Addressing Asthma Disparities in Latino Youth: A Framework for Culturally Tailored Interventions and Community Health Worker Integration

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TC660H

Plan II Honors Program

The University of Texas at Austin

April 25, 2025

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ABSTRACT

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Latino youth in the United States experience disproportionately high rates of asthma prevalence and morbidity, driven by a complex interplay of social determinants of health, environmental exposures, cultural barriers, and systemic inequities. This thesis examines pediatric asthma disparities through the lens of Canino et al.'s (2006) conceptual framework, which organizes contributing factors into the relevant domains of Individual Characteristics, Environment/Context, and the Healthcare System. Drawing upon an extensive review of interdisciplinary literature, this research identifies both structural drivers of inequity and modifiable barriers to asthma management within Latino communities. A central focus of this thesis is the role of Community Health Workers (CHWs) as culturally responsive agents of change who address asthma disparities through health education, care coordination, environmental interventions, and psychosocial support. This thesis evaluates CHW-led pediatric asthma interventions and presents evidence of reduced emergency department utilization, improved medication adherence, and increased caregiver confidence. Despite their effectiveness, persistent gaps remain in funding stability, training standardization, healthcare system integration, and long-term outcome evaluation. In response, this thesis proposes a modified framework that expands on Canino et al.'s (2006) model by embedding CHWs into the Process of Care domain and establishing bidirectional linkages to the three primary domains. This revised framework reflects CHWs' dynamic role as cultural and clinical intermediaries capable of reshaping access, quality, and outcomes in asthma care. Policy recommendations include sustainable Medicaid reimbursement mechanisms, standardized state-level CHW certification, and the formal integration of CHWs into multidisciplinary care teams.

ACKNOWLEDGMENTS

I would like to express my deepest gratitude to my thesis committee for their invaluable guidance and support as this project developed. To my family and friends, thank you for your unwavering belief in me and for the encouragement you've provided throughout this journey.

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Introduction

Asthma is a chronic respiratory condition and a growing public health crisis, currently affecting nearly 5 million children across the United States, with Latino youth experiencing a disproportionately high burden (Centers for Disease Control and Prevention, 2021; Akinbami et al. 2016). Data from the 2019–2021 National Health Interview Survey (NHIS) indicate that current asthma prevalence among Hispanic children under 18 stands at 5.9%, slightly higher than the 5.5% reported among non-Hispanic White children (CDC, 2021). However, disparities also exist within Latino subgroups: Puerto Rican children report the highest current asthma prevalence at 17.0%, compared to a significantly lower rate of 6.9% among Mexican American children under 18 (CDC, 2018). These disparities extend beyond prevalence rates to include more severe asthma-related complications. Latino children are more likely to experience elevated rates of emergency department visits, hospitalizations, and missed school days due to uncontrolled asthma (Federico et al. 2020). Between 2016 and 2018, Hispanic children were nearly twice as likely as their non-Hispanic White peers to visit the emergency department for asthma-related care (Office of Minority Health, 2025). Puerto Rican children, in particular, experience not only the highest asthma prevalence but also disproportionately severe outcomes, including greater reliance on emergency services and increased hospitalization rates (Chen et al., 2013).

The persistence of asthma disparities among Latino youth is driven by the convergence of socioeconomic, systemic, cultural, and environmental barriers that collectively increase vulnerability to poor health outcomes. Limited access to healthcare, disproportionate exposure to environmental pollutants, inadequate housing conditions, and structural inequities—such as lower rates of health insurance coverage and reduced access to specialty care—significantly

contribute to suboptimal asthma control (Basch, 2011; Canino et al., 2006). In addition, cultural and linguistic barriers, along with unfamiliarity in navigating healthcare systems, often hinder effective communication and reduce adherence to asthma management plans (Breysse et al., 2014). These interrelated challenges perpetuate a cycle of poorly managed asthma, resulting in preventable emergency department visits, hospitalizations, escalating healthcare costs, and lower quality of life (Chen et al., 2013). Addressing these disparities requires a comprehensive public health response that extends beyond traditional clinical care models to include culturally responsive, community-based interventions tailored to the lived experiences of Latino families.

Community Health Workers (CHWs), also known as *Promotores de Salud*, serve as key facilitators in reducing pediatric asthma disparities by bridging cultural, linguistic, and systemic gaps in healthcare delivery. CHWs provide culturally tailored education, conduct home-based environmental assessments, assist families in navigating complex healthcare systems, and offer personalized support to caregivers managing asthma in high-risk households. Current research in this area demonstrates that CHW-led interventions significantly improve asthma control and treatment adherence by addressing both behavioral and environmental factors that contribute to poor asthma outcomes (Krieger et al., 2005; Breysse et al., 2014). However, despite their demonstrated success, CHWs remain underutilized within mainstream healthcare systems, and their potential to mitigate disparities remains underleveraged in policy and institutional practice.

This thesis examines the role of CHWs in delivering pediatric asthma interventions aimed at reducing disparities among Latino youth. Drawing upon Canino et al.'s (2006) conceptual framework of pediatric asthma disparities, this thesis argues for the integration of CHW-facilitated strategies into key domains of asthma care—individual, systemic, and environmental. Through a comprehensive literature review, this research synthesizes current

evidence on asthma disparities and evaluates CHW-led interventions that directly address those inequities. By proposing a revised conceptual model that positions CHWs as central agents within the process of care, this thesis offers a practical, community-based approach to improving health equity. Its findings aim to inform future healthcare policy, clinical practices, and public health programs committed to advancing sustainable, culturally grounded solutions for Latino youth living with asthma.

Personal statement

After just a few inches of rain, I can still recall the earthy scent of stagnant water that lingered for days, accompanied by swarms of mosquitoes that left my primos and me covered in red, itchy welts before the next morning at school. Growing up in the *colonias*—unincorporated rural communities along the Texas-Mexico border—meant learning to navigate a landscape shaped by infrastructural neglect. We lived without paved roads, reliable drainage, or access to potable water. But what lingered longer than the floodwater was the chronic uncertainty surrounding our health.

One afternoon, a knock at the door introduced us to a *promotora*, who spoke gently to my family about managing chronic conditions disproportionately affecting *colonia* residents, such as type II diabetes, obesity, and cardiovascular disease. I watched as a sense of relief washed over my *abuela's* face when she learned how to use her new glucometer and manage her insulin—from someone who not only spoke her language but understood our lived reality. The *promotora* offered more than medical advice; she offered respect, cultural understanding, and guidance tailored to our daily lives as individuals, a family, and a community. That moment remains with me today. It revealed how deeply social determinants shape health and access to

care, and it sparked my lifelong commitment to pursuing health equity and community-based research.

Working as a medical scribe in the adolescent department of a Federally Qualified Health Center (FQHC) deepened my understanding of the barriers that youth face in accessing care. Through countless acute and annual well visits, I recorded the stories of young patients eager to make meaningful changes to improve their health. Yet, from the very first encounter, many faced complex challenges that extended beyond the four walls of the exam room. Each visit sharpened my awareness of how deeply layered and intersectional healthcare access truly is.

As an undergraduate research assistant in the Pediatric Coping and Language Lab, I further developed skills in literature review, adherence coding, and participant recruitment—tools that helped me examine how behavioral science and family dynamics shape chronic disease management. Learning about the role of facilitators in the Family Asthma Study cemented my interest in community-based participatory research. Observing how CHWs built trust with caregivers, delivered education on asthma triggers, and filled systemic gaps reminded me of that first *promotora* in my *abuela's* home. That same passion guided my work as an American Cancer Society Undergraduate Research Intern, where I studied the role of *promotores* in delivering cancer screening interventions to Latino populations. In each role, I came back to one truth: care should be rooted in culture, communication, and trust.

As a recruiter for a pediatric asthma intervention study in the clinical setting, I encountered firsthand the operational challenges in ensuring consistent outreach in both clinical and community settings. In clinics, provider engagement varied—some handed out flyers, others provided brief verbal overviews, while some relied on checkout summaries. Timing, visit type, and competing priorities all influenced whether the study was even mentioned. Medical

assistants often compiled paperwork and distributed after-visit materials, but without standardized workflows, the intervention remained a peripheral resource rather than an integrated part of care.

Community recruitment also had its own hurdles. At health fairs serving Spanish-speaking Latino families, I met mothers hesitant to sign their children up for a study they didn't fully understand. Their skepticism reflected a broader history of exclusion from healthcare systems and research initiatives. However, emphasizing flexible scheduling, Spanish-speaking CHWs, and tangible incentives improved participation and trust.

These experiences affirmed what my lived experience has long taught me: that effective public health work must go beyond information delivery. It must meet people where they are—linguistically, culturally, and emotionally. The *promotora* who entered my home didn't just offer a tool for diabetes management—she modeled what person-centered, equitable care could look like. I carry that lesson into every academic, clinical, and research setting I enter. It continues to guide my commitment to developing culturally responsive, community-based healthcare solutions that serve the most underserved—and frames my future in public health.

Definitions

This thesis uses several key terms that are foundational to understanding the themes, interventions, and frameworks analyzed throughout the chapters. These definitions offer clarity and context, especially in relation to health equity, cultural responsiveness, and the role of CHWs in pediatric asthma management.

Community Health Workers (CHWs) are non-medical frontline public health workers who are trusted members of, or have a close understanding of, the communities they serve (Texas Department of State Health Services, n.d.). This close relationship allows CHWs to act as

cultural liaisons between health and social services and the community, improving access to services while enhancing the cultural sensitivity and quality of care delivery (American Public Health Association, n.d.). In Spanish-speaking communities, CHWs are often referred to as ***Promotores de Salud***, translating to "health promoters," a term that reflects their culturally embedded roles in education, advocacy, and trust-building within underserved Latino communities (Logan & Castañeda, 2020).

Many of the challenges Latino families face in managing asthma are embedded within broader **Social Determinants of Health (SDOH)**—the non-medical factors that shape health outcomes and contribute to health disparities. **SDOH** are categorized into five domains: **Economic Stability, Education Access and Quality, Healthcare Access and Quality**, **Neighborhood and Built Environment,** and **Social and Community Context** (Office of Disease Prevention and Health Promotion, n.d.). **Economic Stability** involves income level, employment status, and access to essential resources such as housing, food, and transportation—all of which affect families' ability to secure timely and sufficient care. **Education Access and Quality** are directly linked to health literacy, influencing how well individuals can understand treatment plans, navigate the healthcare system, and make informed health decisions. **Healthcare Access and Quality** refer not only to the availability of services and providers but also to culturally and linguistically tailored care that ensures meaningful engagement. **Neighborhood and Built Environment** conditions—such as substandard housing, exposure to allergens or pollutants, and limited access to clean air—have an impact on chronic disease outcomes like asthma. Lastly, **Social and Community Context** captures factors such as social cohesion, discrimination, and civic engagement, which shape individuals' trust in healthcare systems and their likelihood of seeking preventive care.

