Chapter

Collaborative Care for Health Equity: Integrated Care for Underserved Populations

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Abstract

Collaborative care for health equity aims to integrate primary and hospital care to serve clients. Drawing insights from various practices and research behind the continued struggle of underserved communities, and the root causes of health inequities and institutional failures, the chapter unveils how collaborative care integrates primary and hospital care to serve people better. The approaches highlighted show that meaningful improvements in health outcomes, require addressing both medical and social determinants of health particularly for underserved communities. Some of the causative conditions of inequity, such as, unaddressed social determinants of health, exacerbated by issues of low income, race/ethnicity and other environmental factors increase the disproportionate experiences of patients. It provides a way forward to achieve health equity by emphasizing, income, race, education and professional ethics as part of the decision-making processes needed for equitable healthcare. Addressing inequities in healthcare access among individuals at a higher risk for mortality and morbidity from all forms of systemic issues will reduce illnesses and improve access to healthcare especially issues bedeviling the health systems globally. Overall, understanding these issues will help to develop practical steps to improve healthcare access and discourage the focus on episodic reaction to health care.

Keywords: health inequities, underserved populations, hospital access, healthcare disparities, cultural competency, collaborative care models, integrated healthcare

1. Introduction

Collaborative care for health equity aims to integrate primary and hospital care to serve population subgroups effectively, with special focus on underserved populations. This approach recognizes that meaningful improvements in health outcomes, particularly for marginalized communities, require addressing both medical and social determinants of health. While a number of studies suggest a need for multidisciplinary team of professionals to achieve collaborative care using innovative approaches, policy reform and effective coordination of resources, others suggest that successful implementation of collaborative care models depends on political will and addressing the multi-level factors that enhance healthcare access.

The World Health Organization report in 2021 estimates that about 4.5 billion people do not receive enough health care service that they need globally, while in the United States, about 1 in 10 people are without health insurance. These issues and other unaddressed social determinants of health in healthcare delivery hinders access to care for underserved populations. Enhanced healthcare access is shown to be associated with the effective utilization of tools that promote collaboration opportunities and appropriate interventions that among stakeholders [1–4]. Achieving health equity for all- where all individuals therefore, would require that everyone have the opportunity to attain their full health potential, and this remains a critical challenge in the healthcare landscape. Integrated care models which promote care coordination and collaboration among primary and hospital systems present an opportunity to address this disproportionate healthcare landscape especially among underserved people.

Integrated care systems significantly contribute to improving care access, availability, affordability, and acceptability of healthcare services for all population subgroups [5, 6]. This chapter will analyze how health systems improve healthcare access by shedding light on some steps to implement collaborative care teams at the community level, it also provides measures for evaluating success and service delivery. Integrated primary, specialty and hospital-based care models provide a more comprehensive, patient-centered approach to addressing the multifaceted health needs of underserved populations [7, 8]. While some key metrics for measuring the impact of collaborative care are listed in this chapter, it is necessary to highlight some benefits in the examples in **Table 1**, such as, ability to implement cost-effective care, promote health equity, reduce inequalities and promote healthcare access [11, 14, 16, 17]. In sum, the chapter provides steps to achieve collaborative care to deliver optimal health and provide ways to address access to care among population subgroups.

2. Learning objectives

1. After reviewing this chapter, the reader should be able to complete the following:

2. Evaluate the impact of integrated care models on health outcomes for underserved populations.

3. Analyze strategies to increase accessibility to preventive health services in underserved communities.

4. Assess the effectiveness of initiatives aimed at enhancing patient experience and reducing healthcare costs in underserved areas.

5. Design community-based interventions to promote health equity for underserved groups.

6. Critique the coordination mechanisms between primary and hospital care for their effectiveness in serving underserved populations.

7. Synthesize interprofessional collaborative practices to support comprehensive care in underserved communities and develop data-driven approaches to identify and address healthcare access gaps.

Integrated framework/ author	Area of integration	Strategy	Lessons learned	Challenges
Integrated Collaborative Care Team (ICCT) Joanna L. Henderson et al. [9].	Better youth Mental Health Access (MHA) outcomes	Integration of community health workers (CHWs) into healthcare teams	Better MHA are anticipated when a quick, stepped-care strategy tailored to need is implemented in a setting that is welcoming to young people.	service delivery gap for youths with MHA challenges in Ontario's current health system structure
The Quadruple Aim Valaitis et al. [10].	Improving patient experience, reducing cost, advancing population health and improving the provider experience in Canada	Ten case studies were conducted in three provinces (Nova Scotia, Ontario, and British Columbia) to elucidate experiences of primary care and public health collaboration in different settings, contexts,	Cases achieved outcomes addressing the Q-Aims such as improving access to services, addressing population health through outreach to at-risk populations, reducing costs through efficiencies, and improving provider	Common precipitators were having a shared vision and/or community concern. Barriers and enablers differed among cases. Perceived barriers included ineffective communication processes,
Community-based Cosupervisory Model Gunderson JM et al. [11].	Community health workers, extension of care coordination	Description of collaborative development of community-based CHW program to address the social determinants of health that affect patients	The cosupervisory, generalist CHW model provides an innovative template for cocreation of patient-centered infrastructure and resourcing within an evolving and replicable holistic care continuum	Building sustainable interdisciplinary relationships
Conceptual Integrated Care Model (CICM) M. H. Chin et al. [7].	Government and private policies, health equity	Developed a conceptual model that highlights how government and private policies influence health equity by impacting the healthcare system (access to care, structure and quality of care, payment of care), and	To authentically commit to achieving health equity, nations should: (1) Explicitly design quality of care and payment policies to achieve equity, holding the healthcare system accountable through public	Ability to conduct self-evaluation to address implicit bias by adopters of the policy
Population Health Equity Framework Trinh-Shevrin et al. [12]	Health Promotion and Disease Prevention	We describe the concepts and parallel approaches that underpin an integrative population health equity framework and present the experience of NYU Center for the Study of Asian American Health	Applying an integrative framework has deepened our community engagement efforts, our understanding of the multi-level contextual factors that influence health, and our capacity to advance	Understanding the multi-factoral context that promote health equity

