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(Review Article)

The role of remote patient monitoring in chronic disease management among underserved U.S. populations: A scoping review

Yvonne Senam Woyome *

Independent Researcher, Rockville, MD, USA.

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Abstract

The underserved populations in the United States, which are racial and ethnic minorities, low-income individuals, residents of rural regions, have disproportions of chronic diseases. Remote patient monitoring (RPM) has become an effective approach, capable of enhancing the management of the chronic disease and eliminating health disparities, but the strategy of its functioning and its use in underserved groups are not fully described.

The review is a synthesis of the existing research on RPM interventions to manage chronic diseases in underserved populations in the United States, the study characteristics, clinical outcomes, implementation factors, as well as obstacles to adopt the intervention. We identified 207 distinct articles of which 60 articles qualify to be included in the detailed synthesis. Most of them were centered on hypertension management (n=35), diabetes management (n=28) and heart failure management (n=22). Studies predominantly involved African American and Hispanic/Latino populations, patients in Federally Qualified Health Centers (FQHCs), rural communities, and low-income individuals. The interventions of RPM showed good clinical outcomes such as reduction in blood pressure (5.8-15.1 mmHg systolic), HbA1c (0.25-1.5%) and hospitalizations (18-27%). The results of implementation were both feasible and acceptable with the engagement rates of the patients reaching 70-92%.

RPM interventions demonstrate great potential to better chronic disease management in underserved U.S. populations, and outcomes are clinically effective in a wide range of diseases. Nonetheless, the implementation needs to be successful, which means dealing with the problem of digital divide, related to cultural competence, and combining RPM with an integrated care management approach.

Keywords: Remote Patient Monitoring; Telehealth; Chronic Disease Management; Health Disparities; Underserved Populations

1. Introduction

Chronic diseases, such as cardiovascular disease, diabetes, and chronic lung and respiratory conditions, are the primary sources of morbidity and mortality in the United States, as they represent 7 of the top 10 leading causes of death and they use about 90% of the total healthcare spending, which is 4.1 trillion annually, in the country (Holtz et al., 2024). These diseases do not only impact underserved groups, such as racial and ethnic minorities, those in low socioeconomic conditions, and rural populations, but they also pose long-standing health inequity affecting the health outcomes of the entire nation (Azizi et al., 2024; Schoenthaler et al., 2025).

Remote patient monitoring (RPM) has turned out to be a paradigm shift in the way chronic diseases are handled, allowing tracking patient health indicators continuously and in real time beyond clinic environments with the use of

* Corresponding author: Yvonne Senam Woyome

connected devices, mobile applications, and telehealth platforms (Holtz et al., 2024). The COVID-19 pandemic has also increased the use of RPM technologies, especially among underserved populations, which demonstrates how immense the potential of these interventions can be while also showing how much barriers to their implementation persist, preventing their fair use (Nittari, 2022). With the adoption of digital health tools by healthcare systems taking a center stage, the role of RPM in reducing health disparities is emerging as an important research concern among scholars, clinicians, and policymakers. Although the interest in RPM is increasing, the body of evidence on the efficacy, execution, and changing of health equity in underserved populations of the U.S. is still divided in the literature of various fields and clinical settings. Whereas some studies have shown positive results in particular groups of patients or concerning certain chronic diseases, a systematic review of the literature is required to establish evidence-based practice and support policy implementation and development gaps (Oh et al., 2024; Rivera et al., 2023).

This evidence gap is addressed in this review, by mapping and synthesizing the existing evidence on RPM interventions to manage chronic diseases in underserved U.S. populations, this review will be useful in developing more equitable, effective, and sustainable RPM programs that have the potential to reduce chronic disease burden and decrease health disparities in vulnerable populations.

In this review, we describe underserved populations as populations facing systematic healthcare access and less favorable health outcomes than the general population. This consists of racial and ethnic minorities (especially, African American, Hispanic/Latino, and Native American), people with low socioeconomic status or without health insurance, rural or geographically isolated residents, people receiving care in a safety-net provider like Federally Qualified Health Centers (FQHCs), and populations with low English proficiency or low health literacy (Kirkland et al., 2023). These groups tend to have overlapping inequalities that exacerbate the health and make the management of chronic diseases difficult.

In the United States, disproportionate impacts of chronic diseases burden the underserved population. African Americans are susceptible to hypertension 40% more often than non-Hispanic whites and 2 times more prone to being killed by a stroke (Bondmass et al., 2000; Artinian et al., 2007). Hispanic/Latino communities have high levels of diabetes, and its prevalence ranges to 17 versus 11 in non-Hispanic whites and have worse glycemic control and incidence of diabetes-related complications (Pekmezaris et al., 2024; Anderson et al., 2022). Access to specialty care faces a huge obstacle in rural residents, and it is associated with poorer outcomes in heart failure, where readmission rates are higher in 30 days of heart failure than in cities (Riley et al., 2015; Azizi et al., 2024). These inequalities exist due to complicated, interdependent factors acting in different levels of the social-ecological model. At the individual-level, there are lower health literacy, language barrier, and conflicting priorities based on economic insecurity (Caban, 2019). Personal factors include a lack of social support and ideologies regarding health and health services due to the cultural beliefs (Pekmezaris et al., 2024). Some of the community-level issues entail residential segregation, food deserts, and minimal access to safe areas where people can undertake physical activities (Commodore-Mensah et al., 2024). Health system-related considerations include shortage of health providers, culturally insensitive care, and barriers to economics such as the absence of sufficient insurance cover (Ekenga et al., 2024; Hernandez et al., 2025). Also under policy-level factors are inadequate investment in safety-net healthcare facilities and limited broadband right in the countryside (Holtz et al., 2024).

Remote patient monitoring involves various technologies that provide health care professionals with the ability to gather patient health information outside of the traditional clinical practice. RPM technologies encompass: (1) connected physiologic monitors (blood pressure monitors, glucometers, pulse oximeters, weight scales), (2) wearable sensors and continuous monitoring systems (continuous glucose monitors, cardiac monitors), (3) mobile health (smartphone) apps on symptom tracking and medication adherence and (4) telehealth (data transmission and provider-patient communication) apps (Santamore et al., 2007; Kim et al., 2023). RPM interventions work in a number of ways to enhance the management of chronic disease. First, they allow identifying the clinical deterioration in its early form via continuous or regular observation, which will make it possible to act in time prior to the onset of acute exacerbations (Davis et al., 2015; Gross-Schulman et al., 2017). Second, RPM provides more frequent communication between patients and their providers and care coordination that promotes medication titration and lifestyle change without involve in-person visits (Ogedegbe et al., 2024; Clark et al., 2021). Third, self-monitoring can be an effective way of boosting patient engagement and self-efficacy that would foster a treatment plan and health behaviors adherence (Santamore et al., 2007). Fourth, RPM produces longitudinal data which can be used to inform individual treatment decisions and can learn patterns not evident following a series of acute clinic visits (Crossen et. al, 2023).

A number of theoretical perspectives are used to inform the use of RPM with underserved populations. The Chronic Care Model is built on the significance of effective communication between informed and activated patients, and prepared and proactive healthcare teams, where RPM is implemented to make the mentioned communication more effective and take place over time and distance (Davis et al., 2020). According to the Technology Acceptance Model, the perceived ease of use and usefulness are among the most important factors of technology adoption, and demonstrated that user-centered design and digital literacy support plays a crucial role (Chu et al., 2024). Health equity models highlight that interventions need to be planned and operated with clear consideration of social determinants of health and structural cones or obstacles against underserviced groups (Schoenthaler et al., 2025). This should involve guaranteeing that RPM programs fill the digital divide by providing devices and connectivity, cultural tailoring and language concordance, community-based resources, and trusted healthcare providers and prevent the increased disparities by different access or effectiveness (Vrany, 2023; Pekmezaris et al., 2024).

In the recent years, the policy environment of RPM has changed significantly. In 2019 the Centers of Medicare and Medicaid Services (CMS) introduced certain Current Procedural Terminology (CPT) codes of RPM services, and they were subsequently extended throughout the COVID-19 pandemic (Ubl, 2007; Holtz et al., 2024). These reimbursement designs have helped to expand the usage of RPM, whereas some issues are still found in relation to covering under-served groups, such as Medicaid recipients or uninsured individuals (Hernandez et al., 2025). The policies of state-levels differ significantly in terms of providing access to RPM services, and they introduce geographic inequalities in Medicaid coverage (Winberg et al., 2022). Knowledge of this policy setting plays a critical role in the interpretation of the existing evidence base and the availability of interventions on the system level to support the equitable RPM implementation.

2. Methods

2.1. Scoping Review Framework

This scoping review was written in accordance with the approach to methodology as described by Arksey and O'Malley and streamlined by the Joanna Briggs Institute and reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension of Scoping Review (PRISMA-ScR). This method is especially suitable to investigate the developing sphere of study, outline the scope of evidence, and pinpoint gaps in the literature, which makes scoping reviews the most suitable way of studying the extremely evolving field of RPM in underserved populations.

2.2. Research Questions

This review was guided by the following research questions:

- What are the characteristics of RPM interventions implemented for chronic disease management in underserved U.S. populations (e.g., target conditions, technologies used, care delivery models)?
- What clinical outcomes have been reported for RPM interventions in these populations across different chronic conditions?
- What implementation outcomes (feasibility, acceptability, adoption, engagement) have been documented?
- What barriers and facilitators to RPM implementation and sustained use have been identified?
- What gaps exist in the current evidence base, and what are the implications for future research and practice?

2.3. Search Strategy

A comprehensive literature search was conducted across major databases databases Google Scholar, PubMed, etc. The search strategy was based on the terms: (1) remote patient monitoring and telehealth, (2) chronic disease (diabetes, hypertension, heart failure, cardiovascular disease, chronic obstructive pulmonary disease), and (3) underserved populations (racial/ethnic minorities, low-income, rural, safety-net settings, health disparities).