CHWs operate within, and across, each of these domains, drawing on their shared lived experiences, cultural and linguistic alignment with the communities they serve. In the domain of **Economic Stability**, CHWs assist individuals in enrolling in benefits programs such as Medicaid, SNAP, and housing assistance, alleviating financial barriers to care (Lovinsky-Desir et al., 2019). Within **Education Access and Quality**, CHWs promote health literacy by providing individualized education and helping individuals understand and apply health information in ways that reflect their cultural context and literacy level (Washburn et al., 2021). Regarding **Healthcare Access and Quality**, CHWs help patients schedule appointments, navigate insurance requirements, understand medical instructions, and overcome barriers such as transportation and language (Cook & Keesecker, 2016). In the **Neighborhood and Built Environment**, CHWs often conduct home visits and community outreach to identify unsafe conditions or environmental risks, while also facilitating access to local resources that address these hazards. Finally, within **Social and Community Context**, CHWs provide social support, advocate for marginalized populations, and serve as trusted figures who can advance health equity and promote sustained engagement with health and social services.

According to the National Institutes of Health, **Culture** consists of the shared patterns of knowledge, beliefs, behaviors, customs, and values that are shaped by language, traditions, institutions, and social norms within specific ethnic, racial, geographic, or social groups (National Institutes of Health, 2021). These cultural influences shape how individuals understand health, make decisions, and interact with healthcare systems. **Culturally Responsive Care** emphasizes honoring, understanding, and integrating cultural perspectives into health service delivery. The Minnesota Department of Health explains that **Culturally Responsive Care**

requires health systems to recognize the importance of culture and tailor interventions to reflect the lived realities of diverse communities (Minnesota Department of Health, n.d.).

By integrating cultural awareness into their work, CHWs offer a model of care that is both personalized and community-informed. This approach aligns with the National Standards for **Culturally and Linguistically Appropriate Services (CLAS)**, which call for effective, equitable, understandable, and respectful care that responds to cultural health beliefs and preferred languages (Ohta, 2015). The trust that CHWs build enables them to engage individuals in a culturally grounded manner—bridging gaps in health literacy, addressing culturally specific beliefs about disease and treatment, and facilitating more equitable interactions between communities and health institutions (Stubbe, 2020; Minnesota Department of Health, n.d.).

Under the umbrella of **Culturally Responsive Care**, three primary types of interventions are recognized: **Culturally Tailored, Culturally Sensitive,** and **Culturally Relevant Interventions**. **Culturally Tailored Interventions** involve adapting health programs and materials to align with the specific cultural values, beliefs, and practices of a target population. These adaptations extend beyond language translation to incorporate cultural norms, lived experiences, and health beliefs that shape behavior and decision-making, ultimately enhancing intervention effectiveness and community engagement (Im & Chee, 2021). **Culturally Sensitive Interventions** emphasize the recognition and respect of cultural differences, focusing on creating inclusive environments that acknowledge diverse values and traditions without necessarily altering intervention content. These interventions are built around approaches such as linguistic accessibility, representational inclusivity, and sociocultural resonance, which foster comfortability and participation (Barrera et al., 2013). **Culturally Relevant Interventions** ensure that health communication strategies are contextually meaningful and applicable to the

daily lives of the target audience, integrating community-specific values and experiences into educational messaging and service delivery (SAMHSA, 2021). These strategies are designed not just to inform, but to empower, by presenting health information in ways that resonate with the community's identity, priorities, and lived reality. Collectively, these interventions highlight the critical role of cultural alignment in reducing disparities and improving outcomes in historically marginalized populations.

The concepts of **Cultural Competence** and **Cultural Humility** are central to contemporary discussions on healthcare equity, particularly in addressing racial, ethnic, and linguistic disparities. **Cultural Competence** is traditionally defined as the acquisition of specific knowledge, attitudes, and skills that support healthcare professionals in providing effective services to people from diverse cultural backgrounds. While well-intentioned, this idea has faced criticism for the implication that cultural understanding can be mastered or completed. Scholars caution that such a static view risks reinforcing stereotypes, ignoring within-group diversity, and making generalized assumptions about cultural identity (Malat, 2013). Rather than positioning healthcare providers as experts on another's culture, **Cultural Humility** promotes a lifelong process of self-reflection, recognition of power imbalances, and openness to learn directly from patients. Further, it calls on healthcare providers to acknowledge their own biases and create space for patient perspectives that are often excluded. The emphasis is not on competence in the traditional sense, but on formulating an ethical orientation to care—one grounded in accountability and mutual respect.

While both concepts aim to support **Culturally Responsive Care**, **Cultural Humility** offers a more adaptive and socially conscious approach, particularly in community-based settings. It aligns with the ethos of CHWs, whose work requires continuous engagement with

diverse social and cultural environments. By fostering relationship-based care that is grounded in accountability and mutual respect, **Cultural Humility** complements the CHW model and strengthens efforts to build a more equitable and responsive healthcare system.

The **Community Health Worker Core Consensus (C3) Project**, developed by the National C3 Council, defines ten core roles and eleven core skills that structure CHW practice across healthcare and social service settings. These standards are grounded in earlier research and have been refined through widespread stakeholder input. Endorsed by more than fifteen national public health organizations and incorporated into over twenty state-level policy initiatives, the C3 Project offers a reference point for CHW workforce development, certification standards, and training curricula. It also highlights the universal applicability of CHWs' roles regardless of service setting, reinforcing their adaptability and relevance across diverse community health contexts (Rosenthal et al., 2014–2024).

CHW Core Roles	CHW Core Skills
Cultural Mediation, Among Individuals, Communities, and Health & Social Service Systems	Communication skills
Providing Culturally Appropriate Health Education and Information	Interpersonal & Relationship-Building Skills
Care Coordination, Case Management, and System Navigation	Service Coordination & Navigation Skills
Advocating for Individuals and Communities	Capacity Building Skills
Providing Direct Services	Advocacy Skills
Conducting Outreach	Building Individual and Community Capacity
Providing Coaching and Social Support	Individual & Community Assessment
Building Individual and Community Capacity	Outreach Skills
Implementing Individual and Community	Professional Skills and Conduct

Assessments	
Participating in Evaluation and Research	Evaluation and Research Skills
———————————————	Knowledge base

Table 1. C3 Council Findings: Roles & Competencies

At the forefront is **Cultural Mediation among Individuals, Communities, and Health & Social Service Systems**, which underscores CHWs' ability to bridge linguistic, cultural, and institutional gaps between community members and providers. CHWs use this role to promote mutual understanding, reduce miscommunication, and improve access to culturally and linguistically appropriate services. **Providing Culturally Appropriate Health Education and Information** involves tailoring health promotion and disease prevention strategies to reflect the values, language, and norms of the community served. CHWs ensure that messages resonate with patients' lived experiences, thereby improving health literacy and encouraging behavior change. Through **Care Coordination, Case Management, and System Navigation**, CHWs assist individuals with scheduling appointments, obtaining medications, and securing transportation. They play a crucial role in simplifying the healthcare process for those unfamiliar with it, especially in underserved communities. **Advocating for Individuals and Communities** is central to the CHW role. CHWs elevate the needs and voices of marginalized populations, often participating in efforts to influence healthcare policy, improve resource allocation, and challenge systemic inequities. **Providing Direct Services** includes delivering basic health screenings, facilitating referrals, distributing supplies, and responding to immediate health-related needs. These services allow CHWs to offer frontline support that is accessible and responsive to urgent concerns. **Conducting Outreach** enables CHWs to engage with community members who might otherwise be missed by traditional systems. This includes case-finding,

follow-up visits, and home-based assessments, ensuring that services reach those in greatest need. **Providing Coaching and Social Support** emphasizes CHWs' ability to motivate, empower, and emotionally support individuals in managing chronic conditions or adopting healthier behaviors. **Building Individual and Community Capacity** involves fostering leadership and self-advocacy within communities. CHWs may train peers, organize educational workshops, or facilitate collective action to promote long-term health improvements. **Implementing Individual and Community Assessments** allows CHWs to collect vital data on local health concerns, environmental risks, and service gaps. These insights help tailor interventions and inform providers and policy makers about pressing needs. **Participating in Evaluation and Research** highlights CHWs' growing role in community-based research. By collecting data, contributing local insights, and assisting in the evaluation of health programs, CHWs ensure that evidence-based strategies remain grounded in lived experience.

To effectively fulfill their multifaceted roles, **Communication Skills** allow CHWs to convey complex health information in an accessible manner and engage in meaningful dialogue with recipients. These are complemented by **Interpersonal and Relationship-building Skills**, which are needed for establishing rapport, using motivational interviewing techniques, and sustaining long-term support networks within communities. **Service Coordination and Navigation Skills** are critical in helping clients understand, access, and move through complex healthcare systems. Moreover, CHWs often assist with referrals, insurance navigation, appointment scheduling, and follow-up care. **Capacity-building Skills** further enable CHWs to empower community members through education, peer training, and the development of leadership programs that promote self-sufficiency in managing health challenges. In alignment with their advocacy role, CHWs must also possess **Advocacy Skills** to amplify community

voices and influence health policy. Integral to their role is **Building Individual and Community Capacity**, which involves mobilizing community assets, strengthening resilience, and enhancing local participation in health promotion initiatives. **Individual and Community Assessment Skills** allow CHWs to gather data, evaluate health trends, and tailor interventions based on the specific needs of the populations they serve. Through **Outreach Skills**, CHWs actively identify and engage hard-to-reach populations through home visits, community events, and door-to-door engagement, ensuring equitable access to care and resources. **Professional Skills and Conduct** are crucial to maintaining ethical standards and confidentiality in all aspects of practice. CHWs are also expected to demonstrate strong **Evaluation and Research Skills**, supporting the collection and analysis of data related to intervention outcomes and contributing to ongoing quality improvement. Additionally, a robust **Knowledge Base** underpins all CHW competencies, enabling them to integrate health education, systems knowledge, and cultural awareness.

Through these core roles and skill sets, the C3 Project demonstrates the comprehensive and community-driven nature of CHW practice. Their ability to navigate complex healthcare landscapes, empower individuals, and shape community-driven solutions ensures that CHWs remain a critical force in reducing disparities and strengthening public health outcomes.