Integrated framework/ author	Area of integration	Strategy	Lessons learned	Challenges
Community of solution Ferrer et al. [13]	Advanced primary care, health among people living in poverty	The community of solution comprises a county health system, a family medicine residency program, a metropolitan public health department, and local nonprofit organizations and businesses.	Population-based outcome metrics include reductions in hospitalizations, emergency department and urgent care visits, and the associated charges. Promotors also assess patients'	The major challenge noted is the need for training and retraining of health professionals to implement the strategy as required, leading to a high cost of healthcare in the long run
Quality improvement collaboratives (QICs) based on the Chronic Care Model (CCM) Grossman et al. [14].	Community health centers (CHCs)	Describe initiatives undertaken by community health centers (CHCs) participating in QICs (the Health Disparities Collaboratives) for asthma, cardiovascular disease, or diabetes, and to determine whether	Participating CHCs undertook an average of 44 QI activities per center (range, 8–84). These interventions were distributed broadly throughout the elements of the CCM, with particular emphasis on patient	It remains unclear how specific activities pursued under the guidance of the CCM and QICs contribute to quality improvement.
World Health Organization Integrated Care for Older People with Frailty (ICOPE) WHO ICOPE Araujo De Carvalho et al. [15].	Integrate health and social service care to support older people health and wellbeing	Health systems and services organized and coordinated to meet the needs and preferences and goals of older adults	Integrating health and social services entails providing comprehensive assessment and case management considered as an effective approach that targets management of multiple morbidity	Concept of integrated care interventions focus mostly on hospitalization, mortality, physical functioning rather than on all aspects of wellbeing

Table 1.
List of integrated frameworks in practice.

3. Enhancing healthcare access

According to the World Health Organization report on health equity, "*Knowledge, monitoring and analysis are the backbone of actions needed to achieve equity*" [5]. Collaborative care systems have the potential to significantly improve healthcare access for underserved populations [7, 18, 19]. These systems integrate primary and hospital care, bridging traditional service delivery silos and coordinating medical and non-medical services to address the complex needs of high-risk, high-cost individuals [6]. Although there are challenges to achieving a seamless coordination between health systems in areas of workforce training, communication among providers, infrastructural gaps, policy issues, etc. Analyzing the impact of collaborative care in research, it can be deduced that this leads to improved patient outcomes, reduced wait times, and better appointment availability. Integrated care models prioritize community-level collaboration and person-centered care, which is particularly effective in promoting long-term health equity [16, 20]. Key metrics for measuring the impact of these models include reduced hospital readmissions, increased preventive care utilization, improved patient satisfaction and quality of life [16, 21]. From a cost-effectiveness perspective, the upfront implementation burden of collaborative care programs is often offset by long-term healthcare savings through reduced emergency department visits, inpatient hospitalizations, and overall healthcare utilization [1, 16, 22]. These studies provide suggestions on how to sustain this practice, one common strategy is to integrate social (SDOH) determinants of health as a major factor for adopting collaborative care in practice. By considering people's SDOH, policy makers factor patients from underserved communities in resource allocation and distribution which in turn yields significant returns on investment and support a sustainable, equitable healthcare system. In addition, integrating SDOH in care delivery not only enhance access but also factors people's unique qualities, thus, addressing the imbalances in healthcare. This approach focuses on distributing resources based on individual/community needs to achieve fair outcomes.

3.1 Integrated/collaborative care: Addressing health outcomes and equity

The integration of clinical care and public health has become increasingly recognized as a crucial strategy to address local health needs and improve overall health outcomes. Discussions on collaborative care between clinical practice and public health helps to highlight the importance of cross-sectoral collaboration, emphasizing the need for optimal healthcare delivery, and for health systems to tackle specific health challenges [13, 15]. Studies that explored how public health decisions could be incorporated into clinical practice suggest there should be collaboration at all levels of implementation (that is, at institutional, organizational, community and individual levels) to ensure access, fairness, safety and quality of care. Some successful frameworks reviewed include, Conceptual Integrated Care Model (CICM), Community-based Co-Supervisory Model (CBCM), the "Quadruple Aims", "Integrated Collaborative Care Team (ICCT)", "Community of Solutions, Quality Improvement Collaboratives (QICs)" and "WHO Integrated Care for older People with frailty (ICOPE)", [4, 11, 13, 16, 18, 22–24]. These frameworks examine improvement in patient experience and system improvement, suggesting that, integrating care helps to reduce costs, advance population health, improve quality of care, safety, fairness as well as enhance provider experience. Another example of integrated clinical care with

community-focused intervention highlight the benefits of providing adequate resources as a key strategy to providing equitable care. Ferrer and colleagues describe a community-based approach in care delivery aimed at improving health outcomes for low-income populations. This model consists of a team of stakeholders including family medicine program, county health system, public health department and local non-profit businesses and organizations. The strategy employed addressed social determinants of health (SDOH) such as (socioeconomic status, education, housing, and access to nutritious food), in the community of solution practice to improve health outcomes. The integration of these SDOH into healthcare delivery is considered essential to effectively serving underserved populations and improve health outcomes [11, 23]. Although there are recorded challenges in the cost of investing in integrated care among hospital and primary care providers, such as setback in underinvestment, which is mostly associated to the short-term benefits these providers stand to make in establishing their business, rather than the long-term community health benefits. Overall, there is much more to be gained from integrated and collaborative partnership approach when the focus is placed on, understanding people's SDOH as a crucial factor to achieve health equity.

