Technical Brief
Number 46

Strategies To Address Racial and Ethnic Disparities in Health and Healthcare: An Evidence Map

AHRQ
Agency for Healthcare
Research and Quality

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Strategies To Address Racial and Ethnic Disparities in Health and Healthcare: An Evidence Map

Prepared for:
Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
5600 Fishers Lane
Rockville, MD 20857
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Contract No. 75Q80120D00008

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AHRQ Publication No. 24-EHC017
March 2024

This report is based on research conducted by the Minnesota Evidence-based Practice Center (EPC) under contract to the Agency for Healthcare Research and Quality (AHRQ), Rockville, MD (Contract No. 75Q80120D00008). The findings and conclusions in this document are those of the authors, who are responsible for its contents; the findings and conclusions do not necessarily represent the views of AHRQ. No statement in this article should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services.

None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

The information in this report is intended to help healthcare decision makers—patients and clinicians, health system leaders, and policymakers, among others—make well-informed decisions and thereby improve the quality of healthcare services. This report is not intended to be a substitute for the application of clinical judgment. Anyone who makes decisions concerning the provision of clinical care should consider this report in the same way as any medical reference and in conjunction with all other pertinent information, i.e., in the context of available resources and circumstances presented by individual patients.

A representative from AHRQ served as a Contracting Officer's Representative and reviewed the contract deliverables for adherence to contract requirements and quality. AHRQ did not directly participate in the literature search, determination of study eligibility criteria, data analysis, interpretation of data, or preparation or drafting of this report.

AHRQ appreciates appropriate acknowledgment and citation of its work. Suggested language for acknowledgment: This work was based on an evidence report, Strategies To Address Racial and Ethnic Disparities in Health and Healthcare: An Evidence Map, by the Evidence-based Practice Center Program at the Agency for Healthcare Research and Quality (AHRQ).

Suggested citation: Lamina T, Abdi HI, Behrens K, Call K, Claussen AM, Dill J, Grande SW, Houghtaling L, Jones-Webb R, Nkimbeng M, Parikh R, Rogers E, Sultan S, Widome R, Wilt TJ, Butler M. Strategies To Address Racial and Ethnic Disparities in Health and Healthcare: An

Evidence Map. Technical Brief No. 46. (Prepared by the Minnesota Evidence-based Practice Center under Contract No. 75Q80120D00008.) AHRQ Publication No. 24-EHC017. Rockville, MD: Agency for Healthcare Research and Quality; March 2024. DOI: https://doi.org/10.23970/AHRQEPCTB46. Posted final reports are located on the Effective Health Care Program search page.

Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of healthcare in the United States. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions and new healthcare technologies and strategies. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

This EPC evidence report is a Technical Brief. A Technical Brief is a rapid report, typically on an emerging medical technology, strategy, or intervention. It provides an overview of key issues related to the intervention—for example, current indications, relevant patient populations and subgroups of interest, outcomes measured, and contextual factors that may affect decisions regarding the intervention. Although Technical Briefs generally focus on interventions for which there are limited published data and too few completed protocol-driven studies to support definitive conclusions, the decision to request a Technical Brief is not solely based on the availability of clinical studies. The goals of the Technical Brief are to provide an early objective description of the state of the science, a potential framework for assessing the applications and implications of the intervention, a summary of ongoing research, and information on future research needs. In particular, through the Technical Brief, AHRQ hopes to gain insight on the appropriate conceptual framework and critical issues that will inform future research.

AHRQ expects that the EPC evidence reports and technology assessments will inform individual health plans, providers, and purchasers as well as the healthcare system as a whole by providing important information to help improve healthcare quality.

If you have comments on this Technical Brief, they may be sent by mail to the Task Order Officers named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov.

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Acknowledgments

We thank many individuals for their contributions to this project: Suchitra Iyer (Task Order Officer) and Anjali Jain (Task Order Officer) from the Agency for Healthcare Research and Quality (AHRQ); Romana Hasnain-Wynia and Rocio Pereira of Denver Health. We also thank Jeannine Ouellette for her exceptional editing, Bessie Peterson for her professional report preparation, and Carla Kahle for her technical skills that kept all our computers functional.

Key Informants

In designing the study questions, the EPC consulted several Key Informants with diverse experiences and perspectives on interventions designed to reduce racial and ethnic disparities in health and healthcare. The EPC sought the Key Informant input to inform literature searches and offer opinions on the current major practices and issues surrounding interventions designed to reduce racial and ethnic disparities in health and healthcare. Key Informants were not involved in the analysis of the evidence or the writing of the report. Therefore, in the end, study questions, design, methodological approaches, and/or conclusions do not necessarily represent the views of individual Key Informants.

Key Informants must disclose any financial conflicts of interest greater than $5,000 and any other relevant business or professional conflicts of interest. Because of their role as end-users, individuals with potential conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any conflicts of interest.

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Prior to publication of the final evidence report, EPCs sought input from independent Peer Reviewers without financial conflicts of interest. However, the conclusions and synthesis of the scientific literature presented in this report do not necessarily represent the views of individual reviewers. AHRQ may also seek comments from other Federal agencies when appropriate.

Peer Reviewers must disclose any financial conflicts of interest greater than $5,000 and any other relevant business or professional conflicts of interest. Because of their unique clinical or content expertise, individuals with potential nonfinancial conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any potential nonfinancial conflicts of interest identified.

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Strategies To Address Racial and Ethnic Disparities in Health and Healthcare: An Evidence Map

Structured Abstract

Background. Racial and ethnic disparities in health and healthcare continue to endure in the United States despite efforts in research, practice, and policy. Interventions targeted at patients, clinicians, and/or health systems may offer ways to address disparities and improve health outcomes in prevention/treatment of chronic conditions in adults.

Purpose. This evidence map identifies existing interventions to be considered for implementation by healthcare system leaders and policymakers, and to inform researchers and funding agencies on gaps in knowledge and research needs.

Methods. We searched MEDLINE®, CINAHL®, and Scopus from January 2017 through April 2023 for U.S.-based studies from the peer-reviewed published literature. We incorporated supplementary information from systematic reviews. We supplemented this with the gray literature, when available, from pertinent organizations, foundations, and institutes. We held discussions with Key Informants who represented stakeholders in healthcare disparities.

Findings. A vast and varied literature addresses healthcare system interventions to reduce racial and ethnic health and healthcare disparities. We identified 163 unique studies from 174 reports, and 12 intervention types not mutually exclusive in their descriptions. The most studied intervention type was self-management support, followed by prevention/lifestyle support, then patient navigation, care coordination, and system-level quality improvement (QI). Most of the interventions specifically targeted patient behaviors. Few studies (5) used a comparator, which made it difficult to determine whether disparities between groups were reduced or eliminated. Most of the studies (45%) included multiple race/ethnic groups (i.e., enrolled participants from more than one racially/ethnically minoritized group or enrolled racially minoritized people and non-minoritized groups). We found few studies that exclusively enrolled Asians (6%) and American Indians/Alaska Natives (1%). Cancer was the most studied chronic condition. Randomized controlled trials were common, but less rigorous study designs were often used for system-level QI and collaborative care model interventions. Few studies reported patient experience as primary outcome. Studies did not report on harms or adverse events, nor did they report on factors necessary for determining applicability or sustainability of the interventions. A number of studies reported on cultural adaptation or community involvement (either partnership or collaboration). Future studies should seek to standardize the terms in which they describe interventions and aim to specifically address whether disparities between groups are reduced or eliminated. Nonetheless, this evidence map provides a resource for health systems to identify intervention approaches that have been examined elsewhere and that might be imported or adapted to new situations and environments.

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Executive Summary

Main Points

- A vast and varied literature addresses healthcare system interventions to reduce racial and ethnic health and healthcare disparities. From 163 studies, we identified 12 categories of intervention types. However, based on the information/label reported by the study authors in the original literature, these interventions were not mutually exclusive. Research on interventions addressing healthcare disparities would benefit from more consistent terminology and better consensus around terms used.
- Interventions to reduce racial/ethnic health and healthcare disparities have been extensively studied across various chronic conditions and multiple race/ethnic group (i.e., studies often enroll participants from more than one racially/ethnically minoritized group or enroll both racially minoritized people and other groups). Cancer was the most studied chronic condition, and racially/ethnically minoritized people such as Asians and American Indians/Alaska Natives are less reported.
- The literature on healthcare interventions to reduce racial and ethnic health and healthcare disparities is actively expanding. While most studies aimed to improve care for a target group, and very few directly addressed the question of whether disparities between groups were reduced or eliminated to improve health outcomes. This leaves the important issue of improving health equity largely unaddressed.

Background and Purpose

Racial and ethnic disparities in health and healthcare, including for chronic conditions, continue to endure in the United States despite major efforts in research, practice, and policy. The COVID-19 pandemic worsened disparities and catalyzed a bolder call for action and accountability in United States.[1] Healthcare system strategies/interventions might offer ways to address racial and ethnic health and healthcare disparities and improve health outcomes in the prevention/treatment of chronic conditions in adults.

Here we present an evidence map to identify existing interventions to be considered for implementation by healthcare system leaders and policymakers and to inform researchers and funding agencies on gaps in knowledge and research needs.

Methods

We searched MEDLINE®, CINAHL®, and Social Sciences Citation Index through April 2023 for U.S.-based published literature. Relevant current systematic reviews were hand searched for supplementary information. Our gray literature search focused on pertinent organizations, foundations, and institutes. We held discussions with Key Informants representing stakeholders in healthcare system strategies/interventions to reduce racial/ethnic disparities. Further details on the methods are contained in the full report.

Findings

We identified 163 unique studies from 174 reports, and 12 intervention types. However, based on the information/label reported by the study authors in the original literature, these interventions were often not mutually exclusive. The most studied intervention type was self-

management support, followed by prevention/lifestyle support, then patient navigation, care coordination, and system level quality improvement. Most studies indicated that interventionists began by selecting a population (or populations) identified as suffering disparities, then set about trying to improve care for that target group. Few studies (5) used a comparator, which made it difficult to determine whether disparities between groups were reduced or eliminated. Most studies (45%) included multiple racially/ethnically minoritized groups (i.e., they enrolled participants from more than one racially/ethnically minoritized group or enrolled racially minoritized people and non-minoritized groups). We found few studies that exclusively enrolled Asians (6%) and American Indians/Alaska Natives (1%). Asians and American Indians/Alaska Natives were included in studies that enrolled multiple race/ethnic groups, but their findings were not separately reported. Cancer was the most studied (29%) chronic condition.

Our full report contains additional findings on the intervention type; intervention target; study design; outcome types; study setting and delivery personnel; chronic conditions; race/ethnic groups; cultural adaptation and community involvement; harms and adverse events; and applicability and sustainability of the interventions.

Summary and Implications

Overall, a large and diverse literature set addresses healthcare system interventions to reduce racial and ethnic health and healthcare disparities. However, our evidence map is significantly limited by the reporting in the original studies and the lack of consensus on standardized terms used in healthcare system interventions literature. In addition, very few studies specifically addressed whether disparities between groups were reduced or eliminated, which leaves the important issue of improving health equity largely unaddressed. Further, few studies exclusively enrolled single race/ethnic groups such as Asians and American Indians/Alaskan Natives. The relative absence of literature for these groups was consistent with what was available in previously published systematic reviews. Cancer was the most frequently exclusively studied chronic condition; more attention is needed for other less studied chronic conditions (such as mental health, liver disease, metabolic syndrome, chronic obstructive pulmonary disease (COPD), chronic pain not related to cancer, and kidney disease) that disproportionately impact racially/ethnically minoritized people. Nonetheless, this evidence map (and especially the supporting evidence tables) provides a resource for health systems to identify intervention approaches that have been examined elsewhere and that might be imported or adapted to new situations and environments.

Next Steps

Our evidence map highlighted several areas for future research, including (1) research aimed at standardizing and better operationalizing terms used in interventions and strategies to address healthcare disparities; (2) including racially/ethnically minoritized groups, including Asians and American Indians/Alaska Natives in research studies; and (3) research that specifically reports outcomes that directly measure disparity reduction between racially/ethnically minoritized people and other groups. Our full report highlights other potential research opportunities.

References

1. Lopez L, Hart LH, Katz MH. Racial and Ethnic Health Disparities Related to COVID-19. JAMA: the journal of the American Medical Association. 2021;325(8):719-20. doi: 10.1001/jama.2020.26443.

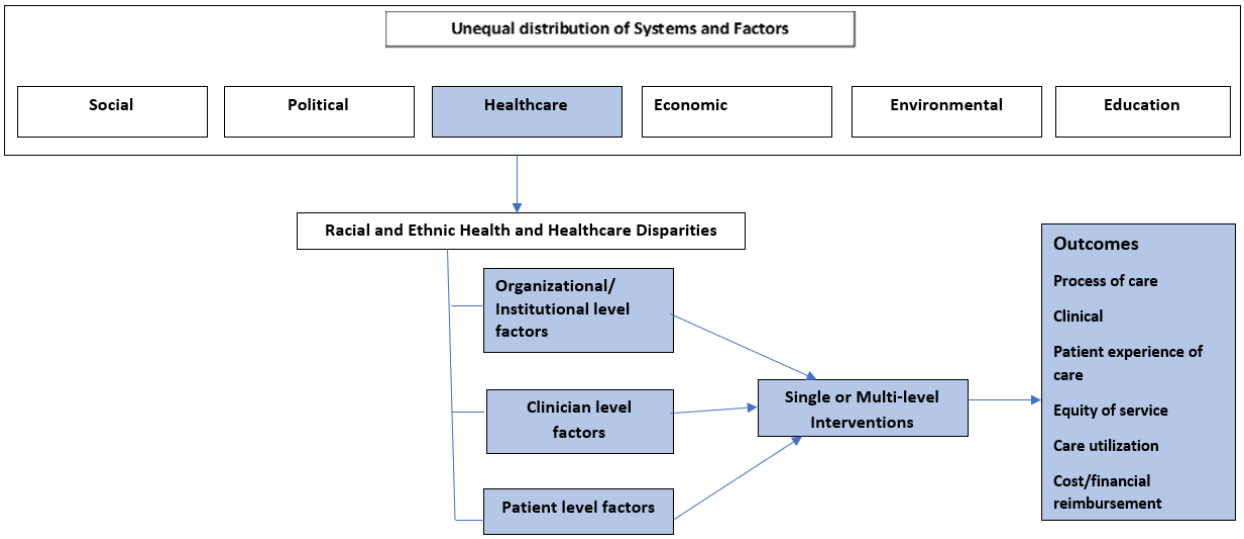
1. Introduction

1.1 Background

For at least three decades, a growing body of evidence has documented the problem of health and healthcare disparities, defined as preventable differences in disease burden, injury, violence, or opportunities to achieve optimal health among socially disadvantaged populations.[1] Health disparities have reached crisis proportions among racial and ethnic groups across the United States.[2] The COVID-19 pandemic, which further exposed and worsened healthcare inequities, led to a renewed call for action and accountability.[3] Data show that racially and ethnically minoritized people have higher rates of morbidity and mortality across many health conditions, including chronic conditions such as mental health disorders, cardiovascular disease (including hypertension), cancer, asthma, HIV/AIDS, renal disease, chronic obstructive pulmonary disease (COPD), and diabetes.[4] Broadly, in most examinations of long-term health and healthcare disparities, African Americans/Blacks fare worse than all other groups in health outcomes.[5]

Figure 1 provides a conceptual framework drawn from the National Institute on Minority Health and Health Disparities (NIMHD) Research Framework and the work of Purnell and colleagues, both of which consider the many factors that influence disparities in health and healthcare.[6, 7] Racial and ethnic disparities occur in the context of broader inequality and are directly related to the historical and current unequal distribution of social, political, economic, environmental, educational, and healthcare factors and systems.[8] These include economic policies and systems, development agendas, social norms, social policies, structural racism and discrimination, climate change, healthcare financing, and political structures that shape the conditions in which people are born, work, live, learn, play, worship, and grow older—factors and systems also known as social determinants of health.

Figure 1. Understanding the drivers of and interventions for health and healthcare disparities



Within this conceptual framework, healthcare-related factors are a critical concern. Addressing racial and ethnic health and healthcare disparities in the United States would not only eliminate much unnecessary human suffering, but also decrease healthcare expenditures. Health disparities are estimated to account for $93 billion in excess medical care costs and $42 billion in untapped productivity.[9] Specifically, to reduce healthcare expenditures, healthcare systems can focus on patient, clinician, and healthcare system factors (Figure 1).[10, 11] Patient factors that might affect disparities include individual beliefs and preferences, health behaviors, and mitigating the impact of social determinants of health (e.g., housing, education, employment, socio-economic status).[10] Clinician factors can include knowledge, attitudes, racial bias, implicit or not, practice, and financial incentives. Healthcare system factors can include healthcare organizational culture, quality improvement, and elements of the healthcare system (e.g., organization, financing, care delivery).[10]

The federal government has contributed important work to draw attention to and support efforts to reduce disparities. The Department of Health and Human Services' Healthy People 2000 established national objectives for improving health and well-being that recognized health equity as a goal.[12] Since then, efforts to eliminate disparities have increased. The President's Office recently signed an executive order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, followed by the release of actionable recommendations in the Health Equity Task Force report.[13, 14] However, much remains to be done, given that many factors contribute to disparities.

Healthcare strategies/interventions might offer ways to address racial and ethnic health and healthcare disparities. Our conceptual framework suggests that healthcare strategies/interventions may be complex in design and implementation. They may take place at a single level (i.e., target only one part of the healthcare system such as solely patients, solely clinicians, or solely the healthcare organization) or involve multiple levels of the healthcare system (i.e., target more than one part of the healthcare system such as both clinicians and the healthcare organization).

1.2 Purpose and Scope

Our report supplements an Agency for Healthcare Research and Quality (AHRQ) 2012 report that examined the effectiveness of quality improvement interventions in reducing disparities in health and healthcare on a limited set of clinical conditions.[15] Here we expand the scope of that report by including an unrestricted set of chronic conditions in adults. Also, the 2012 report only included studies if they directly compared a population that was experiencing disparities with a population that was not in order to determine whether the intervention closed the distance between the two groups' health outcomes. We did not constrain the intervention comparisons to populations only, which allowed a broader range of healthcare strategies/interventions to be examined.

This Technical Brief presents an evidence map based on a systematic search of the recent literature on healthcare strategies/interventions for reducing racial and ethnic disparities and improving health outcomes in the prevention/treatment of chronic conditions in adults. The aim is to identify existing interventions that could be considered for implementation by healthcare system leaders and policymakers, and to inform researchers and funding agencies on gaps in knowledge and research needs.

1.3 Guiding Questions

We developed the questions below in collaboration with AHRQ to guide our mapping of the available evidence.

What is the current evidence for strategies designed to reduce racial and ethnic disparities and improve health outcomes in the prevention/treatment of chronic conditions in adults?

a. What interventions have been studied?
b. What racial and ethnic populations have been studied?
c. What common (multiple and single) chronic conditions have been studied?
d. What primary outcomes have been studied?
e. What are the reported effects (that is, a summary of the direction of effects) of the strategies used in studies of interventions to reduce disparities?
f. What are the reported unintended consequences, harms, or adverse events of the strategies used in studies of interventions to reduce disparities?
g. Within race/ethnic groups, what other intersectional influences (e.g., income, sexual orientation, geographic location, language, gender) have been targeted in studies of interventions to reduce disparities?
h. What study designs have been used?
i. What information is available on the applicability and sustainability of interventions?
j. What gaps exist in the current research?

2. Methods

To address the Guiding Questions, we created an evidence map of primary studies from the peer-reviewed published literature and incorporated supplementary information from existing systematic reviews. Evidence maps are an approach to systematically identify and report the range of research activity in broad topic areas.[16] Because they describe the quantity, design, and characteristics of relevant research, evidence maps are best used to inform research priorities and to help define the focus of evidence synthesis such as systematic reviews when an abundant and diverse research base is available.[16, 17] Despite these conventions, no widely accepted standards exist for evidence mapping; instead, products and methods vary based on project goals.[18] Because of limited time and resources, our approach to the evidence map was similar in some ways to a scoping review.[19] While we applied dual review during screening because of the difficulty applying the inclusion criteria, we limited the search period and relied heavily on study author language without reinterpretation. We provide more detail on specific methods below.

When information was absent from peer-reviewed published literature, we aimed to supplement with information from the gray literature. Key Informant discussions provided additional context to support the gray literature searches and offered opinions on the current major practices and issues surrounding healthcare strategies/interventions designed to reduce racial and ethnic disparities in health and healthcare.

2.1 Published Literature

2.1.1 Search Strategies

We conducted a comprehensive literature search from January 2017 through April 2023, searching MEDLINE® (Ovid), CINAHL® (EBSCOHost), and Scopus (Elsevier B.V.). We chose 2017 due to resource constraints and the 2017 National Academy of Medicine call for innovations in health disparities interventions, including cross-sector partnerships, to address social determinants of health.[20] We also scanned the references cited by included studies and relevant existing systematic reviews. For further details on the search methods, see the review protocols [https://effectivehealthcare.ahrq.gov/products/patient-provider-level-strategies/protocol] [https://effectivehealthcare.ahrq.gov/products/healthcare-system-level-strategies/protocol] and Appendix A. (Initially two reports were intended but because of the overlapping nature of the evidence base, the information has been combined into a single report.) We also performed a hand search to identify relevant current existing systematic reviews from 2015 to present and incorporated supplemental information from these reviews in this Brief. A SEADS portal was open for 4r weeks ending January 12, 2023.