Methodology

This thesis is guided by Canino et al.'s (2006) *Conceptual Framework of Pediatric Asthma Disparities*, which categorizes the determinants of asthma disparities into four domains: **Individual Characteristics**, **Environmental Context**, **Healthcare System**, and **Provider Characteristics**. Modified from the Institute of Medicine model, the framework highlights how inequities manifest across both the **Process of Care**—access, quality, and continuity—and **Disparities Outcomes**, such as asthma severity, prevalence, and morbidity among Latino youth

in the United States. While this research acknowledges all four domains, emphasis is placed on the **Individual Characteristics**, **Environmental Context**, and **Healthcare System** domains, where the role of CHWs is most integrally applied.

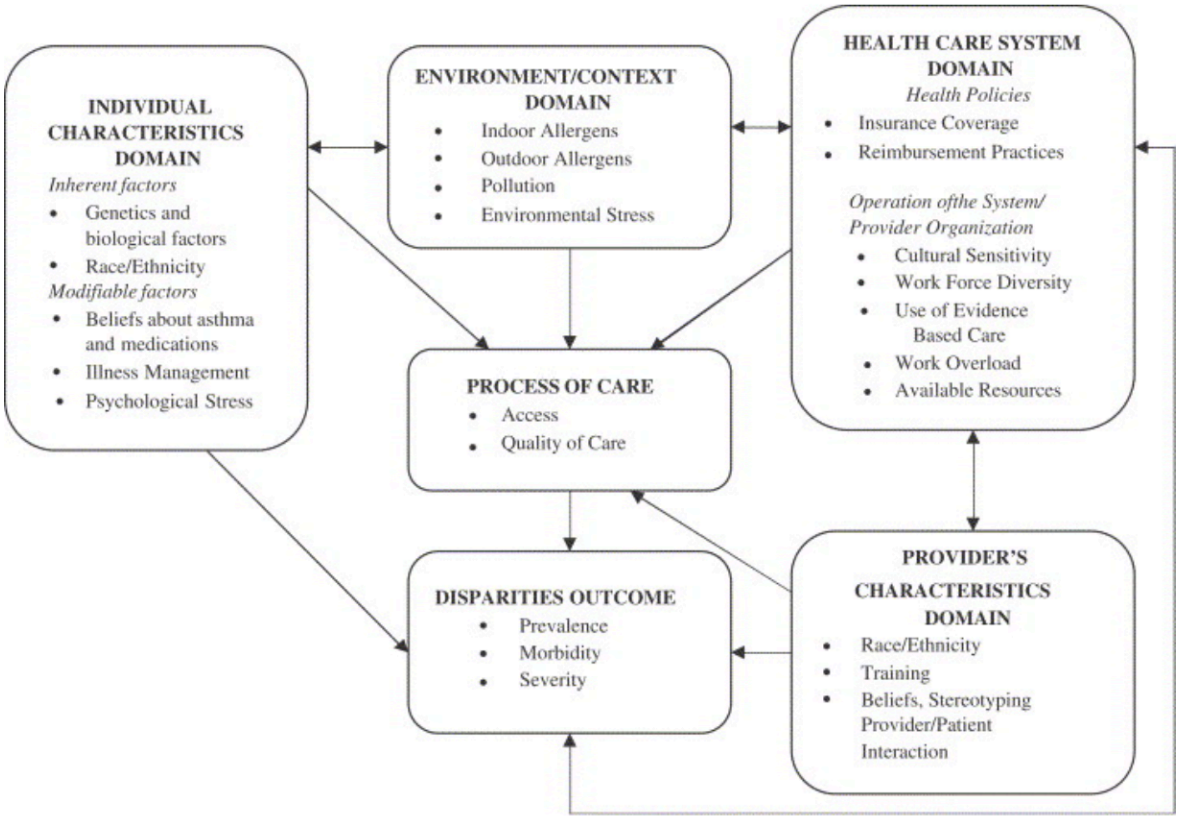

Figure 1. Conceptual framework of pediatric asthma disparities (Canino et al., 2006).

This research process consisted of a search through various academic databases to identify relevant case studies, systematic reviews, and additional clinical research. Key search terms were chosen to capture data on asthma disparities, focusing on racial/ethnic differences, intervention approaches, and relevant social determinants of health. Included studies were peer-reviewed journal articles focused on asthma disparities within Latino youth populations in the United States, examining factors relevant to the model (such as socioeconomic status, health literacy, and healthcare access), or evaluating asthma interventions involving CHWs. Exclusion

criteria included studies targeting only adults or non-Latino ethnic groups, as well as research not directly related to disparities or intervention strategies relevant to asthma outcomes.

The **Individual Characteristics Domain** highlights both inherent and modifiable factors that influence asthma management within Latino families. Inherent factors, such as genetics and biological traits, contribute to risk factors, while modifiable factors—including cultural beliefs, illness management practices, and stress—significantly shape how families engage with healthcare systems. Literature on this domain emphasizes how traditional health beliefs and familiar care practices can affect symptom reporting and treatment adherence. These barriers underscore the need for culturally relevant education strategies that address the unique beliefs and needs of Latino families and support more effective asthma self-management.

The **Environmental Context** domain outlines how physical surroundings, including housing quality and exposure to pollutants, affect asthma outcomes. Latino families—particularly those living in urban or low-income settings—are more likely to encounter poor housing conditions, including mold, cockroach infestations, and air pollution, all of which are known asthma triggers. Neighborhood stressors such as high crime rates and substandard infrastructure also contribute to chronic stress and may impair asthma management. These environmental disparities often intersect with socioeconomic vulnerabilities, amplifying the burden of asthma in Latino youth and pointing to the need for systemic interventions that improve housing quality and environmental health protections.

The **Healthcare System** domain addresses structural barriers under health policy and system operations, such as lack of insurance coverage, limited reimbursement for interpreter services, and under-resourced clinics facing workforce shortages. Literature on this domain highlights how these systemic issues affect asthma management for Latino youth. Families

without sufficient insurance often face financial constraints that prevent them from getting necessary medications, follow-up visits, or specialty care, resulting in treatment gaps and increased reliance on emergency departments for acute concerns. Additionally, complex insurance enrollment processes and the absence of linguistically competent services create further obstacles, particularly for families with limited English proficiency. These system-level challenges call for policy reforms that expand access to culturally and linguistically appropriate care, improve Medicaid infrastructure, and incorporate language services into routine care delivery.

The **Provider Characteristics** domain emphasizes the quality of interactions between healthcare professionals and patients, encompassing factors such as provider race and ethnicity, training, and responsiveness to cultural and linguistic needs. Research indicates that clinical uncertainty in cross-cultural encounters can lead to miscommunication and reduced quality of care. Although the patient-provider dynamic is not the central focus of this thesis, it remains relevant in the context of CHWs. When integrated into clinical settings, CHWs enhance communication between providers and families by helping to align healthcare recommendations with patients' cultural values and language preferences. This collaboration helps bridge gaps in understanding and supports families in navigating healthcare systems more effectively.

Limitations

The scope of the literature is mostly confined to U.S.-based research indexed in major academic databases, which limits the inclusion of international perspectives and comparative insights into Latino asthma disparities across different healthcare systems. While the focus on U.S. Latino populations ensures contextual relevance, the exclusion of global models of community-based asthma interventions restricts broader generalizability. The reviewed studies

vary widely in methodological rigor, with many relying on small sample sizes, cross-sectional designs, and limited follow-up periods. These factors hinder the ability to assess the long-term sustainability and scalability of CHW-led interventions. Moreover, the heterogeneity within Latino subgroups—such as differences between Mexican American, Puerto Rican, and Central American communities—is underexplored, despite evidence suggesting that subgroup-specific cultural and socioeconomic contexts significantly affect asthma outcomes. A number of studies lacked standardized outcome measures or uniform definitions of asthma control and CHW roles, making cross-study comparisons difficult. This variability complicates the evaluation of intervention efficacy and the synthesis of best practices. Additionally, while this review identifies CHWs as pivotal to addressing disparities in pediatric asthma, the evidence base remains limited in capturing their integration within multidisciplinary healthcare teams, long-term career sustainability, and the institutional structures required to support their roles. Future research may emphasize longitudinal studies, subgroup-specific analyses, and standardized evaluation frameworks to more comprehensively assess the impact of CHW-facilitated, culturally tailored interventions.

Section 1: Structural and Systemic Drivers of Asthma Disparities Among Latino Youth

Asthma disparities among Latino youth are deeply shaped by a combination of structural and systemic barriers, including socioeconomic status (SES), healthcare accessibility, environmental exposures, and racial/ethnic inequities within healthcare and social institutions. These interlocking determinants not only hinder effective asthma management but also contribute to higher prevalence, morbidity, and mortality rates among Latino children compared to non-Hispanic White youth (Akinbami et al., 2016; CDC, 2021). Understanding the systemic

nature of these disparities reveals the need for multifaceted, equity-centered interventions that address both upstream social determinants and downstream health outcomes

Socioeconomic Disparities and Asthma Outcomes

Low socioeconomic status (SES) is a core determinant of asthma outcomes in Latino populations, influencing access to healthcare, stable housing, education, and employment—each of which is critical for managing chronic conditions like asthma. Latino children living in poverty are disproportionately affected by asthma-related hospitalizations, missed school days, and emergency department visits due to reduced access to routine care and preventive services (Akinbami et al., 2016; Elder et al., 2017). These inequities are compounded by structural barriers, including high out-of-pocket healthcare costs, limited access to insurance, and overburdened safety-net health systems.

Substandard housing, often more prevalent in low-income Latino neighborhoods, further exacerbates these disparities. Poor housing conditions—such as exposure to mold, cockroach allergens, dust mites, and inadequate ventilation—are strongly associated with asthma exacerbations and higher rates of morbidity (Keet et al., 2015; Huebschmann et al., 2024). Children living in deteriorated housing are more likely to be exposed to environmental triggers that make symptom control more challenging, leading to a cycle of exacerbations that disrupt daily activities and increase reliance on emergency services.

The economic challenges faced by Latino families were significantly intensified during the COVID-19 pandemic, which resulted in widespread job loss and decreased health insurance coverage. As a result, many families experienced greater constraints to maintaining routine asthma care and managing symptoms effectively—worsening already fragile access to health services (Lovinsky-Desir et al., 2024).The pandemic has underscored the urgency of policies

aimed at expanding insurance coverage, stabilizing employment opportunities, and addressing housing insecurity.