Gunderson and colleagues in their study underscore the important role of community health workers as a crucial addition in extending primary care access using a community-based models. The strategy addressed social determinants of health of communities as a vehicle to promote health equity [4, 23]. The growing momentum for multisector collaboration to address social determinants of health is reflected in various initiatives, as highlighted above. These efforts acknowledge that creating healthier environments requires action beyond the traditional boundaries of public health and healthcare, necessitating the collective efforts of various sectors to improve the conditions for achieving healthcare access and well-being. In the same context, other authors like Castillo and colleagues reviewed effective community interventions for promoting mental health and social equity, emphasizing the importance of multisector partnerships and community involvement in achieving these goals [17]. The authors suggest that, improving access to mental health care requires integrating mental health services into community organizations including schools, primary care clinics, prisons, etc., particularly for underserved populations whose access to specialized mental health services may be impeded. As a whole, overall health outcome result from the early detection and treatment of mental health disorders made possible by this integration. This strategy helped to address stigma in mental care service, holistic care, patient satisfaction, rapid access to services as a result promoting social justice among underserved groups. Similarly, there's been a focus on preventing chronic diseases through the integration of public health into healthcare systems. Addressing the social determinants of health and the need for a community-oriented, collaborative approach [14]. The integration of clinical care and public health, facilitated by factors such as flexible financing, shared leadership, shared data, and a strong shared vision, holds the potential to bridge traditional service delivery silos and deliver person-centered, holistic care that addresses the complex needs of high-risk, high-cost individuals [20, 25].

Achieving health equity, where all individuals have the opportunity to attain their full health potential, remains a critical challenge in the healthcare landscape. Integrated care models, aim to promote the coordination and collaboration of primary and hospital-based care, and this approach presents a promising approach to reducing health disparities among underserved populations [16, 17, 26]. Lack of access to quality healthcare is a key driver of health inequities, thus integrating primary,

specialty, and hospital-based care models hold the potential to providing a more comprehensive, patient-centered approach to care that addresses the multifaceted health needs of underserved populations [7, 27]. The studies in **Table 1** adopt collaborative approaches which highlight the benefits of community involvement and the inclusion of social determinants of health as part of health policy to improving population health outcomes and promote health equity.

4. Frameworks for bridging the equity gap

Conceptual frameworks provide detailed outline of strategies adopted to improve population health outcomes through the lens of collaborative effort among different stakeholders (See **Table 1**). The key points summarized from the given contexts are as follows: In order to have a long-lasting effect on community health, the authors propose a widely applicable strategy for health systems to promote population health in the fields of practice, education, and research. - To address health disparities and improve health outcomes, the strategy involves a wide range of stakeholders, including a county health system, a family medicine residency program, the public health department, and nearby nonprofit organizations and businesses. The Table describe evidence-based frameworks on collaborative care to advance equity in population health. The authors describe methods for increasing access to services and the partnerships to achieve the desired outcomes. For example, the case study from the NYU Center for the Study of Asian American Health (CSAAH) demonstrate how this framework was instrumental to improving health equity among Asian American communities with – "Promotors" (also known as community health workers), including the vital role they played in optimizing community health using this framework. The Promotors carry out neighborhood-specific, and individual-based community-based interventions, concentrating on utilizing family and community resources to assist patients in reaching their health goals. The authors emphasize the importance of population-based outcome measures, such as reductions in hospitalizations and ER visits [18].

These conceptual frameworks also emphasize the need to implement integrated care models that considers peoples' social determinants of health (SDOH) to advance health equity and reduce disparities as well as improve population health outcomes [16]. Integrated care approaches address multi-level contextual factors that underpins health inequities, by coordinating clinical interventions across various care settings to help mitigate the systemic barriers that contribute to health disparities. According to the WHO report on integrated care, frameworks that considers people's functional abilities, disability and other SDOH factors are essential to understanding the complex interplay between health disparities, health equity, social justice, and their influence on access to care [24]. Further highlighting the unique challenges faced by individuals from underserved jurisdictions, such as, the elderly and people from diverse ethnic backgrounds. Collaborative care can specifically address these needs by tailoring interventions to improve access, enhance communication, and provide comprehensive support services. For instance, these models incorporate assistive technologies to provide specialized training for healthcare providers, and ensure physical accessibility of healthcare facilities [10, 24, 28, 29]. By focusing on these multi-faceted strategies, collaborative care can significantly improve healthcare experiences and outcomes for people from all backgrounds. Moreover, collaborative care models can improve the functional capacity and overall well-being of populations by providing a holistic view

of a more comprehensive view of the potential benefits and strategies for successful implementation of care that is equitable. Thus, addressing not just medical care needs, but also functional and social needs and enhance the quality of life.

