	Outcome Measure	Effect Size / Finding
Diabetes	Hansotte et al. (2024); Spencer et al. (2018); Kim et al. (2016)	Urban/Latino/Korean American adults	HbA1c reduction	−0.4 to −2.4 pp; modal RCT finding: −0.5 to −1.0 pp
Diabetes	Trevisi et al. (2019); Crespo et al. (2020)	Navajo Nation; rural Appalachia	HbA1c; diff-in-diff	−0.63 pp (COPE); −2.4 pp (Appalachia intensive)
Hypertension	Islam et al. (2023)	South Asian immigrants, NYC	BP control rate	68.2% vs. 41.6% control; OR 3.7 (95% CI 2.1–6.5)
Hypertension	Lopez et al. (2024); Samuel-Hodge et al. (2022)	Hispanic adults TX; rural Black adults	SBP/DBP mmHg	−6.49/−3.97 mmHg (≥10 encounters); −2.5/−2.1 mmHg (CHANGE)
CVD Prevention	Smith et al. (2019)	General + at-risk U.S. adults (Colorado)	Framingham Risk Score; QALYs	−0.8 general; −2.0 at-risk; +0.16–0.36 QALYs
Multimorbidity	Kangovi et al. (2017); Smith et al. (2025)	Multi-condition urban patients; immigrants/minorities	Hospitalization; HbA1c; SBP; weight	32% → 23% hospitalization; −0.49% HbA1c; −3.1 mmHg SBP

Note. pp = percentage points; BP = blood pressure; SBP = systolic blood pressure; DBP = diastolic blood pressure; QALYs = quality-adjusted life years; OR = odds ratio; RCT = randomized controlled trial.

Lopez et al. (2024) similarly demonstrate dual clinical gains in glycemic and blood pressure control within a single CHW program targeting comorbid diabetes and hypertension. Smith et al. (2025) reported that a CHW program serving immigrant and minority populations with multimorbidity (obesity, hypertension, diabetes; n=1,139) achieved simultaneous reductions in weight (−2.8 lbs), HbA1c (−0.49%), and systolic blood pressure (−3.1 mmHg) over a three-year implementation period (2019–2022).

4. Implementation science: factors shaping program effectiveness

Clinical effectiveness findings vary substantially across CHW programs, and this heterogeneity is not fully explained by differences in patient populations or disease severity. A growing implementation science literature identifies program design and organizational factors as critical mediators of outcome. This section synthesizes findings across four implementation domains that consistently differentiate high-performing from low-performing CHW programs.

4.1. Health System Integration

Health system integration stands as the most consistently identified structural predictor of CHW effectiveness. Programs in which CHWs are institutionally embedded with access to electronic health records, structured communication channels with clinical teams, and defined care team roles systematically outperform those operating as parallel community programs (Hansotte et al., 2024; Trevisi et al., 2019; Ingram et al., 2017).

The Hansotte et al. (2024) Diabetes Impact Project exemplifies health-system embedding: CHWs held health system employee status, accessed EHR data to monitor patient laboratory results and appointment adherence, and coordinated care through structured communication with clinical providers. This infrastructure enabled sustained engagement across a multi-year implementation period including pandemic disruption and produced significant HbA1c reductions with favorable acute care utilization trends. Similarly, the COPE program in the Navajo Nation achieved integration through formalized bi-directional referral and communication protocols between Community Health Representatives and IHS clinical providers, producing among the largest diabetes outcome effects in real-world implementation studies (Trevisi et al., 2019).

Ingram et al. (2017) demonstrated that EHR integration enables programs to identify patients at risk of poor outcomes, track CHW activity, and conduct performance monitoring all critical functions for quality improvement. Otero-Sabogal et al. (2010) outlined physician-CHW partnership models that optimize care coordination without encroaching on professional boundaries, while Wennerstrom et al. (2015) documented the organizational development investments required for successful integration into patient-centered medical home models, including workflow redesign, role clarification, and clinical staff training. These findings collectively affirm that integration is not an automatic consequence of co-location but requires deliberate organizational development.