2.4. Inclusion and Exclusion Criteria.

Studies were included if they: (1) focused on RPM interventions for chronic disease management, (2) involved underserved U.S. populations (racial/ethnic minorities, low-income individuals, rural residents, or patients in safety-net settings), (3) reported clinical outcomes, implementation outcomes, or barriers/facilitators, and (4) were published in English. Studies were excluded if they: (1) focused exclusively on well-resourced populations, (2) examined acute care or non-chronic conditions only, (3) were conducted outside the United States, or (4) were purely theoretical without empirical data.

2.5. Study Selection and Data Extraction.

In the initial search, 207 distinct studies were identified. After screening of titles and abstracts, 60 studies were incorporated into the category(s) of the intended studies, to undergo in-depth synthesis. Selection of these studies was made based on their relevance to the research questions, and especially those studies that gave in detail information on underserved populations, and the aspects of implementation and health equity issues were considered. The eligible studies were systematically searched and data was converted to a standardized form, which contained the following information: (1) study characteristics (design, sample size, duration); (2) population characteristics (race/ethnicity, socioeconomic status, geographic setting, chronic conditions); (3) RPM intervention (technologies, care delivery model, intensity); (4) clinical outcomes (blood pressure, HbA1c, hospitalizations, mortality); (5) implementation outcomes (feasibility, acceptability, engagement rates); and (6) described barriers and facilitators.

2.6. Data Synthesis and Analysis

Owing to the lack of homogeneity of study designs, populations, interventions, and outcomes, we used a narrative synthesis method based on the features of the chronic conditions and population groups. We also found some general themes in studies, gave observations in the outcomes and implementation factors and provided points of convergence and divergence in the evidence. Where two or more studies gave similar results, then we used this description of the extent of effects. We also engaged in a qualitative study of the barriers and facilitators reported and classified them based on the social-ecological model (individual, interpersonal, organizational, community, and policy level).

3. Results

3.1. Overview of Included Studies.

The 60 studies reviewed in this paper were of various study designs, with randomized controlled clinical trials (n=18) making 3 times, pilot studies (n=12), retrospective cohort studies (n=15), prospective observational studies (n=8), systematic reviews (n=4), and qualitative studies (n=3). The study sample was in the form of small pilot studies with less than 50 participants, as well as large-scale programs with thousands of patients. The studies had 3-month pilot studies up to 2-week longitudinal follow-ups. Geographic distribution of studies was an representation of both urban and rural setting in various parts of the U.S. with significant concentrations being in the Northeast (New York in particular), the southeast (Mississippi, South Carolina, Louisiana), the Midwest (Michigan) as well as the west (California). A large percentage (n=22) of the studies were done in or involved Federally Qualified Health Centers (FQHCs) due to the relevance of safety-net care in underserved populations (Ekenga et al., 2024; Flanagan et al., 2024).

3.2. Population Characteristics.

3.2.1. Racial and Ethnic Composition.

The studies included were mostly about African American and Hispanic/Latinos area as there is a disproportionate burden of chronic disease in those areas. Close to 45% (n=27) of the studies explicitly aimed, or otherwise included, the majority African American population (Bondmass et al., 2000; Artinian et al., 2007; Shah et al., 2013; Ogedegbe et al., 2024). The target population in 30% of studies (n=18) was Hispanic/Latinos, and some of them considered the language and cultural adjustment requirements (Caban, 2019; Pekmezaris et al., 2024; Kim et al., 2023). In 25% of the studies (n=15), mixed minority populations were compared to determine differences between racial/ethnic groups (Andersen et al., 2021; Mann et al., 2025).

3.2.2. Socioeconomic Characteristics

In most studies, there was an explicit target on low-income populations. About 60% of the articles (n=36) enrolled patients with an annual household income less than $25000 or less than 200 percent of the federal poverty line (Ogedegbe et al., 2024; Clark et al., 2021). The 40 percent of studies (n=24) concentrated on the uninsured or Medicaid-insured populations to emphasize the significance of RPM in the safety-net deliveries of healthcare (Hernandez et al., 2025; Gross-Schulman et al., 2017). A number of them directly focused on Medicare beneficiaries in underserved communities and included the overlapse of age, chronic disease burden, and socioeconomic disadvantage (Winberg et al., 2022; Feldman et al., 2025).

3.2.3. Geographic Settings

Rural populations were the primary focus in 35% of studies (n=21), addressing the unique challenges of geographic isolation, provider shortages, and limited healthcare infrastructure (Riley et al., 2015; Clark et al., 2021; Kim et al., 2025; Azizi et al., 2024). In 50% of the studies (n=30), urban underserved populations were studied and reported to either live in medically underserved areas or health professional shortage areas (Artinian et al., 2007; Ogedegbe et al., 2024; Ward et al., 2023). In 15% of the studies (n=9), mixed urban-rural populations were also provided, which meant they could be used to analyze the RPM effectiveness in different geographic circumstances (Feldman et al., 2025).

3.3. Chronic Conditions Addressed.

The clinical outcomes associated with RPM interventions across chronic conditions are summarized in Table 1. Across hypertension studies, consistent reductions in systolic and diastolic blood pressure were observed, with several trials demonstrating clinically meaningful decreases exceeding 10 mmHg. Diabetes-focused interventions reported significant improvements in glycemic control, with HbA1c reductions ranging from modest to substantial and, in several cases, sustained over 12 months. Heart failure RPM programs demonstrated reductions in hospitalizations and healthcare utilization, with some studies also reporting associated cost savings. Studies addressing multiple chronic conditions similarly reported concurrent improvements in cardiometabolic indicators, highlighting the adaptability of RPM within comprehensive chronic disease management models.

Table 1 Clinical Outcomes of RPM by Chronic Condition

Condition	No. of Studies	Key RPM Components	Clinical Outcomes	Magnitude of Effect
Hypertension	35	Home BP monitoring + nurse/pharmacist management	Reduced systolic & diastolic BP	SBP ↓ 5.8–15.1 mmHg (most: 7–13 mmHg); DBP ↓ 3–6 mmHg
Diabetes	28	Glucose monitoring (SMBG/CGM) + education + medication management	Improved glycemic control	HbA1c ↓ 0.25–1.5% (most: 0.5–1.0%); sustained at 12 months in several studies
Heart Failure	22	Weight monitoring + symptom tracking + GDMT optimization	Reduced hospitalizations & readmissions	Hospitalizations ↓ 18–27%; cost savings up to $183 PMPM
Multiple Chronic Conditions	24	BP + glucose monitoring + team-based care	Improved BP and HbA1c	Concurrent improvements in cardiometabolic indicators

3.3.1. Hypertension

The most prevalent disease problem that was addressed was hypertension, which was presented in 58 percent of studies (n=35). Hypertension RPM interventions generally comprised home blood pressure self-monitoring with automated transfer of measurements to their medical care provider, usually accompanied by nurse case management or drug titration by pharmacists (Bondmass et al., 2000; Santamore et al., 2007; Artinian et al., 2007; Clark et al., 2021; Ogedegbe et al., 2024; Schoenthaler et al., 2025; Korang et al., 2025). The studies indicated a similar benefit in clinical outcomes in the management of hypertension. The systolic blood pressure changes were between 5.8 mmHg and 15.1 mmHg, but the majority of researches indicated that systolic decreases were in the range of 7-13 mmHg (Artinian et al., 2007; Ogedegbe et al., 2024; Clark et al., 2021). The extent of the systolic blood pressure decreases was lower (around 3-6mmHg) in general (Artinian et al., 2007; Bondmass et al., 2000). A number of studies showed that RPM-based blood pressure management was better in comparison to standard care or improved standard care controls (Artinian et al., 2007; Ogedegbe et al., 2024).

Imperatively, a massive randomized controlled trial by Ogedegbe et al. (2024) of 450 predominantly low-income Blacks and Hispanics with uncontrolled hypertension have found that home blood pressure telemonitoring and nurse case management produced a systolic reduction in blood pressure of 15.1 mmHg at 12 months compared to 5.8 mmHg with home blood pressure telemonitoring alone, or 8.1 mmHg with 12-month follow-up results as an adjusted between-group difference. The current research proved that further implementation of personalized nurse case management led to the significant improvement of the sole impact of RPM technology (Ogedegbe et al., 2024). The review into RPM in relation to hypertension in population groups with specific underserved characteristics had a significant revelation. In rural settings, Clark et al. (2021) indicated that home blood pressure monitoring via remote hypertension control was able to achieve effectively high levels of blood pressure reduction in rural low-income community. Flanagan et al. (2024) discovered that RPM was effective in hypertension management in FQHCs, but there is a need to conduct further research comparing the effectiveness of RPM in various primary care settings. Racial disparity studies in RPM pursuits of hypertension provided yielding results (some reported equal benefit, some heterogeneous results).

3.3.2. Diabetes

The management of diabetes was reported in 47% of the studies (n=28) and the interventions usually included remote glucose monitoring either in the form of traditional glucometer readings or the use of continuous glucose monitoring (CGM) system in addition to diabetes patient education, medication adherence, and lifestyle education (Davis et al., 2020; Davis et al., 2022; Kim et al., 2023; Vrany, 2023; Crossen et. al, 2023). The management of diabetes showed significant improvements in the clinical outcomes of glycemic control. The ranges of HbA1c change were 0.25 to 1.5, and the majority of the studies found a reduction between 0.5 and 1.0 (Kim et al., 2023; Kirkland et al., 2021; Davis et al., 2022). The ACTIVATE digital health pilot program through culturally modified RPM devices in rural, mostly Spanish-speaking diabetic and hypertensive individuals successfully produced great improvements in the length of poor glucose levels alongside blood pressure changes (Kim et al., 2023).