Furthermore, chronic stress associated with financial strain, food insecurity, and unstable employment may contribute to poor asthma outcomes through physiological mechanisms such as increased inflammation and compromised immune function (Woodley, 2019). These psychosocial stressors, often overlooked in traditional asthma care models, call for integrated interventions that address both clinical management and the underlying social conditions affecting asthma control. To effectively address SES-related asthma disparities in Latino populations, public health efforts must focus on upstream interventions that improve housing quality, increase access to affordable and culturally responsive care, and enhance economic stability through social support programs and policy reforms.

Environmental Exposures and Asthma Disparities

Environmental exposures also play a key role in asthma disparities, particularly in urban Latino communities where elevated levels of traffic-related pollution, industrial emissions, and indoor allergens are prevalent. Latino youth living in densely populated, low-income areas face increased exposure to nitrogen dioxide, particulate matter, and mold, leading to increased respiratory inflammation, reduced lung function, and heightened asthma morbidity. Such exposures are associated with reduced lung function and heightened emergency department utilization due to uncontrolled symptoms (Keet et al. 2015; Basch, 2011).

These layered exposures, both within and outside the home, contribute to cumulative environmental burdens that disproportionately affect low-income Latino families. Many schools in these communities also lack proper ventilation or are located near highways or industrial facilities, increasing daily exposure (Grant, 2022). Additionally, families in rural areas face

distinct environmental risks. Latino children in these regions are frequently exposed to pesticide residues and emissions from nearby agricultural activities, which have been linked to respiratory issues and asthma exacerbations (Drieling et al., 2022). Geographic isolation and limited access to environmental health services in rural communities further restrict the ability of Latino families to mitigate these threats (Li, 2017).

Short-term interventions such as improved air filtration and home-based environmental education have shown promise in alleviating immediate symptoms, but long-term asthma control requires systemic change. Studies emphasize the importance of multi-level responses that include policy measures, environmental health monitoring, and public investment in safer housing and cleaner community infrastructure (Ferreira-Magalhães, 2015). Addressing these disparities requires place-based interventions informed by environmental justice, community voice, and sustained public health commitment to reducing toxic exposure in historically marginalized neighborhoods.

Racial and Ethnic Disparities in Healthcare Access and Quality

Systemic racial and ethnic disparities in the U.S. healthcare system significantly contribute to the disproportionate asthma burden experienced by Latino youth. Children of Puerto Rican and Mexican American descent, in particular, face notably higher rates of asthma prevalence and morbidity compared to non-Latino White youth—a disparity that stems not only from biological or environmental susceptibility but from persistent inequities in healthcare access and quality (CDC, 2021).

Language barriers, a shortage of Spanish-speaking providers, and insufficient cultural responsiveness in healthcare settings pose significant challenges to equitable care for Latino families (Williams & Mohammed, 2013; McManus & Savage, 2010). These barriers often result

in communication breakdowns, misinterpretation of treatment plans, and reduced adherence to prescribed medication. For Spanish-preferring Latino children, this contributes to a higher likelihood of asthma-related clinic visits for exacerbations relative to non-Hispanic White children, suggesting both elevated disease severity and unmet needs for preventive care (Kaufmann et al., 2022). Non-Hispanic Black children—who experience similar systemic disadvantages—show disproportionately higher reliance on emergency departments for asthma treatment. These care patterns are reinforced by parental fear, limited knowledge of preventive practices, and concerns about affordability, which can drive families toward emergency services as their primary source of asthma care (Coutinho & Koinis-Mitchell, 2013).

Structural racism continues to shape these disparities through both historical exclusion and present-day institutional policies that deter consistent healthcare engagement. Experiences of discrimination and medical mistrust have been shown to reduce Latino families' use of routine services and interfere with asthma self-management practices (Persky & Turyk, 2020). These inequities extend to the provision of written asthma action plans—a key component of evidence-based asthma care. Research indicates that Black and Hispanic children are significantly less likely than White children to receive such plans, further compounding disparities in asthma-related outcomes (Piper et al., 2008).

The Intersection of Socioeconomic Status and Racial/Ethnic Disparities

Latino families with low SES not only contend with financial limitations and substandard housing but also face additional challenges due to racial/ethnic discrimination within healthcare settings. Financial constraints, substandard housing, and environmental exposures intersect with cultural and linguistic marginalization in healthcare settings, placing Latino children at heightened risk for asthma morbidity and mortality (Flores et al., 2010). These challenges are not

merely additive but synergistic, creating structural vulnerability that impacts every stage of asthma management.

Poverty often forces families into inadequate housing conditions where children are chronically exposed to asthma triggers and hazards disproportionately concentrated in low-income urban neighborhoods (Clark et al., 2014; Quinn et al., 2006). These socioeconomic challenges do not exist in isolation. Latino families from lower-income backgrounds also face racial and linguistic marginalization within healthcare settings, including implicit bias, lack of culturally sensitive care, and hindered communication from providers. These constraints can further diminish trust, reduce engagement with medical professionals, and impair asthma management strategies (McManus & Savage, 2010).

Studies have shown that even when controlling for SES, Latino children still experience worse asthma outcomes compared to non-Latino Whites, illustrating the independent and synergistic effects of racial discrimination and poverty (Canino et al., 2006; Kaufmann et al., 2022). Moreover, the fragmented nature of healthcare and social support systems leaves families to navigate these complex burdens largely on their own. Without coordinated care models or community-level interventions, many Latino families are left without the resources necessary to manage chronic illness in an already overburdened environment.

Addressing these intersecting disparities requires a policy approach that simultaneously targets structural poverty and institutional racism. Interventions must integrate social determinants of health—such as housing, employment, and education—with culturally and linguistically tailored healthcare delivery. Community-based models, including those employing CHWs, offer a path forward by helping families bridge the gap between clinical care and daily life. Reducing the asthma burden among Latino youth demands a healthcare system capable of

acknowledging and responding to the multiplicative effects of socioeconomic disadvantage and racial/ethnic inequities.

Health Literacy, Education, and Asthma Self-Management

Health literacy plays a critical role in effective asthma management, particularly for Latino families navigating both linguistic and educational challenges. When caregivers lack sufficient knowledge about asthma triggers, medication use, and symptom monitoring, they are less likely to implement effective home-based management strategies. This can result in delayed treatment responses, overreliance on emergency services, and poorer overall health outcomes (Koinis-Mitchell et al., 2011; Levy & Royne, 2009). Low health literacy is often linked to broader structural factors, including lower educational attainment and limited English proficiency. These barriers are especially pronounced in Latino communities, where parents may struggle to understand complex medical instructions or advocate effectively within a healthcare system that frequently lacks bilingual resources. Without clear, accessible information, adherence to long-term asthma management plans—including daily medication use and environmental control strategies—becomes significantly more difficult.

Culturally and linguistically tailored health education initiatives have shown promising results in addressing these gaps. Bilingual programs that incorporate culturally relevant content and community-based delivery methods—such as school-based workshops or peer education models—have been associated with reduced asthma-related emergency department visits and improved disease knowledge among Latino youth and their families (Davis et al., 2008). These interventions are particularly effective when they include hands-on demonstrations, visual aids, and engagement with trusted community members. Despite these positive outcomes, the long-term sustainability and impact of such programs remain underexplored. Many interventions

demonstrate short-term improvements in asthma knowledge and reduced acute care utilization, but few studies have tracked whether these gains persist over time or translate into consistent, daily asthma control (Basch, 2011). Moreover, many programs operate as isolated initiatives, rather than being embedded within broader healthcare or educational infrastructures, limiting their reach and integration.

Improving health literacy is not a standalone solution, but a necessary component of a broader strategy to advance asthma equity. When education is tailored, accessible, and culturally attuned, it becomes a powerful tool for empowering families, reducing disparities, and fostering sustainable asthma control in Latino communities. Future research and policy efforts should prioritize the development of scalable, evidence-based education programs that are embedded in schools, clinics, and community organizations serving Latino populations. These programs should not only focus on asthma-specific knowledge but also build families' capacity to navigate the healthcare system, advocate for their children, and understand the implications of long-term disease management.

Section 2: Systemic and Cultural Dimensions of Asthma Management in Latino Youth

Asthma disparities among Latino youth are not only clinical challenges but also reflections of broader systemic and cultural inequities. These disparities are shaped by a confluence of historical policies, social determinants, and institutional practices that have limited access to equitable, preventive asthma care for many Latino families. Building upon Canino et al.'s (2006) conceptual framework, this section explores how healthcare access, cultural beliefs, language barriers, and trust in health institutions intersect to affect asthma management.

Historical and Policy Roots of Systemic and Cultural Barriers

The disparities in asthma outcomes among Latino youth are the consequence of a long-standing pattern of structural exclusion, shaped by historical and policy decisions that have systematically limited access to safe housing, preventive healthcare, and environmental protections. Understanding these origins is important for contextualizing current barriers and designing effective, equity-driven interventions.

In the housing sector, discriminatory practices such as redlining and urban disinvestment have concentrated Latino families in neighborhoods characterized by substandard conditions and high environmental risk. These communities are disproportionately exposed to asthma triggers such as mold, pests, and industrial pollutants. Housing segregation, coupled with weak enforcement of building codes and public health regulations, has created chronic exposure environments that elevate asthma risk for children (Keet et al., 2015; Clark et al., 2014; Quinn et al., 2006). Compounding these challenges is the limited access to municipal services—such as pest control, weatherization, and ventilation improvements—that could otherwise reduce household-level environmental hazards.

Alongside housing inequities, Latino families have faced systemic marginalization in healthcare access. Throughout much of the 20th century, Latino immigrants and their U.S.-born children were routinely excluded from public health benefits and preventive services. While the expansion of federally supported community health centers and safety-net programs marked progress, structural barriers persist—particularly for families navigating immigration status, linguistic isolation, or culturally discordant care systems. Fragmented service delivery and limited workforce diversity continue to undermine trust and engagement in care, especially among low-income, Spanish-speaking populations.

Within this landscape of exclusion, CHWs emerged as grassroots health advocates, especially in Latino border communities. Despite strong evidence supporting their effectiveness in chronic disease prevention and management, CHW programs remain inconsistently funded and structurally isolated, often reliant on temporary grants rather than sustainable public health investment (Lohr et al., 2023; Martin et al., 2015). Their formal integration into pediatric asthma care—particularly in Medicaid systems—remains fragmented and geographically uneven (Findley et al., 2011).

Environmental justice policies have similarly lagged in addressing asthma risk. Although targeted programs exist to remediate indoor air quality, improve housing stock, or monitor neighborhood-level pollution, these interventions remain underfunded and poorly coordinated across housing, health, and environmental sectors (Campbell et al. 2015; Breysse et al. 2014). As a result, Latino families—especially those in urban or agricultural zones—continue to shoulder a disproportionate share of environmental asthma burdens.