5. Ethical and professional considerations

The pursuit of health equity through integrated care models needs careful consideration of ethical and professional responsibilities. Cultural competency is vital to promote respect and effectively serve diverse cultural backgrounds. The ability of healthcare professionals to provide quality care while honoring and recognizing cultural differences is not only important, but entails being conscious of one's own prejudices, to comprehend how a patient's culture shapes their perceptions of their health, realizing the dynamics of power and privilege, and offering care that is appropriate for the patient's culture. Including cultural competency as part of the training needs for healthcare providers ensures respect and effectively addressing the diverse cultural backgrounds of patients. For example, India in a study that examines a strategy for reducing ethnic and racial disparity in care in the U.S. emphasized that cultural competency can help minorities receive higher-quality care, which will reduce health disparities by encouraging effective communication and patient participation in decision-making [19]. Also, Moore and colleagues argue that all individuals will participate more in clinical trials if appropriately trained nurses and nurse practitioners from a variety of backgrounds are included. Promoting participation regardless of socioeconomic or demographic characteristics and inform patients about trials and ways to lower personal barriers [20]. In sum, clinicians and healthcare organizations who ensure that integrated care initiatives do not inadvertently exacerbate existing biases or introduce new forms of discrimination and respect different cultural norms and practices, are more likely to provide culturally sensitive care that is appropriate. Collection of patient information should be based on their consent and obtained in a way that is clear and comprehensible to patients, for example, respecting their autonomy and right to make informed decisions about their care. Additionally, maintaining patient confidentiality is central especially in communities where trust in the healthcare system may be fragile. Protecting patient information and ensuring privacy, help to build and maintain trust between healthcare providers and patients [20]. Ongoing evaluation and adjustment of these models, with input from diverse stakeholders, are crucial to upholding the principles of justice, beneficence, and non-maleficence.

5.1 Professional roles and responsibilities

Exploring the professional roles and responsibilities of care providers within a collaborative care framework is essential for ensuring equitable and high-quality care for all. Healthcare providers must work effectively in interdisciplinary teams, sharing responsibility for patient outcomes and maintaining clear communication with patients and their families. This involves understanding and respecting the scope of practice of different team members and fostering a cooperative environment where each professional's expertise is valued [16]. Training programs should emphasize the importance of teamwork, communication, and the integration of services to provide comprehensive, patient-centered care. Collaborative care involves the integrated efforts of various healthcare professionals to provide comprehensive patient care.

Key professional roles

1. Primary care physicians (PCPs): PCPs often serve as the coordinators of care, ensuring that all aspects of a patient's health are addressed. They manage chronic conditions, provide preventive care, and facilitate referrals to specialists.

2. Nurses and nurse practitioners (NPs): Nurses and NPs play crucial roles in patient education, chronic disease management, and direct patient care. They often serve as the first point of contact for patients within the collaborative care team.

3. Mental health professionals: Psychologists, psychiatrists, and social workers provide necessary mental health support, integrating behavioral health into primary care. This integration is vital for treating conditions such as depression and anxiety that often co-occur with chronic physical health conditions.

4. Pharmacists: Pharmacists contribute by managing medication therapy, conducting medication reconciliation, and educating patients about their prescriptions. Their involvement helps optimize medication use and adherence.

5. Dietitians and nutritionists: These professionals offer dietary counseling and nutritional support, which is particularly important for patients with conditions such as diabetes, obesity, and cardiovascular diseases.

6. Physiotherapists: They assist in rehabilitation and management of physical conditions through exercises and therapeutic interventions, promoting mobility and physical function.

The insights above emphasize the critical roles that various healthcare professionals play in achieving collaborative care models. For example, a study that examined how individuals living with mental health issues access preventive care from their Physician to prevent complex health issues, integrated mental health services within primary care settings, showcases the collaborative efforts between primary care physicians and mental health professionals [10, 30]. This integration is shown to significantly improve patient outcomes, particularly in managing conditions like depression, adverse health conditions and incidence of falls among older adults. The pivotal role of pharmacists in managing polypharmacy among elderly patients is achieved from pharmacists' expertise in medication therapy management, which mitigate the risks of adverse drug interactions, thereby enhancing patient safety [31]. Nurse practitioners on the other hand, are essential in managing chronic diseases through patient education and direct care, which helps in controlling and reducing the impact of chronic conditions [23, 32]. The role of dietitians, underscores the importance of dietary counseling and nutritional support for patients with diabetes and cardiovascular diseases, contributing to better health management [22]. Lastly, the involvement of physiotherapists in rehabilitation, highlights their contribution to improving physical function and mobility through therapeutic interventions [13]. Collectively, these insights illustrate the importance of a multidisciplinary approach in providing comprehensive and effective patient care within the collaborative care model.

5.2 Addressing power imbalances and building trust

Developing strategies to address potential power imbalances and promote trust-based relationships between healthcare providers and population subgroups especially

among underserved communities is critical. This can include engaging community members in the planning and decision-making processes, ensuring transparency in healthcare delivery, and creating feedback mechanisms that allow patients to voice their concerns and preferences. Building trust requires healthcare providers to demonstrate respect, empathy, and accountability consistently. By actively involving community members and addressing their specific needs and concerns, healthcare providers can foster stronger, more trusting relationships with the communities they serve. Power imbalances often arise from the hierarchical nature of healthcare professions, where certain roles, such as physicians, traditionally hold more authority compared to others, like nurses or social workers. This dynamic can hinder open communication and collaboration.

5.3 Strategies to address power imbalances

i. Interdisciplinary training: Providing joint training sessions for all team members can foster a better understanding of each role's contributions, promoting mutual respect.

ii. Shared decision-making: Encouraging shared decision-making processes where every team member's input is valued equally helps to balance power dynamics.

iii. Clear role definitions: Clearly defining roles and responsibilities ensures that each team member understands their scope of practice and respects others' expertise.

iv. Leadership development: Training leaders in collaborative care to recognize and mitigate power imbalances can create a more inclusive and equitable team environment.

5.4 Building trust

i. Open communication: Establishing regular, open communication channels helps build transparency and trust among team members.

ii. Team-building activities: Engaging in team-building activities can strengthen interpersonal relationships and trust within the team.

iii. Consistent meetings: Regular team meetings provide opportunities for discussing concerns, successes, and collaborative strategies, reinforcing trust and cohesion.

iv. Respect and empathy: Cultivating an environment where respect and empathy are prioritized helps build a culture of trust and support.