The ability of RPM to sustain the diabetes outcomes on a long-term basis was tested in a several studies. A retrospective study, by Davis et al. (2022), of the participants in the Mississippi Diabetes Telehealth Network reported that HbA1C reductions during 12 months founded on RPM were maintained in underserved patients. Similar results were reported by Kirkland et al. (2021), who demonstrated significant and sustained HbA1c improvements at 12 months with RPM in underserved populations in comparison with short-term pilots of the program, indicating that RPM can prevent short-term improvements in HbA1c. Research on persistent glucose testing (CGM) in underserved groups identified the opportunities and challenges. Vrany (2023) presented the possibilities provided by CGM and virtual care to encourage health equity among high-risk populations with racial and ethnic minorities and recognized obstacles associated with the access cost, insurance coverage, and access to technology. As it was demonstrated by Crossen et. al. (2023), it is possible to monitor glucose remotely by a commercially available population health platform, and clinician-initiated outreach can be of specific advantage in the group of patients with less than optimal glycemic control.

The racial differences in the outcomes of diabetes management through RPM were literally studied in various works. Andersen et al. (2021) have discovered that RPM implementation resulted in some racial discrepancies in diabetes care management, which implies that technology is not necessarily going to address inherent inequities without considering the social factors and culturally competent care. A systematic review and meta-analysis analyzing telehealth interventions to enhance diabetes management in Black and Hispanic patients was carried out by Anderson et al. (2022), which reached the overall results, yet was characterized by the heterogeneity of the intervention efficacy.

3.3.3. Heart Failure

RPM to manage heart failure was studied in 37% (n=22) studies, where the interventions generally included daily weight checking, symptom monitoring, and vital signs checking, often combined with the optimization of guiding medical therapy (GDMT) and coordination of care (Riley et al., 2015; Shah et al., 2013; Caban, 2019; Feldman et al., 2025; Craig et al., 2023). Heart failure RPM clinical outcomes showed a decrease in hospitalization and readmission, which are vital cost and quality indicators of this high-risk group. Articles cited between 18 percent to 27 percent of the hospitalization cuts (Feldman et al., 2025; Caban, 2019). Riley et al. (2015) evaluated the program of remote heart failure monitoring within the rural regional medical center, stating that healthcare use was reduced. Caban (2019) discovered that Hispanic heart failure patients not under telemonitoring had an almost fourfold higher likelihood of readmission than those under telemonitoring with an aggregate likelihood of 27% higher than readmission with no telemonitoring.

The study by Feldman et al. (2025) was a large scale remote patient care heart failure program of 2,697 Medicare patients in 19 states, half of whom lived in rural or underexplored regions. The program reported a considerable decrease in blood pressure (7/4 mmHg) and weight (5 lbs), a major increase in the GDMT prescribing (almost three times more HFrEF at follow-up would be prescribed all four GDMT pillars instead of the base), and a substantial cost saving in the total cost of care (183 per member per month) due to a significant decrease in inpatient expenditure and a decrease in admissions (18%). Notably, the clinical, cost, and utilization outcomes between patients living in rural and underserved locations were comparable, which indicates how well-constructed RPM programs can be beneficial and equitable to patients (Feldman et al., 2025). The available studies on the use of heart failure RPM among certain underserved groups were useful in understanding how and what results. The pilot project of telemonitoring among a low-income African American group with congestive heart failure by Shah et al. (2013) is an example that shows that it is feasible despite socioeconomic barriers. According to Gross-Schulman et al. (2017) who have tested the safety of an automated remote monitoring system to monitor heart failure in an indigent, urban population, the system may be introduced safely with proper clinical practices. The digital health interventions reviewed by Azizi et al. (2024) as part of the systematic review are heart failure management interventions in underserved rural regions of the United States, including randomized trials and factors that portray promising results and technological access and digital literacy difficulties that need to be resolved to continue to benefit the population.

3.3.4. Multiple Chronic Conditions

Most of the studies covered the multimorbidity of various chronic conditions among populations requiring primary care conditions. One out of four studies (n=24) included RPM interventions regarding the two or more chronic indicators, the most commons being the collaboration of diabetes and hypertension (Ekenga et al., 2024; Kim et al., 2023; Davis et al., 2020; Commodore-Mensah et al., 2024). The partnership model of chronic care management and remote monitoring of the patients in FQHC examined by Ekenga et al. (2024) focused on both blood pressure and glucose levels, and in both instances, the team approach integrated pharmacists and primary care providers showed positive changes in the two indicators. The digital health pilot program of ACTIVATE also focused on diabetes and hypertension among an underserved rural population to gain substantial increases in both HbA1c and blood pressure (Kim et al., 2023).

The investigation of patients with various chronic conditions indicated the intricacy of care coordination and the opportunities of RPM to organise coordinated disease management. They, however, also uncovered barriers associated with patient burden caused by a variety of monitoring instruments, conflicting demands of self-management, and the necessity to aspire to thorough models of care that would accommodate the spectrum of patient needs in prescribed care (Hofner et al., 2023; Ugwu, Ajayi, & Oware, 2025).

3.4. Care Delivery Models and RPM Technologies.

3.4.1. Monitoring Technologies

The intervention strategies of RPM, which have been reviewed here, used varied monitoring technologies. The most prevalent technology was a home blood pressure monitor that connects to the cellular or Bluetooth network, which was used by 35 studies (Bondmass et al., 2000; Santamore et al., 2007; Artinian et al., 2007; Clark et al., 2021; Ogedegbe et al., 2024). There were 28 studies using blood glucose monitors with remote data transmission, and continuous glucose monitoring systems are gaining more popularity in recent studies (Davis et al., 2020; Vrany, 2023; Crossen et. al, 2023). 22 of the studies used weight scales and heart failure management symptom tracking tools (Riley et al., 2015; Feldman et al., 2025; Craig et al., 2023). A number of studies were based on all-inclusive RPM platforms that included various monitoring devices and streams of data. The Mississippi Diabetes Telehealth Network used a multi-component framework that comprised of glucose monitoring, blood pressure monitoring and video conferencing in diabetes education and medication management (Davis et al., 2020; Davis et al., 2022; Ugwu, Ajayi, & Kaiser, 2025). The ACTIVATE program employed culturally adapted, co-designed devices based on Spanish language interfaces, to follow the predominantly rural population of Hispanics (Kim et al., 2023). The choice and design of technology proved to be a significant variable to the underserved populations. The researchers highlighted the significance of user-friendly interfaces, low requirements of setting it up, and the lack of need in smartphones or home internet connection (Santamore et al., 2007). Devices that are cellular-enabled and send data automatically without the need for patients to act were connected to a higher engagement rate in contrast to devices that need manual data input or smartphone applications (Jones et al., 2023).

3.4.2. Care Delivery Models

The implementation of RPM interventions has been in different models of care delivery where most models involved some sort of clinical support such as provision of technology only. The most prevalent model was nurse case management which was noted in 25 studies and which included regular phone calls, symptoms evaluation, medication management assistance, and care coordination (Artinian et al., 2007; Ogedegbe et al., 2024; Abraham et al., 2023). In 12 reports, the pharmacist-led medication management was used, and it usually stood within the framework of collaborative practice agreements with the ability to change the medication in response to the RPM data (Ekenga et al., 2024; Clark et al., 2021).

The theme of community health worker integration was analyzed in multiple retrieves covering the underserved groups within the community, where it was found that trusted members of the community could be valuable in promoting the use of technology and offering culturally concordant support (Commodore-Mensah et al., 2024). Mobile health telemonitoring with the support of community health workers was used in the LINKED-HEARTS program to minimize cardiovascular health disparities (Commodore-Mensah et al., 2024). Depending on the studies, clinical support intensity was quite different. Daily data review with instant outreach (because of relevant values) was a part of some of the interventions (Feldman et al., 2025; Gross-Schulman et al., 2017), and weekly or biweekly scheduled contacts with data review was another part of others (Artinian et al., 2007; Davis et al., 2020). A number of the researches have pitted various levels of support against one another, typically with more profound clinical involvement yielding superior outcomes, but at increased resource expense (Ogedegbe et al., 2024). Some studies had different degrees of integration with primary care. Other forms of RPM programs were extensions of primary care provision with RPM data being found in electronic health records and reviewed by the primary care provider of patients (Kirkland et al., 2023). Some of them operated as parallel programs and different clinical teams, which casts doubts on care coordination and sustainability in the long term (Davis et al., 2015).

3.5. Implementation Outcomes

Implementation findings across studies are summarized in Table 2. Overall, RPM interventions were feasible in underserved populations, with high rates of successful data transmission and generally strong patient satisfaction. Engagement levels varied but were highest in programs that incorporated structured clinical support and culturally tailored approaches. However, challenges related to workflow integration, staffing capacity, and reimbursement sustainability were frequently reported. Declines in patient engagement were most notable within the first several months of enrollment, underscoring the importance of ongoing support strategies to sustain participation.

Table 2 Implementation Outcomes of RPM in Underserved Populations

Implementation Domain	Findings
Feasibility	Enrollment: 30–80%; Data transmission success: 85–92%
Acceptability (Patients)	Satisfaction rates >80%; improved sense of connection to care team
Acceptability (Providers)	Concerns: workflow integration, time burden, reimbursement
Engagement Rates	60–92% adherence; higher with culturally tailored interventions and clinical support
Factors Improving Engagement	Nurse case management; community health workers; culturally adapted materials; cellular-enabled devices
Engagement Decline	Most drop-off occurred within first 1–3 months
Sustainability Challenges	Staffing constraints; reimbursement variability; grant-dependent programs

3.5.1. Feasibility

Most of the studies concluded that the implementation of RPM could be done in underserved populations but with significant caveats and lessons learned. The rate of enrolment was different, ranging between 30 and 80% of the potential patients, where the lower enrolment rates were often related to the issues with the technology, the opposition of priorities, or the mistrust towards the healthcare system (Davis et al., 2015; Chu et al., 2024). As soon as enrolled, technical success rates of remote data transmission tended to be high, between 85 and 92% (Santamore et al., 2007; Crossen et. al, 2023). A number of studies examined specifically the feasibility in difficult situations. As shown by Jones et al (2023) cellular-enabled RPM in hypertension management of pregnant women is possible since children have distinct monitoring requirements and time limitations. Makutonin et al. (2023) studied the viability and RPM results in a minority population in a clinic setting and concluded that it was possible to integrate with the already existing clinic workflow through proper planning and personnel training.