2.1.2 Study Selection

We developed eligibility criteria for study inclusion and exclusion based on the Guiding Questions and selected studies based on the population, intervention, comparator, outcome, timing, and setting (PICOTS) framework if they were published in a peer-reviewed journal. We detail our inclusion and exclusion criteria in Appendix B, and Appendix C provides a detailed list of studies excluded at full text screening, sorted by reason for exclusion.

Studies needed to enroll participants with or at risk of chronic disease and enroll only or primarily racially/ethnically minoritized people (i.e., racially/ethnically minoritized people make up over 50% of the sample size). We included only U.S.-based studies with randomized

controlled trial study design, non-randomized controlled trials, cohort studies with comparator arms, pre-post, quality improvement, single-arm studies of implemented strategies with outcomes captured before and after implementation, or mixed-method study designs. We generally included studies that aimed to address race/ethnic disparities in health and healthcare. These studies fell into two groups: 1) studies that specifically aimed to examine the potential reduction of a disparity (i.e., by examining differences in outcomes between specific racially/ethnically minoritized people and other groups); and 2) studies that aimed to improve outcomes for specified racially/ethnically minoritized people. Further, we included studies that either took place in a healthcare setting or showed strong links between a healthcare organization and community-based settings. We excluded studies of medical interventions where racial subgroup analyses were not intended or stated at the start of the study conduct (i.e., post hoc exploratory analyses).

We screened the literature using PICO Portal software at title/abstract and full text.[21] We used PICO Portal's machine learning algorithm to prioritize the literature most likely to be included. Two independent reviewers screened for possible inclusion at title/abstract as well as full text. We resolved conflicts through discussion and consensus with a third reviewer. Team members with content expertise provided advice where design features were unusual or ambiguous. To ensure reproducibility of the list of included studies, we confirmed that exclusion reasons were clearly captured. To ensure consistency in interpreting eligibility criteria, our review team met at least weekly to discuss questions arising from screening.

2.1.3 Data Extraction and Data Management

To answer the Guiding Questions, we extracted data from included studies into a data evidence table. These tables are available in Appendix D. Review team members met at least weekly to discuss questions about data extraction and to ensure consistency in abstraction.

2.1.4 Data Presentation

We used information reported in the included studies to group intervention types, intervention targets, study designs, outcomes (specifically primary outcomes), study settings, delivery personnel, race/ethnic groups, and chronic conditions. We used the exact terms used by study authors wherever possible. We list and define groupings in the Findings section of this Brief.

To develop categories for intervention type, intervention target, and outcomes, we reviewed the author's terms and descriptions to determine an initial set of categories. We revised categories and finalized our decisions through discussion and consensus with content expert team members.

For intervention type, we used wherever possible the exact terms used by study authors to label the interventions. When the studies used uncommon terms to label interventions, for example using only a study name, brand, or acronym, we then looked for next best author language. Finally, when information was conflicting or unclear, we categorized them based on our estimation of the primary purpose or approach. We used this approach in an attempt to be faithful to study authors' reported intentions and avoid reinterpreting interventions. Each study was assigned to only one intervention category.

For intervention target, we assigned categories based on one or more of several factors: 1) whether studies primarily examined interventions directed at patients (e.g., studies examining various methods of patient education (group or individual education); 2) whether studies were

primarily examined interventions directed at clinicians (such as cultural competence); 3) whether studies involved changes in the process of healthcare delivery targeted at clinicians (such as use of guidelines and algorithms); 4) whether studies sought to make changes to collaborative models at healthcare organization and public health (such interventions that targeted the healthcare system institution); 5) the extent to which interventions were rolled out within or across healthcare organizations. Some interventions were rolled out across many healthcare provider departments in one healthcare organization or involved many healthcare organizations, and we categorized these as targeting the healthcare system. In addition, when interventions were rolled out in only one provider department in a healthcare organization and involved changes in healthcare provision related directly to clinician behavior or practice, we categorized them as targeting clinicians. Further, when interventions were rolled out in only one provider department in a healthcare organization and were related directly to patient behavior, we categorized them as targeting patients. But when interventions were rolled out across many healthcare provider departments in one healthcare organization or involved many healthcare organizations, and were related directly to patients, we categorized them as targeting patients and the healthcare system institution. Finally, when interventions were rolled out across healthcare organizations and public health, we categorized them as targeting the healthcare system institution.

For the primary outcomes, we created categories based on common outcomes categories used in healthcare system research. We provide further information on the categories in the findings section (Table 1). We do not present direction of effect in the report, but this information is available in Appendix D.

We used graphics— bar charts, heat maps, and bubble plots, using Tableau—to summarize information relevant to the Guiding Questions. Bubble plots make it possible to display three-dimensional study characteristics data.[22]

2.1.5 Gray Literature

We performed supplemental gray literature searches to locate relevant articles on healthcare strategies/interventions that may have been poorly or inaccurately indexed or unindexed. We browsed the first 200 results from Google and Google Scholar for each search string using a combination of terms and word variations. We also browsed relevant organizations with involvement in racial/ethnic health and healthcare disparities including the Culture of Health Program, the Johns Hopkins Center for Health Equity, the American Hospital Association HEAL Health Equity Action Library, the Robert Wood Johnson Foundation Culture of Health Partnerships, the Patient Centered Outcomes Research Institute Portfolio, and the Dissemination & Implementation Models in Health website. We provide additional details in Appendix A, including a table of the organization websites that were browsed.

2.1.6 Discussions With Key Informants

At the beginning of the project, we identified Key Informants representing a broad range of experiences and perspectives to (1) provide additional context to support the gray literature searches; and (2) offer opinions on the current major practices and issues surrounding healthcare systems' efforts to reduce racial and ethnic disparities.

We identified potential Key Informants from frequently listed and cited authors of relevant peer-reviewed literature, internet searches for people with relevant viewpoints, Agency for Healthcare Research and Quality (AHRQ) Learning Health System partnerships and stakeholder lists, and nominations by review team members. We included patient advocates/representatives,

advocacy organizations, clinicians, provider organizations, and researchers as Key Informants. When we could not identify a specific individual to represent an organization, we invited the organization to nominate an individual.

We conducted nine discussions for two reviews, using a set of semi-structured questions to provide an agenda for the conversations (60–90 minutes), via teleconferences in September and October 2022. One to three Key Informants participated in each discussion. Appendix A provides example questions. We tailored questions to the unique expertise and perspectives of our Key Informants. Prior to the discussions, the Key Informants received invitation letters briefly explaining the project, and their expected role, appropriate disclosure forms for conflict of interest, and discussion questions. We assigned Key Informants to conference calls based on two affiliation groupings: (1) patient advocates/representatives, and (2) advocacy organizations, clinicians, provider organizations, and researchers. We did this to maximize the synergy of group discussions and minimize unhelpful conflict. We recorded all calls and circulated call summaries (including themes from individual calls and the overall Key Informant discussions) so participants could confirm the content.

During the discussions, Key Informants raised the following major points:

- The field lacks a general established conceptual framework for healthcare system interventions/strategies to address racial/ethnic health and healthcare disparities.
- While a vast body of literature is available, Key Informants expressed concern that implementing healthcare strategies/interventions could be difficult because the interventions/strategies would, if implemented, be embedded in the healthcare systems that might perpetuate disparities.
- Key Informants underscored the need for sustainable interventions. In their opinion, financial support represents the biggest barrier to sustaining interventions. Other crucial factors include the use of no-cost local resources and community coalition building.

In addition to the initial input, Key Informants were offered the opportunity to comment on the draft report as part of the peer review and public comment process from March 19, 2023 to April 20, 2023. Experts in health services delivery, health equity, and stakeholder/used communities were also invited to provide external peer reviews; AHRQ and an associate editor also provided comments. A disposition of comments table addressing all peer and public comments will be posted on the Effective Health Care website 3 months after the Agency posts the final report.

3. Findings

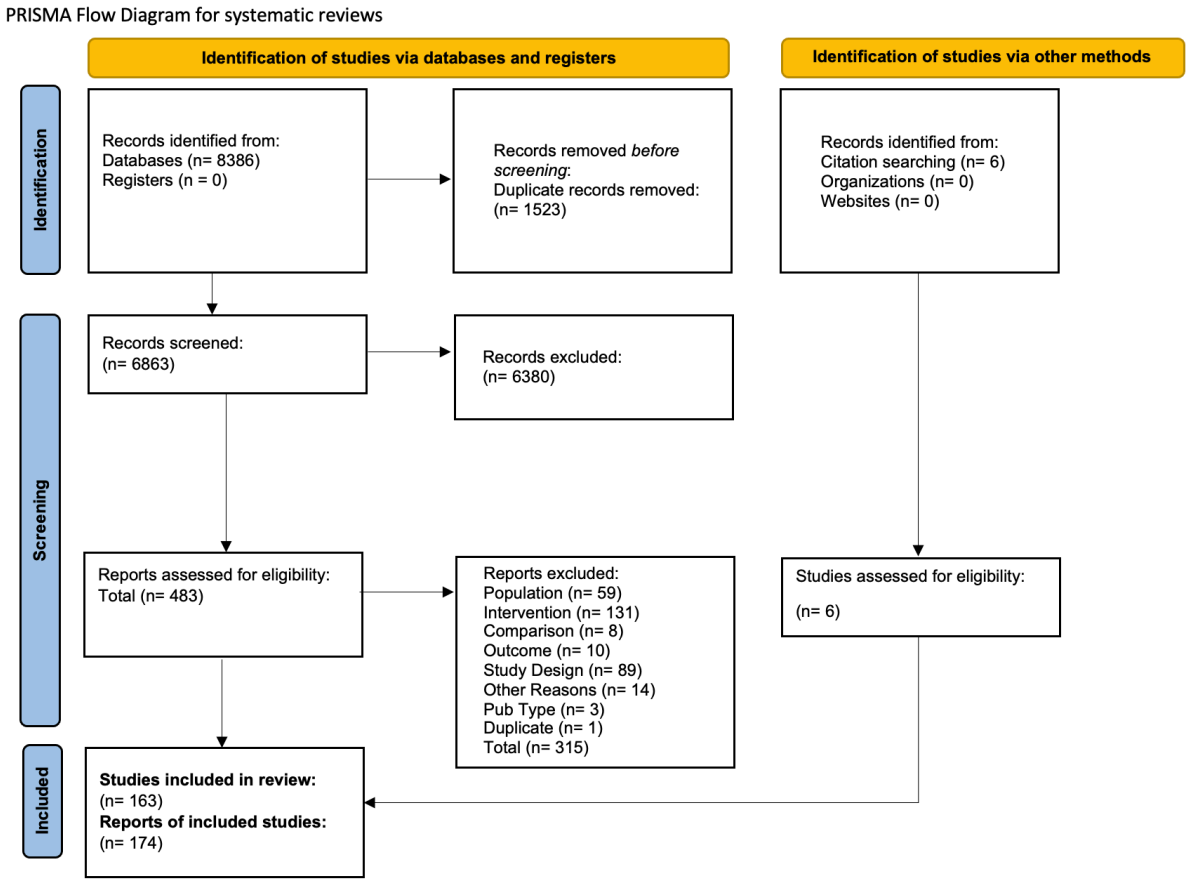
This section addresses the findings of our evidence map from the peer-reviewed published literature based on our Guiding Questions. Where relevant, we incorporated findings from the gray literature as discussed in the Methods section of this Brief.

3.1 Results of Published Literature Searches

Figure 2 presents the literature flow of the search results. Database searches of published literature resulted in 8,386 potentially relevant articles. After dual review of abstracts and titles, we assessed 489 articles for eligibility at full text, of which 315 were excluded (Appendix C). We determined that 174 articles reporting on 163 unique studies met the inclusion criteria, and we included those in the evidence map.[23-196]

We observed no major trends in the number of published studies annually.

Figure 2. Literature flow PRISMA diagram: search results to included studies



The PRISMA process is outlined in Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

3.2 Descriptive Evidence Map

Below, we summarize the characteristics of the included studies. Appendix D provides a table with detailed information for each included study. We organized the results on intervention type, and present results by intervention target, study design, and outcomes.

3.2.1 Intervention Type

The strategies/interventions to address racial/ethnic health and healthcare disparities did not fall into clean categories. We used study author intervention labels when provided, but often had to categorize the interventions by study descriptions or statement of the primary purpose or approach. Through this process, we grouped the interventions into 12 types, or categories. All categories except the "Other Single Component" category represented interventions that were comprised of bundles of intervention components. These categories could not be designed to be mutually exclusive, and while each study was placed into only one category, the detailed descriptions of the interventions generally involved considerable overlap in the components used. Thus, for example, patient education may have been examined as a study author-identified intervention, yet patient education can also be a reasonable and common element in many intervention categories.

Multiple definitions exist in the published literature for intervention types in health services research. Below, we provide definitions that can be considered conventional and fairly describe our categorization scheme, organized from most to least commonly reported in the literature.

Self-management support can be broadly defined as an intervention designed to help patients better manage health conditions through education, training, and support to improve knowledge, skills, or psychological and social resources, together with self-monitoring and regular review from health professionals.[197, 198] The interventions may incorporate patient education, appointment reminders, and adherence to medication and care plans. One example was a community health worker involved, self-management support study to help African Americans with hypertension overcome barriers to self-management for through enhancement of shared decision-making skills and problem-solving skills.[38]

Prevention/lifestyle support refers to interventions that aim to prevent or delay the onset of disease or disease symptoms through risk reduction. It commonly introduces activities that limit risk exposure or decrease the susceptibility of at-risk individuals to prevent disease from progressing. It emphasizes early disease detection and targets healthy-appearing individuals.[199] The interventions may include elements such as exercise coaching, diet coaching, or referral for treatment. For example, one study described a lifestyle intervention delivered by a trained, same-race community health worker who supported African American women with type 2 diabetes in making small changes in diet and activity level.[115]

Patient navigation refers to services that improve engagement in healthcare by providing personal guidance through the healthcare system.[200] Patient navigators often help patients overcome challenges to following their healthcare plan, allowing them to progress efficiently through treatment.[201] For example, one study assessed the impact of a patient navigator program on adherence to followup appointments and psychosocial outcomes among Vietnamese-American women who received abnormal mammogram findings. The patient navigator provided emotional support, education, translation, and assistance with understanding medical bills and doctor's appointments.[173]

Care coordination can be defined as organizing patient care activities between two or more participants to improve delivery of healthcare services. Organizing care involves the marshalling of personnel and other resources needed to carry out required care activities and managing the exchange of information among participants responsible for different aspects of care.[202] Examples of broad care coordination approaches include: teamwork, care management, medication management, health information technology, and patient-centered medical home.[203]

For example, one study enrolled an uninsured population of multiple race/ethnicities, and examined care coordination involving population health services and the Patient-Centered Medical Home (PCMH). Participants received primary care visits at the PCMH and attended at least one Population Health wellness, prevention, or social determinants of health (SDOH) program to improve outcomes for type 2 diabetes and cardiovascular disease, as well as to reduce hospital utilization.[106]

System level quality improvement (QI) involves the use of a systematic and coordinated approach to solving a problem using specific methods and tools with the aim of bringing about a measurable improvement within a healthcare setting.[204] One example was a QI project to improve equitable access to cervical cancer screening and management for Hispanics.[105] Following a preparatory stage that included a systematic review of cervical cancer screening, the project included 1) team engagement through team meetings; 2) patient engagement via a tool on cervical cancer screening provided in both English and Spanish (an adaptation of the Ottawa Personal Decision Guide); 3) a Well Woman Health Check Program (WWHP) eligibility screening and enrollment tool for registration staff that included updated registration guidelines and a WWHP registration log of all women enrolled in the program; and 4) the implementation of a case log for case management.

Patient education provides learning experiences on health topics, and can be defined as the process of influencing patient behavior and producing the changes in knowledge, attitudes, and skills to maintain or improve health.[205] For example, one intervention led by community health workers examined whether group education is as effective as individual culturally tailored education in improving cervical cancer screening among underserved Hispanic women.[43] Another intervention examined whether computer-tailored patient education improved colorectal cancer screening among low-income African Americans.[143]

Collaborative care model is a systematized way of managing care and treatment for people with chronic conditions. It is a multiprofessional approach to patient care that adopts four key components: (1) a multiprofessional approach to patient care; (2) a structured management plan tailored to the individual needs of the patient; (3) proactive followup delivering evidence-based treatments; (4) processes to enhance interprofessional communication such as routine and regular team meetings and/or shared record.[206] One study that illustrates the collaborative care approach used a pharmacist-physician model to reduce the time to goal blood pressure in an uninsured population comprising mostly (80%) Black adults.[131]

Comprehensive system level change refers to a redesign of a healthcare system model and may include a collaboration between healthcare organizations and community-based organizations or public health systems. One example is a study that incorporated a centralized community clinic linkage hub to connect patients to community resources for participating clinics.[59]

Mobile Health (m-Health) single component refers to using mobile and wireless devices to improve health and deliver care through text messaging, wireless data transmission, and smartphone apps to send health-related information.[207] In one m-Health intervention, Hispanic people with type 2 diabetes received up to three motivational, educational, and/or call-to-action texts per day over 6 months.[86]

Coordination of transitions of care can be defined as movement of patients between healthcare practitioners and settings as their condition and care needs change. Transitions may occur between hospitals, ambulatory primary care practices, ambulatory specialty care practices, long-term care facilities, home health, and rehabilitation facilities.[208] One illustrative study

3.2.1 Findings, Descriptive Evidence Map, Intervention Type

enrolled high-need, high-cost patients who were predominantly non-Hispanic Black, and examined hospital-based, real-time screening, patient engagement, enrollment, enhanced discharge care coordination, intensive home visits, and telephone follow-up for at least 45 days.[31]

Electronic health record (EHR)-based interventions comprise real-time, patient-specific data platforms that make secure information available immediately to authorized users. EHRs are designed so that information can be shared with other clinicians or healthcare providers and organizations, such as laboratories, imaging facilities, consultants, pharmacies, and collaborating inpatient and outpatient clinics.[209] One EHR study examined a laboratory health information exchange (LHIE) system intervention that involved a bi-directional exchange of laboratory information (between ordering physician and laboratory staff) through an existing EHR system to improve antiretroviral therapy (ART) use.[60]

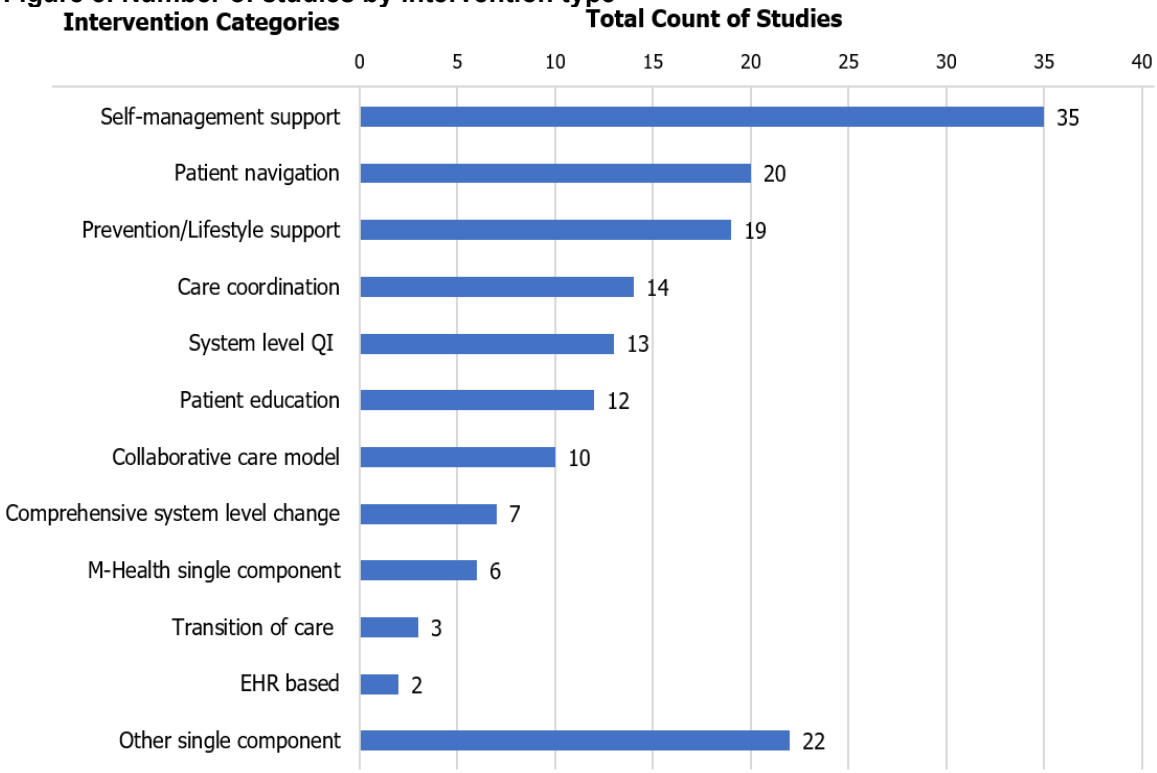
Other single component category captured interventions examining a single component but were not otherwise easily grouped. These single components could potentially be added to other complex interventions and may in fact be present in any of the other intervention categories listed above. These single component interventions included language concordance,[158] a screening decision aid,[96] risk calculator counseling,[149] training in Web portal use,[116] automated appointment reminders,[126] shared medical appointments,[133] group education for community-to-clinic settings,[193] attending one population health program per year, and stress management training tools,[113] to mention a few.