Current disparities in asthma care are deeply rooted in a history of policy-driven exclusion, underinvestment, and fragmented health and social systems. Historical forces–including immigration policy, housing segregation, and uneven healthcare expansion–have shaped the structural barriers Latino families face today, from insurance ineligibility and inadequate language services to cultural dissonance in clinical settings. These systemic inequities not only contribute to persistent gaps in access and quality of care, but also underscore the role of CHWs in bridging these divides through systems-level, culturally responsive interventions that address both the medical and social determinants of asthma.

Health Insurance and Structural Access Barriers

A significant proportion of Latino youth with asthma lack health insurance—nearly 20% remain uninsured—posing a major deterrent to consistent and effective care (Flores & Lin, 2013). Within Canino et al.'s (2006) conceptual model, structural factors like insurance availability, reimbursement systems, and language accessibility are central to shaping healthcare access and asthma outcomes. For uninsured families, asthma care is often delayed, episodic, and limited to emergency settings, while engagement in preventive treatment remains low. However, insurance alone does not eliminate disparities. Latino families with coverage still face systemic obstacles that hinder asthma management. These include geographic and scheduling barriers, a shortage of bilingual providers, and limited culturally responsive services– all contributing to poor communication and treatment non-adherence (Price et al., 2013).

Latino families with undocumented or mixed-status members often face heightened challenges in gaining and maintaining health coverage due to restrictive eligibility policies and systemic barriers. Many states continue to exclude undocumented children from public insurance programs, rendering them ineligible for Medicaid or CHIP even when they meet income requirements (National Immigration Law Center, 2025). As illustrated in the health coverage map, only a limited number of states have extended coverage to all children regardless of immigration status, while most maintain restrictions for lawfully residing or citizen children only. These geographic disparities contribute to uneven access to asthma management resources for Latino families across the United States.

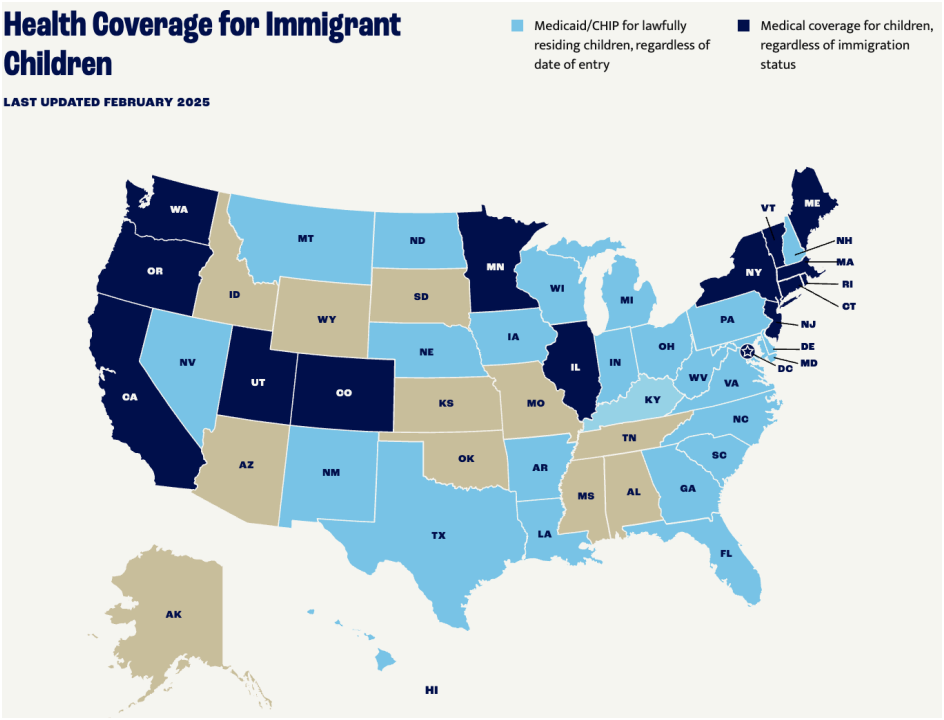

Figure 2. Health Coverage for Immigrant Children by State (National Immigration Law Center, 2025).

Within Latino subgroups, disparities are particularly pronounced. For instance, families of Mexican origin report consistently lower rates of coverage—even as public programs expand—highlighting persistent access gaps despite policy efforts (Freeman et al., 2003). Pediatric asthma exacerbations are more prevalent in neighborhoods with high concentrations of uninsured children, housing instability, and low access to transportation. Girls in uninsured households, for example, show particularly high rates of asthma-related emergency visits, illustrating the gendered contours of insurance-linked disparities (Puvvula et al., 2023). The lack of insurance is not merely a financial obstacle but part of a broader intersection of social determinants—including housing, mobility, and health literacy—that shape health access and outcomes for Latino youth.

Achieving equity in pediatric asthma care requires more than expanding insurance coverage—it demands structural reforms that integrate culturally responsive care, improve

language accessibility, and co-locate services in trusted community settings such as schools and health centers. Further, eligibility restrictions that exclude undocumented children from public programs must be reviewed, and investment in bilingual clinical staff must be prioritized. Through such structural reforms—aligned with both social and health system needs—can asthma care become more equitable for Latino youth.

Cultural Beliefs, Familismo, and Treatment Preferences

Cultural beliefs, family values, and treatment preferences play a central role in shaping asthma management practices among Latino families. According to Canino et al.'s (2006) conceptual model, modifiable factors in the individual characteristics domain—such as beliefs about medication efficacy, illness attribution, and preferred healing methods—directly affect caregiver engagement with asthma care. Many Latino families incorporate home remedies into asthma care, but their use and purpose vary across subgroups. Further, Mexican American families frequently incorporate herbal remedies and other traditional practices, but these are generally used in addition to prescribed medications, rather than as substitutes (Canino et al., 2006). In contrast, families of Dominican origin are more likely to use folk remedies in place of conventional treatments, whereas Puerto Rican families tend to rely more heavily on prescribed medications (Bearison et al., 2002).

These cultural orientations are not inherently barriers; rather, they represent different frameworks for understanding health. Effective asthma management requires that providers not only educate, but also validate and incorporate these frameworks into care. When medical recommendations are culturally discordant—delivered without sensitivity to familial norms, spiritual beliefs, or health-related skepticism—they can undermine caregiver trust and reduce treatment adherence (Price et al., 2013).

In this context, *familismo*—a deeply rooted Latino cultural value emphasizing loyalty, unity, and collective responsibility within the family—can be leveraged as a protective factor. Studies show that high levels of family connectedness are associated with better asthma management outcomes, including fewer emergency department visits and reduced functional limitation, particularly for Latino and Black youth (Rosales et al., 2017). This familial support can reinforce adherence to treatment regimens, particularly when healthcare providers engage families as active participants in care.

However, this asset may go unrecognized or underutilized in conventional asthma care. Providers who fail to account for cultural strengths like *familismo* may overlook opportunities to build trust and reinforce adherence through family engagement. When treatment recommendations conflict with family beliefs, or when healthcare providers do not consider the family's role in managing the child's asthma, trust and adherence may be undermined (Flores, 2000). Interventions that support shared decision-making, incorporate family-oriented education, and validate traditional knowledge can improve asthma outcomes while honoring the cultural realities Latino families navigate. Such culturally aligned care not only enhances asthma control but also helps dismantle the disconnect between families and the healthcare system that perpetuates health disparities.

Community Health Workers as Cultural and Clinical Bridges

CHW programs have presented as a vital strategy for addressing structural and cultural barriers in asthma management among Latino families. Their role aligns with Canino et al.'s (2006) conceptual model across multiple domains, including the Process of Care section, by directly influencing how healthcare is delivered, understood, and accessed.

For many Latino families, particularly those with limited English proficiency or unfamiliarity with the U.S. healthcare system, CHWs provide support in navigating appointments, interpreting medical guidance, and reinforcing provider instructions at home. They promote treatment adherence by helping caregivers understand medication routines, identify triggers, and implement asthma action plans—tasks that can otherwise be undermined by poor communication or mistrust of formal medical systems (Freeman et al., 2003).

Because CHWs often share the cultural, linguistic, and socioeconomic backgrounds of the families they serve, they are uniquely positioned to foster trust in ways that traditional healthcare providers may not. Their familiarity with community norms, values, and health beliefs allows them to deliver education that is both linguistically accessible and culturally resonant—enhancing families' receptivity to asthma interventions and bridging the gap between biomedical practices and community-based knowledge systems.

Moreover, CHWs are effective at addressing the "hidden curriculum" of asthma care—the unspoken logistical, emotional, and cultural burdens that often go unacknowledged in clinical settings. They help families navigate fears about medication side effects, confront stigma or fatalism surrounding chronic illness, and manage daily barriers to care. By addressing both clinical and non-clinical needs, CHWs provide comprehensive support that has been linked to improved asthma outcomes—including fewer emergency department visits and increased use of controller medications, particularly in immigrant Latino communities (Pappalardo et al., 2023). To maximize their impact, CHW programs must be meaningfully integrated into clinical systems and adequately resourced. This includes sustained funding, access to clinical supervision, and formal communication channels between CHWs and medical providers. When fully supported,

CHWs function not only as extensions of the healthcare team, but as culturally grounded navigators who help advance health equity for Latino children with asthma.

Integrating Community-Based and Multi-Level Asthma Interventions

While CHW programs have shown promising outcomes in improving asthma management among Latino youth, their potential is maximized when coordinated with broader, multi-level community interventions. To date, limited research has explored how CHW-led initiatives can be effectively integrated with systems such as school-based health programs, housing assistance efforts, and environmental health campaigns to build a more comprehensive asthma care model (Mendoza et al., 2019). This gap presents a critical opportunity for growth in service delivery.

Canino et al.'s (2006) conceptual framework underscores the necessity of addressing asthma through strategies that operate across multiple domains—individual, provider, system, and cultural. Integration across these domains is essential to reduce fragmentation in asthma care, especially for underserved Latino families who often navigate complex and disconnected service systems. A multi-level approach not only recognizes the social and structural determinants of asthma but also acknowledges that no single intervention—however effective in isolation—can fully address the cumulative burden of risk experienced by marginalized communities.

Multi-sector interventions that combine CHW support with school-based asthma education, indoor air quality improvements, and expanded insurance coverage have the potential to produce synergistic effects. For instance, CHWs can reinforce clinical care by ensuring that asthma action plans are understood and implemented at home, while school-based programs can monitor symptoms, reduce exposure to triggers, and connect students to care. Meanwhile,

housing and public health policies that reduce environmental hazards can help mitigate upstream causes of asthma exacerbations.