Such barriers to feasibility were as follows: rural areas have insufficient broadband or cellular coverage, low-income patients have no device or data plan to participate in RPM programs, no clinic infrastructure or staffing to support RPM programs (Holtz et al., 2024; Azizi et al., 2024). Research studies that offered devices and connection to the subjects tended to record an improved feasibility compared to those who needed their patients to maintain their equipment (Kim et al., 2023).

3.5.2. Acceptability

In general, levels of acceptance of RPM interventions were quite high in studies and the levels of satisfaction in patients usually ranged above 80 percent and the majority of patients expressed that RPM helped them manage the condition (Chu et al., 2024; Crossen et. al, 2023). The qualitative studies offered an understanding of the causes of acceptability. The qualitative study conducted by Chu et al. on the patient experience in an RPM program on hypertension revealed that the main benefits to the patients included the feeling of closer connection with their medical team, the fact that patients can check their progress, and the ease of not having to attend clinic appointments with no necessity.

The cultural adaptation became a notable issue in acceptability of the racial and ethnic minority groups. CULTURA-DM2 trial was a study that investigated culturally congruent Latino adapted telemonitoring in adults with type 2 diabetes and found that cultural modification improved acceptability and engagement (Pekmezaris et al., 2024). It was found that language concordance, the provision of culturally suitable education tools, and focusing on cultural perceptions of health and technology were among the critical aspects of agreeable RPM programs when working with varied populations (Caban, 2019; Kim et al., 2023). Fewer studies considered provider acceptability but came out as a significant implementation factor. The issues raised by providers included the integration of workflow, the suitability of reimbursement, responsibility and accountability of the providers to the remote monitoring and time spent to read and act on the RPM. Those studies, which were able to incorporate RPM into the current care processes and offer sufficient training and support indicated an increased level of acceptability among the providers (Kirkland et al., 2023).

3.5.3. Adoption and Engagement

Patient engagement with RPM varied considerably across studies and appeared to be influenced by multiple factors. The range of adherence rates (percentage of events of anticipated monitoring attendance) was 60-92 percent with higher adherence outside generally more intensive clinical support and culturally tailored interventions and simpler technology (Santamore et al., 2007; Davis et al., 2020; Ogedegbe et al., 2024). A number of studies analyse aspects related to deviating engagement. The study by Friedman et al. (2022) examined the impact of veteran race and socioeconomic status on hypertension RPM enrollment, revealing inequities in getting the initial enrollment that might continue to widen health disparities in case they are not resolved. Mann et al. (2025) investigated the differences in RPM effects by race/ethnicity and observed that there were relationships between RPM and blood pressure control that differed in racial/ethnic groups and might have represented differences in access to/or effect of the RPM activity. The participation process turned out to decrease over the course of many studies with the sharpest decline-offs observed during the first 1-3 months (Davis et al., 2015). Engagement sustainment strategies were frequent check-in calls, goal progress feedbacks, the use of gamification, and connectivity with social support networks (Commodore-Mensah et al., 2024). Longer follow-up risks (12 months and higher) that were characterized by a high level of engagement tended to use continuous clinical support instead of technology alone (Artinian et al., 2007; Ogedegbe et al., 2024; Davis et al., 2022).

3.6. Barriers and Facilitators to RPM Implementation

Table 3 presents a synthesis of barriers and facilitators to RPM implementation organized according to the social-ecological model. Barriers were identified at individual, interpersonal, organizational, community, and policy levels, including digital literacy limitations, language barriers, staffing constraints, broadband access disparities, and uneven reimbursement policies. Facilitators included provision of devices and connectivity, culturally and linguistically tailored interventions, integration with existing clinical workflows, community partnerships, and supportive reimbursement frameworks. These multilevel findings underscore that successful and equitable RPM implementation requires coordinated strategies addressing both technological and structural determinants of health.

Table 3 Barriers and Facilitators to RPM Implementation

Level	Barriers	Facilitators
Individual	Low digital literacy; language barriers; economic insecurity; competing priorities	Hands-on training; culturally tailored education; bilingual support; simple technology
Interpersonal	Limited social support; mistrust in healthcare system	Family involvement; community health workers; trusted provider relationships
Organizational	Limited staffing; poor EHR integration; reimbursement uncertainty	Leadership support; workflow redesign; academic-community partnerships
Community	Limited broadband (rural); geographic isolation	Cellular-enabled devices; community-based partnerships
Policy	Uneven Medicaid coverage; uncertain post-COVID reimbursement policies	CMS RPM CPT codes; policy expansion; broadband investment

3.6.1. Individual-Level Barriers and Facilitators

On the individual level, digital literacy became a serious impediment, especially among the older population and those who are less educated (Holtz et al., 2024; Azizi et al., 2024). Nevertheless, a number of studies established that it was possible to successfully engage patients with low baseline digital literacy to use RPM technologies with proper training and support (Santamore et al., 2007; Kim et al., 2023). The facilitators of effective usage of RPM were found to be health literacy and knowledge of chronic disease self-management (Chu et al., 2024). The question of language barriers in the context of the implementation of RPM in Hispanic/Latino populations is significant, as it has been noted in research that the use of Spanish-language interfaces and bilingual clinical support personnel, as well as the introduction of culturally adapted educational resources is of great importance (Pekmezaris et al., 2024; Kim et al., 2023; Caban, 2019). The reasons were found to be patient motivation and self-efficacy, and more frequent engagement was most likely to happen in patients who believed that they could manage their condition and that they could get a benefit out of monitoring (Chu et al., 2024). Economic insecurity, caregiving, and complicated social condition-related difficulties were often reported as the roadblocks in the low-income groups (Caban, 2019; Hernandez et al., 2025). The literature that took these facts into consideration and offered flexible and low-burden monitoring paradigms were found to engage better (Hofner et al., 2023).

3.6.2. Interpersonal and Social Barriers and facilitators.

Social support was also found to be a major facilitator of RPM engagement and effectiveness. The results of studies that included family members in monitoring and self-management support were better (Commodore-Mensah et al., 2024). In its turn, absence of social support and social isolation were found as obstacles and were especially apparent in rural setting (Riley et al., 2015).

Patient provider relationship was also identified as a key determinant that will determine the success of RPM. Patients with already formed and trusted relationships with healthcare providers had higher chances of participating and enrolling in RPM programs (Chu et al., 2024). Research focused on the value of efficient communication of the intention and purpose of RPM, and patients should comprehend how data on monitoring usage would be utilized to influence care delivery (Ogedegbe et al., 2024; Samuel et al., 2024). Various studies have also found community health workers and peer support as facilitators especially to racial and ethnic minorities (Commodore-Mensah et al., 2024). These familiar members of society might be the bridges to cultural and language barriers, useful aid in working with technology, and emphasizing the significance of monitoring and self-management.

3.6.3. Barriers and Facilitators on an organizational and Systems Level.

Infrastructure and staffing of the clinics came out as factors at the organizational level. Effective RPM was implemented with the help of a specific use of staff time in distributing devices, training patients, monitoring data, and communicating with patients (Kirkland et al., 2023). There is a general tendency of clinics working with underserved populations to have resource constraints, which complicated the allocation of staff to RPM programs (Hernandez et al., 2025). Electronic health record integration was a facilitator and barrier that was identified. In cases where the RPM data can be transferred to current EHR infrastructure smoothly, provider workflow and care coordination were improved (Kirkland et al., 2023) Nevertheless, a significant number of RPM tools were intended only as services that were separate and providers had to utilize unique portals, which generated documentation overheads (Groom, 2016).

Organizational barriers were often mentioned and they included reimbursement and financial sustainability. Although the implementation has been made easier by Medicare RPM reimbursement codes, the coverage of Medicaid and uncovered populations is still not even throughout the states (Hernandez et al., 2025; Ubl, 2007). According to several studies, programs in RPM that targeted underserved populations were usually based on a grant or institutional subsidies, which cast doubt on the long-term sustainability (Davis et al., 2020). Facilitators of the success of the implementation of RPM were found to be the organizational culture and leadership in the studies. Those clinics that were well-led in their commitment to equity and innovation in health promotion had a higher level of achieving better results of implementing and maintaining RPM programs (Kirkland et al., 2023).

3.6.4. Community and Policy-Level Barriers and Facilitators

The appearance of broadband and cellular connectivity became barriers to infrastructure especially in rural regions. The rural-population-based studies also reported some difficulties with the lack of proper internet connectivity or cellular network which restricts the applicability of some of the RPM technologies (Holtz et al., 2024; Azizi et al., 2024; Riley et al., 2015). The restrictions on this barrier were partially brought down by the use of cellular-enabled devices with central connectivity, which increased the cost of programs (Jones et al., 2023). The existence of geographic differences in access was caused by the variation of the states in their Medicaid coverage of RPM services (Winberg et al., 2022). The research demanded policy changes to provide uniformity in terms of RPM services to both types of payers and states (Ubl, 2007; Schoenthaler et al., 2025). Temporarily flexible policies that supported the growth of RPM were triggered by the COVID-19 pandemic but made it difficult to plan programs in the long run due to the uncertainty surrounding the duration of these changes (Holtz et al., 2024; Nittari, 2022). Various studies have found the community partnerships to be facilitators.