Figure 3 displays the breakdown of intervention types across the included studies. The largest category (22% [35/163]) of included interventions was self-management support.[27, 34, 37, 38, 41, 42, 50, 65, 66, 76, 77, 80, 91-93, 95, 110, 112, 117, 120, 124, 128, 132, 135, 136, 139, 141, 142, 159, 165, 170, 171, 175, 178, 189]

Other interventions that accounted for a relatively larger proportion of our included studies were patient navigation (12% [20/163]),[29, 48, 57, 58, 61, 69, 75, 81, 97, 119, 122, 127, 130, 145, 150, 162, 167, 173, 174, 180] followed by prevention/lifestyle support (12% [19/163]),[23, 30, 36, 40, 49, 67, 68, 87, 111, 115, 125, 152, 154, 156, 168, 172, 184, 185, 194] then care coordination (9% [14/163]),[28, 32, 44, 47, 52, 71, 101, 102, 104, 106, 137, 151, 161, 195] and system level QI interventions (8% [13/163]).[33, 39, 56, 63, 64, 85, 99, 105, 121, 153, 166, 187, 191] Overall, patient education,[24, 43, 53, 55, 74, 83, 107, 143, 146, 176, 188, 190] collaborative care models,[72, 73, 84, 100, 129, 131, 144, 148, 164, 169] comprehensive system level change,[54, 59, 88, 114, 155, 163, 177] single component m-Health,[26, 51, 70, 86, 192, 196] transition of care,[31, 82, 118] and EHR-based interventions[35, 60] accounted for 24 percent of included interventions. Transition of care and EHR-based interventions accounted for the smallest category of included interventions (2% [3/163]) and (1% [2/163]), respectively). Other single components category (captured interventions examining a single component but not otherwise easily grouped) accounted for 14 percent (22/163) of the included interventions.[25, 45, 46, 78, 79, 90, 96, 108, 109, 113, 116, 123, 126, 133, 138, 147, 149, 157, 158, 160, 179, 193]

3.2.1 Findings, Descriptive Evidence Map, Intervention Type

Figure 3. Number of studies by intervention type



Note: We used wherever possible the exact terms used by study authors to label the interventions.

Other single component interventions category captured interventions examining a single component but not otherwise easily grouped. Other single component interventions category includes language concordance, screening decision aid, risk calculator counseling, training in Web portal use, automated appointment reminders, shared medical appointments, group education for community-to-clinic settings, attending one population health program per year, and stress management training tools.

Abbreviations: m-Health = mobile health; EHR = Electronic Health Record; QI=quality improvement

3.2.2 Intervention Target

We describe our categorization scheme for the intervention target in the Methods section. Interventions were targeted at various parts of the healthcare system—i.e., we identified **patient targeted**, **clinician targeted,** and **healthcare system targeted** interventions. **Single targeted** interventions (also referred to as **single level** interventions in this report) are those that target only one part of the healthcare system, such as only the patient. **Multitargeted** interventions (referred to as **multilevel** interventions in this report) are those with components that target more than one part of the healthcare system. One example of a multilevel intervention targeted at the healthcare system and the patient would be an intervention that incorporated a centralized community clinic linkage hub to connect patients to community resources for participating clinics.[59]

Figure 4 displays the breakdown of intervention targets across the included studies. Self-management support interventions mainly targeted patients as a single level intervention (16% [26/163]),[37, 38, 42, 50, 65, 66, 76, 77, 91, 92, 95, 112, 117, 124, 128, 132, 135, 136, 139, 141, 142, 159, 171, 175, 178, 189] followed by prevention/lifestyle support (10% [17/163]),[23, 36, 40, 67, 68, 87, 111, 115, 125, 152, 154, 156, 168, 172, 184, 185, 194] and patient navigation (10% [17/163]).[29, 48, 57, 58, 61, 69, 75, 81, 97, 119, 130, 145, 150, 162, 167, 173, 174] No

3.2.2 Findings, Descriptive Evidence Map, Intervention Target

study reported on single level interventions targeted solely at clinicians. All clinician targeted interventions were part of multilevel interventions, most often occurring alongside patient targeted components or healthcare system plus patient targeted components.

Healthcare system targeted interventions accounted for very few (4% [6/163]) included studies of single targeted/level interventions (i.e., target the healthcare organization), most of which were collaborative care model interventions.[73, 129, 131, 144] Most healthcare system targeted intervention (31% [51/163]) studies were part of multilevel interventions, and most of these included patient targeted components or clinician plus patient targeted components.

Thirty-eight percent (38% [62/163]) of included studies examined multilevel interventions.[24, 25, 27, 30-35, 39, 41, 45, 49, 51, 54, 56, 59, 60, 63, 64, 72, 78, 80, 84, 85, 88, 90, 93, 99-102, 104-107, 110, 113, 114, 120-122, 127, 133, 143, 148, 153, 155, 158, 161, 163-166, 169, 170, 177, 180, 187, 191, 195] Most of the multilevel interventions (22% [36/163]) of included studies) were healthcare system plus patient targeted interventions.[27, 31, 34, 39, 54, 59, 60, 63, 64, 72, 84, 85, 88, 90, 93, 99-101, 104, 106, 110, 113, 127, 143, 153, 155, 161, 163-166, 169, 180, 191, 195, 196] Most of the healthcare system plus patient targeted interventions were system level QI interventions (5%, [8/163] of included studies).[39, 63, 64, 85, 99, 153, 166, 191] One exemplar study reported the adaptation and implementation of Kaiser Permanente's Hypertension management program targeted at multiple race/ethnicities (but enrolling predominantly Hispanic people) and rolled out healthcare system wide in 12 urban safety net clinics.[85] The intervention consisted of four key elements: (1) development of internal hypertension patient registry; (2) evidence-based treatment intensification protocol; (3) standardized blood pressure measurement protocol; and (4) blood pressure check visits.

Other multilevel interventions were (1) patient plus clinician targeted interventions (7% [11/163] of included studies) that were mostly self-management support interventions,[41, 80, 120, 170] followed by patient education interventions;[24, 107] (2) healthcare system, clinician, plus patient targeted interventions (7% [11/163] of included studies) that were mostly system level QI interventions;[33, 56, 105, 121] (3) healthcare system plus clinician level interventions (2% [4/163] of included studies) that were system level QI interventions, an EHR-based intervention, and "other single component" intervention. Healthcare system plus clinician level interventions accounted for the lowest number of studies.

3.2.2 Findings, Descriptive Evidence Map, Intervention Target

Figure 4. Intervention type by target

Intervention categories	Intervention Target: Patient	Patient + System	Patient + Clinician	Patient + Clinician + System	System	Clinician + System	Grand Total
Self-management support	26	5	4				35
Patient navigation	17	2	1				20
Prevention/Lifestyle support	17		1	1			19
Care coordination	5	5	1	1	2		14
System level QI		8		4		1	13
Patient education	9	1	2				12
Collaborative care model		5		1	4		10
Comprehensive system level change		5		1		1	7
M-Health single component	4	1	1				6
Transition of care	2	1					3
EHR based		1				1	2
Other single component	15	2	1	3		1	22
Grand Total	95	36	11	11	6	4	163

Count of Studies
1 26

Note: Patient targeted interventions refer to interventions that related directly to patient behavior. Clinician targeted interventions refer to interventions that are related directly to clinician behavior. Healthcare system targeted interventions refer to interventions that are targeted at the healthcare system. Patient+clinician targeted interventions refer to interventions targeted at both patients and clinicians. Healthcare system+patient targeted interventions refer to interventions targeted at both the healthcare system and patients. Healthcare system+clinician targeted interventions refer to interventions targeted at both the healthcare system and clinicians. Healthcare system+clinician+patient targeted interventions refer to interventions targeted at the healthcare system, clinicians, and patients.

We used wherever possible the exact terms used by study authors to label the interventions.

Other single component interventions category captured interventions examining a single component but not otherwise easily grouped. Other single component interventions category includes language concordance, screening decision aid, risk calculator counseling, training in Web portal use, automated appointment reminders, shared medical appointments, group education for community-to-clinic settings, attending one population health program per year, and stress management training tools.

Abbreviations: m-Health=mobile health; EHR=Electronic Health Record; QI=quality improvement.

3.2.3 Study Design

We classified included studies according to the authors' reported study designs, illustrated in Figure 5. Some categories for study designs might overlap (e.g., quality improvement study design could overlap with cohort observational study design). A notably large number (58% [94/163]) of included studies were randomized controlled trials (RCTs). Among RCTs, the most frequently examined intervention was self-management support, followed by some "other single component," then patient navigation and prevention/lifestyle support interventions. Other reported study designs include pre-post, mixed-methods, observational cohort study with

3.2.3 Findings, Descriptive Evidence Map, Study Design

comparator arms, nonrandomized controlled trial, quality improvement, or implementation science (to improve understanding of how to implement interventions). System level QI and collaborative care model interventions mostly did not use RCT study design.

Figure 5. Intervention type by study design

	Study Design							
Intervention categories	RCT	Cohort	Pre- post	QI	IS	NonRCT	Mixed-methods	Grand Total
Self-management support	26	3	3	1	1		1	35
Patient navigation	15	2	1		1	1		20
Prevention/Lifestyle support	11	1	4		2	1		19
Care coordination	7	3	4					14
System level QI	1	3		7	1		1	13
Patient education	8	2	2					12
Collaborative care model		3	2		1	2	2	10
Comprehensive system level change	3	1		2		1		7
M-Health single component	4	1	1					6
Transition of care	2		1					3
EHR based	1				1			2
Other single component	16	2	2			2		22
Grand Total	94	21	20	10	7	7	4	163

Count of Studies
1 26

Note: We classified the included studies according to the authors' reported study design.

We used wherever possible the exact terms used by study authors to label the interventions.

Other single component interventions category captured interventions examining a single component but not otherwise easily grouped. Other single component interventions category includes language concordance, screening decision aid, risk calculator counseling, training in Web portal use, automated appointment reminders, shared medical appointments, group education for community-to-clinic settings, attending one population health program per year, and stress management training tools.

Abbreviations: m-Health=mobile health; EHR=Electronic Health Record; RCT=randomized controlled trial; QI=quality improvement; IS=implementation science

3.2.4 Outcomes

We present mainly the authors' reported primary outcomes to show the key focus of the studies. Some studies reported secondary outcomes. Evidence tables of data from all included studies in Appendix D present reported primary (including direction of effect), and secondary outcomes. Table 1 provides information on the outcome categories used.

3.2.4 Findings, Descriptive Evidence Map, Outcomes

Table 1. Outcome categories

Outcome Category	Definition and Example Outcomes
Process of care	Execution and compliance with recommended best patient care practice. Example: Turnaround time, physician implementation of specific recommendation
Clinical Outcomes	Change in symptoms, overall health, ability to function, quality of life and survival outcomes that result from giving care to patients. Example: Disease specific morbidity and mortality, blood pressure control, blood sugar control
Equity of service	Examined the reduction of disparities (i.e., by examining differences in outcomes between racially and ethnically minoritized people and other groups). Promotion of health for all individuals by adapting services to eliminate disparities in the delivery of services or accessibility. Example: Treatment completion assessed between African American/Black group and white group.
Care utilization	How much healthcare people use, the type of healthcare and the timing of that care. Example: Uptake of services, completing screening, primary care clinic visits, inpatient hospitalizations, emergency department visits
Patient experience of care	Individual patient experience of how healthcare intervention works for them. Example: Patient satisfaction, patient-reported measures of healthcare access and quality, acceptability (such as confidence in using information given in an intervention).
Cost/financial reimbursement	Monetary incentives to healthcare systems or clinicians. Example: re-imbursement schemes.
Multiple category outcomes	No one primary outcome was identified, or specifically stated that more than one outcome was a primary outcome. Example: Clinical outcome (such as blood pressure control) and care utilization outcomes (such as primary care clinic visits) reported together in a study with no specifically stated primary outcome.

Figure 6 provides the breakdown of outcomes by intervention type. Studies commonly reported process and clinical outcomes as primary outcomes. Forty-one percent (68/163) reported process of care outcomes and 31 percent (51/163) reported clinical outcomes as primary outcomes. More specifically, prevention/lifestyle support and m-Health single component interventions mostly reported clinical and process of care outcomes. Self-management support, "other single component," patient navigation, and patient education interventions mostly reported process of care outcomes. Collaborative care model and care coordination interventions mostly reported clinical outcomes.

Very few studies reported information on equity of service[35, 52, 63, 81, 121] as primary outcomes. Only 3 percent (5/163) of studies specifically assessed reduction of disparities by reporting primary outcomes that directly measured equity of service between racially/ethnically minoritized people and other groups. Patient navigation,[81] system level QI,[63, 121] care coordination,[52] and EHR-based[35] intervention studies reported equity of service outcomes.

Care utilization and patient experience of care were also limited in the literature. Care utilization was reported in 3 percent (5/163) of studies as a primary outcome. "Other single component" (such as automated appointment reminder and interactive kiosk-delivered education),[179] patient education,[43, 83] and transition of care[118] interventions reported care utilization outcomes. Two percent (3/163) of studies reported patient experience of care[37, 40, 158] as a primary outcome. Only self-management support,[37] "other single component" (language concordant care),[158] and prevention/lifestyle support[40] interventions reported patient experience of care outcomes.

Multiple category outcomes were reported in 19 percent (31/163) of studies as primary outcomes. Most system level QI interventions reported multiple outcomes.[39, 105, 166, 187, 191]

3.2.4 Findings, Descriptive Evidence Map, Outcomes

Cost/financial reimbursement outcomes were lacking as either primary or secondary outcomes. Cost/financial reimbursement outcomes were reported alongside other types of outcomes and categorized as "multiple outcomes" in two studies that examined a collaborative care model intervention,[129, 164] and a comprehensive system level change intervention.[88] These three studies were in fact the only studies in our literature set that reported cost/financial reimbursement outcomes.

Figure 6. Intervention type by outcome categories

	Outcome Categories						
Intervention Categories	Process of care	Clinical outcomes	Equity of service	Care utilization	Patient experience of care	Multiple	Grand Total
Self-management support	15	11			1	8	35
Patient navigation	10	5	1			4	20
Prevention/Lifestyle support	7	7			1	4	19
Care coordination	3	8	1			2	14
System level QI	2	4	2			5	13
Patient education	8			2		2	12
Collaborative care model	3	5				2	10
Comprehensive system level change	1	5				1	7
M-Health single component	4	2					6
Transition of care		1		1		1	3
EHR based			1			1	2
Other single component	15	3		2	1	1	22
Grand Total	68	51	5	5	3	31	163

Count of Studies

1 15

Note: We classified the included studies according to the authors' reported outcomes.

We used wherever possible the exact terms used by study authors to label the interventions.

Other single component interventions category captured interventions examining a single component but not otherwise easily grouped. Other single component interventions category includes language concordance, screening decision aid, risk calculator counseling, training in Web portal use, automated appointment reminders, shared medical appointments, group education for community-to-clinic settings, attending one population health program per year, and stress management training tools.

Abbreviations: m-Health=mobile health; EHR=Electronic Health Record; QI=quality improvement; Multiple=multiple category outcomes

3.2.5 Intersectional Factors

We aimed to document other intersectional influences in addition to race/ethnicity (e.g., income, sexual orientation, geographic location, language, gender)[210] that had been a focus in the included studies; however, studies did not report this.

3.2.6 Cultural Adaptation and Community Involvement

Cultural adaptation is when interventions are modified to consider language, culture, and context. When adapted, the essential components of interventions are maintained but delivered in ways that are compatible with the participant's cultural patterns, meanings, and values in order to increase relevance and engagement.[211] Forty-four percent (71/163) of studies reported some form of cultural adaptation, such as availability of an interpreter, information offered in several languages, use of culturally aware peers, and use of community health workers that share sociodemographic characteristics with the patient population served (including race/ethnic background and language).[24, 27, 39, 40, 43-46, 48, 49, 51-53, 55, 63, 66, 69, 71, 74, 75, 80-84, 86-88, 92, 93, 96, 99, 100, 105, 106, 111, 113, 114, 117, 119, 120, 125, 128, 132, 133, 135, 138, 139, 143, 145-147, 152, 158, 159, 164, 168, 171, 173-176, 179, 180, 184, 185, 188, 193-196]

Notably, a high number of patient education interventions (83% [10/12]) reported some form of cultural adaptation. Cultural adaptation was used in other intervention categories as follows: self-management support (40% [14/35]); prevention/lifestyle support (53% [10/19]); patient navigation (45% [9/20]); care coordination (36% [5/14]); system level QI (31% [4/13]); collaborative care model (30% [3/10]); comprehensive system level change (28% [2/7]); m-Health (50% [3/6); and transition of care (33% [1/3]).

In addition, a minority of studies (34% [24/70]) that enrolled participants from more than one racially/ethnically minoritized group or enrolled racially/ethnically minoritized people along with white participants reported some form of cultural adaptation.[39, 40, 44-46, 53, 55, 63, 66, 69, 82, 83, 92, 93, 125, 132, 139, 145, 147, 152, 159, 164, 171, 174]

Community involvement (either partnership or collaboration) is defined as a process of healthcare systems working collaboratively with community organizations or groups of people to address issues affecting their health and well-being.[212] These affiliations may be based on geographic proximity, special interests (such as religious institutions, faith-based wellness centers, faith-based social service agency, and community health centers), or similar situations (such as peers with similar health conditions). Thirty-nine percent (63/163) of studies reported community involvement (either partnership or collaboration).[23, 25, 28, 35, 43, 48, 50, 52, 57, 59, 61, 69, 74, 81, 84, 87, 101, 102, 106, 109, 111, 115, 117, 119, 122, 125, 127, 129, 130, 132, 133, 139, 141, 143, 145, 148, 152, 156, 158, 159, 161, 162, 164-166, 168, 169, 171-176, 178-180, 184, 185, 188, 193-196]

Notably, a high number of patient navigation interventions (70% [14/20]) reported some form of community involvement such as religious institutions and community health centers. Other interventions that reported community involvement include: prevention/lifestyle support (63% [12/19]); self-management support (29% [10/35]) care coordination (50% [7/14]); patient education (42% [5/12]); collaborative care model (50% [5/10]); system level QI (8% [1/13]); comprehensive system level change (14% [1/7]); m-Health (17% [1/6]); and EHR-based interventions (50% [1/2]). Transition of care interventions did not report any form of community involvement.

3.2.7 Harms or Adverse Events

A chronic pain self-management educational program identified falls as an adverse event that occurred during usual activities outside the self-management support program; however, authors noted that patients might have been more active than usual due to the influence of the program.[178] No other study reported harms or adverse events of interventions (such as

unintended negative consequences, including misallocation of effort, decreased patient satisfaction, stigma, etc.) Similarly, we found no additional information on harms or adverse events of interventions in the gray literature.

3.2.8 Applicability and Sustainability of Interventions

In this Brief, applicability is defined as the extent to which the intervention could be implemented in a setting other than the one where it was researched.[213] Overall, studies did not report on the feasibility or ease of adhering to the intervention in other environments. However, two studies (with no reported findings on applicability) highlighted that their interventions were potentially applicable/generalizable to general clinic settings because they tested them under real-world conditions following previous success in a randomized controlled trial.[110, 195] One study focused on a Mobile Insulin Titration Intervention (MITI) program, which was a multilevel, patient plus healthcare system targeted intervention to help patients with type 2 diabetes find their correct basal insulin dose without in-person care.[110] The other study examined a Prevention of Cardiovascular Outcomes in African Americans with Diabetes (CHANGE) intervention, which was a multilevel, patient plus healthcare system targeted intervention aimed at improving adherence to medication for cardiovascular disease.[195]

Sustainability was defined in this Brief as the continued use of program components and activities for the ongoing achievement of desirable program and population outcomes.[214] Studies did not report sustainability of interventions. We found no additional information on applicability and sustainability of interventions in the gray literature.

3.2.9 Study Funding Information

The biggest funder of the included studies was government (55% [90/163]), followed by multiple funding sources (11% [18/163]), foundations (9% [15/163]), academic (5% [9/163]), and nonprofit (5% [9/163]). Self-funded work by healthcare systems was not reported. Fourteen percent (22/193) of studies did not report funding source.

3.3 Evidence Map – Bubble Plots

After examining the descriptive characteristics of our included studies, we constructed bubble plots (as shown in the sections below) to display the relationship between three dimensions of included study characteristics, thus providing richer information.[22] We grouped bubble plots results by intervention type, in relation to (1) study setting and delivery personnel; and (2) race/ethnic group and chronic conditions.