Addressing power imbalances and building trust are essential components of a successful collaborative care model. By implementing strategies that promote equality, open communication, and mutual respect, healthcare teams can enhance their collaboration, leading to better patient care and outcomes.

6. Contemporary and emerging measures

Assessing the impact of integrated care models on health equity requires the development and application of robust measures. These may include indicators of access, utilization, patient experiences, and clinical outcomes, disaggregated by race, ethnicity, socioeconomic status, and other relevant demographic characteristics [15]. Evaluating the efficacy and limitations of existing tools and measures for assessing the success of collaborative care in promoting health equity is also essential for identifying gaps and areas for improvement. Traditional measures often focus on clinical outcomes and service utilization but may overlook critical aspects such as patient satisfaction, cultural competency, and the broader social determinants of health. Emerging approaches, such as the use of artificial intelligence and machine learning, present opportunities to identify and mitigate biases in care delivery, but must be carefully designed and implemented to avoid perpetuating or amplifying disparities [32].

6.1 Existing tools and measures

Existing tools for assessing collaborative care often emphasize clinical outcomes and process measures [2, 4, 5]. These tools can provide valuable insights but may have limitations in capturing the full impact of care on underserved populations. For instance, they might not adequately account for social determinants of health or the unique challenges faced by specific demographic groups. To truly assess the efficacy of collaborative care models, it is crucial to use measures that reflect the lived experiences of patients and their overall well-being, beyond just clinical metrics, examples include measures where utilization focus on comprehensive care such as, ICOPE -for older populations, Community-based Care models for integrating local resources and health services and also Person-centered care frameworks for ensuring care plans are tailored to individual needs [8, 28–30] emphasizing the integration of health services to address physical, mental, and social health needs.

6.2 Emerging approaches and technologies

Emerging approaches and technologies present new opportunities for measuring the impact of collaborative care on social determinants of health within underserved communities. The use of artificial intelligence (AI) and machine learning can help identify patterns and predict outcomes, enabling more targeted interventions. However, these technologies must be carefully designed and implemented to avoid perpetuating or amplifying existing disparities. For example, algorithms used in AI must be trained on diverse datasets to ensure they do not reinforce biases present in the data. Additionally, real-time data analytics can provide ongoing feedback on the effectiveness of care interventions, allowing for continuous improvement and adaptation.

6.3 Evidence-base for contemporary and emerging measures

Analyzing the evidence base for contemporary and emerging measures in the context of collaborative care and health equity initiatives is vital for validating their effectiveness. Research has shown that integrating social determinants of health into assessment tools can lead to more comprehensive evaluations of health outcomes, other studies on the use of AI and machine learning in healthcare have demonstrated potential benefits in improving predictive accuracy and identifying at-risk

populations, but they also highlight the importance of addressing ethical considerations and potential biases [13, 33]. Continuous research and validation are necessary to ensure these measures are reliable and equitable. By incorporating both contemporary and emerging measures, healthcare organizations can better assess the impact of integrated care models on health equity. These measures should not only focus on clinical outcomes but also consider patient experiences, access to care, and the broader social determinants of health. Utilizing advanced technologies like AI and machine learning, while ensuring ethical implementation, can enhance the ability to identify and address disparities in care delivery. Ultimately, robust and comprehensive measures are essential for advancing health equity and ensuring that integrated care models effectively serve all populations, particularly those who are underserved.

7. Research evidence in specific contexts

The effectiveness of integrated care models in reducing health disparities has been explored in various settings. For example, studies have examined the impact of integrated primary and specialist care on improving access and outcomes for marginalized populations with chronic conditions, such as diabetes and cardiovascular disease. Building on this evidence base, continued research in diverse contexts could be explored to reduce the cost of accessing healthcare through an interdisciplinary approach to meet the unique needs of underserved communities [33]. A few examples of practices that demonstrate why collaborative care is the best option to providing care to population subgroups.

7.1 Effectiveness of collaborative care models

Existing research has demonstrated the effectiveness of collaborative care models in addressing health disparities in specific underserved populations. For instance, rural communities often face unique challenges such as geographic isolation and limited healthcare resources. Studies have shown that integrated care models in these settings can significantly improve access to essential services, reduce travel time for patients, and enhance overall health outcomes [21]. Similarly, research focusing on racial and ethnic minorities has highlighted the benefits of culturally tailored collaborative care approaches in improving patient engagement, satisfaction, and clinical outcomes [6].

7.2 Promising practices and adaptations

Identifying promising practices and adaptations of collaborative care models within various community contexts including, disinvestment and interprofessional practice, is crucial for maximizing their impact. For example, among older adult populations, integrated care models that include components of geriatric care and social support have proven effective in managing chronic diseases and reducing hospital readmissions. In urban settings with high racial and ethnic diversity, employing community health workers and incorporating cultural competency training for providers have been shown to enhance the effectiveness of care delivery. These adaptations ensure that the care models are responsive to the specific needs and preferences of the populations they serve.