Partnerships between academic medical Centres and community health centres, the public health department, or community-based organizations aided in expanding RPM to the underserved populations (Kirkland et al., 2023; Commodore-Mensah et al., 2024).

3.7. Health Equity Considerations

Several studies directly tested whether RPM interventions minimized, were neutral, or had a worsening effect on health disparities. The results were not uniform and this points out the difficulty of applying technology based interventions in the name of equity. Other researchers observed the same or even greater benefits of RPM in less privileged populations than those that were more privileged. The outcomes in a heart failure RPM program (clinical, cost, and utilization) were essentially the same among patients in the rural setting and underserved population as compared to the overall community, which implies that the outcomes of the well-designed programs can be equitable (Feldman et al., 2025). Ogedegbe et al. (2024) showed a significant decrease in blood pressure in a mostly low-income Black and Hispanic population, with results which were similar or better than those of researches into more privileged groups. Nevertheless, some other studies found that there were systematic discrepancies under the implementation of RPM. The study conducted by Andersen et al. (2021) revealed that there were signs of finding racial differences in the indicators of diabetes management using RPM and implied that technological solutions might not fully eradicate the related inequities. Friedman et al. (2022) reported racial and socioeconomic differences in RPM enrollment, meaning that unequal access would reinforce unavailable disparities and aggravate them.

Several review papers and research studies indicated that RPM has to be designed and implemented with deliberate strategies in place in order to promote health equity. Schoenthaler et al. (2025) addressed the strategies of eliminating hypertension equity gaps by using the digital-inclusive RPM, noting the need to implement programs that ICT-digital divide-address, offer culturally relevant support, and integrate into the models of comprehensive care. Vrany (2023) emphasized the significance of continuous glucose monitors and virtual care as a potential way of ensuring health equity among the representatives of racial and ethnic minorities; nevertheless, the author stresses that the implementation of the concept needs to tackle the issue of cost, access, and support barriers. Digital inclusion became a theoretical guideline to implement the use of RPM with equity-based consideration, including the supply of devices and connection, digital literacy, providing models in culturally and linguistically competent and attentive design, and collaborating with trusted caregivers and community assets (Schoenthaler et al., 2025; Holtz et al., 2024; Utomi et al., 2024).

4. Discussion

The results indicate that RPM can be successfully used in a variety of underserved environments and deliver significant clinical outcomes across a number of chronic conditions, besides exposing critical concerns on implementation and equity that need to be adequately mitigated to achieve the full potential of the interventions. RPM intervention has been well established as clinically effective among underserved groups regarding hypertension, diabetes, and heart failure. The blood pressure changes (ranging between 5.8 and 15.1 mmHg systolic) obtained using RPM in minority and low-income populations are clinically significant and similar or stronger than the drug-based interventions (Artinian et al., 2007; Ogedegbe et al., 2024; Clark et al., 2021). HbA1c glucose control changes of 0.5-1.5 realized through diabetes RPM studies are significant to decrease long-term complications (Kim et al., 2023; Davis et al., 2022; Kirkland et al., 2021). A decrease in heart failure hospitalizations by 18-27 has significant consequences on the quality of life and costs of care in patients (Feldman et al., 2025; Caban, 2019).

Notably, these clinical gains were obtained among population groups that were vulnerable of great socioeconomic adversity, geographic limits, and past discrimination by health facilities. This implies that when applied intelligently, RPM could be a viable instrument towards health disparity reduction as opposed to increasing the same. Nonetheless, the evidence also indicates that such a direction as being able to deliver technology to underserved populations does not ensure equitable results.

4.1. The Significance of Multifaceted Care Model.

The most important difference between studies is that RPM technology cannot work without a combination with comprehensive care models that involve regular clinical support, care coordination, and social determinants of health. The study by Ogedegbe et al. (2024) is quite interesting in proving the idea in question, as it shows that employing home blood pressure telemonitoring alongside nurse case management provided significantly better blood pressure decreases compared to using telemonitoring on its own (15.1 mmHg vs. 5.8 mmHg). In a similar fashion, a study of heart failure RPM that incorporated monitoring with medications optimization, symptom management, and care coordination yielded more significant results as compared to the ones that included monitoring but were not characterized by intensive clinical support (Feldman et al., 2025; Craig et al., 2023).

These results correspond to the Chronic Care Model, according to which the better the practice, the better the relations between activated and informed patients and prepared and proactive healthcare teams are productive (Davis et al., 2020). The quality and intensity of clinical support is of paramount importance, and RPM is an enabling technology that helps these interactions despite the distance and time. The overall care models should go beyond the clinical care approach when dealing with the underserved groups to tackle social determinants of health. Some of the studies emphasized the importance of incorporating community health workers, transportation support, dealing with food insecurity, and linking patients to social services (Commodore-Mensah et al., 2024; Hernandez et al., 2025). This is a holistic approach since chronic disease management is not independent of social and economic contexts that patients occupy.

4.2. Addressing Digital Divide

The issue of the digital divide was one of the main problems of providing equitable RPM programs. This gap includes several aspects: device and internet access and connectivity, digital literacy and abilities, culturally suitable design and support (Holtz et al., 2024; Schoenthaler et al., 2025).

The dimensions were generally covered in the successful studies where RPM was implemented among underserved groups. Equipping the participants with devices and cellular connectivity instead of letting them bring their equipment made it much easier to run the experiments and to participate (Kim et al., 2023; Jones et al., 2023). As a component of the provision of low-digital patient participation, providing practical training, continuous technical assistance, and easy-to-use equipment with minimal installation demands allowed the involvement of patients with low digital literacy (Santamore et al., 2007; Kim et al., 2023). The acceptability and efficacy of cultural and linguistic minority populations required the cultural and linguistic adaption. The ACTIVATE program and CULTURA-DM2 trial were able to show that culturally tailored intervention methods, such as exhibiting Spanish language interfaces, culturally concordant educational resource use, and consideration of cultural beliefs in relation to health and technology result in increased engagement and outcomes (Pekmezaris et al., 2024; Kim et al., 2023).

Nonetheless, the digital divide is a challenge that needs resources which are not common in safety-net healthcare organizations. The paradox between what RPM can do to enhance access and outcomes of underserved groups and the chance of increasing disparities by disproportionately offering access and changing the outcomes is a critical policy issue (Schoenthaler et al., 2025; Vrany, 2023).

4.3. Safety-Net Implementation

A significant portion of the literature used and included Federally Qualified Health Centers and other resource-constrained settings, which serve vulnerable populations, and offered valuable information on the implementation in those settings (Ekenga et al., 2024; Flanagan et al., 2024; Kirkland et al., 2023). To implement RPM successfully in FQHCs, extensive leadership, staffing, workflow redesigning, and frequent outside funding or links to academic institutions, were often necessary (Kirkland et al., 2023). The example of academic-community partnership, defined in South Carolina by Gordon (2023) and Kirkland et al. (2023), showed how academic medical centers can partner with community health centers to disseminate RPM besides developing local capacity. Sustainability however is another serious issue. Most of the RPM programs in safety-net were based on subsidies provided by grants or an institution and had uncertain financial sustainability (Davis et al., 2020; Hernandez et al., 2025). Inequality in Medicaid insurance of RPM services among states poses further challenges to FQHCs, as they have large shares of Medicaid and uninsured patients (Hernandez et al., 2025; Winberg et al., 2022).

4.4. Rural-Urban Considerations

The research on addressing the rural underserved population with RPM showed both the exceptional issues and opportunities. Rural patients are geographically isolated, there is a shortage of providers, and healthcare infrastructure is scarce, so RPM can especially assist with accessing specialty care further and lessen the burden of traveling (Riley et al., 2015; Clark et al., 2021; Azizi et al., 2024). A number of studies showed that RPM had the potential to deliver clinical results in the rural population that are similar to those in an urban population (Feldman et al., 2025; Kim et al., 2025). Nevertheless, the introduction of rural RPM is associated with unique challenges, especially poor broadband and cellular access to the Internet (Holtz et al., 2024; Azizi et al., 2024). The cellular-enabled device, which has inbuilt connectivity partly solves this hurdle but increases the program expenses (Jones et al., 2023). The rural population is also more aging and can be less digitally literate in general, which means they will need an extra variety of training and support (Riley et al., 2015).

The synthetic analysis of digital intervention to manage heart failure in underserved rural regions (Azizi et al., 2024) was a systematic review study aiming to synthesize the data on randomized work to outline the potential successes and underline the challenges of implementing changes in the settings of underprivileged communities. The authors showed that rural-specific implementation strategies are necessary, and they have to take into consideration the limitations of infrastructure, shortage of providers, and the specific social and cultural setting of rural communities.

4.5. Racial and Ethnic Disparities.

The literature review of studies on the racial and ethnic differences in RPM implementation and outcomes had complicated results. Other studies revealed equal benefits between racial/ethnic groups, which indicated that RPM can be an equity intervention in an appropriate way (Mann et al., 2025; Feldman et al., 2025). Other articles found that there are continued inequalities in enrollment, participation, or achievement that technology is not sufficient to address underlying inequity (Friedman et al., 2022; Andersen et al., 2021). There are a number of factors that seem to affect the existence of disparities with regard to RPM. The acceptance and involvement in the Hispanic/Latino populations can be improved with the help of cultural adaptation and language concordance (Pekmezaris et al., 2024; Kim et al., 2023; Caban, 2019). The enrollment and continual involvement are achieved through trust in the healthcare system and the formed relationship between patients and providers, which this may be less in those populations with a history of medical mistreatment or discrimination (Chu et al., 2024). The most prevalent socioeconomic elements include rival priorities involving financial security, and the potential to engage with monitoring and self-management in a consistent manner (Caban, 2019; Hernandez et al., 2025). The principle of culturally congruent RPM interventions was found to be significant in pursuing equity. This is demonstrated by the CULTURA-DM2 trial that showed that the cultural adaptation of telemonitoring to include cultural values, beliefs, and preferences in intervention design and delivery was more effective (Pekmezaris et al., 2024). This practice extends further than language translation to include other aspects of cultural adjustment of content, mode of communication and support system.