4.2. Encounter Intensity and Engagement Patterns

A dose-response relationship between CHW encounter frequency and clinical outcomes is one of the most robust and practically significant findings in the literature. Lopez et al. (2024) provided the clearest evidence: participants with ≥10 CHW encounters achieved significantly greater systolic blood pressure reductions at both three-month and 15-month assessments compared to those with lower engagement, with a consistent dose-response gradient. This pattern was replicated across diabetes outcome studies (Kane et al., 2016; Hansotte et al., 2024). Counterevidence from Wu et al. (2024) illuminates the consequences of insufficient engagement. An implementation evaluation using the RE-AIM framework found that despite a programmatic target of 120-day engagement, median actual engagement lasted 32.8 days with a mean of 2.8 encounters far below the dose required for clinical benefit. No significant differences in HbA1c or blood pressure control emerged overall, with modest gains observed only in the White patient subgroup. Wu et al. (2024) attributed this implementation failure to inadequate CHW staffing capacity, insufficient integration into clinical workflows, and patient-level barriers including transportation and competing life priorities. Effective programs address encounter intensity through multi-modal contact strategies. The TIME intervention (Vaughan et al., 2021, 2022) combined monthly three-hour group visits led by CHWs with weekly mobile health contacts creating multiple touchpoints that reinforced behavior change education while accommodating diverse scheduling preferences. Turner et al. (2020) demonstrated that both telephone-based and visit-based CHW care can be effective, with modality selected based on patient preferences and access barriers. Spencer et al. (2018) showed that transitioning from professional CHW to peer-leader-facilitated group sessions sustained HbA1c improvements through 18 months at lower per-contact cost, offering a scalable strategy for maintaining engagement intensity.

4.3. Training, Supervision, and Cultural Competency

CHW training models range from brief two-week orientations to multi-month comprehensive curricula, with implications for both effectiveness and scalability. Training programs that integrate generic CHW competencies (communication, health education, care navigation, ethical practice) with condition-specific knowledge (disease pathophysiology, medication adherence strategies, self-monitoring skills) appear most effective (Cherrington et al., 2008; Collinsworth et al., 2014).

Cultural competency training is particularly critical for programs serving racial and ethnic minority populations. CHWs who share cultural backgrounds, languages, and lived experiences with program participants consistently produce superior outcomes compared to programs without cultural concordance (Spencer et al., 2018; Islam et al., 2023; Kim et al., 2016). Beyond linguistic matching, cultural competency encompasses knowledge of health beliefs, family decision-making structures, dietary traditions, and community trust dynamics. Satterfield et al. (2002) documented how CHRs in Native American communities leveraged deep knowledge of tribal culture and historical trauma to provide support that outside professionals could not replicate. DeWolf et al. (2024) found that specialty cardiovascular disease and diabetes training did not significantly enhance clinical outcomes beyond general CHW competencies, suggesting that foundational CHW skills when combined with adequate supervision and support may be sufficient for many program objectives. This has important workforce scalability implications, as it suggests that training breadth can be calibrated without sacrificing effectiveness. Ongoing supervision is consistently identified as a prerequisite for implementation fidelity: programs with structured supervision processes, regular case consultation, and peer learning networks maintain quality and reduce CHW burnout and turnover (Cherrington et al., 2008; Collinsworth et al., 2014).

Certification and credentialing frameworks vary widely across states. While certification supports quality assurance and workforce recognition, overly stringent requirements can exclude community members with informal competencies but high cultural capital. The policy challenge is designing certification systems that set meaningful minimum standards while preserving accessibility for diverse community members (London et al., 2016; Collinsworth et al., 2014).

4.4. Organizational Readiness, Sustainability, and Staffing

Organizational readiness is a foundational, often underappreciated, determinant of CHW program success. Healthcare organizations that undertake CHW integration without adequate preparation including leadership commitment, infrastructure investment, workflow redesign, and cultural change consistently encounter implementation failures that limit clinical effectiveness (Collinsworth et al., 2014; Wennerstrom et al., 2015). Conversely, organizations that complete deliberate readiness assessment and development processes achieve better integration outcomes and longer-term sustainability.