To be effective, such strategies must be not only integrated, but also contextually adapted to meet the linguistic, cultural, and socioeconomic needs of specific Latino communities. This requires sustained investment, cross-sector collaboration, and meaningful community involvement in the design and implementation of programs. Health systems can work in partnership with schools, housing agencies, community organizations, and families to deliver asthma care that is continuous, coordinated, and culturally grounded. The integration of CHWs into broader multi-level interventions represents a promising pathway toward reducing asthma disparities. When paired with policy reforms that expand access, enhance provider training, and fund community-based infrastructure, such approaches can help dismantle the systemic inequities that continue to shape asthma outcomes for Latino youth.

Section 3: Evaluating Community Health Worker-Led Interventions in Pediatric Asthma

Overview of CHW Roles and Intervention Framework

CHWs have become integral to efforts aimed at reducing asthma-related health disparities, particularly among underserved and minority populations. Their integration into pediatric asthma care has been linked to measurable improvements across several domains, including culturally tailored education, environmental risk reduction, care coordination, psychosocial support, and health system navigation. As trusted community members, CHWs function as both cultural and clinical bridges—offering relational continuity and advocacy for families navigating fragmented and often inaccessible healthcare systems.

CHWs are uniquely positioned to promote asthma control by reinforcing treatment adherence, improving caregiver understanding of asthma action plans, and helping families

address broader social determinants of health that influence disease management. These roles align with the Community Health Worker Core Consensus (C3) Project, which outlines ten core roles and corresponding skills—including providing culturally appropriate health education, offering informal counseling and social support, facilitating care coordination, and conducting outreach.

This section evaluates the structure and effectiveness of CHW-led asthma interventions by organizing them into key thematic domains that reflect both the core competencies defined by the C3 Project and the multi-level approach advocated in Canino et al.'s (2006) conceptual model. Each of the following subsections explores these domains in depth, drawing on peer-reviewed studies to assess how CHWs advance asthma equity through targeted, community-embedded strategies. These findings illustrate not only the impact of CHWs on pediatric asthma outcomes but also the structural and policy considerations necessary to support and scale their work.

Culturally Tailored Asthma Education and Self-Management

CHWs have demonstrated significant effectiveness in delivering culturally tailored asthma education that improves self-management behaviors and reduces symptom burden among families. By aligning clinical recommendations with families' cultural values and everyday realities, CHWs play a central role in bridging communication gaps between providers and caregivers—a key domain within both the C3 Project and Canino et al.'s (2006) model.

In a randomized controlled trial, Jonas et al. (2022) evaluated a home-based CHW intervention known as Wee Wheezers. CHWs employed competencies including cultural mediation, communication, and care coordination to deliver structured asthma education in the home. The intervention led to a significant reduction in asthma symptom days—2.31 fewer days

over a 12-month period—compared to the control group. In addition, caregivers reported improved asthma knowledge, medication administration techniques, and overall management behaviors. The CHWs' ability to communicate complex asthma concepts in culturally relevant and accessible ways was instrumental in promoting adherence and building caregiver confidence.

Similarly, Carrillo et al. (2021) examined the Healthy South Texas Asthma Program, which integrates CHWs into school- and home-based asthma education initiatives targeting Latino families. In this program, CHWs provided culturally and linguistically appropriate health education, reinforcing their competencies in communication, individual and community assessment, and knowledge base. Through home visits and structured workshops, CHWs addressed critical knowledge gaps, reduced asthma symptoms, and improved both caregiver understanding and self-efficacy. Notably, participants also reported decreased caregiver anxiety about managing asthma, suggesting that CHWs also contribute to psychosocial support in parallel with educational goals.

These studies highlight how CHWs function not just as educators, but as cultural translators who contextualize clinical advice within the lived experiences of families. Their sustained engagement with households fosters trust and supports long-term behavior change. By tailoring educational strategies to reflect community norms, values, and language preferences, CHWs address key challenges related to health literacy, mistrust, and communication—factors that often impede asthma care in underserved Latino communities.

Culturally tailored asthma education, when led by CHWs, not only enhances caregiver knowledge and self-management capacity, but also strengthens the relational infrastructure between families and the healthcare system. These outcomes outline the necessity of embedding CHW-led education within broader, community-based asthma management strategies.

Environmental Trigger Reduction and Home-based Interventions

Reducing exposure to environmental asthma triggers is a core component of CHW-led asthma interventions and aligns directly with the C3 Project competencies in conducting individual and community assessments, providing direct services, and delivering culturally relevant education. Environmental control is especially critical for low-income families living in substandard housing, where exposure to indoor allergens such as mold, pests, and dust is more prevalent. Through home visits, CHWs are uniquely equipped to assess these risks and implement targeted interventions that support asthma symptom control and reduce healthcare utilization.

The Seattle-King County Healthy Homes Project exemplifies the effectiveness of CHW-led environmental interventions (Krieger et al., 2005). CHWs conducted comprehensive home assessments to identify asthma triggers—including poor ventilation, mold, and pest infestations—and provided families with tailored resources such as hypoallergenic mattress and pillow covers, low-emission vacuums, pest control supplies, and cleaning kits. Beyond these material supports, CHWs used their knowledge base and communication skills to educate families about the role of environmental triggers in asthma exacerbations and collaborated with them to develop personalized action plans. These efforts led to reduced exposure to asthma triggers, improved caregiver quality of life, and decreased reliance on emergency services.

The Highline Communities Healthy Homes Project further expanded this model by integrating CHW-led education with structural home improvements such as weatherization, ventilation repairs, and moisture control (Breysse et al., 2014). In this program, CHWs played a central role in coordinating services across sectors—combining their outreach and navigation skills with environmental remediation. The program achieved a 71% reduction in poorly

controlled asthma cases, demonstrating the value of CHWs in addressing both medical and environmental determinants of health.

In another home-based initiative, Campbell et al. (2015) documented CHWs' use of interpersonal and communication skills to educate caregivers on environmental health strategies while fostering sustained engagement through one-on-one coaching. CHWs delivered asthma education tailored to household conditions, provided resources to mitigate triggers, and employed evaluation and tracking tools to monitor outcomes. These efforts not only reduced symptom days and emergency department visits but also demonstrated cost-effectiveness, strengthening the case for investment in CHW-led environmental interventions.

Across these programs, CHWs serve as both educators and implementers, translating environmental health science into practical household actions. Their culturally grounded approach enhances family trust, facilitates behavior change, and creates sustainable improvements in indoor environmental quality—an crucial component of comprehensive asthma management for vulnerable populations.

Care Coordination, System Navigation, and Healthcare Utilization

One of the most impactful roles CHWs play in pediatric asthma management is facilitating care coordination and system navigation—competencies central to the C3 Project and to improving health equity in structurally disadvantaged communities. Through these roles, CHWs act as connectors between families and fragmented healthcare systems, ensuring that children receive timely, consistent, and culturally appropriate asthma care.

The Merck Childhood Asthma Network (MCAN), as documented by Findley et al. (2011), provides a compelling example of this work in action. In this multi-site initiative, CHWs helped families obtain insurance coverage, access primary care, and navigate services related to

asthma management. These efforts yielded a 36% to 63% reduction in emergency department visits and a 26% to 78% decline in hospitalizations—substantial improvements linked directly to CHWs' use of service coordination, follow-up, and caregiver engagement strategies. Importantly, CHWs also strengthened caregiver confidence in managing asthma at home, supporting long-term behavioral change around asthma action plan use, medication adherence, and preventive care access. Beyond navigation, CHWs in the MCAN project also played an essential role in health education and trust-building. By addressing caregiver concerns and correcting misconceptions about medication use or environmental triggers, CHWs helped align clinical recommendations with family beliefs—a key function of cultural mediation and informal counseling defined in the C3 Project.

Such findings are echoed in the RVA Breathes program, analyzed by Lohr et al. (2023), where CHWs delivered home-based asthma education while also coordinating care across schools, clinics, and families. Their efforts improved asthma control, reduced caregiver stress, and increased consistent healthcare use. CHWs in this program drew on their communication skills and knowledge base to tailor asthma guidance to each household's needs while ensuring families remained engaged with providers and community resources.

Together, these studies underscore that CHWs are not simply adjuncts to care—they are essential agents of coordination, communication, and empowerment. When integrated into asthma management infrastructure, CHWs reduce system burdens while enhancing access and equity for families who might otherwise fall through the cracks. Scaling these efforts requires not only investment in CHW capacity but also formal recognition of their role within multidisciplinary healthcare teams.

Addressing Psychosocial Determinants and Providing Social Support

Psychosocial factors—such as caregiver depression, trauma, housing instability, and family chaos—can significantly affect asthma outcomes in children, especially in low-income and racially marginalized communities. CHWs, equipped with relationship-building, communication, and care coordination skills, are uniquely positioned to address these upstream determinants of health by providing both emotional support and practical system navigation.

In a study by Weinstein et al. (2021), CHWs engaged families experiencing high levels of parental depression, PTSD, and environmental stress through one-on-one coaching and motivational interviewing. Drawing on interpersonal and communication competencies outlined in the C3 Project, CHWs fostered caregiver engagement and trust, resulting in improved child asthma control scores and fewer days of activity limitation. In addition to offering psychosocial support, CHWs connected families to mental health services and community-based resources, demonstrating their ability to address overlapping physical and emotional dimensions of asthma management.

Similarly, the CHECK program, as reported by Pappalardo et al. (2023), highlighted CHWs' role in helping families navigate complex health systems while addressing underlying social and emotional barriers to care. CHWs applied cultural mediation and communication skills to explain treatment plans in accessible terms and to demystify healthcare processes. Through sustained care coordination, they facilitated access to asthma medications and community support, leading to measurable reductions in emergency department use and improved long-term asthma control.

The effectiveness of CHWs in addressing psychosocial needs is further supported by evidence from the CURA study (Martin et al., 2015), where CHWs delivered personalized

home-based education targeting both asthma and obesity prevention. The intervention significantly improved asthma control, reduced healthcare utilization, and strengthened caregivers' confidence and disease management skills—demonstrating the importance of structured, relationship-driven care models. Likewise, the Clean Air for Kids initiative (Primomo et al., 2006) illustrated how consistent CHW engagement enhanced caregiver competence in identifying and managing environmental triggers, reducing asthma-related morbidity while also building psychosocial resilience through sustained family interaction.

Across these diverse interventions, CHWs have shown that their value extends well beyond clinical education or environmental management. Their capacity to support families facing psychosocial hardship—through culturally attuned communication, informal counseling, and system navigation—makes them vital contributors to equitable asthma care. Addressing psychosocial determinants is not ancillary to asthma control; it is central to creating the stable, supportive environments children need to thrive.