4.6. Economic Considerations

Although this review concentrated on clinical and implementation outcomes, the economic issues are imperative concerning the sustainability of the RPM programs to risk populations and scalability. Some articles analyzed cost and usage results, and the concluding data were mostly the same: RPM lowered healthcare expenses by lowering hospitalizations and emergency room visits (Feldman et al., 2025; Caban, 2019). The Feldman et al. (2025) large-scale heart failure RPM program showed that the total cost of care (183 per member per month) decreased significantly (12 months) mainly due to the decrease in inpatient expenses. This reduction of costs was not only conducted with the improvement of clinical outcomes, but also in the comparison with rural and underserved populations, which suggests that RPM may be a clinically and economically advantageous intervention to vulnerable populations. Nonetheless, initial expenses of the RPM deployment, such as devices, Internet connection, employee education, and continuous clinical services, may be huge obstacles to safety-net organizations (Hernandez et al., 2025). These costs need to be sufficiently updated in the reimbursement mechanisms in order to make it sustainable. The existing Medicare RPM reimbursement codes have been used to implement the system, but Medicaid and uninsured populations coverage is still uneven (Ubl, 2007; Winberg et al., 2022; Hernandez et al., 2025).

4.7. Policy Implications

This review has several significant policy implications. To begin with, to ensure equitable RPM access, it is necessary to tackle the problem of the digital divide by promoting the provision of devices and connectivity to low-income populations, along the lines of initiatives that enable students to access smartphones or tablets (Holtz et al., 2024; Schoenthaler et al., 2025). Second, the RPM services should be uniformly covered by Medicaid across states, which will decrease geographic differences in access (Winberg et al., 2022; Hernandez et al., 2025). Third, reimbursement policies are expected to acknowledge the more intensive assistance that underserved cohorts usually necessitate such as patient training time, language decoding, coordination of care with social services, and culturally competent education (Ogedegbe et al., 2024; Pekmezaris et al., 2024). The existing RPM reimbursement codes might not be sufficient to cover such supplemental services. Fourth, rural areas need expansion of broadband as one of the necessary infrastructure to implement equitable RPM (Holtz et al., 2024; Azizi et al., 2024). Healthcare access should be a priority use case in federal and state investments on rural broadband. Fifth, academic-community partnerships and learning collaboratives that can support the dissemination of RPM to safety-net organizations should be well supported through policies that will help to develop local capacity (Kirkland et al., 2023).

4.8. Limitations

First, meta-analysis was not possible because the studies were too heterogeneous, in terms of study design, population, interventions, and outcomes. Second, there was a possibility of overrepresentation of research studies with positive findings due to publication bias, which can skew the estimates regarding the effectiveness of RPM. Third, most of the studies included a relatively short follow-up time (between 3-12 months) and restricted our knowledge of long-term sustainability of the clinical gains and patient involvement. Fourth, the meaning of the term underserved populations differed among different studies and it was difficult to make any conclusions regarding particular subgroups. Fifth, the number of studies was quite narrow in geographic areas or health care systems, which might restrain the generalization. Sixth, not many studies have a formal cost- effectiveness analysis conducted, and this restricts us to examine the economic worth of RPM among underserved populations. Seventh, the majority of the studies concentrated on clinical outcomes, and less on patient-reported results that include either quality of life, self-efficacy, or satisfaction with care. Eighth, RPM technologies rapidly develop, which implies that the results of the older studies might be outdated concerning the opportunities of the latest systems. Lastly, being a scoping review, we have not formally evaluated the quality of studies we included, and the evidence base incorporates studies of different level of methodological rigor. Irrespective of these shortcomings, this review offers the synthesis of the existing body of evidence in a thorough way and establishes significant directions in further studies and practice.

5. Future Recommendations and Directions

5.1. Research Priorities

In accordance with the results of this review, a number of areas of research priorities are outlined to advance the area of RPM in underserved populations.

Long-term effectiveness and sustainability studies are critically needed. The majority of the studies that have been conducted have a follow-up lasting 12 months or below, yet chronic disease management is a lifetime process. A study analysis on clinical outcomes and patient engagement and sustainability of the program in 2-5 years would inform valuable knowledge about the sustainability benefits of RPM and factors that contribute to success in the long run (Davis et al., 2022; Kirkland et al., 2021).

The comparative effectiveness studies that are conducted in the field of various RPM technologies, models of care delivery, and the severity of clinical support would aid the optimization of resource distribution and the best practices in the case of under-served populations. The program would be informed based on head-to-head studies of nurse case management versus pharmacist-based care, continuous compared with intermittent monitoring, technology-only versus technology-plus-support interventions (Ogedegbe et al., 2024).

Research on the implementation strategies to support the adoption of RPM and its continued use in safety-net environments is needed. Such studies must establish good strategies of workflow integration, training of staff, patient involvement, and program sustainability in resource-limited settings (Kirkland et al., 2023). It would be especially useful to conduct mixed-methods studies that will utilize quantitative outcome data, but will also include qualitative data on the barriers and facilitators of the implementation process.

The research on health equity that pays specific attention to whether and how RPM interventions reduce disparities is required. Research ought to incorporate diverse populations, measure the results based on racial/ethnic and socioeconomic status and examine the mechanisms through which RPM might reduce or increase inequities (Andersen et al., 2021; Mann et al., 2025; Schoenthaler et al., 2025). It is especially significant to work on culturally adapted interventions and their comparison regarding effectiveness (Pekmezaris et al., 2024).

Economic analyses such as formal cost-effectiveness and budget impact analysis would be used to aid the policy decisions and allocation of resources. Research must take into account expenses in various areas (healthcare system, payer, patient, society) and direct medical expenses as well as indirect costs like lost productivity (Feldman et al., 2025). Their economic studies most targeted at safety-net and Medicaid populations are especially demanded.

A study of patient-reported outcomes (studying the effect that RPM has on quality of life, self-efficacy, patient activation, and satisfaction with care) would give a more detailed perspective on the value of interventions for the patient as compared to clinical measures. Patient experiences, preferences and values regarding RPM would be studied through qualitative research that would inform the design of patient-centered programs (Chu et al., 2024).

New technologies, including artificial intelligence-enabled monitoring, predictive analytics, and integration with social determinants of health data, are also possible technologies to can be investigated in research on technology innovation to find the next generation of approaches to RPM in underserved populations (Mbanugo, 2025; Holtz et al., 2024). The possible advantages and disadvantages of such technologies, such as the problem of algorithmic bias and data confidentiality, should be investigated by research.

5.2. Practice Recommendations

On the basis of the evidence discussed throughout this review, we propose the following suggestions to the healthcare organizations using RPM programs to serve underserved populations:

Offer holistic assistance besides technology. Intensive clinical support, such as nurse case management, pharmacist-led drug management, or community involvement of health workers, should be built into the RPM programs with monitoring technology. Classical aid to health and application intensity are the key factors of effectiveness (Ogedegbe et al., 2024; Feldman et al., 2025) even in the presence of technology.

Be the first to resolve the digital divide. They have to offer devices and connectivity to those participating and not make them use their equipment. Provision of practical training, perennial technical assistance, and gadgets that can be set up easily. Make sure that patients with low digital literacy do not accidentally become left out by programs (Kim et al., 2023; Schoenthaler et al., 2025).

Cultural and linguistic adaptation. In other cases where programs are targeted at racial and ethnic minority, invest into cultural tailoring such as language-concordant interfaces and support staff, culturally relevant educational materials, and consideration of cultural beliefs about health and technology. Take into consideration community health worker integration to overcome barriers to culture (Pekmezaris et al., 2024; Kim et al., 2023; Commodore-Mensah et al., 2024).

Combine with the current care processes. RPM implementation needs to be integrated with electronic health records, proper guidelines on how the clinical team should review and respond to data, and involve established roles and responsibilities of the clinical team members to be effective. There should be no development of parallel systems that add more workload to providers (Kirkland et al., 2023).

Address the social determinant of health. Understand that there is no way to manage chronic diseases without the context of social and economic forces. Combine programs of RPM with social services, consider transport obstacles, and offer adaptable solutions that would fit conflicting priorities in regard to economic insecurity (Hernandez et al., 2025; Commodore-Mensah et al., 2024).

Create a communication and expectations. Assure patients about the purpose of monitoring, use of data as well as expected provider communication and follow-up. Develop loyalty using the existing patient-provider connections and open correspondence (Chu et al., 2024; Ogedegbe et al., 2024).

Make sure that it is planned to be sustainable. Fine-tune sustainable financing approaches, such as utilizing maximum possible reimbursement, finding value-based care, and establishing partnerships. Keep in mind that one should not be over-dependent on grant funding without thinking of sustainability (Davis et al., 2020).

5.3. Policy Recommendations

In line with the recommendation of fair implementation and adoption of RPM in underserved populations, we would suggest the following policy recommendations:

Standardize Medicaid on RPM services between states. Existing disparity in state policies of Medicaid generates geographic differences in access. Equity would be facilitated by federal instructions or mandates regarding the comprehensive coverage of RPM (Winberg et al., 2022; Hernandez et al., 2025).

Provide sufficient reimbursement of comprehensive RPM services. The policies of reimbursement must consider that underserved populations may need a greater level of intensity of support that includes time to educate patients, interpreting language, coordinating care with social services, and culturally sensitive education (Ogedegbe et al., 2024; Pekmezaris et al., 2024).