Sustainability is the most frequently reported challenge in the CHW literature. Programs funded through time-limited grants regularly demonstrate strong pilot outcomes that cannot be sustained once initial funding expires (London et al., 2016; Cross-Barnet et al., 2018). Financially sustainable programs develop diversified funding portfolios combining Medicaid reimbursement, value-based payment shared savings, hospital community benefit funds, and targeted grants rather than relying on any single revenue source. Programs that position CHW activities as integral to routine care operations rather than add-on services achieve more durable sustainability, as their value is embedded in organizational workflow rather than contingent on external funding cycles. Staffing models significantly affect program quality and sustainability. Direct CHW employment by healthcare organizations produces more stable service delivery, better care team integration, and lower turnover compared to contracted or volunteer models (London et al., 2016; Mayfield-Johnson et al., 2013). However, direct employment requires organizational commitment to competitive compensation, benefits, and professional development. Caseload management is also critical: programs with unmanageable CHW caseloads experience reduced contact frequency, reduced service quality, and accelerated burnout. CHW:patient ratios should be calibrated to allow the encounter frequency required for clinical effectiveness (Lopez et al., 2024; Wu et al., 2024).

Table 3 Key Implementation Factors, Evidence, and Program Design Implications

Implementation Factor	Evidence Source	Mechanism of Action	Program Design Implication
Health system embedding	Hansotte et al. (2024); Trevisi et al. (2019)	EHR access; structured provider communication; legitimacy in care team	Employ CHWs within health system; integrate into EHR workflows
Encounter intensity (dose-response)	Lopez et al. (2024); Wu et al. (2024)	Sustained behavior change support; medication monitoring; early problem detection	Target ≥10 encounters; monitor engagement metrics; address barriers proactively
Cultural concordance	Islam et al. (2023); Spencer et al. (2018); Kim et al. (2016)	Trust; culturally relevant education; reduced barriers to engagement	Recruit CHWs from target communities; provide cultural competency training
Multi-modal contact	Vaughan et al. (2022); Turner et al. (2020)	Accommodates diverse schedules; sustains engagement between in-person visits	Combine group visits, individual sessions, telephone, and mobile health contacts
Supervision and training quality	Cherrington et al. (2008); DeWolf et al. (2024)	Maintains fidelity; supports CHW competency; reduces burnout/turnover	Provide regular supervision, case consultation, peer learning; budget for supervision time
Organizational readiness	Collinsworth et al. (2014); Wennerstrom et al. (2015)	Leadership support enables workflow redesign, policy development, cultural acceptance	Conduct readiness assessment before implementation; invest in change management
Sustainable financing	London et al. (2016); Cross-Barnet et al. (2018)	Program continuity; workforce stability; quality maintenance	Diversify funding across Medicaid, VBP, community benefit, and grants

Note. EHR = electronic health record; VBP = value-based payment.

5. Economic evidence and financing models

5.1. Cost-Effectiveness Analyses

The economic case for CHW investment has strengthened significantly, though the evidence base remains smaller than the clinical effectiveness literature. Smith et al. (2019) conducted the most methodologically rigorous economic analysis, employing Markov state-transition modeling across seven cardiovascular health states including acute myocardial infarction, post-MI, ischemic and hemorrhagic stroke, post-stroke, congestive heart failure, and death to project the long-term value of the Colorado Heart Healthy Solutions statewide CHW intervention. The analysis found net incremental savings of $3,576 per participant, with QALY gains of 0.16 for average-risk males and 0.08 for average-risk females. For at-risk subgroups, QALY gains increased to 0.26 (males) and 0.36 (females), underscoring the heightened value of CHW programs when targeted to high-risk individuals (Smith et al., 2019). Ye et al. (2021) generated condition-specific economic projections using empirical data from Spencer et al.'s (2018) trial and the validated Michigan Model of Diabetes. Over a 20-year time horizon, the CHW + peer-leader (PL) augmentation model dominated both enhanced usual care and CHW-only intervention with an incremental cost-effectiveness ratio (ICER) of $28,800/QALY relative to usual care well below the conventional $50,000/QALY threshold for cost-effectiveness. CHW-only intervention showed an ICER of $430,600/QALY relative to usual care, rendering it less cost-effective without the sustained peer-support component. This finding reinforces the economic argument for program designs that extend engagement through lower-cost peer-led models beyond the initial CHW intervention period (Ye et al., 2021).