3.3.1 Study Setting and Delivery Personnel

Figure 7 shows a bubble plot displaying all included studies by intervention type across study settings and delivery personnel. Interventions were implemented in a wide array of settings. Because disparity types and causes can be many and varied, including social determinants of health, the settings capture a continuum of public health to highly specialized medical care. Some categories for study settings might overlap. Most studies were carried out in clinic-based settings. Ownership or size of clinics vary from large health systems to community-based nonprofits. Federally qualified health centers (FQHCs) receive federal funding to provide comprehensive health services to underserved populations, which means they might conceptually

overlap with clinics, while also potentially providing hospital or specialty care. Community-based settings were used for strategies that reach out to the patient communities, such as interventions based in churches, local libraries, or community centers. State or large city governments may provide preventive or other health services through public health systems. Other settings may include communication platforms such as telehealth, websites, mobile platforms, phones, or mailings. Multiple settings represent studies in more than one setting.

Within the above settings, interventions to address disparities were delivered by a wide array of personnel. When chosen for their ability to represent or reach patient populations, personnel are even more varied, with a range of titles and job descriptions provided by study authors, including peer/lay navigators drawn directly from the target population, peer navigators recruited as employees, community health educators, and community health workers. Several studies used researchers and/or administrative staff to conduct tasks related to the new intervention. Some studies used "other" delivery personnel and/or multiple delivery personnel. The "other" delivery personnel category represents studies that did not involve a delivery personnel but used some form of mobile or electronic tools to deliver interventions such as e-referral systems, interactive kiosk-delivered education, mobile gaming, smart phone apps, registry appointment scheduling systems, entertainment-education decision aids, social media, and electronic dashboards. Multiple delivery personnel category represents studies that comprise more than one delivery personnel category (such as a combination of patient navigators and clinicians).[122] The provider/clinician delivery personnel category included physicians, nurses, and pharmacists.

Self-management support interventions were mostly delivered by clinicians in the clinic and FQHC settings.[34, 37, 50, 76, 91, 117]

Prevention/lifestyle support interventions were also commonly delivered by clinicians in community-based, hospital, FQHC, and nonprofit system settings.[30, 36, 40, 168, 184]

Patient navigation interventions were mostly delivered by peer navigators employed by the healthcare organization, particularly in community-based and hospital settings.[48, 69, 75, 130, 145, 167, 173]

Care coordination was mainly delivered by community health workers in clinic settings.[28, 47, 52, 101, 102, 195]

System level QI interventions were commonly delivered by "multiple" delivery personnel in clinic, hospital, FQHC, and public health system settings.[28, 47, 52, 101, 102, 195]

Patient education interventions were mainly delivered by peer or lay community outreach workers in community-based and "other" settings (including mailings and phone call),[176, 188, 190] and researcher or administrative staff in clinic and hospital settings.[53, 74, 107]

Collaborative care model interventions were mainly delivered by multiple delivery personnel in FQHC settings,[84, 144, 148] followed by clinic,[131] community-based,[129] and hospital settings.[72]

Comprehensive system level change interventions were delivered by clinicians and "multiple" delivery personnel in clinic settings,[59, 114, 155, 163] and clinicians and "other" delivery personnel in public healthcare settings.[54, 177]

M-Health single component interventions were delivered by "other" delivery personnel in clinic and "other" settings,[26, 51, 192, 196] providers/clinicians in clinic settings,[70] and researcher or administrative staff in FQHC settings.[86]

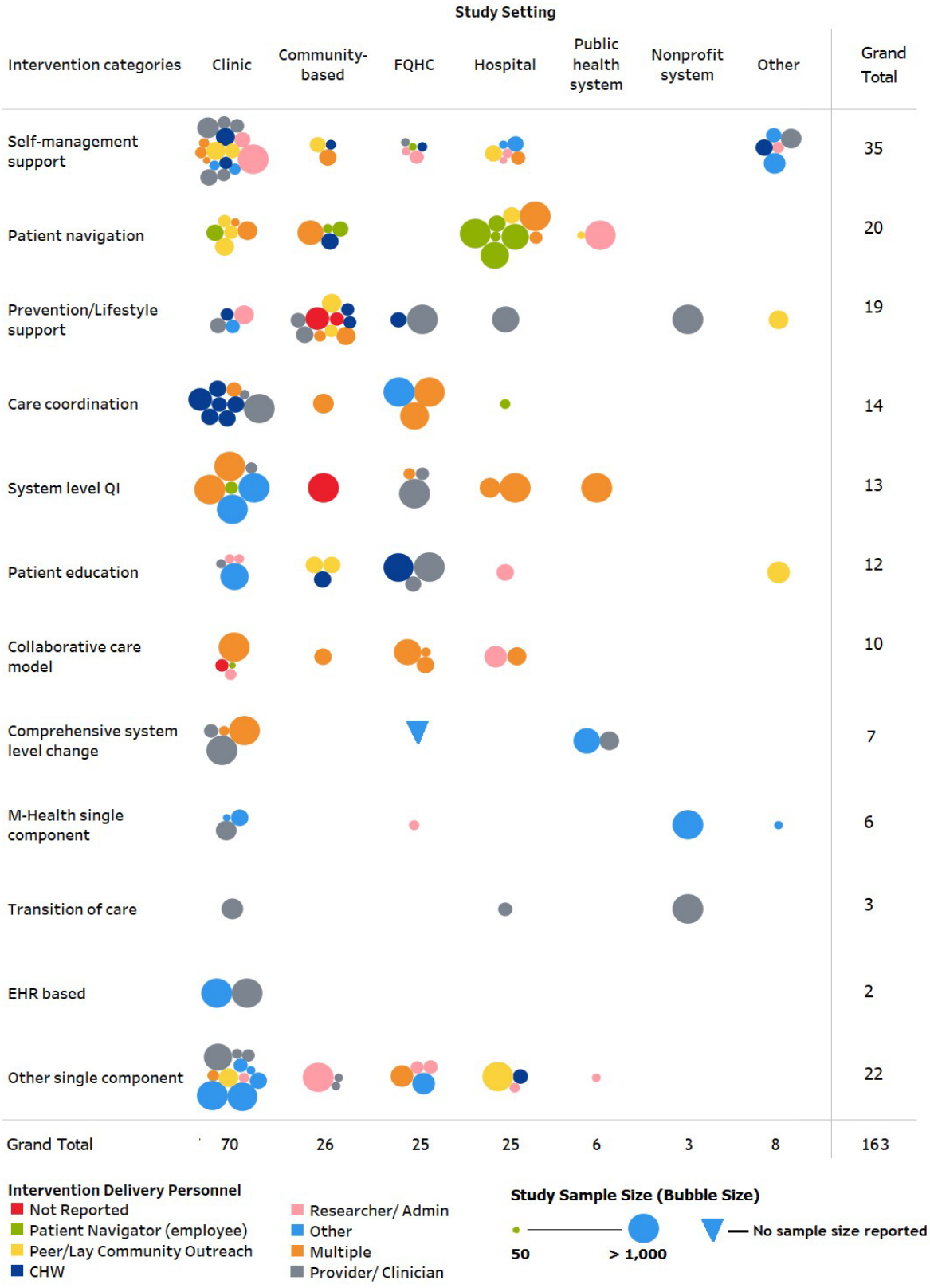
Transition of care interventions were delivered by clinicians in clinic, hospital, and nonprofit system setting.[31, 82, 118]

3.3.1 Findings, Evidence Map – Bubble Plots, Study Setting and Delivery Personnel

EHR-based interventions were delivered by clinicians and "other" delivery personnel (an e-referral system) in clinic settings.[35, 60]

3.3.1 Findings, Evidence Map – Bubble Plots, Study Setting and Delivery Personnel

Figure 7. Intervention type by setting and delivery personnel



3.3.1 Findings, Evidence Map – Bubble Plots, Study Setting and Delivery Personnel

Note: All the studies identified in our evidence map are presented in the bubble plot.

Each bubble represents one study. Bubble size reflects the participant sample size. Smaller bubbles indicate smaller sample sizes and larger bubbles indicate larger sample sizes. The color of the bubble represents the delivery personnel for the intervention as presented in the literature.

27 studies with sample size > 1000 (ranging from 1087 -298,921), were winsorized at 1000 for visualizing the vast majority of studies with sample size <1000.

The categories for study setting and delivery personnel were the exact information reported by the study authors. The definition of the study setting categories may overlap between studies.

Other settings may include communication platforms such as telehealth, websites, mobile platforms, or mailings.

Multiple delivery personnel category represents studies that comprise more than one delivery personnel category such as a combination of patient navigators, and clinicians.

Other delivery personnel category represents studies that did not involve a delivery personnel but used some form of mobile or electronic tools to deliver interventions such as e-referral systems, interactive kiosk-delivered education, mobile gaming, smart phone apps, registry appointment scheduling systems, entertainment-education decision aids, social media, and electronic dashboards.

We used wherever possible the exact terms used by study authors to label the interventions.

Other single component interventions category captured interventions examining a single component but not otherwise easily grouped. Other single component interventions category includes language concordance, screening decision aid, risk calculator counseling, training in Web portal use, automated appointment reminders, shared medical appointments, group education for community-to-clinic settings, attending one population health program per year, and stress management training tools.

Abbreviations: CHW=community health worker; FQHC=Federally Qualified Health Center; NR=not reported; m-Health=mobile health; EHR=Electronic Health Record; QI=quality improvement

3.3.2 Race/Ethnicity and Chronic Condition

Figure 8 shows a bubble plot displaying all included studies by intervention type across populations and chronic conditions. Each bubble represents one study, and the size of the bubble represents the study sample size for intervention type and chronic condition. The color of the bubble represents the race/ethnic group as presented in the literature.

Of the studies that included a single race/ethnic group, African Americans/Blacks accounted for the highest proportion (28%), followed by the Hispanics/Latinos (20%), then Asians (6%). Only two studies (1%) included exclusively American Indian/Alaskan Native people.[88, 196] About 45 percent of included studies enrolled participants from more than one racially/ethnically minoritized group or enrolled racially/ethnically minoritized people and other groups—categorized as "multiple race/ethnic group" in this Brief. This multiple race/ethnic group category included African Americans/Blacks, Hispanics/Latinos, Asians, American Indians/Alaskan Natives, and whites.[25, 32, 33, 36, 37, 39, 40, 42, 44-46, 53-56, 59, 61, 63-70, 72, 73, 76, 78, 82, 83, 85, 90, 92, 93, 95, 97, 123-126, 129, 132, 136, 137, 139, 144, 145, 147, 149, 152, 153, 156, 159-167, 169-171, 174, 177, 178, 190-192] Seven percent (11/163) of studies enrolled Asians as part of the "multiple race/ethnic group" category,[25, 37, 39, 40, 83, 85, 90, 123, 132, 174, 177] and 4 percent (6/163) of studies enrolled American Indians/Alaskan Natives as part of the "multiple race/ethnic group" category.[39, 40, 59, 123, 132, 174]

Cancer accounted for the highest exclusively studied chronic condition (29% [47/163]), followed by diabetes (20% [32/163]), then hypertension (13% [22/163]), HIV (11% [18/163]), cardiovascular diseases (7% [12/163]), mental health (4% [6/163]), and asthma (3% [5/163]).

3.3.2 Findings, Evidence Map – Bubble Plots, Race/Ethnicity and Chronic Condition

Multiple chronic conditions category represents studies that examine more than one category of chronic condition. The "other chronic conditions" category represents chronic conditions that were reported in only one or two studies, and therefore too few to represent a unique category in our evidence map including liver disease,[107] metabolic syndrome,[172] chronic obstructive pulmonary disease (COPD),[174] chronic pain not related to cancer,[178] kidney disease,[177, 190] or studies where study authors noted that chronic conditions were broadly examined but did not report specific chronic conditions.[88]

Multiple chronic conditions and "other chronic conditions" categories accounted for ten percent (16/163) and four percent (7/163) of studies, respectively.

Self-management support interventions encompassed all chronic condition categories presented in this Brief. Self-management support interventions were mainly focused on diabetes in "multiple race/ethnic groups."[92, 93, 124, 132] Overall, across the chronic conditions, self-management support was mostly focused on "multiple race/ethnic groups",[37, 42, 65, 66, 76, 92, 93, 95, 124, 132, 136, 139, 159, 165, 170, 171, 178] followed by African Americans/Blacks.[34, 38, 41, 50, 77, 91, 117, 135, 141, 142, 175, 189]

Patient navigation interventions were focused on asthma,[29] cancer,[48, 69, 75, 81, 119, 122, 127, 130, 145, 162, 173] diabetes,[97, 150, 183] HIV,[57, 61, 167] mental health,[58] and "other chronic conditions."[174] Patient navigation interventions were mostly focused on cancer in "multiple race/ethnic groups",[61, 69, 97, 145, 162, 167, 174] African Americans/Blacks,[29, 48, 57, 58, 122, 130] and Asians.[81, 119, 173] Overall, across the chronic conditions, patient navigation was mostly focused on "multiple race/ethnic groups,"[61, 69, 97, 145, 162, 167, 174] followed by African Americans/Blacks.[29, 48, 57, 58, 122, 130]

Prevention/lifestyle support interventions were focused on cancer,[49, 87, 168] cardiovascular diseases,[67, 152, 156] diabetes,[40, 111, 115, 125, 185] HIV,[36, 68, 154] hypertension,[184, 194] "multiple chronic conditions",[23, 30] and "other chronic conditions".[172] Prevention/lifestyle support interventions were mostly focused on cardiovascular diseases in "multiple race/ethnic groups".[67, 152, 156] Overall, across the chronic conditions, prevention/lifestyle support was mostly focused on "multiple race/ethnic groups"[36, 40, 67, 68, 125, 152, 156] followed by African Americans/Blacks.[23, 115, 154, 168, 172, 184]

Care coordination interventions were focused on asthma,[28] cancer,[71] cardiovascular diseases,[195] diabetes,[44, 47, 52, 104, 137, 151, 161] and "multiple chronic conditions".[32, 101, 102, 106] Care coordination interventions were mostly focused on diabetes in "multiple race/ethnic groups".[44, 47, 52, 104, 137, 151, 161] Overall, across the chronic conditions, care coordination was mostly focused on "multiple race/ethnic groups",[32, 44, 137, 161] and African Americans/Blacks.[28, 101, 102, 104, 106, 151, 195]

System level QI interventions were focused on cancer,[63, 105, 187] cardiovascular diseases,[39, 64] diabetes,[191] HIV,[56, 166] and hypertension.[33, 85, 99, 121, 153] System level QI interventions were mainly focused on hypertension in "multiple race/ethnic groups".[33, 85, 153] Overall, across the chronic conditions, system level QI was mostly focused on "multiple race/ethnic groups",[33, 39, 56, 63, 64, 85, 153, 166, 191] followed by Hispanics/Latinos.[99, 105, 187]

Patient education interventions were focused on asthma,[24] cancer,[43, 53, 55, 74, 83, 143, 146, 176, 188] and "other chronic conditions".[107, 190] Patient education interventions were mostly focused on cancer in "multiple race/ethnic groups".[53, 55, 83, 190] Overall, across the chronic conditions, patient education was mostly focused on "multiple race/ethnic groups",[53, 55, 83, 190] followed by African Americans/Blacks and Hispanics/Latinos.[24, 43, 74, 107, 143, 146, 188]

Collaborative care model interventions were focused on cancer,[73] diabetes,[84, 131, 164] hypertension,[72] and "multiple chronic conditions".[144, 148] Collaborative care model interventions

were mostly focused on diabetes in African Americans/Blacks,[131] Hispanics/Latinos,[84] and "multiple race/ethnic groups",[164] and mental health in "multiple race/ethnic groups"[129, 169] and Hispanics/Latinos.[100] Overall, across the chronic conditions, collaborative care model was mostly focused on "multiple race/ethnic groups".[72, 73, 129, 144, 164, 169]

Comprehensive system level change interventions were focused on hypertension,[114, 155, 163] cardiovascular diseases,[54] "multiple chronic conditions,"[59] and "other chronic conditions".[88, 177] Comprehensive system level change interventions were mostly focused on hypertension in Asians,[114] Hispanics/Latinos,[155] and "multiple race/ethnic groups".[163] Overall, across the chronic conditions, comprehensive system level change was mostly focused on "multiple race/ethnic groups".[54, 59, 163, 177]

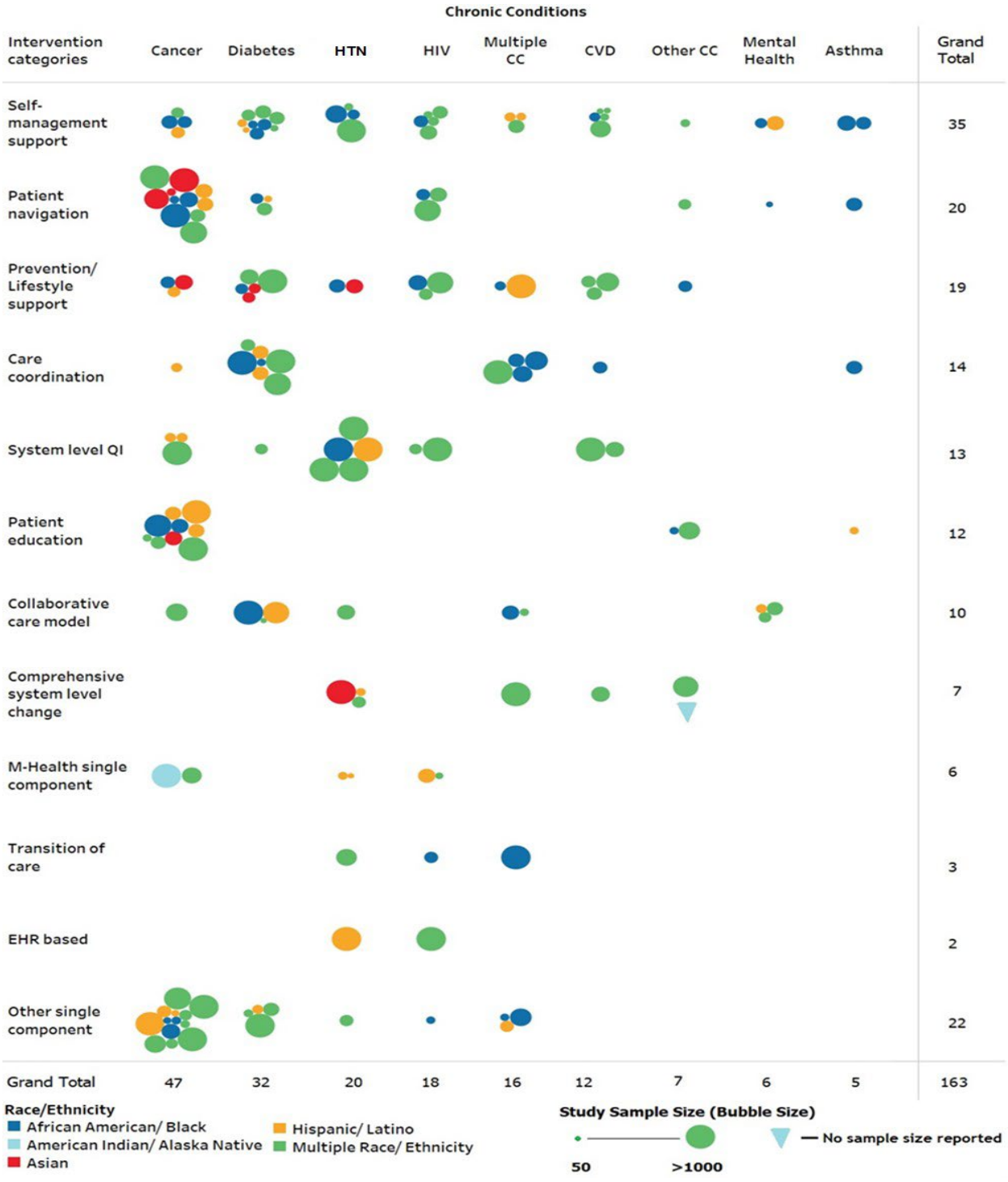
M-Health single component interventions were focused on cancer in "multiple race/ethnic groups"[70] and American Indians/Alaskan Natives,[196] HIV in Hispanics/Latinos[26] and "multiple race/ethnic groups",[192] and hypertension in Hispanics.[51, 86]

Transition of care interventions were focused on HIV in African Americans/Blacks,[118] hypertension in "multiple race/ethnic groups",[82] and "multiple chronic conditions" in African Americans/Blacks.[31]

EHR-based interventions were focused on hypertension in Hispanics/Latinos,[35] and HIV in "multiple race/ethnic groups".[60]

3.3.2 Findings, Evidence Map – Bubble Plots, Race/Ethnicity and Chronic Condition

Figure 8. Intervention type by race/ethnicity and chronic disease



3.3.2 Findings, Evidence Map – Bubble Plots, Race/Ethnicity and Chronic Condition

Note: All the studies identified in our evidence map are presented in the bubble plot.

Each bubble represents one study. Bubble size reflects the participant sample size. Smaller bubbles indicate smaller sample sizes and larger bubbles indicate larger sample sizes. The color of the bubble represents the race/ethnic group as presented in the literature.