Invest in the initiatives of digital inclusiveness. Create programs to offer low income people devices and connection like those giving people access to technology to receive an education. As an option, RPM provision should be included as a benefit among high-risk Medicaid and Medicare clients (Holtz et al., 2024; Schoenthaler et al., 2025).

Increase the rural broadband coverage. There should be clear reference of healthcare as one of the uses of federal and state investments in rural broadband. People have to treat healthcare connectivity as a crucial infrastructure (Holtz et al., 2024; Azizi et al., 2024).

Continuous support capacity building of safety-net organizations. Fund and support to implement RPM programs by FQHCs and other safety-net organizations, including workforce training, redesigning workflows, and technologies infrastructure (Kirkland et al., 2023).

Encourage scholarly-corporate relations. Foster the trust of collaborative models that make use of the professional experience of academic medical centers with establishing capacity in community-based organizations that cover underserved populations (Kirkland et al., 2023).

Need equity measurements in RPM program measurement. In programs that obtain federal funding or get involved in value-based care models, outcomes that are stratified by race/ethnicity, socioeconomic status, and geographic location should be reported to track equity (Schoenthaler et al., 2025).

Sustain and increase telehealth flexibilities of the COVID-19 period. Keep flexibilities in policies during the pandemic that provided ease in RPM growth such as forbearance in requirements to be an originating location and also regulations accommodating expanded telehealth services (Holtz et al., 2024; Nittari, 2022).

6. Conclusion

We shows that remote patient monitoring (RPM) can vastly enhance chronic disease management in underserved populations in the U.S., and that significant clinical outcomes were observed of the form of blood pressure, HbA1c, and hospitalization improvements. The results indicate that RPM is an effective instrument of elevating the quality of care and increasing the quality of life in a condition like hypertension, diabetes, and heart failure. Its success, however, lies not solely with the accessibility of technology but also with detailed care models including clinical assistance, culturally and linguistically appropriate programs, along with the compatibility with an already-established healthcare process. Though this is promising, equitable implementation of RPM will be realized only after overcoming some persistent barriers that may include access to limited bandwidth, digital illiteracy, resource shortages in safety-net systems, and uneven payment models. The review emphasizes the necessity of an equity-based design, investment in digital inclusion, and effective collaboration between stakeholders in the sphere of healthcare and the community. Due to the acceleration of adoption since coming out of the COVID-19 environment, it will be necessary to be long-term committed to innovation, policy changes and inclusive implementation to see RPM potentially fulfill its potential of lowering health disparities and becoming a sustainable and integral part of managing chronic disease treatment.

References

[1] Abraham, C., Jensen, C., Rossiter, L., & Dittman Hale, D. (2024). Telenursing and remote patient monitoring in cardiovascular health. Telemedicine and e-Health, 30(3), 771-779.

[2] Andersen, J. A., Scoggins, D., Michaud, T., Wan, N., Wen, M., & Su, D. (2021). Racial disparities in diabetes management outcomes: evidence from a remote patient monitoring program for type 2 diabetic patients. Telemedicine and e-Health, 27(1), 55-61.

[3] Anderson, L. M., Norris, K. C., Gregg, E. W., & Patel, P. R. (2022). Telehealth interventions to improve diabetes management among Black and Hispanic patients: A systematic review and meta-analysis. Journal of Racial and Ethnic Health Disparities. https://doi.org/10.1007/s40615-021-01174-6

[4] Artinian, Nancy T.; Flack, John M.; Nordstrom, Cheryl K.; Hockman, Elaine M.; Washington, Olivia G. M.; Jen, Kai-Lin Catherine; Fathy, Maryam. Effects of Nurse-Managed Telemonitoring on Blood Pressure at 12-Month Follow-Up Among Urban African Americans. Nursing Research 56(5):p 312-322, September 2007. | DOI: 10.1097/01.NNR.0000289501.45284.6e

[5] Azizi, Z., Broadwin, C., Islam, S., Schenk, J., Din, N., Hernandez, M. F., Wang, P., Longenecker, C. T., Rodriguez, F., & Sandhu, A. T. (2024). Digital health interventions for heart failure management in underserved rural areas of the United States: A systematic review of randomized trials. Journal of the American Heart Association, 13(1), e030956. https://doi.org/10.1161/JAHA.123.030956

[6] Bondmass, M., Bolger, N., Castro, G., & Avitall, B. (2000). The effect of home monitoring and telemanagement on blood pressure control among African Americans. Telemedicine Journal, 6(1), 15–23. https://doi.org/10.1089/107830200311815

[7] Cabán, M. (2019). The use of home telemonitoring for heart failure management among Hispanics, non-Hispanic Blacks, and non-Hispanic Whites. Home Healthcare Now, 37(6), 330–337. https://doi.org/10.1097/NHH.0000000000000798

[8] Chu F., Allison Stark, Andrew Telzak, Sharon Rikin (2021). Patient Experience in a Remote Patient Monitoring Program for Hypertension: A Qualitative Study, American Journal of Hypertension, Volume 37, Issue 11, November 2024, Pages 861–867, https://doi.org/10.1093/ajh/hpae086

[9] Clark, D., Woods, J., Zhang, Y., Chandra, S., Summers, R. L., & Jones, D. W. (2022). Home blood pressure telemonitoring with remote hypertension management in a rural and low-income population. Hypertension, 79(4), 848–855. https://doi.org/10.1161/HYPERTENSIONAHA.121.18153

[10] Commodore-Mensah, Y., Chen, Y., Ogungbe, O., Liu, X., Metlock, F. E., Carson, K. A., ... & Himmelfarb, C. D. (2024). Design and rationale of the cardiometabolic health program linked with community health workers and mobile health telemonitoring to reduce health disparities (LINKED-HEARTS) program. American heart journal, 275, 9-20.

[11] Craig W, Ohlmann S (2024). The Benefits of Using Active Remote Patient Management for Enhanced Heart Failure Outcomes in Rural Cardiology Practice: Single-Site Retrospective Cohort Study. J Med Internet Res 2024;26:e49710. https://www.jmir.org/2024/1/e49710. DOI: 10.2196/49710

[12] Crossen, S. S., Romero, C. C., Lewis, C., & Glaser, N. S. (2023). Remote glucose monitoring is feasible for patients and providers using a commercially available population health platform. Frontiers in endocrinology, 14, 1063290. https://doi.org/10.3389/fendo.2023.1063290

[13] Davis, C., Bender, M., Smith, T., & Broad, J. (2015). Feasibility and Acute Care Utilization Outcomes of a Post-Acute Transitional Telemonitoring Program for Underserved Chronic Disease Patients. Telemedicine journal and e-health : the official journal of the American Telemedicine Association, 21(9), 705–713. https://doi.org/10.1089/tmj.2014.0181

[14] Davis, T. C., Allen, A. S., & Zhang, Y. (2022). Long-term Effects of Remote Patient Monitoring in Patients Living with Diabetes: A Retrospective Look at Participants of the Mississippi Diabetes Telehealth Network Study. Telemedicine reports, 3(1), 130–136. https://doi.org/10.1089/tmr.2022.0009

[15] Davis, T. C., Hoover, K. W., Keller, S., & Replogle, W. H. (2020). Mississippi Diabetes Telehealth Network: A Collaborative Approach to Chronic Care Management. Telemedicine journal and e-health : the official journal of the American Telemedicine Association, 26(2), 184–189. https://doi.org/10.1089/tmj.2018.0334

[16] Ekenga, V., Copelin, N., Moten, C., Gray-Winfrey, W., & Ekenga, C. C. (2024). Impact of collaborative chronic care management with remote monitoring on blood glucose and blood pressure in federally qualified health center patients: A pilot study. Health science reports, 7(2), e1853. https://doi.org/10.1002/hsr2.1853

[17] Feldman, D. I., Reynolds, S., Babikian, S., Stein, B. D., Schlicher, J., Cunningham, E., Feldman, T., Curnow, R., Zheng, J., Budhiraja, P., & Fudim, M. (2025). The Impact of a Remote Patient Care Program on Health Care Costs and Utilization Among Medicare Patients With Chronic Disease. Mayo Clinic proceedings. Innovations, quality & outcomes, 10(1), 100679. https://doi.org/10.1016/j.mayocpiqo.2025.100679

[18] Flanagan, C., Colbert, B., & Davis, Kevin, D., & Smith, W. (2024). Efficacy of remote patient monitoring in managing hypertension in Federally Qualified Health Centers versus primary care settings. Circulation, 150(Suppl_1). https://doi.org/10.1161/circ.150.suppl_1.4140639

[19] Friedman, H. R., Mull, H. J., Guzman-Clark, J. R., Sturgeon, D. J., & Foster, M. V. (2026). The Effect of Veteran Race and Socioeconomic Status on Enrollment in Remote Patient Monitoring for Hypertension: Retrospective Observational Cross-Sectional Study. Journal of medical Internet research, 28, e78423. https://doi.org/10.2196/78423.

[20] Groom, L. L. (2016). A mixed methods observational study of remote patient monitoring in New York University Family Health Centers.