5.2. Healthcare Utilization Impacts

CHW interventions produce downstream reductions in high-cost acute care utilization that substantially affect program economics. Kangovi et al. (2017) documented a nine-percentage-point reduction in hospitalization rates (32% to 23%) at one year a finding with direct cost implications given average hospitalization costs of $10,000–$20,000 per

admission. Hansotte et al. (2024) found trends toward reduced emergency department visits (OR 0.88) and hospital admissions (OR 0.81) in the CHW program cohort over a multi-year period. Babamoto et al. (2009) reported CHW-assigned Hispanic patients with diabetes achieved significantly better emergency department utilization outcomes than case management and usual care controls. Return on investment calculations must integrate program costs with healthcare savings, clinical outcome improvements, productivity benefits, and post-intervention effect persistence. CHW program costs vary by caseload and intensity: moderate-intensity programs (50–100 patients per CHW; 6–10 contacts per patient per year) typically cost $300–$800 per participant annually, while intensive models (high-frequency contact, smaller caseloads) range from $1,000–$2,000 per participant per year. These cost ranges compare favorably to average annual per-patient chronic disease healthcare expenditures exceeding $10,000 for high-burden populations (Smith et al., 2019; Ye et al., 2021).

5.3. Financing Mechanisms and Sustainability Models

Medicaid reimbursement is the most consequential and accessible financing mechanism for CHW programs serving low-income populations. States including Minnesota, Oregon, New Mexico, and Alaska have established Medicaid benefit categories for qualified CHW services, though reimbursement structures vary considerably across service definitions, eligible CHW qualifications, reimbursement rates, and administrative requirements (London et al., 2016). Cross-Barnet et al. (2018) evaluated the Health Care Innovation Awards program, confirming that CHW programs can achieve quality improvements at lower total cost under appropriate incentive structures, providing a model for value-based financing transition. Value-based payment (VBP) models offer an increasingly important financing pathway. Accountable care organizations (ACOs) under the Medicare Shared Savings Program, Next Generation ACO models, and Medicaid managed care capitation arrangements bear financial risk for population health outcomes and have natural incentives to invest in CHW programs that improve quality metrics and reduce acute care utilization. As healthcare continues to shift from fee-for-service to risk-based reimbursement, CHW programs become not merely a social investment but a financial strategy for organizations managing population health (Ayanian, 2021; Smith et al., 2019). Non-profit hospital community benefit spending represents an additional financing stream: CHW programs targeting chronic disease disparities in medically underserved communities qualify as community benefit activities that fulfill tax-exemption requirements (London et al., 2016).

Table 4 Financing Mechanisms for CHW Programs: Features, Advantages, and Limitations

Mechanism	Description	Advantages	Limitations
Medicaid Reimbursement	State Medicaid benefit categories reimburse qualified CHW services delivered by enrolled providers	Stable; covers high-need low-income populations; scalable	State variability; reimbursement rate adequacy; administrative burden
Medicare Advantage	CHW services offered as supplemental care management benefits in MA plans	Reaches older adults; integrated into managed care	Traditional Medicare does not cover CHW services directly
Value-Based Payment / ACO Shared Savings	ACOs invest in CHW programs as population health management strategy to improve quality and reduce costs	Aligns financial incentives; sustainable without specific CHW codes	Requires demonstrated ROI; may not cover upfront program development costs
Hospital Community Benefit	Non-profit hospital community benefit spending funds CHW programs addressing community health needs	Available to any non-profit hospital; flexible use; meets CHNA requirements	Not universally available; subject to hospital discretion; not guaranteed
Grants and Philanthropy	Time-limited foundation and federal grants (e.g., HCIA, CMMI) support CHW pilot programs	Enables innovation and pilot testing; builds evidence base	Not sustainable long-term; requires transition planning to ongoing financing
State Public Health Funding	State chronic disease prevention budgets support CHW programs in high-disparity communities	Population health-oriented; equity-focused	Vulnerable to state budget cycles; may restrict program flexibility

Note. ACO = accountable care organization; CHNA = community health needs assessment; MA = Medicare Advantage; ROI = return on investment; HCIA = Health Care Innovation Awards; CMMI = Center for Medicare and Medicaid Innovation.