27 studies with sample size > 1000 (ranging from 1087 -298,921), were winsorized at 1000 for visualizing the vast majority of studies with sample size <1000.

The race/ethnic groups represent studies that comprise a single racial or ethnic group, and the multiple race/ethnic group represents studies that enroll more than one race or ethnic group. Multiple race/ethnic group category included African Americans/Blacks, Hispanics/Latinos, Asians, and American Indians/Alaskan Natives.

The categories for chronic condition were the exact information reported by the study authors. Other chronic conditions category represents chronic conditions that were reported in only one or two studies, and therefore too few to represent a unique category in our evidence map including liver disease, metabolic syndrome, chronic obstructive pulmonary disease (COPD), chronic pain not related to cancer, kidney disease, or studies where study authors noted that chronic conditions were broadly examined but did not report specific chronic conditions. Multiple chronic conditions category includes more than one category of chronic condition such as a combination of hypertension, cancer, mental health, obesity, COPD, cardiovascular diseases, kidney diseases, asthma, diabetes, liver disease, Alzheimer's, or dyslipidemia.

We used wherever possible the exact terms used by study authors to label the interventions.

Other single component interventions category captured interventions examining a single component but not otherwise easily grouped. Other single component interventions category includes language concordance, screening decision aid, risk calculator counseling, training in Web portal use, automated appointment reminders, shared medical appointments, group education for community-to-clinic settings, attending one population health program per year, and stress management training tools.

Abbreviations: CHW=community health worker; CVD=Cardiovascular diseases; EHR=Electronic Health Record; FQHC=Federally Qualified Health Center; HIV=human immunodeficiency virus; HTN=Hypertension; NR=not reported; m-Health=mobile health; Multiple CC=Multiple chronic conditions; Other CC=Other chronic conditions; QI=quality improvement;

3.4 Further Detail on Selected Interventions

Because an evidence map necessarily glosses over the rich detail available from the heterogeneous studies included in this review, we selected a few intervention types about which to provide more detail. Initially, we selected the top two intervention types for a specific chronic condition based on the number of included studies. Tables 2 and 3 present deeper examinations of **patient navigation** for cancer and **self-management support** for diabetes. Because these two examples are targeted at the patient level, we also present in Table 4 **comprehensive system level change** interventions, which tend to target more process or structural aspects of care that might affect health equity. The goal is to show how diverse interventions in the literature were, and to capture the considerable variety of terms used in the literature to describe them. In addition, this information will inform researchers and funding agencies on areas where we found a relatively high cluster of evidence while detailing the components of the interventions for implementation by healthcare system leaders and policymakers. More information on these selected interventions can be found in evidence tables of data from all included studies in Appendix D.

3.4 Findings, Further Detail on Selected Interventions

Table 2. Patient navigation interventions focused on cancer

Study	Setting	Target Population(s) (Race/Ethnicity)	Cancer (Type) Intervention Components Delivery Personnel* Technology	CA	LA	CC
Reuland, 2017[145]	Clinic	Multiple ((Latino 62%, non-Latino white 15%, non-Latino Black or mixed race 23%)	Colorectal cancer Combination of CRC decision aid (15-minute video in English or Spanish), plus patient navigation by bilingual clinic or affiliated health system employees with previous training as medical assistants, social workers, or master's degree–level public health professionals to increase screening. Patient Navigator (employee) Technology: Video	NR	X	X
Fang, 2017[81]	Community-based	Asian (Korean American)	Cervical cancer 1. Patient navigation assistance from study staff for follow-up for participants with an abnormal screening result (includes help in arranging transportation, scheduling medical appointments). 2. Education program led by bilingual community health educators. Multiple Technology: NR	X	X	X
Ma, 2018[119]	Community-based	Asian (Korean American)	Liver cancer 1. Patient navigation services from bilingual patient navigators (included language translation, appointment scheduling, transportation, provision of information related to the healthcare system). 2. Interactive group education led by community health educators. Multiple Technology: NR	X	X	X
Menon, 2020[127]	Community-based	Hispanic/Latino	Colorectal cancer Community sites were randomized to group education or group education plus tailored navigation to increase attendance at primary care clinics (Phase I). Individuals who completed a clinic appointment received the tailored navigation in person or via phone (Phase II). Both were facilitated	NR	X	X

3.4 Findings, Further Detail on Selected Interventions

Study	Setting	Target Population(s) (Race/Ethnicity)	Cancer (Type) Intervention Components Delivery Personnel* Technology	CA	LA	CC
			by community health workers. The tailored navigation intervention was based on the previously tested Tailored Intervention Messaging System, in which messages are matched to theoretically based variables of knowledge; perceptions of risk, benefits, barriers, and self-efficacy. Community Health Worker Technology: Telephone			
Thai, 2022[173]	Community-based	Asian (Vietnamese American)	Breast cancer Participants with abnormal mammograms were paired with a Vietnamese patient navigator to provide emotional support, education, translation, and assistance with medical bills and doctor's appointments following screening. Patient Navigator (employee) Technology: NR	X	X	X
Martin, 2017[122]	FQHC	African American/Black	Colorectal cancer Community and patient education, provider training and education, expansion of improved screening technology, and patient navigation (screening completion, address barriers to completion). Patient navigators were medical assistants and nurses hired from clinic staff, and educators were clinic nursing staff and physicians. Multiple Technology: Telephone	NR	NR	X
Castaldi, 2017[48]	Hospital	Multiple (African American/Black 44.5%, Hispanic/Latino 39%, Asian 8%, white 8.5%)	Breast cancer Breast health education accompanied by bilingual oncology staff patient navigators to increase screening for breast cancer. The patient navigators made reminder calls prior to follow-up appointments and meet the patient at all outpatient radiology and oncology appointments as well as on the day of surgery. The navigator conducted a financial consultation with the patient as needed, including negotiating fee scale payment through treatment and coverage for undocumented residents.	NR	X	X

3.4 Findings, Further Detail on Selected Interventions

Study	Setting	Target Population(s) (Race/Ethnicity)	Cancer (Type) Intervention Components Delivery Personnel* Technology	CA	LA	CC
			Patient Navigator (employee) Technology: NR			
DeGroff, 2017[69]	Hospital	Multiple (Hispanic and non-Hispanic Black)	Colorectal cancer Bilingual patient navigators primarily worked with participants via telephone, although some activities were conducted in person and by mail. Typical activities included assessing for barriers, informing, and educating patients about the colonoscopy procedure and bowel preparation, ensure they received screening results addressing emotional concerns about the procedure, making appointments, sending reminders about bowel preparation and screening appointment date and, following the procedure, and arranging for escorts and transportation services. Patient Navigator (employee) Technology: Telephone	NR	X	X
DuHamel, 2020[75]	Hospital	Hispanic/Latino	Colorectal cancer Participants were randomized to receive patient navigation only, patient navigation plus standard Centers for Disease Control and Prevention print materials, or patient navigation plus culturally targeted print materials to improve screening colonoscopy rate. Patient navigation included 3 telephone calls: 1) the initial scheduling call, which occurred after the consent process; 2) a follow-up call 2 weeks before the scheduled procedure; and 3) a final appointment reminder 3 days prior to the procedure. Patient Navigator (employee) Technology: NR	X	X	NR
Molina, 2018[130]	Hospital	African American/Black	Breast cancer Patient navigation services provided by study staff for participants focused on identification of barriers to mammography screening and intervention via a shared decision-making process provided by study staff, including a patient teach back method where navigators encouraged patients to report their understanding of the information exchanged and ask questions about their appointments, care options, and selected solutions.	NR	NR	X

3.4 Findings, Further Detail on Selected Interventions

Study	Setting	Target Population(s) (Race/Ethnicity)	Cancer (Type) Intervention Components Delivery Personnel* Technology	CA	LA	CC
			Patient Navigator (employee) Technology: NR			
Singal, 2017[162]	Public Health System	Multiple (Hispanic 37.8%, African American/Black 32.1%, and white 28.3%)	Hepatocellular carcinoma (HCC) Participants were randomized to receive visit-based screening, mailed outreach invitations for screening ultrasound, or mailed screening outreach plus patient navigation to improve screening in patients with cirrhosis. Mailings were provided in English and Spanish, and written at a low literacy level with assistance from health communication experts and underwent cognitive testing with English and Spanish speakers. Research staff conducted all mailings and reminder telephone calls. Research staff provided patient navigation activities by calling patients 5–7 days before ultrasound appointments to remind them of the appointment, address any concerns, and reschedule the appointment if needed. Research/Admin Technology: NR	NR	X	X

*Refers to legend in Figure 8 bubble plot.

Note: General cultural adaptation in this Brief refers to culture adaptation with or without language as part of the modification of an intervention to fit the participant's cultural patterns, meanings, and values more appropriately.

Abbreviations: CA= Cultural adaptation (author reported); CC=Community Collaboration; LA=Language adaptation; FQHC=Federally Qualified Health Center; NR=Not reported; Colorectal cancer=CRC; CDC=Centers for Disease Control and Prevention; HCC=Hepatocellular carcinoma; Multiple=multiple race/ethnic groups; X = yes

3.4 Findings, Further Detail on Selected Interventions

Table 3. Self-management support interventions focused on diabetes

Study	Setting	Population (Race/ Ethnicity)	Intervention Components Delivery Personnel* Technology	CA	LA	CC
Heisler, 2019[92]	Clinic	Multiple (Black 62%, white 36%)	Veterans Affairs patients with A1c>8.0% received a six-month intervention with an initial session with a peer coach (trained fellow patients) who used an individually tailored, interactive Web-based tool (iDecide), followed by weekly phone calls to discuss behavioral goals. Peer/Lay Community Outreach Technology: Web-based tool (iDecide)	X	NR	NR
Lynch, 2019[117]	Clinic	African American/Black	Registered Dietician delivered group sessions including nutrition education, a short physical activity, social support, and a group discussion about goals, progress, and barriers to behavior change. Participants set behavioral goals for diet, physical activity, and self-monitoring of blood glucose (SMBG) at each session and used logs and pedometers to self-monitor those behaviors between sessions. Provider/Clinician Technology: NR	X	NR	X
Nelson, 2017[132]	Community-based	Multiple (white 45.6%, African American/Black 26.5%, American Indians/Alaskan Natives, 6%, Asian 5.7%, Multiracial 7%; Other (unspecified) 9.2%)	Four mandatory home visits, with an optional extra visit, by a CHW set health goals and behavioral self-management plans. Community Health Worker Technology: NR	X	X	X
Heitkemper, 2017[93]	FQHC	Multiple (Hispanic/Latino 52%, African American/Black 42%)	A 1-time intervention training conducted by a research team member, which included basic technology help, introduction to the Mobile Diabetes Detective (MoDD) website and text message features, and account activation that included subject-specific tailoring. Four additional on-site sessions for participants needing computer or Internet access or technology support were made available based on need. Researcher/Admin Technology: Mobile website	NR	X	NR

3.4 Findings, Further Detail on Selected Interventions

Study	Setting	Population (Race/ Ethnicity)	Intervention Components Delivery Personnel* Technology	CA	LA	CC
Mayberry, 2017[124]	FQHC	Multiple (African American/Black 68%, Hispanic/Latino 7%, Other (unspecified) 6%)	Daily texts and weekly automated calls to address patients' self-identified barriers to adherence along with medication reminders. The communications were set by trained research assistants after completing a medical chart review. Researcher/Admin Technology: Telephone	NR	NR	NR
Menon, 2022[128]	FQHC	Hispanic/Latino	Biweekly health coaching phone calls and 3 in-person visits with a bilingual employee patient navigator trained in effective communication, designed to assist patients with self-management using sociolinguistic strategies with chronically ill patients. Patient Navigator (employee) Technology: Telephone	X	X	NR
Egede, 2017[77]	Hospital	African American/Black	12 telephone-delivered 30-min diabetes education modules and behavioral skills intervention which focused on four behaviors: physical activity, diet, medication adherence, and blood glucose self-monitoring over a 12-week period. The modules were let by full-time masters-level employee health educators. Other Technology: Telephone	NR	NR	NR
Levy, 2018[110]	Clinic	Hispanic/Latino	Mobile Insulin Titration Intervention (MITI) patients received weekday text messages from the program coordinator asking for their fasting blood glucose (FBG) values and a weekly titration call from on-site nurses. Multiple Technology: Telephone	NR	NR	NR
Presley, 2020[141]	Community-based	African American/Black	Community-based DSME course plus peer support provided by CHWs recruited from a neighborhood outreach network, using a mHealth Web application. Community Health Worker Technology: mHealth	NR	NR	X

*Refers to legend in Figure 8 bubble plot.

3.4 Findings, Further Detail on Selected Interventions

Note: General cultural adaptation in this Brief refers to culture adaptation with or without language as part of the modification of an intervention to fit the participant's cultural patterns, meanings, and values more appropriately.

Abbreviations: CA= Cultural adaptation (author reported); CC=Community Collaboration; LA= Language adaptation; LIFE= Lifestyle Improvement through Food and Exercise; DSME=Diabetes self-management education; CHW=community health worker; FBG=Fasting Blood Glucose, Multiple=multiple race/ethnic groups FQHC=Federally Qualified Health Center; NR=not reported; m-Health=mobile health; MoDD=Mobile Diabetes Detective; MITI=Mobile Insulin Titration Intervention; ; X = yes

Table 4. Comprehensive system level change interventions

Study	Setting	Population (Race/Ethnicity)	Chronic Condition Intervention Technology	Intervention Delivery Personnel Details	CA	LA	CC
Cheng, 2018[54]	Public Healthcare System (4 urban county hospitals)	Multiple (Hispanic 68%, Black 15%, Asian 10%)	Cardiovascular disease Chronic Care Model-based intervention: healthcare reorganization (linking inpatient and outpatient care), clinical information systems, decision support, care coordination (including delivery system redesign and self-management support), community resource linkages. Technology: Health information technology, telephone	Provider/ Clinician Care managers (nurse practitioners, physician assistants)	NR	NR	X
Cruz, 2022[59]	Network of primary care clinics(number of clinics NR)	Multiple (Hispanic 60%, White 30%, Native American 1.5%)	Multiple (diabetes, hypertension) Centralized Community-Clinical Linkage: network of primary clinics refer patients to central hub staff who connect patients with community-based organizations that provide patient education, prevention/lifestyle support, and chronic disease self-management programs. Also used organizational changes at clinic level, regular meetings between healthcare and community partners, feedback and evaluation. Technology: Health information technology	Multiple Wellness referral center staff (physicians, community health workers, other clinic staff)	NR	NR	X

3.4 Findings, Further Detail on Selected Interventions

Study	Setting	Population (Race/Ethnicity)	Chronic Condition Intervention Technology	Intervention Delivery Personnel Details	CA	LA	CC
Gallegos, 2022[88]	FQHC and UIHC	American Indian/Alaska Native	Multiple (hypertension, diabetes, asthma, COPD) Collaborative Practice Model: collaboration between FQHC and UIHC to share pharmacy staff and provide same day remote pharmacy verification for UIHC; Collaborative Drug Therapy Management (CDTM) protocols to augment integrated patient care; optimized 340B cost savings for the clinic by establishing contracts with pharmacy benefit managers and implementing adjudication software to obtain medication reimbursement from Medicaid and other third-party insurances. Technology: Digital camera technology	Other Faculty clinical pharmacists	NR	NR	NR
Lopez, 2019[114]	Clinic (network of urban clinics,14 sites)	Asian (immigrant Asian as target, but included Black/African American, Hispanic; proportion race/ethnicity not disclosed)	Hypertension Collaboration of network of independent clinics serving immigrants, health insurance company, and Independent quality improvement organization: EHR-embedded Clinical Decision Support Systems (registry, order sets, practice alerts), CHWs using culturally tailored in-language patient education materials, quality improvement organization supported application for Meaningful Use/Primary Care Medical Home status. Technology: Health information technology	Provider/Clinician Physician, CHW	X	X	NR
Schoenthaler, 2020[155]	Clinic (single NY health center developed for and funded by unions; designed as a patient centered medical home)	Hispanic/ Latino	Hypertension System-level model: teamlets of two-person teams, consisting of a PCP and MA worked consistently and collaboratively to care for a panel of patients. EHR-embedded office workflow and patient data collection; health needs registry. MA and PCP use daily huddles. MAs drawn from the same population as patients, bilingual, with health coach certification. Technology: Health information technology	Multiple MA, PCP	X	X	X

3.4 Findings, Further Detail on Selected Interventions

Study	Setting	Population (Race/Ethnicity)	Chronic Condition Intervention Technology	Intervention Delivery Personnel Details	CA	LA	CC
Soreide, 2022[163]	Clinic (6 of 30 primary care clinics within health system)	Multiple (Black 96.8%, Hispanic 1%, White 3%)	Hypertension Chronic medication optimization pharmacist program: pharmacists manage hypertension medication for patients by: (1) proactively using a data analytics tool composed of an electronic report linked to the electronic health record to identify patients, or (2) through referrals from other clinicians. Collaborative practice agreement allows pharmacist to add, adjust, or discontinue medications. Provide counseling for adherence and lifestyle changes. Technology: Health information technology	Provider/Clinician Pharmacist	NR	NR	NR
Tuot, 2018[177]	Public Healthcare System (2 primary care clinics within public healthcare delivery system)	Multiple (Black 35.7%, Hispanic 24.5%, Asian 24.4%, non-Hispanic White 8%)	Chronic kidney disease Team-based primary care CKD registry: CKD registry identified patients and provided point-of-care data with CKD-relevant information. MAs schedule appointments based on data. Built in alerts for guideline concordant care. Quarterly feedback to teams and PCP Technology: Health information technology	Multiple MA, PCP	NR	NR	NR

*Note: General cultural adaptation in this Brief refers to culture adaptation with or without language as part of the modification of an intervention to fit the participant's cultural patterns, meanings, and values more appropriately.

Abbreviations: CA= Cultural adaptation (author reported); CC=Community Collaboration; CHW = community health worker; CKD = chronic kidney disease; EHR=electronic health record; FQHC=Federally Qualified Health Center; HTN=hypertension; LA=Language adaptation; MA=medical assistant; NR=Not reported; PCP=primary care provider; UIHC=urban Indian health clinic; WRC=wellness referral center; ; X = yes

3.5 Existing Evidence Reviews on Interventions

To further examine the literature and provide supplementary information, we performed a hand search of relevant systematic reviews. We identified 42 peer-reviewed current systematic reviews relevant to healthcare strategies/interventions to reduce racial and ethnic disparities in health and healthcare and improve health outcomes in the treatment/prevention of chronic conditions in adults, published from 2015 to present.[4, 200, 215-254] We summarize the characteristics of the systematic reviews in Table 5 below, and Appendix E provides more detailed study characteristics of the reviews.

Table 5. Summary characteristics of current reviews

Characteristics	Review Count
Location	US: 30 International: 12
Size	Range of studies reviewed: 5-56 Range of populations: 6-87, 916
Search Dates	Earliest: 1998-2011 Latest: Inception to 2021
Interventions	"Single": 27 studies "Mixed": 15
Populations	Single focus: 12 Multiple/mixed: 26 NR: 4
Conditions	Cancer: 13 Diabetes: 9 Mental health: 4 HIV: 3 Asthma: 2 Cardiovascular disease: 1 Hypertension: 1 Musculoskeletal conditions: 1 Multiple: 8
Outcomes*	Patient experience of care: 3 Process of care: 2 Clinical: 40

*Some reviews had more than one outcome.

Abbreviations: NR=Not reported

We based our narrative summary of the current systematic reviews on study location, intervention type, chronic conditions, race/ethnic groups, harms or adverse events, applicability, and sustainability of interventions.

Notably, our evidence map in this Brief includes an unrestricted set of chronic conditions in adults. In addition, by examining healthcare strategies/interventions broadly, our evidence map also includes an unrestricted set of interventions. However, most of the systematic reviews examined interventions to address reducing disparities for a specific chronic condition or limited set of chronic conditions. Most of the systematic reviews that reported study location were U.S.-based.

Overall, the systematic review literature largely corroborates the findings we describe for the peer-reviewed primary studies in our evidence map. Most of the reviews focused on more than one category of race/ethnic groups; African American/Blacks and Hispanic/Latinos were the most reported groups, whether in reviews that included a wider range of race/ethnic groups or

reviews for a single race/ethnic group. Relatively few reviews for a single-studied race/ethnic group focused on Asians[217, 228] and American Indians/Alaskan Natives.[235, 241]

Because we found very few studies to include in our evidence map that included American Indians/Alaskan Natives, we further examined eight reviews [229, 235-238, 241, 242, 250] that did include American Indians/Alaskan Natives to confirm the lack of studies. We provide expanded information on those reviews in Appendix E, including the number of papers that included this race/ethnic group in the review, year of publication of the primary studies included in the review, and the percentage representation of American Indians/Alaskan Natives within the populations included in each primary study. Overall, the reviews included one to six primary studies that either exclusively enrolled American Indians/Alaskan Natives or enrolled multiple race/ethnic groups (i.e., more than one category of race/ethnic groups) where American Indians/Alaskan Natives were represented in the study sample population.