7.2.1 Disinvestment in health resources

The process of removing health resources from any current medical practices, procedures, technologies, or pharmaceuticals that are thought to provide little to no health

benefit for their cost and are therefore inefficient uses of health resources is known as disinvestment [25]. According to the authors, both health providers and receivers bear the brunt of poorly managed healthcare systems. Also, a study by Elshaug and colleagues on policy makers' perspectives on disinvestments, the potential overutilization of less than effective clinical practices and the potential underutilization of effective clinical practices not only results in less-than-optimal care but also fragmented, inefficient, and unsustainable resource allocation [26]. Systematic policy approaches to disinvestment may improve efficiency as well as equity, quality, and safety of care, and perhaps even sustainability. It is therefore important that health policies that target these issues are tackled to allow for the advancement of the disinvestment agenda. This is a growing area of priority setting in health care that requires national and international perspectives, debate, and collaboration. Health policy can have a major impact on health and well-being. Healthy People 2030 focus on keeping people safe and healthy through laws and policies at the local, state, territorial, and federal level. This will ensure that people get timely, high-quality care services that they need [27].

7.2.2 Interprofessional practice (IPP)

Interprofessional practice (IPP) is a collaborative model in healthcare where multiple health professionals from different backgrounds work together with patients, families, and communities to provide care. The goal of IPP is to improve healthcare and reduce costs by combining the knowledge and skills of different providers to create a comprehensive, safe, and efficient system. Carey and colleagues suggest that there is evidence to support the relationship between interprofessional practice models (IPM) and health service equity for aging populations [34]. This fuels the need to improve collaborative practices between social care, public health care and health service providers to provide professional and ethical care to vulnerable populations and communities. Implications for practice relate to improving how interprofessional teams work with communities to achieve health care equity.

Case illustration

Equity can be described as being fair and impartial. In other words, putting things in place to make sure that people receive equal treatment regardless of the class that they belong to in society. As previously discussed, the goal of IPP is to improve healthcare and reduce costs by combining the knowledge and skills of different providers to create comprehensive, safe, efficient and ethical care to vulnerable populations and communities. A relatable example is the research findings from Alva, in a qualitative study that sought to understand First Year Experience FYE programs in the U.S. to understand students' experiences, explains the necessity for higher education to be "more intentional and intrusive in ensuring that underserved and underrepresented students attend academic workshops and employ the available resources to succeed" [35]. Several community colleges in three states were investigated on practices that promote equity in access to education. The study examined the ways in which FYE programs assist students who have historically encountered more challenges in obtaining and finishing higher education, and ways to overcome them. The findings suggest that, level of outreach efforts to reach underrepresented groups and economic issues were major hurdles to higher education access for this group [9]. Overall, both studies highlight the benefits of adopting an equity focus lens to increase low-income and underrepresented group access to education. The strategy includes, engaging, academic advisors from diverse cultural background, more retention and graduation specialists and institutions targeting support to students who have historically encountered more barriers to enrolling in and finishing their higher education. Likewise, healthcare systems that are equity focused in policy development recognizes the need to eliminate disparities in health outcomes among underserved and underrepresented populations.

7.2.3 Research findings synthesis

Synthesizing research findings from various studies helps to understand how collaborative care can contribute to long-term health equity and social justice for diverse underserved groups. Comprehensive analyses reveal that successful integrated care models share common elements such as strong community partnerships, patient-centered approaches, and flexibility to adapt to local contexts. These models not only improve immediate health outcomes but also build the capacity of healthcare systems to address social determinants of health and promote sustainable health equity. The evidence supports the notion that collaborative care can play a pivotal role in achieving social justice by ensuring that all individuals, regardless of their background or circumstances, have access to high-quality healthcare. In conclusion, continued research in diverse contexts is essential to further refine and adapt integrated care approaches to meet the unique needs of underserved communities. By analyzing existing research, identifying promising practices, and synthesizing findings, healthcare organizations and policymakers can develop and implement effective strategies to reduce health disparities and advance long-term health equity.

8. Policy-oriented interventions

Policy-level interventions can catalyze the adoption and sustainability of integrated care models that prioritize health equity. Aligning financial and non-financial incentives, such as payment reforms and value-based care initiatives, can motivate healthcare organizations to invest in the development and implementation of these models [11]. Policymakers and regulators must also ensure that the design and deployment of integrated care initiatives uphold principles of fairness and non-discrimination. In conclusion, integrated care models offer a promising approach to addressing health disparities in underserved populations. By enhancing access, addressing social determinants of health, and incorporating ethical considerations, these models have the potential to transform the healthcare landscape and advance health equity.

8.1 Evaluating current policies

To support the implementation and sustainability of collaborative care models in underserved communities, it is essential to evaluate current policies and propose evidence-based interventions. This involves analyzing existing healthcare policies to identify gaps and areas where enhancements can be made to better support integrated care. For example, policies that promote value-based care, where providers are reimbursed based on patient outcomes rather than services rendered, can incentivize the adoption of collaborative care models. Payment reforms that provide financial support for integrated care services, such as bundled payments or capitation, can further facilitate the sustainability of these models.

8.2 Identifying key stakeholders

Key stakeholders play a crucial role in promoting collaborative care for health equity. These stakeholders include policymakers, healthcare systems, community organizations, and patient advocates. Policymakers can create and enforce regulations that support integrated care, while healthcare systems can implement these models and adapt them to

local needs. Community organizations are vital in engaging and educating the public, ensuring that care models are culturally appropriate and effectively address the community's needs. Patient advocates can provide valuable insights into patient experiences and help shape care models to be more patient-centered. Collaboration among these stakeholders is essential for the successful implementation of integrated care models.

8.3 Developing recommendations for policy changes

To empower stakeholders and advance collaborative care, developing recommendations for policy changes and resource allocation is critical. This includes advocating for increased funding for integrated care initiatives, ensuring that resources are directed towards underserved communities, and promoting policies that facilitate the training and retention of healthcare professionals in these areas. Additionally, policies should support the integration of social services with healthcare to address social determinants of health comprehensively. Recommendations may also include the creation of incentives for healthcare providers to participate in collaborative care models, such as tax benefits or grants.