6. Discussion

The synthesis of evidence presented in this review affirms that CHW-led interventions represent a mature, evidence-based, and contextually flexible strategy for chronic disease prevention and management in the United States. The consistency of positive findings across diverse populations, healthcare settings, and chronic conditions constitutes a compelling basis for policy investment and program scaling. At the same time, meaningful heterogeneity in effect sizes across studies reveals implementation quality as a critical moderator of outcome a finding that should shape how programs are designed, funded, and evaluated. Five principal findings emerge from this synthesis with particular implications for policy and practice.

First, CHW interventions consistently produce clinically meaningful improvements in chronic disease biomarkers. HbA1c reductions of 0.5–1.0 percentage points, hypertension control rate improvements of 15–27 percentage points, and population-level cardiovascular risk score reductions represent outcomes that rival pharmaceutical intervention effects in high-disparity populations frequently at substantially lower cost and with the added benefit of self-management skill development, social support, and improved healthcare access (Smith et al., 2019; Islam et al., 2023; Spencer et al., 2018).

Second, a dose-response relationship between encounter frequency and clinical outcomes has been established with sufficient consistency to inform minimum program standards. Programs with fewer than five CHW encounters demonstrate negligible clinical benefits, while those achieving ≥10 encounters demonstrate significant improvements across multiple biomarker and utilization outcomes. This finding should be reflected in program design requirements, staffing standards, and reimbursement policies that enable rather than financially constrain adequate encounter intensity (Lopez et al., 2024; Wu et al., 2024).

Third, health system integration is the structural factor most consistently differentiating effective from ineffective programs. This does not diminish the value of community trust and cultural concordance which remain fundamental to CHW effectiveness but affirms that CHWs achieve their greatest impact when simultaneously rooted in communities and embedded in health systems with access to clinical data, professional communication channels, and care team standing. The best programs achieve both (Hansotte et al., 2024; Trevisi et al., 2019). Cultural concordance and CHW-community trust are supported by broader evidence that culturally competent, community-embedded models of care significantly improve health outcomes in underserved populations (Gordon et al., 2025; Ajayi & Thompson, 2025).

Fourth, CHW programs demonstrate population-scale effectiveness and pandemic resilience. The COVID-19 pandemic exposed the vulnerability of clinic-dependent chronic disease management and simultaneously validated the resilience of well-designed CHW programs that could transition to remote and hybrid service modalities without loss of effectiveness (Hansotte et al., 2024). This adaptability is a strategic asset for healthcare systems designing resilient population health infrastructure.

Fifth, the economic evidence supports CHW investment across multiple analytical frameworks. Whether viewed through cost-effectiveness analysis (ICER well below $50,000/QALY for sustained engagement models), utilization impact analysis (hospitalizations reduced by 9 percentage points), or return-on-investment analysis ($3,576 net savings per cardiovascular program participant), CHW programs compare favorably against alternative interventions (Smith et al., 2019; Ye et al., 2021; Kangovi et al., 2017). The economic case is strongest for programs that achieve adequate engagement intensity and incorporate sustained peer-support elements following the CHW phase.

The implementation science evidence carries direct implications for healthcare organizations planning or expanding CHW programs. Organizational readiness assessment should precede program implementation: organizations that attempt CHW integration without adequate leadership commitment, workflow redesign capacity, and cultural openness consistently achieve suboptimal outcomes and sustainability (Wennerstrom et al., 2015; Collinsworth et al., 2014). Systematic approaches to workforce development including cultural concordance prioritization in recruitment, structured training, robust ongoing supervision, and competitive compensation are prerequisites for program effectiveness rather than desirable add-ons.

Quality monitoring systems must track encounter intensity, engagement rates, and clinical outcomes in near-real time to enable timely intervention when programs fail to achieve implementation targets. The RE-AIM framework (Wu et al., 2024) and similar implementation evaluation tools should be standard components of CHW program governance, informing continuous quality improvement cycles. The CHW workforce's social work roots are relevant here: evidence from social work interventions confirms that addressing psychosocial and environmental determinants such as trauma, family instability, and social isolation enhances long-term health outcomes in vulnerable populations, and CHW

programs that incorporate these dimensions achieve broader and more durable effects (Egbunu & Cudjoe-Mensah, 2025).