Identified Gaps in CHW-Led Interventions

Despite robust evidence supporting the effectiveness of CHW-led interventions in improving pediatric asthma outcomes, several critical gaps continue to limit their scalability, sustainability, and system-wide integration. One of the most pressing challenges is the instability of program funding. Many CHW interventions operate under pilot program models, which jeopardize long-term planning, workforce retention, and intervention continuity. Studies by Martin et al. (2015) and Jones et al. (2022) have shown that funding volatility contributes directly to CHW turnover, thereby weakening program fidelity and caregiver trust. Broader reviews by Allen et al. (2015), George et al. (2020), and Lapidos et al. (2019) echo these concerns, calling for sustainable financing structures—such as Medicaid reimbursement

mechanisms and long-term state support—to ensure the expansion and institutionalization of CHW programs.

Another critical gap is the lack of standardization in CHW training and certification across states. While some states have established structured certification systems—such as the Texas Department of State Health Services' CHW Training Program—many others either lack certification pathways or offer limited credentialing through private or association-led initiatives. According to ASTHO (2024), eleven states currently operate state-run certification programs, six use CHW associations, and another six rely on private credentialing bodies. Some states, like Louisiana, have opted not to pursue formal certification but instead emphasize competency-based training. This fragmented national approach creates inconsistencies in CHW competencies, role clarity, and clinical integration, making it difficult to ensure service quality or to scale programs nationally.

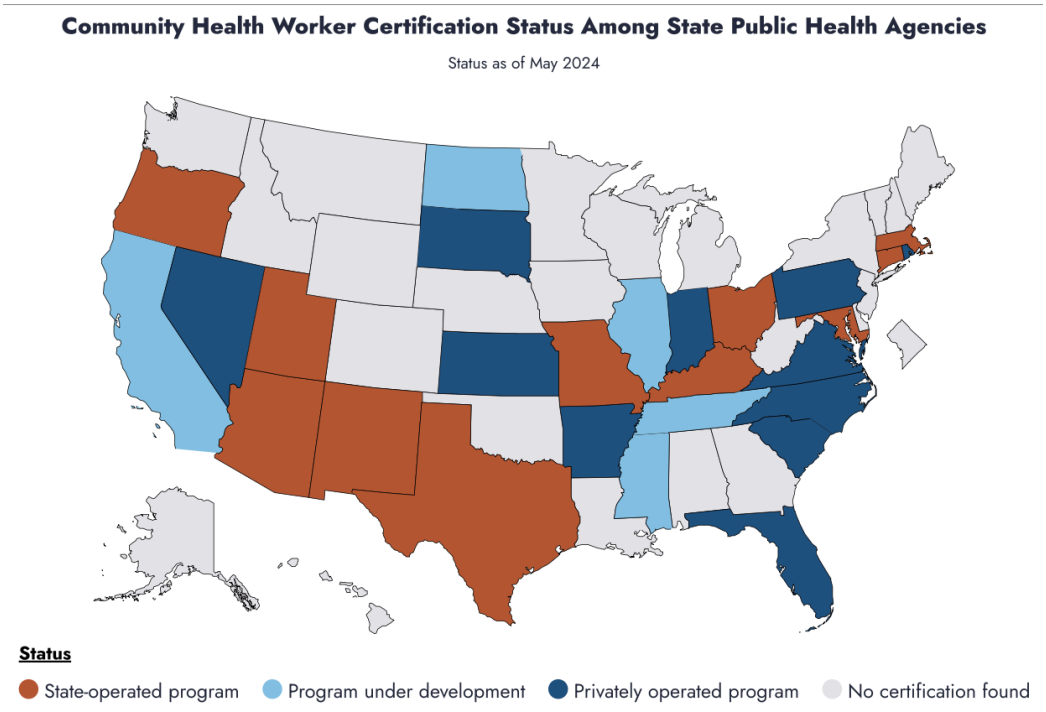

Figure 3. State Approaches to Community Health Worker Certification (ASTHO, 2024).

Another notable challenge involves the incomplete integration of CHWs into multidisciplinary healthcare teams. While CHWs play essential roles in outreach and community-based education, their inclusion within formal care teams—comprising nurses, physicians, pharmacists, and social workers—remains inconsistent. Programs like CURA (Primomo et al., 2006) demonstrate the benefits of fully integrated CHWs, such as improved continuity of care and stronger interprofessional collaboration. However, as Rodela et al. (2021) emphasize, there is a lack of research on how CHWs perceive their role within care teams, including whether their cultural, racial, or linguistic identities influence their inclusion or marginalization. Understanding CHWs' perspectives on their integration is essential to optimizing their contributions and advancing equity within healthcare institutions.

A significant methodological gap concerns the need for stronger data collection and evaluation metrics. While numerous studies show that CHWs improve asthma control and reduce emergency utilization, there is a lack of standardized outcome measures, and few studies track long-term impacts using longitudinal designs. Strengthening research infrastructure around CHW interventions—including common evaluation frameworks, cost-effectiveness analyses, and long-term follow-up studies—is critical for informing future policy, guiding funding decisions, and legitimizing CHWs' place within mainstream healthcare.

These gaps reveal the structural and institutional barriers that hinder the full potential of CHWs in pediatric asthma care. Addressing these limitations requires coordinated action across policy, healthcare, and research sectors to build a resilient, professionalized, and fully integrated CHW workforce capable of advancing health equity at scale.

Section 4: A Modified Framework Integrating CHWs into Pediatric Asthma Care

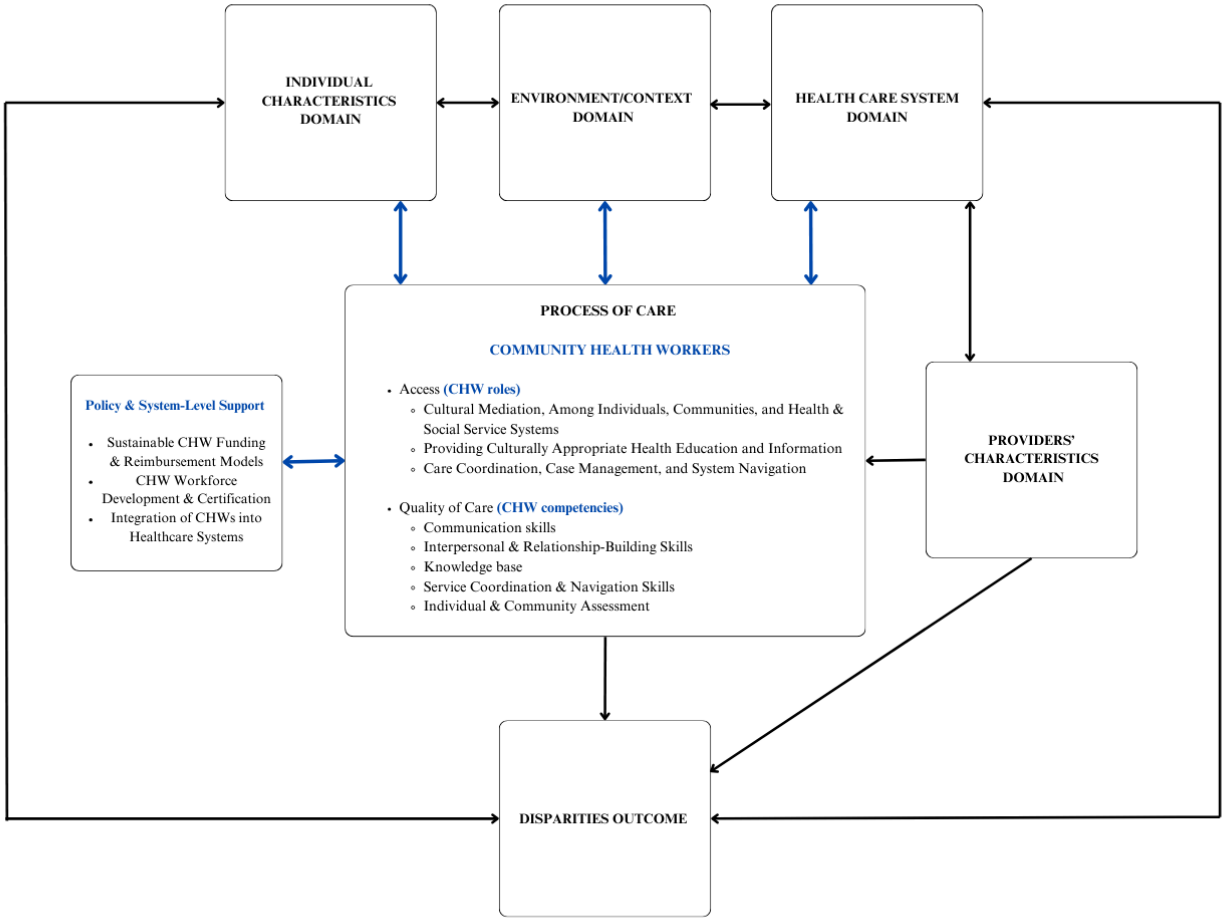

Figure 4. Modified Conceptual Framework: Integrating Community Health Workers into Pediatric Asthma Care for Latino Youth (Adapted from Canino et al., 2006)

Rationale for Modification

This modified framework expands on Canino et al.'s (2006) original model by integrating CHWs into the Process of Care domain. The goal of this refinement is to capture CHWs' unique capacity to bridge gaps between Latino families and community-based resources—an intervention pathway not explored in the original framework. Within Process of Care, CHWs are situated across two subdomains: Access and Quality of Care.

Under Access, CHWs fulfill essential functions such as cultural mediation, care coordination, system navigation, and culturally tailored health education—activities that ensure families receive timely resources, effectively navigate medical systems, and engage with asthma care in linguistically and culturally meaningful ways. The Quality of Care subdomain captures CHWs' core competencies, including communication, knowledge base, interpersonal and relationship-building, service coordination, and individual and community assessment—key mechanisms through which CHWs help reduce disparities and improve asthma outcomes.

In addition to redefining CHWs' place within Process of Care, this framework introduces bidirectional linkages between CHWs and other key domains to reflect the dynamic and reciprocal nature of their work. A new connection between CHWs and the Individual Characteristics domain highlights how CHWs tailor their approaches to account for family literacy, cultural beliefs, and psychosocial stressors, while simultaneously shaping those characteristics through education, confidence-building, and self-management support. For instance, CHWs may tailor action plans for Spanish-speaking families, adjust communication styles for caregivers under high stress, or incorporate culturally resonant health beliefs to build trust and engagement.