Further, nearly all the reviews included studies published outside our search date, except two that included studies published prior to 2017 as well as those from 2017 onwards.[238, 242] With the longer research time frame (pre and post 2017), studies that enrolled American Indians/Alaskan Natives (either exclusively or where American Indians/Alaskan Natives were represented in the study sample population) remains limited.

Generally, the systematic reviews focused on interventions for a specific exclusively studied chronic condition, with cancer being the most frequently studied,[200, 220, 221, 223, 226, 227, 234, 235, 242, 243, 247-249] followed by diabetes.[217, 218, 224, 230, 233, 236, 237, 251, 252] Other exclusively studied chronic conditions were mental health conditions,[222, 238, 240, 241] HIV,[216, 231, 254] asthma,[215, 246] hypertension,[239] cardiovascular diseases,[253] and musculoskeletal conditions.[232] A few reviews studied multiple chronic conditions.[4, 219, 225, 228, 229, 244, 245, 250]

Often, similar to our approach, the interventions in the systematic reviews did not fall into mutually exclusive categories, and the reviewers did not reclassify interventions but reported what the study authors used as labels. For example, one review that aimed to examine interventions to reduce bias and discrimination in the management of musculoskeletal pain included clinician education and perspective-taking, patient decision tools, and community outreach tools.[232] Most of the systematic reviews focused on specific strategies/interventions broadly related to the intervention type categories we used in this Brief, including patient navigation,[200, 221, 234, 247] QI interventions,[251] decision aids,[227, 244] self-management support,[224, 229, 233, 237] patient education,[215, 236, 243, 253] prevention interventions,[216, 220, 254] lifestyle interventions,[217, 252] collaborative care,[238, 240] and digital health technologies[4, 218, 230, 231, 239] (e.g., Web-based intervention, telemedicine, telehealth, m-Health (e.g., text or app-based approaches). Other reviews focused on intervention types not present in the literature from the peer reviewed primary studies in our evidence map, such as provider pay for performance interventions[250] and interventions that had extremely heterogenous descriptions because of the broad aim(s) of the reviews.[219, 222, 223, 225, 226, 228, 232, 235, 241, 242, 245, 246, 248, 249]

Mostly, the systematic reviews reported clinical outcomes. A few reviews reported information on process of care[240, 250] and patient experience of care[228, 232, 239] outcomes. Harms or adverse events, applicability, and sustainability of interventions were not reported in the reviews. Further, uncertainty exists around the systematic review literature because many of the reviews did not report risk of bias assessment of each study included. Risk of bias assessment documents potential flaws in the summarized evidence and supports the certainty or uncertainty in the overall evidence.[255]

4. Summary and Implications

This Technical Brief presents an evidence map based on a systematic search of the recent literature on healthcare strategies/interventions for reducing racial and ethnic disparities and improving health outcomes in the prevention/treatment of chronic conditions in adults. The aim was to identify existing interventions that could be considered for implementation by healthcare system leaders and policymakers, and to inform researchers and funding agencies on gaps in knowledge and research needs. This evidence map reports on 163 studies published since 2017 and categorized into 12 intervention types.

Overall, the literature on healthcare system interventions is large and diverse. Clearly, considerable attention by and for health systems has been devoted to finding ways to improve health equity. Most studies indicated that interventionists began by selecting a population (or populations) identified as suffering disparities, then set about trying to improve care for that target group. This means the current literature set is best able to address the possibility of improving health outcomes for specific groups. But very few studies used a comparator that would allow us to understand whether disparities between groups were reduced or eliminated, which leaves the important issue of improving health equity largely unaddressed.

One difference between intervention approaches to address improved health outcomes versus improved health equity might lie in the heavily weighted use of patient-targeted interventions. For the goal of improving outcomes of a particular group, recruiting the agency of the individual to steward their own health could be a positive approach—i.e., focusing on what an individual can choose to do, or what is in their power to do. This idea is preliminarily supported by the fact that we identified a self-management intervention type commonly put forward by researchers. Self-management interventions sought to support patients as important members of the care team, rather than re-designing processes to organize care. However, to the extent that inequities are driven by structural factors, patient targeted interventions such as self-management may be only partly effective and may even delay effective change by focusing responsibility on patients, rather than the health systems. In the end, perhaps both approaches are necessary, and neither is enough on its own for either outcome goal. This literature's focus on individual actions rather than systemic changes deserves critical attention and rebalancing. However, we must be cautious in arriving at this conclusion based solely on our literature set.

The wide range of organizations, locations, and personnel that delivered interventions reveals the interplay or interdependence between the roles of patients, community, and health systems to address disparities. For example, community involvement, especially if carried through to cultural adaptations, can increase the likelihood that interventions will be widely accepted. Community involvement can also create more effective solutions in several ways, including by drawing on local knowledge from one or more diverse groups; by raising public awareness of relevant issues; and by giving people a voice in decisions that affect their lives, health, and wellbeing.[256] About a third to half of the interventions included in our map reported some community involvement. On the other hand, only a few included studies collected outcomes related to patient experience as a primary focus. A deeper understanding of patient experience might better inform shared decision making and contribute to more effective responses by the healthcare system.

Our evidence map shows that most of the studies included participants drawn from more than one racially or ethnically minoritized group and often also including white participants. The racial group studied most frequently as an exclusive study population was African Americans/Blacks. Meanwhile, we found very limited reporting of studies that exclusively

enrolled other single race/ethnic groups, such as Asians and American Indians/Alaskan Natives. Asians and American Indians/Alaskan Natives were included in studies that enrolled multiple race/ethnic groups, but their findings were not separately reported. The relative absence of literature for these groups was consistent with what was available in previously published systematic reviews. During Key Informant discussions, we heard of many commendable initiatives and efforts to improve healthcare and services in Indian Country,[a] much of which is not reported in peer reviewed journals. Nonetheless, health systems who serve diverse populations may need to focus attention on some groups with high local disparities.

The chronic conditions that predominantly affect disadvantaged groups were not fully captured in our literature set. Cancer was the most frequently exclusively studied chronic condition. Other relatively less studied chronic conditions that disproportionately affect racially/ethnically minoritized people would also benefit from more attention, such as mental health, liver disease, metabolic syndrome, chronic obstructive pulmonary disease (COPD), chronic pain not related to cancer, and kidney disease.

We also note study authors did not report harms, adverse events, or unintended consequences for examined interventions. While behavior change or care delivery change interventions may at first consideration seem less open to harm because they are based on established standards of clinical care, the possibility of unexpected harms is not zero. A recent study found that even while team-based care may decrease the time required of a primary care physician to provide all guideline-recommended care, the time is still "excessive."[257] Clinicians have to make decisions about what to stop doing to make time for something new. The challenge with implementing new approaches to improve health equity in one area is attending to these decisions in order to avoid unintentionally increasing disparities in another.

In the end, sustainability is crucial for a successful intervention. Cost/financial reimbursement outcomes were limited in our evidence map, but a core concern for healthcare systems. With 64 percent of studies funded by government or foundations, the question of sustainability persists.

This Technical Brief is limited by the challenge of grouping interventions into categories meaningful to health systems. As noted in the Methods section, we had to, based on the volume and heterogeneity of the evidence, create groupings for some study characteristics. Lack of consistency in terminology and intervention design presented a major obstacle. We grouped interventions into 12 types based on the intervention labels used by the study authors (when provided). Often, we had to categorize the interventions by study descriptions or statement of the primary purpose or approach. Components of the interventions were not standardized and varied widely. Many studies described interventions in a way that overlapped with one or more intervention types, yet study authors reported on the interventions in a manner that implied they had specific meaning (e.g., patient education and patient navigation interventions overlapping descriptions of self-management support interventions). Because of this inability to create mutually exclusive categories, health systems may have to cast broader nets when searching for potential approaches to address an identified disparity. Likewise, communication needs to be clear, because, for example, patient navigation may mean different things to different people.

[a] The use of the following terms are commonly used dealing with the Indian Health Service, federally recognized tribes, and Urban Indians. American Indian and Alaska Natives is the most common term in federal law; "Indian Country" is a commonly used term that is inclusive of American Indian and Alaska Natives, Native Americans, Natives, and Urban Indians, as defined by Elder Dr. Linda Bane Frizzell (Eastern Cherokee/Lakota).

Similarly limiting, we used the exact information/label reported by the study authors in the original literature to categorize study designs and practice settings. Some categories for study designs and settings potentially overlap. For example, a quality improvement study design could overlap with cohort observational study design, and Federally Qualified Health Centers could be grouped as community based and/or public health hospital based.

We acknowledge that our categorization scheme for the interventions, study designs, and study settings are imprecise. Other researchers might arrive at different categorizations based on their chosen theoretical or conceptual frameworks.

Given the array of interventions we identified and the wide variation in intervention components and processes within individual health systems, it seems to us that interventions are very often tailored to address disparities arising from specific local conditions experienced by the specific healthcare system. Our own qualitative take-away from engaging with this literature is that some instances of changes in care delivery included in this evidence map may have improved outcomes for particular groups of disadvantaged people. However, this is only a preliminary determination since this brief report does not provide the assessments of study quality or outcome analysis necessary for stronger statements. Nonetheless, this evidence map (and especially the supporting evidence tables) provides a resource for health systems to identify intervention approaches that have been examined elsewhere and that might be imported or adapted to new situations and environments.

4.1 Next Steps

Next steps can be drawn from the summary and implications discussed above. Briefly, the specific areas we note are:

- More research is needed that specifically assesses the impact of interventions on reducing disparities. Such research would need to report outcomes that directly measure differences in outcomes between racially/ethnically minoritized people and other groups.
- Research is needed to assess the difference, if any, between interventions aimed at reducing disparities between groups and those aimed at improving outcomes for particular groups of disadvantaged people. Both goals are worthy of attention. Understanding potential commonalities, synergies, or conflicts between these approaches would be informative.
- Terms used in healthcare system interventions need much better standardization and operationalization, and, crucially, the components and categories of varied interventions need a comprehensive examination in order to make it easier for healthcare organizations to understand what works and what does not.
- Focused research is needed to include racially/ethnically minoritized groups, including Asians and American Indians/Alaska Natives.
- Future research can include other chronic conditions (such as mental health, liver disease, metabolic syndrome, COPD, chronic pain not related to cancer, and kidney disease) not present in this literature set yet important within racially/ethnically minoritized groups.
- Harms, adverse events, and unintended consequences from healthcare system interventions need more attention.
- The applicability and sustainability of healthcare system interventions needs more attention.

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Appendix A. Methods

Search Strategy

The search strategy was designed and conducted by a medical librarian with input from the investigators. We used text mining software to identify additional relevant keywords and MeSH search terms (Yale MeSH Analyzer https://mesh.med.yale.edu/). To find additional relevant studies, reference lists of included articles were manually screened. We applied the following limits or filters to the database searches:

- Date. A start date of 2017 was considered sufficient for the purpose of the review.
- Language. Publications were excluded if they were written in a language other than English. This was due to resource constraints.
- Publication Status. We searched for published studies in peer-reviewed journals.
- Study Design. The search was restricted to randomized controlled trials and non-randomized controlled trials, observational studies, pre-post design, and mixed methods.
- Other restrictions. The following search limits were then applied (MeSH Terms): clinical trial, or exp controlled clinical trial, or comparative effectiveness research, or comparative study, or evaluation study, or health services research, or outcome assessment, health care, or quality assurance, health care, or quality improvement.

We conducted a comprehensive literature search in July 2022 (updated in April 2023). We searched the following databases:

- Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations, Daily and Versions <1946 to July 25, 2022>
- CINAHL Plus with Full Text (EBSCOhost) Date searched: August 9, 2022
- Scopus (Elsevier B.V.) Date searched: August 8, 2022

We conducted a grey literature search in April 2023 that included the following resources:

- Supplemental searches were performed for key questions on workforce diversity and applicability and sustainability. Supplemental searches were also performed in order to locate relevant articles poorly or inaccurately indexed or unindexed. We browsed the first 200 results from Google and Google Scholar for each search string using a combination of terms and word variations (health equity, healthcare disparities, racial / ethnic groups, American Indian or Indigenous or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, discrimination, racial/ethnic, racism, implicit bias; chronic conditions; learning health systems, safety net hospital, hospital systems, Federally Qualified Health Center (FQHC); sustainability, scale-up, scalability, spread, applicability, transferability, generalizability, external validity, and workforce diversity.
- We searched relevant organizations including the National Academy of Medicine, (NAM) Culture of Health Program, the Johns Hopkins Center for Health Equity, the American Hospital Association HEAL Health Equity Action Library, the Robert Wood Johnson Foundation Culture of Health Partnerships, the Patient Centered Outcomes Research Institute Portfolio, and the Dissemination & Implementation Models In Health website. Bibliographies of peer reviewed articles from website(s) of multiple

organizations were scanned. No unique eligible reports were identified. Information from the search of websites was used to contextualize the published search results.

- Journal Table of Contents. Learning Health Systems, (Online ISSN:2379-6146) table of contents were browsed from October 2017-April 2023.

Table A.1. Websites: grey literature

Websites Searched November 2022	URL
American Hospital Association HEAL Health Equity Action Library	https://equity.aha.org/health-equity-transformation-model-literature-overview
National Academy of Medicine, (NAM) Culture of Health Program	https://nam.edu/programs/culture-of-health/
Robert Wood Johnson Foundation Culture of Health Partnerships-"A Framework for Promoting Equity and Excellence in Healthcare"	https://rtbhealthcare.org/about/
PCORI Addressing Disparities Portfolio	https://www.pcori.org/explore-our-portfolio
Dissemination & Implementation Models In Health	https://dissemination-implementation.org/tool/
Johns Hopkins Center for Health Equity	https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-health-equity/learning-resources/publications/academic-publications/
University of Washington Health Workforce Research Center – Health Equity	https://familymedicine.uw.edu/chws/hwrc/health-equity/
Kaiser Permanente Division of Research Health Equity	https://divisionofresearch.kaiserpermanente.org/research/health-equity

Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations, Daily and Versions <1946 to July 25, 2022>

- healthcare disparities/ or Health inequities/ or Health Status Disparities/ 37607
- (health* adj3 (access* or disparit* or equity or inequit*)).ti,ab,kf. 76539
- exp "health disparity, minority and vulnerable populations"/ or Minority health/ 107398
- "Ethnic and Racial Minorities"/ 379
- exp "Emigrants and Immigrants"/ 15009
- Medically Underserved Area/ or Medically Uninsured/ or Safety-Net Providers/ 16376
- exp Racism/ or Bias, Implicit/ 5663
- ((race or racial) adj3 (diffference* or disparit* or inequit* or gap*)).ti,ab,kf. 14516
- exp Poverty/ or sociodemographic factors/ or socioeconomic factors/ 209931
- ((sociodemographic* or socioeconomic*) adj3 (disparit* or equit* or inequit*)).ti,ab,kf. 3738
- or/1-10406702
- exp chronic disease/ or cardiovascular diseases/ or exp diabetes insipidus/ or exp diabetes mellitus/ or Disabled Persons/ 1249711

- (AIDS or asthma or cancer or cardiovascular disease* or chronic obstructive pulmonary disease or COPD or diabetes or HIV or hypertension or mental disorder* or mental illness* or (chronic adj3 disease*)).ti,ab,kf. 3967949
- Multimorbidity/ 2349
- (multimorbidit* or multi-morbidit*).ti,ab,kf. 7550
- (patient adj3 (burden or complex*)).ti,ab,kf. 9336
- or/12-16 4606688
- 11 and 17 104105
- clinical trial/ or exp controlled clinical trial/ or comparative effectiveness research/ or comparative study/ or evaluation study/ or health services research/ or outcome assessment, health care/ or quality assurance, health care/ or quality improvement/ 2994570
- (strategies or intervention or improve* or address).ti. 505158
- 19 or 20 3402367
- 18 and 21 18225
- limit 22 to (english language and yr="2017 -Current") 4595
- comment/ or editorial/ or letter/ 2083352
- 23 not 24 4519

Ovid Field Searching Codes
.ab=Abstract
.ti=Title
.kf=Subject Heading Word

CINAHL Plus EbscoHost

1 S1 (MH "Healthcare Disparities") OR (MH "Racism") OR (MH "Sexual and Gender Minorities") OR (MH "Minority Groups") OR (MH "Socioeconomic Factors+") OR (MH "Sociodemographic Factors") OR (MH "Racism+") OR (MH "Transphobia") OR (MH "Indigent Persons") OR (MH "Immigrants") OR (MH "Medically Uninsured") OR (MH "Medically Underserved") OR (MH "Medically Underserved Area") OR (TI (health N3 (disparit* OR inequit* OR equit*)) OR (AB (health N3 (disparit* OR inequit* OR equit*)) OR (TI (minorit* N3 (racial OR ethnic* OR gender OR group* OR health OR sexual)) OR (AB (minorit* N3 (racial OR ethnic OR gender OR group* OR sexual)) OR (TI (socioeconomic* OR AB socioeconomic*))
2 S2 (MH "Chronic Disease+") OR (MH "Mental Disorders, Chronic") OR (MH "Pulmonary Disease, Chronic Obstructive") OR (MH "Renal Insufficiency, Chronic") OR (MH "Leukemia, Myeloid, Chronic") OR (MH "Kidney Failure, Chronic") OR (MH "Asthma-Chronic Obstructive Pulmonary Disease Overlap Syndrome") OR (MH "Diabetic Patients") OR (MH "Hypertension") OR (MH "Coronary Disease") OR (MH "Comorbidity") OR (TI (chronic N3 (condition* OR disease* OR illness*)) or (TI ("long term conditions") OR (TI (mental N3 (disorder* or illness*)) OR (AB (chronic N3 (condition* OR disease* OR illness*)) or (AB ("long term conditions") OR (AB (mental N3 (disorder* or illness*))
3 S3 (MH "Health Services Research") OR (MH "Outcomes Research") OR (MH "Quality of Care Research") OR (MH "Evaluation Research") OR (MH "Administrative Research+") OR (MH S3 "Analytic Research") OR (MH "Applied Research") OR (MM "Clinical Research") OR

(MH "Quality of Care Research") OR (MH "Evaluation and Quality Improvement Program") OR (MH "Quality Improvement") OR (MH "Quality Assessment") OR (MH "Quasi-Experimental Studies+") OR (MH "Prospective Studies+") OR (MH "Clinical Trials+") OR (MH "Experimental Studies+") OR (PT clinical trial OR PT nursing interventions OR PT other)
4 S1 AND S2 AND S3

Limiters - Peer Reviewed; Published Date: 20170101-20221231; English Language; Geographic Subset: Australia & New Zealand, Canada, Europe, UK & Ireland, USA
Expanders - Apply equivalent subjects
Search modes - Boolean/Phrase

SCOPUS (Elsevier B.V.)

INDEXTERMS ("healthcare disparities") OR INDEXTERMS ("health inequities") OR INDEXTERMS ("health status disparities") OR INDEXTERMS ("socioeconomic factors") OR INDEXTERMS ("health disparity, minority and vulnerable populations") OR INDEXTERMS ("Ethnic and Racial Minorities") OR INDEXTERMS ("Safety-Net Providers") OR INDEXTERMS ("Medically Underserved Area") OR INDEXTERMS ("Medically Uninsured") OR INDEXTERMS ("Minority health") OR INDEXTERMS ("Emigrants and Immigrants") OR TITLE-ABS (health W/5 disparit*) OR TITLE-ABS (racial W/5 disparit*) OR TITLE-ABS (ethnic W/5 disparit*) OR TITLE-ABS (minorit* W/5 health) AND (INDEXTERMS ("chronic disease") OR TITLE-ABS (chronic W/5 condition*) OR TITLE-ABS ("chronic obstructive pulmonary disease") OR TITLE-ABS (cancer) OR TITLE-ABS ("cardiovascular disease*") OR TITLE-ABS (diabetes) OR TITLE-ABS ("HIV") OR TITLE-ABS (hypertension) OR TITLE-ABS (mental W/5 disorder*) OR TITLE-ABS (mental W/5 illness*) OR TITLE-ABS (multimorbidit*) OR TITLE-ABS ("complex w/5 patient") AND (INDEXTERMS ("clinical trial") OR INDEXTERMS ("controlled clinical trial") OR INDEXTERMS ("comparative effectiveness research") OR INDEXTERMS ("comparative study") OR TITLE (random*) OR INDEXTERMS ("outcome assessment, health care") OR INDEXTERMS ("quality improvement") OR INDEXTERMS ("health services research") OR INDEXTERMS ("quality assurance, health care") OR TITLE (intervention) OR TITLE (strategies) OR TITLE (improve*) OR TITLE (address)

Limited to: Affiliated Country: United States, Australia & New Zealand, Canada, Europe, UK & Ireland; Document Type: article; Language: English, Publication Years, 2017-2022; Source Type: Journal; Subject Areas: Medicine, Nursing, Health Professions, Multidisciplinary.