Despite the breadth and consistency of positive findings, the CHW evidence base carries important limitations that should shape future research investments. Heterogeneity in study designs, populations, intervention components, and outcome measures limits direct cross-study comparability and prevents rigorous meta-analyses. The field would benefit from consensus on core outcome sets for CHW chronic disease trials standardizing a minimum set of biomarker, utilization, and patient-reported outcomes while permitting additional context-specific outcomes (Kim et al., 2016). Follow-up durations are predominantly short (6–12 months), with only a small number of studies examining outcomes beyond two years (Vaughan et al., 2022). Since chronic disease outcomes cardiovascular events, diabetic complications, mortality manifest over years to decades, longer-duration studies with linkage to administrative data sources (Medicare, Medicaid, death registries) are needed to fully characterize long-term program value. Economic analyses remain underdeveloped relative to clinical effectiveness literature. Future studies should include comprehensive costing (incorporating training, supervision, infrastructure, and opportunity costs), multi-payer perspective analyses, and budget impact analyses relevant to state Medicaid programs and health systems making coverage decisions. Subgroup economic analyses by risk level, population characteristics, and intervention intensity would further guide investment targeting (Smith et al., 2019; Ye et al., 2021).

Implementation research on organizational factors and implementation strategies is particularly underdeveloped. Questions of which organizational characteristics predict successful CHW integration, which implementation strategies are most effective in what contexts, and how programs can achieve fidelity while adapting to local context remain insufficiently addressed (Wu et al., 2024; Collinsworth et al., 2013). Mixed-methods comparative effectiveness studies combining quantitative outcome assessment with qualitative implementation process analysis are needed to generate actionable implementation guidance.

Finally, health equity research must be more directly embedded in CHW evaluation. Most studies demonstrate general effectiveness without specifically testing whether CHW interventions reduce disparities between advantaged and disadvantaged groups. Equity-focused analyses examining differential engagement, effectiveness, and disparity reduction effects across socioeconomic and racial/ethnic strata would strengthen the evidence base for CHW programs as health equity interventions (Hill-Briggs et al., 2021; Ugwu et al., 2025).

7. Policy recommendations

The evidence synthesized in this review supports a multi-level policy agenda spanning federal, state, healthcare organization, and community levels. These recommendations are grounded in the implementation science, economic, and clinical effectiveness findings presented above.

7.1. Federal Policy Priorities

Federal policy should expand Medicare coverage of qualifying CHW services for chronic disease management, addressing the single largest financing gap for organizations serving older adult populations. The extension of CMS Innovation Center authority to test and evaluate CHW reimbursement models within traditional Medicare would provide a structured pathway toward coverage expansion. Federal Medicaid programs should be incentivized to develop state CHW benefit categories with adequate reimbursement rates, building on the experiences of pioneer states (London et al., 2016; Ayanian, 2021). Federal investment in CHW workforce development infrastructure including training scholarships, community college partnership funding, and continuing education support is essential for generating the workforce capacity required for program scaling. National competency standards should be developed collaboratively with CHW professional associations, state programs, and community organizations to provide a minimum quality framework without eliminating state and local flexibility. Federal funding should also support implementation science research on CHW programs, with particular attention to organizational factors, sustainability strategies, and health equity effects (Cherrington et al., 2008).

7.2. State Policy Priorities

State Medicaid programs should establish or expand CHW benefit categories with reimbursement rates that cover realistic program costs including training, supervision, and infrastructure, not merely direct CHW labor. Service definitions should encompass the full range of effective CHW activities: health education, care navigation, social needs screening and connection, medication adherence support, and self-management coaching. State certification frameworks should establish meaningful minimum competency standards while preserving entry-level access for community members with high cultural capital but limited formal education (London et al., 2016). States should

integrate CHW programs into chronic disease prevention strategies and health equity plans, establish quality standards and outcome reporting requirements for funded programs, and provide technical assistance infrastructure for organizations implementing CHW programs for the first time. Coordination between Medicaid, public health, and workforce development agencies would enable coherent policy support for CHW program growth (London et al., 2016; Collinsworth et al., 2014).