Overall, integrated care models offer a promising approach to addressing health disparities in underserved populations. By enhancing access, addressing social determinants of health, and incorporating ethical considerations, these models have the potential to transform the healthcare landscape and advance health equity. Policy-level interventions that align incentives, involve key stakeholders, and promote fair and non-discriminatory practices are crucial for the successful adoption and sustainability of these models. Through strategic policy changes and resource allocation, stakeholders can be empowered to implement and maintain collaborative care models, ultimately achieving health equity for underserved populations.

9. Integrated and collaborative care impact

Integrated care practices offer substantial benefits to various population groups, particularly underserved, older adults, ethnic minorities and individuals who face complex health challenges. For elders, integrated care ensures coordinated management of multiple chronic conditions, reduces the risk of diseases, fragmented services and medical errors. By coordinating between primary, specialty, and geriatric care settings, access to care is enhanced while comprehensive health service is encouraged. Also, there's improved medication management, and interventions, leading to better overall health outcomes [29]. Additionally, as highlighted above and in the Appendix which with steps to achieving integrated care, patients' health providers can offer transportation assistance, social support, and community-based resources, to patients with mobility issues and those with difficulty accessing care, thus improving overall health outcomes [10]. Other underserved groups, such as rural communities and racial/ethnic minorities, can also benefit from improved access to care, reduced wait times, and culturally competent care that integrated models provide, ultimately fostering a more equitable healthcare system for all [19, 28, 36]. Collaborative care models provide a pragmatic strategy to deliver integrated mental health and medical care for persons with mental health care as mentioned earlier as demonstrated in the effectiveness of integrated care models for youth mental health, It addressed gaps in access to improve health outcomes by providing rapid access to services in a primary care setting, which was provided by a range of healthcare professionals, working together to manage

patients' mental health needs, through effective utilization of resources. Thus, increasing access to mental health services, reduce stigma, provide holistic care and improved communication between providers and patients. Overall, this integration enabled young patients to receive treatment in a comfortable, easily accessible environment [37]. These models are also a cost-efficient strategy for primary care practices to improve outcomes for a range of mental health conditions across populations and settings.

Successful implementation of collaborative care models in routine care, however, require alignment of financial incentives to support system redesign investments, reimbursements for mental health providers, and other organizational and financial considerations [37]. Primary care has proven to ensure high levels of efficiency, effectiveness, equity, safety, timeliness and centrality of the patient, achieving better health outcomes and lower costs. The Chronic Care Model proposes a proactive approach in assisting the empowerment of patients and their community, contributing to improving the quality of care and health outcomes, as well as the reduction of inequalities [38]. Ultimately, integrated and collaborative care models hold significant promise in improving health equity across diverse populations by enhancing access, coordination, and the addressment of social determinants of health.

10. Conclusion

Integrated care models hold significant promise for advancing health equity and addressing the multifaceted health needs of underserved populations. The chapter address various levels of care, including programs to increase underrepresented populations' access to care, improve primary/secondary level care coordination using integrated health methods to improve population health outcomes. Some of the strategies include integrating clinical practice, primary, secondary and tertiary care in collaborative ways to improve practice. The examples provided in the Table and other Appendix show how well collaborative care models work, for example, the ICCT approach used to improve the mental health of young people, and how CHW programs work to close gaps between the healthcare system and the community to provide fair access to care. Although there are still obstacles to overcome before integrative care models can be successfully used to address disparities and complex health conditions, these examples show how they can improve health outcomes through community involvement and strong policy support. Healthcare access can be enhanced through reduced wait times, improved appointment availability, and transportation assistance, and effective partnerships among several sectors of service delivery using models that ensures marginalized communities receive comprehensive and patient-centered care. Ethical and professional considerations, such as cultural competency, informed consent, patient confidentiality, and interdisciplinary teamwork, are essential to the successful implementation of collaborative care. Furthermore, the development and application of robust measures, including emerging technologies like AI, are crucial for assessing the impact of these models on social determinants of health. Policy-level interventions also play a vital role in sustaining integrated care models. Aligning incentives, engaging key stakeholders, and promoting policy changes that support the integration of vital health services into primary care settings, and funding for integrated care models are essential. In addition, policies that promote infrastructure development, such as electronic health records to enable seamless communication between primary care and health providers and those that engage communities in the planning and implementation of integrated care models will ensure that the needs of various population subgroups are met. Despite

the challenges of resource allocation in fostering collaboration among policymakers, healthcare systems, community organizations, patient advocates and institutions can create an inclusive and equitable healthcare system to enhance assess to care. There is need for continuous research, evidence synthesis, and strategic policy interventions that will ensure that integrated care models effectively reduce health disparities and promote long-term health equity - ultimately enabling all individuals to attain their full health potential. Integrated care practices offer substantial benefits to various population groups, particularly, for older adults who often face complex health challenges, this will ensure that care is coordinated in the management of multiple chronic conditions, as a result, mitigate the current fragmented care system and reduce medical errors.

In summary, reducing systemic healthcare disparities, particularly for underserved populations, can be achieved through transformative pathways such as achieving health equity through collaborative and integrative care models. The social determinants of health that underpin disparities are addressed by these models when primary, secondary, and tertiary care services are integrated. Effective programs like community health worker programs and collaborative care teams show promises for improving underprivileged communities' access to and quality of care. Geospatial analysis is one innovation that enhances healthcare planning and accessibility, highlighting the importance of data-driven strategies in resource allocation. But for progress to be sustained, strong legislative frameworks that encourage integration and give priority to cultural competency and strategies that involve communities are needed. All healthcare stakeholders should work together and make strategic investments to create an inclusive environment where everyone can achieve optimal health, regardless of socioeconomic status.