Questions for Key Informants

Technical Brief 1

Questions for Researchers/Advocacy Organizations/Provider Organizations/Practicing Clinicians

1. What patient-level and health professional-level efforts has your organization or institution employed to reduce racial and ethnic disparities in chronic conditions healthcare and health outcomes?
2. Can you describe the rationale for this effort, for instance what was driving the decision of the problem and the solution/intervention? Was the intervention successful or not? What were the challenges? How are you measuring disparities and evaluating interventions?
3. Do you engage community partnerships in your approach? If so, how?
4. Are there similar approaches you are aware of? Which other entity is trying similar approaches?
5. Are there concepts, or conceptual frameworks, that are important in understanding the patient-level and health professional-level interventions to reduce racial/ethnic disparities in health and healthcare?
6. How do you identify social identity groups that are not being served, and how do you prioritize which groups for designing interventions? What are the challenges?
7. How does your organization tailor the patient-level and health professional-level approach to reach racial and ethnic that may be marginalized due to other factors (such as disability status, income, sexual identity and orientation etc.)? Which of these factors have been most challenging to address and why?
8. What concerns do you have about the sustainability of patient-level and health professional-level strategies/interventions intended to address racial and ethnic disparities in health and healthcare?
9. Gray literature: What are prominent sources where you obtain information on patient-level and health professional-level strategies/interventions? Who has conducted such interventions?
10. What information and resource does your organization or institution need to be more effective in incorporating patient-level and health professional-level interventions in reducing racial and ethnic disparities in health and healthcare?
11. What are current gaps in the research and what future research is needed most?

Questions for Patient Advocates, Families, Caregivers

1. Data clearly shows that racial and ethnic minority groups often have worse health and care. Why do you think this is the case?
2. Have you or your loved ones experienced differences in care received, are you aware of any healthcare organizational efforts to rectify these differences? What are the efforts/programs?
3. Have you or your loved ones participated in (or are you aware of) such program(s)? Was there any effort to consider your race and other social factors (such as your gender, disability, sexual identity and orientation etc.) in the program(s)?

4. Are you aware of community collaboration efforts of such programs to rectify the differences in your health and care? Should community organizations be involved in these efforts? How? What are some barriers that community organizations face in collaborating with healthcare organizations?
5. What types of efforts do you think a healthcare organization could do that might reduce these differences in the care received by racial and ethnic minority groups? What would be needed for them to work?
6. Are there sources where you obtain information about these efforts?

Technical Brief 2

Questions for Researchers/Advocacy Organizations/Provider Organizations/Practicing Clinicians

1. Data clearly shows that racial and ethnic minority groups often have worse health and care. Why do you think this is the case?
2. Have you or your loved ones experienced differences in care received, are you aware of any healthcare organizational efforts to rectify these differences? What are the efforts/programs?
3. Have you or your loved ones participated in (or are you aware of) such program(s)? Was there any effort to consider your race and other social factors (such as your gender, disability, sexual identity and orientation e.t.c) in the program(s)?
4. Are you aware of community collaboration efforts of such programs to rectify the differences in your health and care? Should community organizations be involved in these efforts? How? What are some barriers that community organizations face in collaborating with healthcare organizations?
5. What types of efforts do you think a healthcare organization could do that might reduce these differences in the care received by racial and ethnic minority groups? What would be needed for them to work?
6. Are there sources where you obtain information about these efforts?

Questions for Patient Advocates, Families, Caregivers

1. Data clearly shows that racial and ethnic minority groups often have worse health and care. Why do you think this is the case?
2. Have you or your loved ones experienced differences in care received, are you aware of any healthcare organizational efforts to rectify these differences? What are the efforts/programs?
3. Have you or your loved ones participated in (or are you aware of) such program(s)? Was there any effort to consider your race and other social factors (such as your gender, disability, sexual identity and orientation e.t.c) in the program(s)?
4. Are you aware of community collaboration efforts of such programs to rectify the differences in your health and care? Should community organizations be involved in these efforts? How? What are some barriers that community organizations face in collaborating with healthcare organizations?
5. What types of efforts do you think a healthcare organization could do that might reduce these differences in the care received by racial and ethnic minority groups? What would be needed for them to work?
6. Are there sources where you obtain information about these efforts?

Appendix B. Inclusion Criteria

Table B.1. Study inclusion criteria

Element	Included	Excluded
Population	Studies that enroll only or primarily racial/ethnic minoritized people (i.e., racial/ethnic minoritized people make up over 50% of the sample size). Sample size > 50, or 25 per group analyzed (to achieve a reasonable representation of the population) Health Professionals providing healthcare for racial and ethnic minoritized adults with chronic conditions or at risk of chronic conditions Healthcare system providing healthcare for racial and ethnic minoritized adults with common chronic conditions or at risk of chronic conditions	Non-U.S populations
Interventions	Strategies that are specifically targeted to reduce racial and ethnic health and healthcare disparities with links to the healthcare system Strategies in community-based settings with relevant links to healthcare system Studies that specifically aimed to examine the reduction of a disparity (i.e., by examining differences in outcomes between specific racial/ethnic minoritized people and other groups) Studies that aimed to improve outcomes for specified racial/ethnic minoritized people	Medical interventions where racial subgroup analyses were not intended or stated at the start of the study conduct (i.e., post hoc exploratory analyses). Public health/policy-based interventions without relevant links to a healthcare system Interventions aimed at medical school students, pharmacy students, and other allied health students
Comparators	Standard care Alternative strategy/intervention	None
Outcomes	Clinical outcome measures (e.g., disease specific morbidity and mortality, BP control, Hba1c levels) Process of care measures Care utilization outcome measures Barriers to care measures Cost/re-imbursement measures Harms or adverse events (e.g., unintended negative consequences) Patient experience of care - stigma other related experience of discrimination Others	None
Timing	Any	None
Settings	Any; no exclusion based on type of healthcare provider organization	None
Study design	Randomized controlled trials, non-randomized controlled trials, cohort studies with comparator arms, pre-post, quality improvement, single-arm studies of implemented strategies with outcomes captured before and after implementation, mixed-method	Stand-alone qualitative studies, systematic reviews, narrative reviews, case reports, case series protocols, conference abstracts

Appendix C. Excluded Studies at Full Text

Reasons for Exclusion
P = Population
I = Intervention
C = Comparison
O = Outcomes
S = Study Design
X = Other reasons

1. Abbott L, Williams C, Slate E, et al. Promoting Heart Health Among Rural African Americans. J Cardiovasc Nurs. 2018;33(1):E8-E14. doi: 10.1097/jcn.0000000000000410. PMID: 28353542. I
2. Abbott LS, Slate EH, Graven LJ. Cardiovascular disease risk among rural residents living with diabetes and prediabetes: A cluster randomized trial. Public Health Nurs. 2020;37(1):16-24. doi: 10.1111/phn.12659. PMID: 31489717. I
3. Abbott LS, Slate EH, Lemacks JL. Influencing cardiovascular health habits in the rural, deep south: results of a cluster randomized trial. Health Educ Res. 2019;34(2):200-8. doi: 10.1093/her/cyy052. PMID: 30601979. S
4. Aharonovich E, Stohl M, Cannizzaro D, et al. HealthCall delivered via smartphone to reduce co-occurring drug and alcohol use in HIV-infected adults: A randomized pilot trial. J Subst Abuse Treat. 2017;83:15-26. doi: 10.1016/j.jsat.2017.09.013. PMID: 29129192. S
5. Apter AJ, Morales KH, Han X, et al. A patient advocate to facilitate access and improve communication, care, and outcomes in adults with moderate or severe asthma: Rationale, design, and methods of a randomized controlled trial. Contemp Clin Trials. 2017;56:34-45. doi: 10.1016/j.cct.2017.03.004. PMID: 28315481. S
6. Arnold EA, Kegeles SM, Pollack LM, et al. A Randomized Controlled Trial to Reduce HIV-Related Risk in African American Men Who Have Sex with Men and Women: the Bruthas Project. Prev Sci. 2019;20(1):115-25. doi: 10.1007/s11121-018-0965-7. PMID: 30478804. I
7. Asgary R, Naderi R, Wisnivesky J. Opt-Out Patient Navigation to Improve Breast and Cervical Cancer Screening Among Homeless Women. J Womens Health. 2017;26(9):999-1003. doi: 10.1089/jwh.2016.6066. PMID: 28103125. C
8. Ashing KT, George M. Exploring the efficacy of a paraprofessional delivered telephonic psychoeducational intervention on emotional well-being in African American breast cancer survivors. Support Care Cancer. 2020;28(3):1163-71. doi: 10.1007/s00520-019-04899-7. PMID: 31203512. S
9. Axon DR, Johnson M, Abeln B, et al. An Academic-Community Collaboration to Deliver Medication Therapy Management (MTM) Services to Patients Living in Rural Counties of a Southwestern State in the United States. J Pharm Pract. 2022;35(5):691-700. doi: 10.1177/08971900211000219. PMID: 159163461. P
10. Aysola J, Tahirovic E, Troxel AB, et al. A Randomized Controlled Trial of Opt-In Versus Opt-Out Enrollment Into a Diabetes Behavioral Intervention. Am J Health Promot. 2018;32(3):745-52. doi: 10.1177/0890117116671673. PMID: 28281353. I
11. Babatunde OA, Arp Adams S, Truman S, et al. The impact of a randomized dietary and physical activity intervention on chronic inflammation among obese African-American women. Women Health. 2020;60(7):792-805. doi: 10.1080/03630242.2020.1746950. PMID: 32248760. I

12. Baek J, Huang K, Conner L, et al. Effects of the home-based educational intervention on health outcomes among primarily Hispanic children with asthma: a quasi-experimental study. BMC Public Health. 2019;19(1):912. doi: 10.1186/s12889-019-7272-5. PMID: 31288792. I

13. Barnes JW, Massing M, Dugyala S, et al. Design of a Novel Intervention Model to Address Cardiovascular Health Disparities in the Rural Underserved Community of Phillips County Arkansas. Health Equity. 2022;6(1):248-53. doi: 10.1089/heq.2021.0175. PMID: 35402777. S

14. Barnhart WR, Whalen Smith CN, Coleman E, et al. Living Independent From Tobacco reduces cigarette smoking and improves general health status among long-term tobacco users with disabilities. Disability Health J. 2020;13(3):100882. doi: 10.1016/j.dhjo.2019.100882. PMID: 31917121. P

15. Barton AB, Okorodudu DE, Bosworth HB, et al. Clinical Inertia in a Randomized Trial of Telemedicine-Based Chronic Disease Management: Lessons Learned. Telemed J E Health. 2018;24(1):742-8. doi: 10.1089/tmj.2017.0184. PMID: 29341850. S

16. Beasley JM, Shah M, Wyatt LC, et al. A Community Health Worker-Led Intervention to Improve Blood Pressure Control in an Immigrant Community With Comorbid Diabetes: Data From Two Randomized, Controlled Trials Conducted in 2011-2019. Am J Public Health. 2021;111(6):1040-4. doi: 10.2105/ajph.2021.306216. PMID: 33950735. S

17. Beck AF, Anderson KL, Rich K, et al. Cooling The Hot Spots Where Child Hospitalization Rates Are High: A Neighborhood Approach To Population Health. Health Aff (Millwood). 2019;38(9):1433-41. doi: 10.1377/hlthaff.2018.05496. PMID: 31479350. P

18. Berkley-Patton J, Bowe Thompson C, Bauer AG, et al. A Multilevel Diabetes and CVD Risk Reduction Intervention in African American Churches: Project Faith Influencing Transformation (FIT) Feasibility and Outcomes. J Racial Ethn Health Disparities. 2020;7(6):1160-71. doi: 10.1007/s40615-020-00740-8. PMID: 32329033. S

19. Berkowitz SA, Terranova J, Randall L, et al. Association Between Receipt of a Medically Tailored Meal Program and Health Care Use. JAMA Internal Med. 2019;179(6):786-93. doi: 10.1001/jamainternmed.2019.0198. PMID: 31009050. I

20. Bernhart JA, Turner-McGrievy GM, Wilson MJ, et al. NEW Soul in the neighborhood-reach and effectiveness of a dissemination and implementation feasibility study. Transl Behav Med. 2023;10.1093/tbm/ibac080. doi: 10.1093/tbm/ibac080. PMID: 36689305. S

21. Bess KD, Frerichs L, Young T, et al. Adaptation of an Evidence-Based Cardiovascular Health Intervention for Rural African Americans in the Southeast. Prog Community Health Partnersh. 2019;13(4):385-96. doi: 10.1353/cpr.2019.0060. PMID: 31866593. S

22. Bevel M, Babatunde OA, Heiney SP, et al. Sistas Inspiring Sistas Through Activity and Support (SISTAS): Study Design and Demographics of Participants. Ethn Dis. 2018;28(2):75-84. doi: 10.18865/ed.28.2.75. PMID: 29725191. X

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Appendix D. Evidence Tables

Care Coordination

Table D.1. Characteristics of included studies: care coordination

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Apter, 2019[1] (31181221) RCT Clinic PA	301 49 years 90% 75% Black, 22% Hispanic Asthma NR	Web-based patient portal with CHW assistance 1 year Patient Community health worker	Head-to-Head	Clinical outcomes Asthma control (primary), asthma-related quality of life; yearly rate of ED visits, hospitalizations and prednisone bursts NR	No effect	Yes No No Multiple
Bazzoli, 2017[2] (27305914) Pre-post Clinic VA	1757 47 years 62% White 58%, African American 42% Multiple-unspecified NR	Case management, patient education 4 years Patient + Health Professional Provider/Clinician	Pre-post	Equity of service Service utilization (ED, PCP, specialist visits, hospital admissions) NR	Positive	No No No Foundation
Calman, 2018[3] (29415785) Observational-Cohort FQHC TX	4595 50 years 58% Hispanic/Latino 37%, Black 27.9%, White 23.9%, Asian 2.3%, American Indian 0.4% Diabetes NR	Multi-faceted care plan 4 years Patient Multiple	Pre-post	Clinical outcomes Percentage of patients with diabetes who had HbA1c >9% NR	Positive	No No No NR

Study (PMID) **Study Design** **Study Setting** **Study Location (State)**	**Sample Size** **Age (Mean)** **Sex (% Female)** **Race/Ethnicity** **Chronic Condition** **Intersectional Features**	**Intervention Description** **Duration** **Intervention Target** **Intervention Delivery**	**Comparison Description**	**Outcome Category** **Outcomes** **Harms**	**Effect Code for Primary Outcome**	**Community Involvement (Yes/No)** **Applicability (Yes/No)** **Sustainability (Yes/No)** **Funding**
Carrasquillo, 2017[4] (28459925) RCT Clinic FL	300 55 years 33% Hispanic/Latino Diabetes NR	Disease management support 1 year Patient Community Health Worker	Standard/usual care	Clinical outcomes Systolic blood pressure, low-density lipoprotein cholesterol levels, and HbA1c levels (primary), , body mass index, medication regimen intensification, and self-reported measures of diet, physical activity, and medication regimen adherence. NR	Mixed	No No No Government
Chang, 2018[5] (30024805) RCT Clinic FL	300 55 years 55% Hispanic/Latino Diabetes NR	Health education, counseling, navigation, social support 52 weeks Patient Community Health Worker	Standard/usual care	Equity of service Self-reported access to care (primary), , EHR (health care utilization, including primary care clinic visits, hospitalizations, and emergency department) NR	Mixed	Yes No No Academic
Dessources, 20206 (32888331) Observational-Cohort Hospital CA	131 51 years 100% Hispanic/Latino Cancer NR	Patient navigation 4 years System Patient navigator (employee)	Standard/usual care	Process of care Receiving ≥5 cycles of weekly cisplatin, initiation of BT during EBRT, completion of EBRT & BT, and pCRT completion within 63 days NR	Positive	No No No Multiple

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Kangovi, 2017[7] (28817334) Kangovi, 2017[8] (27717532) RCT Clinic PA	302 56 years 75% Black Hypertension, diabetes NR	IMPaCT: individualized management for patient-centered targets 12 months Patient + System CHW	Standard/usual care	Process of care HbA1c, BMI, BP, self-reported number of cigarettes per day (primary), achievement of chronic disease management goals, mean change in self-rated health NR	No effect	Yes Yes No Academic
Kangovi, 2018[9] (30422224) RCT Clinic PA	592 53 years 62.5% Black Hypertension, diabetes NR	IMPaCT: individualized management for patient-centered targets 9 months Patient + Health Professional + System CHW	Standard/usual care	Clinical outcomes Self-rated physical health (primary), self-rated mental health, change in patient-selected chronic disease marker, change in patient activation measure, proportion of patients reporting high quality care, and all-cause hospitalization NR	No effect	Yes No No Multiple
Kinsell, 2017[10] (29161972) Pre-post FQHC FL	27 clinics (14136 person years) 59 years 59.8% 42.4% African American, 49.7% White, 1.5% Asian, 6.4% other (unspecified), 46.3% Hispanic Diabetes NR	Patient-centered medical home 3 years Patient + System Other	Pre-post	Process of care HbA1c, BP, BMI (primary), interaction effects of race, age, and payer type African Americans had significantly worse HbA1c and BP values compared to Caucasian patients	Mixed	No No No NR

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Kitzman, 2022[11] (35497399) Observational-Cohort Community-based TX	445 46 years African American 63.3%, Hispanic 21.8% Hypertension, cardiovascular disease, diabetes NR	Integration of population health strategies into primary care 12 months Patient + System Multiple	Pre-post	Clinical outcomes BP, HbA1c (primary), participation, ED use and cost patterns, and IP use and cost patterns NR	No effect	Yes No No Government
Paul, 2020[12] (33416685) Pre-post FQHC NM	867 54 years 57% Hispanic/Latino 66% Diabetes NR	Project ECHO (Extension for Community Healthcare Outcomes): is an innovative, scalable model of health care that extends specialty care to medically underserved areas through ongoing telementorship of community primary care providers 1 year System Multiple	Pre-post	Patient experience of care; equity of service Healthcare access, and quality (primary) NR	Mixed	No No No NR
Rovner, 2020[13] (32043561) RCT Clinic PA	101 68 years 62% African American Diabetes NR	Two white providers delivered standardized treatment and diabetes education tailored to participants' cognitive abilities 6 months Patient Provider/Clinician	Head-to-Head	Clinical outcomes HbA1c NR	No effect	No No No Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Sharp, 2018[14] (29121408) RCT Clinic IL	244 54 years 67.2% African American/Black 73.4%, Hispanic/Latino 26.6% NR	(Group 1): Pharmacist +CHW (Pharmacists provided medication and disease management services to patients following an established Pharmacist Management Protocol, which included a comprehensive needs assessment, health promotion, patient-centric goal setting and education, interventions to encourage behavioral change, and collaboration with the PCP); (Group2): Pharmacist only 24 months Patient + System Multiple	Pre-post	Clinical outcomes HbA1c (primary), systolic blood pressure, diastolic blood pressure, HDL, LDL, BMI, QoL, and perceived social support NR	No effect	Yes No No Government
Zullig, 2018[15] (29432589) Pre-post Clinic NC, MI, WV	252 NR NR African American Cardiovascular disease NR	Cholesterol, Hypertension, And Glucose Education (CHANGE): self-management education modules and medication management facilitation 12 months Patient + System CHW	Pre-post	Clinical outcomes HbA1c NR	Positive	Yes Yes No Government

Abbreviations: ART = Antiretroviral therapy, BMI = body mass index, BP = Blood pressure, BT = brachytherapy, CHW = Community health workers, EBRT = External beam radiation therapy, ED = Emergency department, EHR = Electronic health records, FQHC = federally qualified health center, HbA1c = Glycated hemoglobin, HDL = high-density

lipoprotein, HIV = human immunodeficiency virus, LDL = low-density lipoprotein, NR= Not reported; PCP = Primary care provider, PMID = PubMed Identification Number, NR = not reported, QoL = Quality of life, RCT = randomized controlled trial

Collaborative Care Model

Table D.2. Characteristics of included studies: collaborative care model

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Dixon, 2018[16] (29237095) Observational-Cohort Hospital VA	377 48 years 50% Black 80%, White 17% Hypertension NR	Care coordination with pharmacist-physician collaboration 12 months Patient + System Provider/Clinician	Standard/usual care	Process of care Time from the initial visit to the first follow-up visit with a BP <140/90 mm Hg NR	Positive	No NR NR NR
Doe, 2020[17] (3229107) Observational-Cohort Hospital MI	541 62 years 100% Hispanic 30%, Asian 29%, Black 20%, White 15% Cancer NR	Care coordination 2 years System Researcher/Admin	Standard/usual care	Process of care Mean time from diagnosis to treatment, and patient compliance NR	No effect	No NR NR Academic
Flynn, 2020[18] (32525347) Observational-Cohort FQHC TX	760 54 years 70% Hispanic/Latino Mental health NR	Care coordination, patient education, patient navigation, nutrition services 12 months Patient + System Multiple	Standard/usual care	Clinical outcomes Improved HbA1c (primary), BP, BMI, depressive symptoms, and quality of life NR	No effect	Yes NR NR NR
Kaltman, 201926[19] (30816751) NonRCT Clinic DC	138 84.8% 48 years Hispanic/Latino Mental health NR	Adapted collaborative care program 8 months Patient + System Researcher/Admin	Head-to-head	Clinical outcomes Changes in depressive symptoms, changes in trauma exposure/PTSD symptoms, satisfaction with care NR	Mixed	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Millender, 2020[20] (NA) Pre-post Community-based FL	314 37 years Hispanic 22%, Black/African American 35.6%, White 47.5%, Other/multiracial (unspecified) 16.9% 62.7% Mental health NR	Nurse-led interprofessional model of care 5 years System Provider/Clinician	Pre-post	Clinical outcomes; process of care; care utilization; cost/financial reimbursement Successfully completed transition plan, psychiatrically stable, gained connection to community mental health provider, and had health insurance before exit NR	Positive	Yes NR NR Government
Narain, 2020[21] (32144694) NonRCT Clinic CA	1195 64 years NR Black Diabetes NR	UCMyRx: involves embedding clinical pharmacists trained in motivational interviewing into primary care practices to co-manage complex patients along with their primary care physicians NR System Multiple	Standard/usual care	Clinical outcomes HbA1c, and systolic blood pressure NR	Mixed	No NR NR Multiple
Ray, 2020[22] (31381470) Mixed-method FQHC WI	99 56 years 47% Hispanic 3%, White 3%, African American 94% Hypertension, Diabetes NR	Pharmacists within a primary care team managed patients with chronic illnesses utilizing a collaborative practice agreement NR System Other	Pre-post	Clinical outcomes HbA1c NR	Mixed	No NR NR NR