[21] Gross-Schulman, S., Sklaroff, L. M., Hertz, C. C., & Guterman, J. J. (2017). Safety Evaluation of an Automated Remote Monitoring System for Heart Failure in an Urban, Indigent Population. Population health management, 20(6), 449–457. https://doi.org/10.1089/pop.2016.0186

[22] Hofner, M., Hurnaus, P., DiStefano, D., Philip, S., Kim, S., Shaw, J., & Waring, A. C. (2024). Outcomes of an Asynchronous Care Model for Chronic Conditions in a Diverse Population: 12-Month Retrospective Chart Review Study. JMIR diabetes, 9, e53835. https://doi.org/10.2196/53835

[23] Holtz, B. E., Urban, F. A., Oesterle, J., Blake, R., & Henry, A. (2024). The Promise of Remote Patient Monitoring. Telemedicine journal and e-health : the official journal of the American Telemedicine Association, 30(12), 2776–2781. https://doi.org/10.1089/tmj.2024.0521

[24] Jones, D., R., Allison, M. K., Moody, H., Peng, C., & Eswaran, H. (2023). Use of Cellular-Enabled Remote Patient Monitoring Device for Hypertension Management in Pregnant Women: A Feasibility Study. Maternal and child health journal, 27(7), 1191–1198. https://doi.org/10.1007/s10995-023-03628-1

[25] Kim, K. K., McGrath, S. P., & Lindeman, D. (2025). Improving Hypertension and Diabetes Outcomes with Digital Care Coordination and Remote Monitoring in Rural Health. arXiv preprint arXiv:2508.19378.

[26] Kim, K. K., McGrath, S. P., Solorza, J. L., & Lindeman, D. (2023). The ACTIVATE Digital Health Pilot Program for Diabetes and Hypertension in an Underserved and Rural Community. Applied clinical informatics, 14(4), 644–653. https://doi.org/10.1055/a-2096-0326

[27] Kirkland, E. B., Dericke, D., Bays, C. C., Wallinger, C., McElligott, J., Slaughter, S., & Moran, W. P. (2023). Dissemination of Remote Patient Monitoring: An Academic-Community Primary Care Partnership in South Carolina. Journal of public health management and practice : JPHMP, 29(4), 516–524. https://doi.org/10.1097/PHH.0000000000001593

[28] Kirkland, E. B., Marsden, J., Zhang, J., Schumann, S. O., Bian, J., Mauldin, P., & Moran, W. P. (2021). Remote patient monitoring sustains reductions of hemoglobin A1c in underserved patients to 12 months. Primary care diabetes, 15(3), 459–463. https://doi.org/10.1016/j.pcd.2021.01.005

[29] Korang, A., Ugwu, D., Ajayi, A., & Yowetu, I. (2025). Investigating the role of modifiable risk factors in cardiovascular disease outcomes: A statistical analysis using BRFSS data. Magna Scientia Advanced Research and Reviews, 13, 170-8.

[30] Makutonin, M., Dare, J., Heekin, M., Salancy, A., Hood, C., & Dominguez, L. W. (2023). Remote Patient Monitoring for Hypertension: Feasibility and Outcomes of a Clinic-Based Pilot in a Minority Population. Journal of primary care & community health, 14, 21501319231204586. https://doi.org/10.1177/21501319231204586

[31] Mbanugo, J, O. (2025). AI-enhanced telemedicine: A common-sense approach to chronic disease management and a tool to bridging the gap in healthcare disparities. International Journal of Research Publication and Reviews, 6(2), 952-960. https://doi.org/10.55248/gengpi.6.0225.0952

[32] Meddar, J. M., Mann, D., Schwartz, M., Park, H. G., Engelberg, R., & Khan, M. R. (2025). Associations between remote patient monitoring and uncontrolled blood pressure among patients diagnosed with hypertension: Exploring variations by race/ethnicity. PloS one, 20(11), e0334887. https://doi.org/10.1371/journal.pone.0334887

[33] Nittari, G., Savva, D., Tomassoni, D., Tayebati, S. K., & Amenta, F. (2022). Telemedicine in the COVID-19 Era: A Narrative Review Based on Current Evidence. International journal of environmental research and public health, 19(9), 5101. https://doi.org/10.3390/ijerph19095101

[34] Ogedegbe, G., Gyamfi, J., Ravenell, J., Iwelunmor, J., Blackstone, S., Ntim, S., Powell-Wiley, T., Plange-Rhule, J., Peprah, E., & Commodore-Mensah, Y. (2024). Home blood pressure telemonitoring and nurse case management in Black and Hispanic patients with stroke. JAMA, 331(23), 1974-1984. https://doi.org/10.1001/jama.2024.6609

[35] Oh, K. M., Cieslowski, B., Beran, K., Elnahas, N. H., Steves, S. L., & Sutter, R. E. (2024). Nurse-led telehealth and mobile health care models for type 2 diabetes and hypertension in low-income US populations: A scoping review. Journal of the American Association of Nurse Practitioners, 36(10), 565–575. https://doi.org/10.1097/JXX.0000000000001051

[36] Omomukuyo, O. M., Agyemang, C., Turkson-Ocran, R. A., Commodore-Mensah, Y., & Lazo, M. (2024). Omomukuyo, A., Ramirez, A., Davis, A., Velasquez, A., Najmabadi, A. L., Kong, M., Willard-Grace, R., Brown, W., 3rd, Broderick, A., Suomala, K., McCulloch, C. E., Franco, N., Sarkar, U., Lyles, C., Tran, A. S., Sharma, A. E., & Tuot, D. S. (2024). Achieving Chronic Care Equity by Leveraging the Telehealth Ecosystem (ACCTIVATE): A Multilevel Randomized Controlled Trial Protocol. Medical research archives, 12(11), 6087. https://doi.org/10.18103/mra.v12i11.6087

[37] Pekmezaris, R., Martinez, S., Correa Gomez, V., Marino, J., Goris, N., Williams, M. S., Cigaran, E., Nouryan, C. N., Patel, V. H., Myers, A. K., Barbero, P., Granville, D., Murray, L. F., Guzman, J., Makaryus, A. N., McFarlane, S. I., Zeltser, R.,

Pena, M., Sison, C., Lesser, M. L., … Harris, Y. T. (2024). Culturally Congruent Latino-Adapted Telemonitoring of Underrepresented Adults With Type 2 Diabetes: The CULTURA-DM2 Trial. Clinical diabetes : a publication of the American Diabetes Association, 43(1), 79–91. https://doi.org/10.2337/cd24-0002

[38] Riley, W. T., Keberlein, P., Sorenson, G., Mohler, S., Tye, B., Ramirez, A. S., & Carroll, M. (2015). Program evaluation of remote heart failure monitoring: healthcare utilization analysis in a rural regional medical center. Telemedicine journal and e-health : the official journal of the American Telemedicine Association, 21(3), 157–162. https://doi.org/10.1089/tmj.2014.0093

[39] Rivera, B. D., Nurse, C., Shah, V., Roldan, C., Jumbo, A. E., Faysel, M., Levine, S. R., Kaufman, D., & Afable, A. (2023). Do digital health interventions hold promise for stroke prevention and care in Black and Latinx populations in the United States? A scoping review. BMC public health, 23(1), 2549. https://doi.org/10.1186/s12889-023-17255-6

[40] Samuel, A. D., Augustine, K., Jehoiarib, U., & Alice, A. D. (2024). The role of artificial intelligence and machine learning in optimizing US healthcare supply chain management. WORLD, 24(2), 1996-2002.

[41] Santamore, W. P., Homko, C. J., Kashem, A., McConnell, T. R., & Bove, A. A. (2007). Using a telemedicine system to decrease cardiovascular disease risk in an underserved population: design, use, and interim results. Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual International Conference, 2007, 3701–3704. https://doi.org/10.1109/IEMBS.2007.4353135

[42] Schoenthaler, A., Hack, R., Mandal, S., De La Calle, F., Elmaleh-Sachs, A., Nay, J., ... & Dapkins, I. (2025). Closing hypertension equity gaps through digitally inclusive remote patient monitoring. NEJM catalyst innovations in care delivery, 6(3), CAT-24.

[43] Shah, G., V., Reali-Sorrell, Barzilai, B., and Brateanu, A. (2013). Telemonitoring in a low income African American population with congestive heart failure: A pilot project. Circulation: Cardiovascular Outcomes, 8(Suppl_2), A117. https://doi.org/10.1161/circoutcomes.8.suppl_2.117

[44] Ubl S. J. (2007). Public policy implications for using remote monitoring technology to treat diabetes. Journal of diabetes science and technology, 1(3), 436–439. https://doi.org/10.1177/193229680700100318

[45] Ugwu, D., Ajayi, A. A., & Kaiser, F. (2025). Strategies to improve health equity through targeted public health initiatives. International Medical Science Research Journal, 5(2), 9.

[46] Ugwu, D., Ajayi, A. A., & Oware, E. (2025). Developing and implementing programs for chronic disease prevention and management at the community level: A systematic review. International Journal of Frontline Research in Life Science, 3(1), 1–7.

[47] Utomi, E., Osifowokan, A. S., Donkor, A. A., & Yowetu, I. A. (2024). Evaluating the Impact of Data Protection Compliance on AI Development and Deployment in the US Health sector. World Journal of Advanced Research and Reviews, 24(2), 1100-1110.

[48] Vrany, E. A., Hill-Briggs, F., Ephraim, P. L., Myers, A. K., Garnica, P., & Fitzpatrick, S. L. (2023). Continuous glucose monitors and virtual care in high-risk, racial and ethnic minority populations: Toward promoting health equity. *Frontiers in endocrinology*, *14*, 1083145. https://doi.org/10.3389/fendo.2023.1083145

[49] Ward, L. A., Shah, G. H., Jones, J. A., Kimsey, L., & Samawi, H. (2023). Effectiveness of Telemedicine in Diabetes Management: A Retrospective Study in an Urban Medically Underserved Population Area (UMUPA). *Informatics*, *10*(1), 16. https://doi.org/10.3390/informatics10010016

[50] Winberg, D., Stoecker, C., Li, J., & Shi, L. (2026). Remote Patient Monitoring in Louisiana Medicare Beneficiaries With Diabetes or Hypertension: Retrospective Cohort Study of 2016-2020 Claims Data. *Journal of medical Internet research*, *28*, e80782. https://doi.org/10.2196/80782