Conflict of interest

The authors declare no conflict of interest.

A. Appendix 1

Specific steps for implementing integrated care:

The following steps provide more insights into the implementation of integrated with the community health worker (CHW) led initiative:

1. Needs assessment

   Identify target population: Conduct a comprehensive needs assessment to identify the communities that would benefit most from CHW programs. This involves understanding the specific health challenges and social determinants affecting these populations.

   Engage stakeholders: Collaborate with community leaders, healthcare providers, and policymakers to design a CHW program that addresses identified needs and has community buy-in.

2. Program design

   Define roles and responsibilities: Clearly outline the roles and responsibilities of CHWs within the healthcare team. This includes determining the scope of practice, such as health education, patient navigation, and coordination of care.

Training and certification: Develop a robust training program for CHWs that covers essential skills, such as cultural competency, communication, and knowledge of healthcare systems.

3. Integration with healthcare systems

Collaborative approach: Foster collaboration between CHWs and healthcare providers by integrating CHWs into existing care teams. This requires establishing communication protocols and ensuring CHWs have access to necessary patient information.

Resource allocation: Secure funding and resources for the program, including salaries for CHWs and administrative support. Consider leveraging public and private funding sources to sustain the program.

Challenges to consider

1. Cultural barriers

CHWs often work within diverse communities with unique cultural practices and beliefs. It is crucial to ensure that CHWs are culturally competent and sensitive to these differences to build trust and effectively engage with the community.

2. Sustainability and funding

Securing long-term funding can be challenging. Programs must demonstrate their value to attract ongoing financial support. This requires developing a strong business case and communicating the program's impact on health outcomes and cost savings.

3. Integration and collaboration

Integrating CHWs into established healthcare systems can be challenging due to existing hierarchies and resistance to change. Overcoming these barriers requires strong leadership and clear communication about the benefits of CHW programs.

Metrics for evaluating success

1. Health outcomes

Measure improvements in specific health indicators, such as reduced hospital readmissions, improved management of chronic diseases, and increased rates of preventive care.

2. Patient satisfaction

Assess patient satisfaction with the care received, particularly regarding access to services and interactions with CHWs. Surveys and interviews can provide valuable feedback on program effectiveness.

3. Cost-effectiveness

Analyze the cost-effectiveness of the program by comparing healthcare utilization and costs before and after the implementation of the CHW program. Demonstrating a return on investment can support the case for sustaining and expanding the program.

B. Appendix 2

The summaries below reflect the content and themes presented in **Table 1**, highlighting the positive contributions, gaps, and factors influencing care, as well as focusing on different levels of care and relevant case studies.

Positive contributions to integrative care

Collaborative models: Articles highlight the success of integrated collaborative care teams, which improve service delivery, especially for mental health and substance use challenges among youth.

Community-based programs: Community health workers (CHWs) have been effectively integrated into primary care to address social determinants of health, leading to reduced healthcare utilization and costs.

Geospatial analysis: The use of geospatial analysis to map access to primary healthcare facilities has been pivotal in improving healthcare accessibility and planning.

Gaps in providing integrative care

Healthcare disparities: Significant gaps exist in healthcare access and outcomes, particularly among racial and ethnic minorities, as well as in rural and underserved communities.

Implementation challenges: There is a need for better frameworks to guide the implementation of integrated care models, particularly for complex conditions in older adults.

Factors influencing positive contributions

Community involvement: Successful integrative care models often involve strong community engagement and partnerships that empower local populations and improve health outcomes.

Policy and infrastructure: Policies that support interdisciplinary collaboration and the integration of healthcare services are crucial for advancing integrative care.

Case studies supporting collaborative health care youth mental health initiatives

Case studies on integrated collaborative care teams demonstrate their effectiveness in improving access and outcomes for youth with mental health and addiction challenge.

Community health worker programs

Case studies describe the impact of CHW programs in bridging gaps between communities and healthcare systems, promoting equitable access to care.

C. Appendix 3

Significant impact of community health initiatives and policy-making for integrated care

- Enhanced collaboration: The proposed generalizable approach encourages collaboration among various stakeholders, including county health systems, residency programs, public health departments, and local organizations. This collaboration is essential for addressing health disparities and improving health outcomes in underserved populations.

- Community health workers (promotors): The role of promotors is emphasized as a vital component in mobilizing community resources and addressing individual health needs. Their involvement can lead to better health outcomes by fostering community engagement and providing tailored support to patients.

- Focus on health equity: The integrative population health equity framework aims to advance health equity, particularly for Asian American communities. This framework can be applied to other underserved populations, highlighting the importance of culturally competent approaches in health interventions.

- Outcome measurement: The paper stresses the importance of population-based outcome metrics, such as reductions in hospitalizations and emergency department visits. By tracking these metrics, health organizations can assess the effectiveness of their initiatives and make data-driven decisions to improve service delivery.

- Addressing multi-level factors: The framework encourages understanding the multi- level contextual factors that influence health. This understanding can lead to more effective interventions that consider social determinants of health, ultimately improving community health outcomes.

- Sustainable health policies: The authors advocate for designing quality of care and payment policies that explicitly aim for health equity. This includes holding healthcare systems accountable through public monitoring and evaluation, which can lead to more sustainable health policies that benefit marginalized communities.

- Interdisciplinary approach: The paper highlights the need for an integrated, interdisciplinary approach to health care. By navigating funding sources and sustaining collaboration among various disciplines, health initiatives can be more effective in addressing complex health challenges.

In summary, the practical implications of emphasizing the importance of collaboration, community engagement, and a focus on health equity, can lead to improved health outcomes and more effective health policies for underserved populations.

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