Another bidirectional connection links CHWs to the Healthcare System domain, emphasizing their role as both community liaisons and embedded members of care teams. CHWs facilitate communication, reduce fragmentation, and increase follow-through in underserved populations, addressing structural gaps that contribute to asthma disparities. Finally, a new connection to the Environment/Context domain reflects CHWs' home-based asthma interventions—including environmental assessments and trigger mitigation efforts—that actively reduce exposure to indoor pollutants, mold, pests, and allergens.

Unlike the static determinants outlined in the original model, this revised framework emphasizes CHWs as active agents capable of reshaping the conditions that produce asthma disparities. It reflects an evolving public health paradigm in which CHWs are not peripheral actors, but integrated contributors to accessible, equitable, and community-centered asthma care.

Framework Implications

Embedding CHWs into both Access and Quality of Care domains within the modified framework highlights their dual role in delivering care and in advancing structural equity. Through their dynamic, family-centered approach, CHWs help translate systemic resources into culturally meaningful care, build caregiver confidence in asthma management, and reduce reliance on acute services—leading to more sustainable, long-term improvements in pediatric asthma outcomes. The revised model repositions CHWs as active interventionists who directly address and reshape the conditions that produce disparities.

One of the framework's central implications is a shift in how CHWs are positioned—not as peripheral outreach workers, but as integral actors within the healthcare system. Their placement in the Process of Care domain highlights their essential role in bridging clinical care with the lived realities of underserved communities. By ensuring that asthma interventions are linguistically accessible, culturally competent, and practically applicable, CHWs promote patient-centered asthma management that traditional care structures often struggle to deliver. Moreover, their involvement in home-based environmental interventions addresses a major limitation of the original model. CHWs bring the healthcare system into the household by helping families reduce asthma triggers through education, advocacy, and the distribution of targeted resources.

This framework also underscores the importance of more fully integrating CHWs into multidisciplinary care teams. While many CHW-led programs operate independently of formal health systems, their contributions—such as care coordination, cultural mediation, and health education—are most effective when embedded within coordinated, team-based structures. Incorporating CHWs into primary care teams alongside physicians, nurses, social workers, and pharmacists fosters a more holistic approach to asthma management. Formalizing CHW roles within institutional workflows enhances continuity of care, supports treatment adherence, and reduces preventable hospitalizations and emergency department visits.

This revised framework reframes CHWs as structural assets–community-embedded professionals who address not only individual behaviors but also the broader contextual and systemic conditions that drive asthma disparities. Recognizing their contributions at both the service and system levels is essential to designing equitable, effective models of pediatric asthma care.

Centering CHW Perspectives on Integration

While policy and literature often assess the value of CHWs based on clinical outcomes, it is equally important to consider how CHWs experience their roles within healthcare systems. Integration into multidisciplinary teams is not just a logistical process–it is a relational, cultural, and systemic issue that affects the sustainability and impact of CHW programs.

The Community Health Worker Common Indicators Project (CI Project) presents a model for this approach by focusing on CHW voices in the design and evaluation of integration frameworks. Led by a team in which half the members are CHWs, the CI Project aims to strengthen the integrity and sustainability of CHW programs by collaboratively defining shared indicators of success across settings (Rodela et al. 2022). Among the twelve core indicators

developed by the CI Project, one specifically assesses the extent to which CHWs are integrated into healthcare teams—measured through relational coordination theory and evaluated from the CHW's perspective.

To operationalize this measure, the project adopted the evidence-based Relational Coordination Scale (Gittell et al. 2015), which captures the quality of communication and relationships between CHWs and clinical team members. The scale reflects key dimensions such as shared goals, mutual respect, and the frequency and quality of communication. This approach acknowledges that integration is not just about co-location or task-sharing, but about recognition, equity, and "teamness" in practice (CHW Center for Research & Evaluation, 2023).

Importantly, the CI Project also includes a measure that assesses whether race, ethnicity, and culture influence a CHW's sense of inclusion on the care team. This is especially critical given that most CHWs are women of color who reflect the communities they serve, yet often find themselves marginalized within predominantly white, institutional clinical teams (Fuentes-Afflick et al. 2022; Rodela et al. 2022). Addressing this disconnect is vital not only for workforce retention but also for ensuring that CHWs are empowered to deliver culturally concordant care.

Policy and Funding Recommendations

To maximize the potential of CHWs in pediatric asthma care, policymakers must confront structural barriers related to funding, workforce development, system integration, and evaluation. A primary policy priority is establishing long-term, stable funding models for CHW programs. Currently, many interventions rely on short-term grants or nonprofit funding, which jeopardizes program continuity and limits scalability. Expanding Medicaid reimbursement for CHW services—particularly within value-based care models that reward preventive

outcomes—would offer more reliable compensation and reinforce the recognition of CHWs as essential members of care teams. Hospitals and managed care organizations should be incentivized to support CHW initiatives, especially in high-burden asthma communities where CHW engagement has been shown to reduce costly emergency department visits and hospitalizations. Additionally, sustained public health investment at both state and federal levels is vital for ensuring equitable implementation in regions most affected by pediatric asthma disparities.

In addition to funding reforms, establishing consistent, statewide training and certification standards for CHWs is essential to ensure care quality and professional credibility. Wide variation in current training requirements poses challenges to integrating CHWs into healthcare systems and contributes to inconsistent role expectations. States should implement certification programs modeled on well-established initiatives, such as the Texas Department of State Health Services CHW Training Program, which includes comprehensive instruction in culturally competent asthma education, environmental risk assessment, care coordination, and motivational interviewing. Additionally, healthcare employers should be required to formally recognize CHW certification to prevent the marginalization of CHWs as informal or temporary workers and to affirm their role as trained, professional members of the healthcare workforce.

Beyond certification, embedding CHWs into the formal healthcare infrastructure is essential to maximize their impact. Despite evidence demonstrating their success in improving asthma outcomes, CHWs are frequently left out of structured care teams. Healthcare systems should develop CHW-led patient navigation models, enabling CHWs to support families in scheduling appointments, monitoring medication adherence, and accessing preventive care. Their involvement in hospital discharge planning for pediatric asthma patients can also improve

continuity of care through follow-up education, environmental assessments, and in-home interventions. To expand these models, policymakers should encourage partnerships between CHWs and public health departments, integrating CHWs into statewide asthma prevention programs and broader chronic disease initiatives.

Strengthening research and data infrastructure is critical to securing long-term support for CHW integration. While existing studies affirm the effectiveness of CHW-led asthma interventions, the field lacks standardized outcome measures and comprehensive longitudinal data. Policymakers should invest in community-based participatory research that includes CHWs in study design and evaluation to ensure interventions reflect community needs. Integrating CHW performance metrics into electronic health records will also allow healthcare systems to track contributions, monitor outcomes, and better coordinate care. These policy recommendations aim to transition CHW programs from underfunded community initiatives to fully integrated components of an equitable, sustainable pediatric asthma care system.

Future directions

While this thesis has emphasized current evidence and proposed actionable policy reforms, additional research is needed to fully support the scale and integration of CHW-led asthma interventions. Longitudinal studies should evaluate the sustained outcomes of these interventions over time, particularly in reducing hospitalizations, improving self-management, and strengthening caregiver knowledge. Intersectional research is also needed to explore how differences in cultural background, immigration experience, language, and generational status shape families' asthma experiences—and how CHWs can best adapt interventions across these dimensions. Future studies should further examine CHWs' perspectives on their roles, including how race, ethnicity, or cultural alignment influence their treatment within healthcare teams.

Qualitative insights could guide more equitable integration strategies and foster greater retention and support for CHW workforces. Finally, research must focus on how CHW models can be scaled within broader systems such as public health departments, schools, housing agencies, and Medicaid managed care organizations. Standardizing outcome metrics and embedding CHW contributions into health record systems will strengthen accountability and help clarify what works, for whom, and in which contexts.

Conclusion

Overview of Main Points

This thesis explored the multifactorial disparities in pediatric asthma outcomes among Latino youth, emphasizing the interplay of socioeconomic, environmental, cultural, and systemic barriers. Guided by Canino et al.'s (2006) conceptual framework, the literature review synthesized key determinants across the domains of Individual Characteristics, Environment/Context, and the Healthcare System. Canino et al.'s (2006) model effectively structures these determinants, but it lacks a clear intervention pathway. The modified framework advanced in this thesis expands upon the model by embedding CHWs into the Access and Quality of Care subdomains within Process of Care. Bidirectional relationships between CHWs and the three domains illustrate how CHWs not only respond to but also transform determinants of asthma disparities. These multifaceted contributions reinforce the need to formally recognize CHWs as core members of the healthcare delivery system.

To scale and sustain the impact of CHW-led interventions, this thesis identifies three core policy and practice imperatives: sustainable funding, standardized training, and formal integration into healthcare systems. Medicaid reimbursement and value-based care models should compensate CHW services to ensure program longevity. States can adopt consistent

certification programs—such as the Texas DSHS model—that affirm CHW competencies and enhance professional credibility. Most critically, healthcare systems must formally integrate CHWs into clinical workflows, including care teams and discharge planning. CHWs should also be included in interdisciplinary collaborations with schools, housing authorities, and public health departments to extend the reach of asthma interventions into the communities most affected.

Final Thoughts

This thesis is grounded not only in evidence, but in lived experience. The gaps CHWs work to bridge are not theoretical—they are real, urgent, and deeply felt in communities like the one I grew up in. They are the connective tissue between health systems and communities. They offer more than services—they offer dignity, trust, and culturally anchored care. By recognizing CHWs as vital infrastructure and investing in their long-term sustainability, we can transform fragmented systems into responsive ecosystems of care. Asthma disparities among Latino youth are not inevitable—they are the result of structural inequities that can be dismantled through culturally grounded, community-driven interventions. CHWs translate clinical protocols into accessible guidance, turn isolation into engagement, and restore humanity where systems have too often failed. In doing so, we not only improve asthma outcomes—we affirm a fundamental truth: that all children, regardless of background or zip code, deserve to breathe easier and live healthier lives.

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Biography

Daniela Garcia was born on June 2, 2003, in McAllen, Texas, and raised in the Rio Grande Valley. In 2021, she moved to Austin to pursue higher education at The University of Texas at Austin. During her undergraduate years, Daniela has been involved in community service and research, contributing to clinical care at People's Community Clinic and completing community-based research with the Pediatric Coping and Language Lab at UT Austin. She will graduate in May 2025 with a Bachelor of Arts in Plan II Honors and a Bachelor of Science and Arts in Biochemistry. Following graduation, Daniela plans to continue working in research and patient care, with the goal of advancing health equity and culturally responsive healthcare.