7.3. Healthcare Organization Policy Priorities

Healthcare organizations should conduct formal organizational readiness assessments prior to CHW program implementation, addressing leadership commitment, infrastructure availability, workflow redesign capacity, and cultural openness. CHW roles should be clearly defined with appropriate scope-of-practice boundaries, supervision structures, EHR access protocols, and communication pathways with clinical teams. Competitive compensation and benefits should be provided to support workforce recruitment and retention, recognizing the demonstrated value of CHW programs in improving clinical outcomes and reducing acute care utilization (Wennerstrom et al., 2015; London et al., 2016). Quality monitoring systems should track encounter intensity, engagement metrics, clinical outcomes, implementation fidelity, and participant satisfaction in real time, with regular review cycles and continuous quality improvement processes. Programs should establish minimum standards for encounter frequency informed by the dose-response evidence and proactively address engagement barriers through multi-modal contact strategies, flexible scheduling, and transportation support (Wu et al., 2024; Lopez et al., 2024). Sustainable financing plans should be developed in advance of grant funding expiration, identifying transition pathways to Medicaid reimbursement, value-based payment, or community benefit funding (Cross-Barnet et al., 2018).

7.4. Workforce Development and Professionalization

CHW workforce development must balance two imperatives: ensuring program quality through training and competency standards and preserving community accessibility by avoiding overly credentialized barriers to CHW careers. Career pathways that enable advancement from entry-level CHW roles to supervisory, specialty, and allied health positions in partnership with community colleges and health systems support retention and professional growth without compromising community embeddedness. Professional recognition through CHW associations, credentialing frameworks, and policy acknowledgment of CHW contributions to the healthcare team reinforce identity and supports advocacy for sustainable financing (London et al., 2016; Collinsworth et al., 2014). Compensation advocacy should highlight the value produced by CHW programs in clinical outcomes, cost savings, and health equity to support wage standards commensurate with this value. The framing of CHWs as 'reverse innovators' (Lysaught, 2013) bringing community wisdom and culturally embedded care strategies into health systems, rather than simply extending clinical reach into communities positions CHW programs as a source of innovation rather than a low-cost workaround, supporting stronger compensation and recognition arguments.

8. Conclusion

Community health worker-led models for chronic disease prevention and management represent one of the most evidence-supported, equity-oriented, and cost-effective innovations available to U.S. healthcare systems and public health programs. Across diabetes, hypertension, cardiovascular disease, and multimorbidity, CHW interventions produce clinically significant improvements in biomarkers, healthcare utilization, self-management capacity, and quality of life with cost-effectiveness profiles that support sustainable investment even under conservative assumptions. The consistency of these clinical findings is matched by the clarity of the implementation science: programs that embed CHWs within health systems, achieve adequate encounter intensity, leverage cultural concordance, and invest in organizational readiness produce substantially better outcomes than those that fail on these dimensions. The COVID-19 pandemic further demonstrated CHW programs' adaptability as a resilient, community-anchored care delivery platform capable of sustaining services when conventional healthcare access is disrupted.

The most urgent barriers to CHW program scaling are not clinical the evidence of effectiveness is sufficient but structural and financial. Developing sustainable reimbursement mechanisms, establishing minimum quality and encounter intensity standards, building CHW workforce infrastructure, and investing in implementation science to accelerate learning from both successes and failures are the policy priorities that will determine whether the promise of CHW-led care is realized at population scale. As the United States health system continues its shift toward value-based care, accountable care arrangements, and population health management, CHW programs are increasingly not only a health equity strategy but a financial strategy. Organizations bearing financial risk for population health outcomes have strong incentives to invest in CHW programs that improve quality metrics, reduce preventable hospitalizations and emergency department visits, and address the social determinants that drive disparate chronic disease burden.

With the right policy architecture, CHW-led models are positioned to become a cornerstone of chronic disease management for underserved U.S. populations in the coming decade.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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