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Ross, 2020[23] (32945767) IS FQHC MS	335 60 years 61.2% Black 95%; white 4.5%; 0.5% other race (unspecified) Hypertension, diabetes, other CC NR	Educational topics 1 year Patient + Health Professional + System Multiple	Pre-post	Process of care MTM intervention score (primary), BP, triglycerides, HbA1c, cholesterol, and LDL NR	Positive	Yes NR NR Government
Sous, 2021[24] (34909549) Pre-post Clinic NY	50 48 years 60% NR Diabetes NR	Integrated care management 12 months Patient + System Patient navigator	Pre-post	Process of care; care utilization Chronic disease parameters, and care utilization NR	Mixed	Yes NR NR Academic
Swavely, 2020[25] (31226884) Mixed-method Clinic PA	200 NR 59% African American 74%, Asian 2%, 10% White, Hispanic/black 6%, Hispanic/other 5%, Other (unspecified) 4% Mental health NR	The program included using a behavioral health technology platform, a behavioral health collaborative composed of community mental health agencies, and a community health worker 7 months Patient + System NR	Standard/usual care	Clinical outcomes Rate of patients diagnosed with depression NR	Positive	Yes NR NR NR

Abbreviations: BMI = body mass index, BP = Blood pressure, CC = chronic condition, FQHC = federally qualified health center, HbA1c = Glycated hemoglobin, IS = implementation science, LDL = low-density lipoprotein, MTM = medication therapy management, NA = not available, NR = not reported, PMID = PubMed Identification Number, PTSD = post-traumatic stress disorder, RCT = randomized controlled trial

Comprehensive System-Level Change

Table D.3. Characteristics of included studies: comprehensive system level change

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Cheng, 2018[26] (29321134) RCT Public Health System CA	404 57 years 40% Hispanic 68%, Black 15%, Asian 10% Cardiovascular disease NR	Nurse practitioner/physician assistant care manager, group clinics, self-management support, report cards, decision support, and ongoing care coordination 12 months Patient + System Provider/Clinician	Standard/usual care	Clinical outcomes Change in systolic blood pressure NR	No effect	No NR NR Government
Cruz, 2022[27] (36374606) QI Other NM	2920 55 years 38% White 30%, Hispanic 60%, Native American 1.5% Multiple NR	A hub to connect referred patients to self-management programs 2 years, 9 months Patient + Health Professional + System Multiple	Pre-post	Clinical outcomes; BMI, systolic blood pressure, diastolic blood pressure, HbA1c	Mixed	No NR NR Government
Gallegos, 2022[28] (35068248) QI FQHC, UIHC CO	NR NR NR American Indian/Alaska Native Other CC NR	Access improvement, financial barrier reduction 3 years Patient + System Other	Pre-post	Process of care; cost/financial reimbursement; equity of service Reduction of financial barriers, increased patient access to affordable medications, and augmented integrated care model NR	Positive	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Lopez, 2019[29] (31095056) Islam, 2023[30] (36815464) NonRCT Clinic NY	14 practices (6974 patients) NR 46.6% Asian Hypertension NR	EHR health information technology 12 months Patient + Health Professional + System Provider/Clinician	Pre-post	Clinical outcomes **BP**, acceptability, feasibility, and fidelity NR	Positive	No NR NR Government
Schoenthaler, 2020[31] (31625041) RCT Clinic NY	119 61 years 49.6% Hispanic/Latino Hypertension NR	Health needs registry + coaching 6 months Patient + System Multiple	Standard/usual care	Process of care Medication adherence (primary), BP, and self-reported medical adherence NR	No effect	No NR NR Foundation
Soreide, 2022[32] (35420749) Observational-Cohort Clinic MI	222 60 years 57% Black 96.8%, Hispanic 1%, White 3% Hypertension NR	System multilevel QI care process Pharmacist-led hypertension management program 2 years Patient + System Provider/Clinician	Head-to-Head	Clinical outcomes BP goals at 3 months (primary), BP goals at 6 months, time and number of visits to goal, adherence	Positive	No NR NR NR
Tuot, 2018[33] (29699885) RCT Public health system CA	746 57 years 53% non-Hispanic White 8%, Black 35.7%, Hispanic 24.5%, Asian 24.4% Chronic kidney disease NR	CKD registry 12 months Health Professional + System Other	Standard/usual care	Clinical outcomes Systolic blood pressure NR	No effect	No NR NR Government

Abbreviations: BMI = body mass index, BP = Blood pressure, CC = chronic condition, CKD = chronic kidney disease, EHR = Electronic health records, FQHC = federally qualified health center, HbA1c = Glycated hemoglobin, NR = not reported, PMID = PubMed Identification Number, QI = quality improvement, RCT = randomized controlled trial, UIHC = urban Indian health clinic

Electronic Health Records-Based

Table D.4. Characteristics of included studies: Electronic Health Records-based

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Bettano, 2019[34] (31441768) IS Clinic MA	21,701 (aim 1), 3,817 (aim 2) NR NR Non-Hispanic Black 10.4%, Hispanic 38% Non-Hispanic White 36.5%, other 15.1% Hypertension NR	Clinical-Community Partnerships for Prevention (CCPP): bidirectional referrals between clinic and community partnership 4 years Health Professional + System Other	Standard/usual care	Care utilization Completing an e-Referral (primary), and improvements in BP NR	Mixed	Yes NR NR Government
Cunningham, 2017[35] (28368951) RCT Clinic CA	1181 45 years 11% White 46%, Latino 28%, Black 22% HIV NR	EHR - bi-directional exchange of laboratory information 3 years Patient + System Provider/Clinician	Pre-post	Process of care; clinical outcomes ART pharmacy fill, and HIV viral load NR	Positive	No NR NR Government

Abbreviations: ART = antiretroviral therapy, BP = blood pressure, EHR = electronic health record, HIV = human immunodeficiency virus, IS = implementation science, NR = not reported, PMID = PubMed Identification Number, RCT = randomized controlled trial

Mobile-Health Single Component

Table D.5. Characteristics of included studies: mHealth single component

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Anthony, 2019[36] (31456465) Pre-post Clinic TX	331 40 years 18% Hispanic/Latino HIV NR	Text appointment reminders (mHealth) 14 months Patient Other	Standard/usual care	Process of care Change in clinic follow-up adherence rates NR	Positive	No NR NR NR
Chandler, 2019[37] (30959858) RCT Clinic SC	54 45 years 65% Hispanic/Latino Hypertension NR	Mobile app medication adherence (mHealth) 9 months Patient + Health Professional Other	Head-to-Head	Clinical outcomes Changes in clinic based systolic blood pressure NR	Positive	No NR NR Government
Denizard-Thompson, 2020[38] (32381556) RCT Clinic NC	450 57 years 54% White 57%, African American 38%, Hispanic 2% Cancer NR	Decision aid, guided patient self-ordering of tests, follow-up electronic message reminders (mHealth) 24 weeks Patient Provider/Clinician	Standard/usual care	Process of care Chart-verified completion of a colorectal cancer screening test within 24 weeks NR	Positive	No NR NR Government
Fortmann, 2017[39] (28600309) RCT FQHC CA	126 48 years 75% Hispanic/Latino Hypertension, Diabetes NR	Motivational, educational, and/or call-to-action text messages (mHealth) 6 months Patient Researcher/Admin	Standard/usual care	Clinical outcomes HbA1c (primary), lipids, blood pressure, BMI NR	Positive	No NR NR Foundation

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Muller, 2017[40] (28001304) RCT Clinic AK	2386 47 years 58% American Indian/Alaska Native Cancer NR	Three culturally tailored text messages one month apart 12 months Patient + System NR	Standard/usual care	Process of care Screening uptake NR	Mixed	Yes NR Government
Whiteley, 2021[41] (33483897) Observational-Cohort Other MS	81 25 years NR Black/African American 85.5, Hispanic/Latinx 6% HIV NR	iPhone gaming adherence intervention (mHealth) 24 weeks Patient Other	Standard/usual care	Process of care Adherence NR	Positive	No NR NR Government

Abbreviations: BMI = body mass index, FQHC = federally qualified health center, HbA1c = Glycated hemoglobin, NR = not reported, RCT = randomized controlled trial

Other Single Component

Table D.6. Characteristics of included studies: other single component

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Amornsiripanitch, 2022[42] (34266693) Pre-post Community-based MA	1576 56 years 100% Black or African American 25.5%, Hispanic 15.5%, other(unspecified) 27%, Asian 3.5%, White 17.5%, declined/unavailable 11% Cancer NR	Electronic worklist for mammography screening 9 months Health Professional + System Researcher/Admin	Pre-post	Process of care Turnaround time (primary), diagnostic exam, and time to tissue sampling NR	Positive	Yes NR NR Government
Cameron, 2020[43] (33416742) RCT FQHC NY	538 58 years 74% 53% Black, 43% Hispanic, Cancer NR	Communication skills training, screening 10 months Patient + Health Professional + System Provider/Clinician	Head-to-head	Process of care CRC screening completion within six months of recommendation, participant knowledge, and documentation of CRC screening recommendation NR	No effect	No NR NR Government
Carlson, 2021[44] (33410359) RCT Clinic OH	175 NR 0% 85% Black/African American, 7% White, 2% Asian/PI Cancer NR	Screening outreach events 3 years Patient Multiple	Head-to-Head	Process of care Prostate screening decision, knowledge improvement NR	No effect	No NR NR Foundation

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Egede, 2017[45] (28581821) RCT Clinic SC	113 55 years 81% Black 75%, White 21% Diabetes NR	Telehealth monitoring device with a case manager (mHealth) 6 months Patient + Health Professional Provider/Clinician	Standard/usual care	Clinical outcomes HbA1c NR	Positive	No NR NR Government
Eggly, 2017[46] (28073615) QI Hospital MI	114 57 years 90% Black Cancer NR	Communication coach, communication guide booklet 2 weeks Patient + Health Professional Provider/Clinician	Standard/usual care	Process of care Observational measures: patient active participation, oncologist-Patient talk time ratio, oncologist patient-centered communication (primary), self-reported measures: patient-centeredness, patient role in treatment decisions, patient trust in oncologist NR	Mixed	No NR NR Government
Green, 2019[47] (3571190) RCT Clinic TX	838 48 years 65% White 49%, Asian 27%, Black 16% Cancer NR	Mailings with monetary incentive to increase screening 1 year Patient Provider/Clinician	Head-to-Head	Process of care Completion of any colorectal cancer screening (primary), FIT or colonoscopy completion NR	No effect	No NR NR Government
Hoffman, 2017[48] (28001305) RCT Clinic TX	88 57 years 70% African American Cancer NR	Patient entertainment-education 3 months Patient Provider/Clinician	Head-to-Head	Process of care Ordered screening test, completed screening at 3 months NR	Mixed	No NR NR Multiple

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Kranker, 2018[49] (28279086) RCT FQHC MS	544 NR 61% African American Hypertension, Diabetes NR	Financial incentives for weight loss, medication compliance and physical activity 1 year Patient Other	Head-to-Head	Process of care; clinical outcomes Difference in engagement, blood pressure, cholesterol, blood glucose, and HbA1c NR	No effect	No NR NR Foundation
Laiyemo, 2019[50] (31478919) RCT Clinic DC	399 58 years 53% Black Cancer NR	Peer navigation, screening 4 weeks Patient Peer/Lay Community Outreach	Standard/usual care	Process of care Risk of attending colonoscopy appointment, relative risk of adequate bowel preparation (primary), opinions of participants NR	Mixed	Yes NR NR NR
Loi, 2017[51] (27817180) RCT Clinic Unclear	221 55 years 70.6% Hispanic/Latino Cancer, mental health NR	Self-administered stress management intervention 3 months Patient + System Other	Standard/usual care	Clinical outcome QoL (primary), association between levels of acculturation in Hispanics and helpfulness of intervention NR	No effect	No NR NR Government
Lyles, 2019[52] (30850461) RCT Public Health System CA	93 54 years 52% White 39%, Black 29%, Asian or PI 14%, Hispanic 12%, 6% NR	Online video curriculum 6 months Patient Researcher/Admin Multiple	Head-to-Head	Process of care Portal log-in post training (primary), self-reported attitudes and skills collected between baseline and follow-up NR	No effect	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
May, 2017[53] (27623103) Non-RCT Clinic CA	1559 60 years 5% African American 36%, Hispanic 13%, Asian or PI 3%, Unspecified 48% Cancer NR	Opportunity to "fast track" to an endoscopy appointment on short notice 10 months Patient Other	Pre-post	Process of care Screening uptake NR	Positive	No NR NR Government
Mehranbod, 2019[54] (31820116) RCT Clinic CA	301 57 years 45% Latino 70%, African American 30% Diabetes NR	Automated telephone reminder system 7 weeks Patient Other	Standard/usual care	Care utilization Show Rates for Diabetic Retinopathy Screening NR	Positive	No NR NR Foundation
Noya, 2020[55] (32114939) NonRCT Clinic CA	139 54 years 60% Hispanic/Latino NR	Culturally tailored shared medical appointment program 6 months Patient + Health Professional + System Multiple	Standard/usual care	Clinical outcome HbA1c (primary), LDL, BP NR	Positive	Yes NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Payan, 2020[56] (32449396) RCT Hospital CA	240 52 years 100% Hispanic/Latino Cancer NR	Group 1 (CUIDARSE brochure) received the formatively developed Spanish-language breast health brochure featuring four fictional narratives from Latinas with varying BC risk levels; For Group 2 (CHW-delivered CUIDARSE brochure), a CHW verbally reviewed content from the CUIDARSE brochure in a 15-20 minute session 3 months Patient Community health worker	Head-to-Head	Process of care Knowledge, perceived susceptibility, self-efficacy NR	Positive	No NR NR Government
Ritchie, 2019[57] (29986597) Observational-Cohort Hospital CO	1140 48 years 77.5% Hispanic 58.9%, non-Hispanic white 21.5%, non-Hispanic black 19.8% Diabetes NR	The National Diabetes Prevention Program (NDPP): lifestyle intervention 1 year Patient Other	Head-to-Head	Process of care Duration & intensity of NDPP attendance, weight loss NR	Positive	No NR NR Multiple
Roussi, 2018[58] (28810355) RCT Clinic PA	128 47 years 0% African American 52%, Caucasian 48% Cancer NR	Cognitive–affective preparation 6 months Patient Researcher/Admin	Head-to-Head	Process of care Knowledge NR	Mixed	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Schwartz, 2021[59] (34505886) Observational-Cohort FQHC IL	188 51 years 100% Hispanic 37.2%, Non-Hispanic African American 60.6%, Other (unspecified) 2.1% Cancer NR	Individualized breast cancer risk estimate 13 months Patient Researcher/Admin	Head-to-Head	Process of care Mammography rate NR	No effect	No NR NR Government
Seible, 2021[60] (3571782) RCT Community-based CA	83 62 years 61% Hispanic/Latino Cancer NR	Patient-provider language concordance, the same physicians speaking Spanish directly to the patient NR Patient + Health Professional Provider/Clinician	Head-to-Head	Patient experience Satisfaction NR	Positive	Yes NR NR Government
Shapiro, 2020[61] (31515735) RCT FQHC CA	207 54 years 49% Hispanic/Latino 62%, 32% Non-Hispanic Black, 41% other (unspecified) Hypertension NR	(Group 1) a combination of fixed payments, contingent payments, and lotteries; (Group 2) $20 at each study visit 6 months Patient Researcher/Admin	Comparative effectiveness	Process of care Systolic blood pressure, diastolic blood pressure NR	Mixed	No NR NR Government
Valdez, 2018[62] (27573420) RCT Clinic CA	943 NR 100% Hispanic/Latino Cancer NR	Interactive multimedia cervical cancer education 6 months Patient Other	Standard/usual care	Care utilization Self-reported cervical cancer screening, knowledge, attitude NR	No effect	Yes NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Wyatt, 2020[63] (33252951) Pre-post Community-based CA	91 50 years 49% African American HIV NR	Couples-based behavioral HIV prevention 3 months Patient Provider/Clinician	Pre-post	Process of care Condom use NR	Mixed	Yes NR NR Government

Abbreviations: BMI = body mass index, BP = blood pressure, CRC = Colorectal cancer, FIT = fecal immunochemical test, FQHC = federally qualified health center, HbA1c = Glycated hemoglobin, IS = implementation science, LDL = low-density lipoprotein, NDPP = National diabetes prevention program, NR = not reported, PMID = PubMed Identification Number, QI = quality improvement, QoL = Quality of life, RCT = randomized controlled trial

Patient Education

Table D.7. Characteristics of included studies: patient education

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Ali, 2019[64] (31662806) Pre-post Clinic NY	109 58 years 75% Hispanic 75%, African American 25%, 2% other, unspecified Asthma NR	Group education and asthma control program 27 months Patient + Health professional Provider/Clinician	Pre-post	Care utilization; avoidable hospital admission Number of patients requiring ER visits and hospital admission before and after intervention (primary), asthma control, requirement for systemic steroids NR	Mixed	No NR NR NR

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Calderon-Mora, 2020[65] (31455085) RCT Community-based TX	300 44 years 100% Hispanic/Latino Cancer NR	Patient education, screening 1 year Patient Community Health Worker	Standard/usual care	Care Utilization Self-reported cervical cancer screening at 4 months (primary), a comparison of change scores in constructs from the HBM, TRA, and SCT NR	No effect	Yes NR NR Government
Chao, 2017[66] (28035649) Observational-Cohort Clinic FL	100 50 years 85% African American 78%, Asian 11%, Hispanic 11% Cancer NR	Patient education 2 months Patient Researcher/Admin	Standard/usual care	Process of care Knowledge, perceived risk for developing melanoma, and skin self-examination practices (primary) NR	Mixed	No NR NR Academic
Christy, 2019[67] (29177920) RCT FQHC FL	270 56 years 58% White 67%, Black 26%, Other, unspecified 7% Cancer NR	Patient education 12 months Patient Provider/Clinician	Standard/usual care	Process of care Awareness, health beliefs NR	No effect	No NR NR Government
Dougherty, 2021[68] (33638816) Observational-Cohort Hospital OH	341 48 years 0% African American Cancer NR	Culturally tailored education 12 months Patient Researcher/Admin	Pre-post	Process of care Knowledge assessment NR	Mixed	Yes NR NR Multiple

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Fleming, 201869 (29309089) RCT FQHC CA	3415 60 years 57% White 33%, Asian 25%, Hispanic 22%. African American 20% Cancer NR	In person conversation, telephone, or letter about screening 12 months Patient Provider/Clinician	Head-to-Head	Care utilization FIT returns NR	Positive	No NR NR Foundation
Kopp, 202070 (32483634) RCT Clinic GA	100 60 years 40% African American Hepatitis NR	Education and counseling, online survey tool 12 weeks Patient Researcher/Admin	Standard/usual care	Process of care Treatment adherence measured through number of clinic visits attended, number of refill completed, and number of lab tests completed (primary), difference in treatment response (RVR and SVR) between control and intervention groups NR	No effect	No NR NR Academic

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Rawl, 2021[71] (33549682) RCT Clinic IN, KY	817 57 years 51% African American Cancer NR	Computer-tailored intervention assessed a participant's perceived risk, benefits and barriers to CRC screening, age, gender and family history in real time followed by tailored messages to support development of beliefs that would be most aligned with a decision to screen for CRC 6 months Patient + System Other	Head-to-Head	Process of care Screening uptake NR	Positive	Yes NR NR Government
Ridgeway, 2022[72] (4320856) RCT Clinic AZ	943 47 years 100% Hispanic/Latino Cancer NR	Patient education Bilingual written and interpersonal education to increase mammography's 1 year Patient Community health worker	Head-to-Head	Process of care MBD knowledge, awareness (primary), talking to provider about MBD and initiating screening NR	No effect	No NR NR Government
Tong, 2017[73] (27564924) RCT Community-based CA	329 NR 65% Hmong Cancer NR	CRC education 3 months Patient Peer/Lay community outreach	Head-to-Head	Process of care; care utilization Changes in self-reported ever-screening, up-to-date CRC screening NR	Mixed	Yes NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Warner, 2019[74] (30306449) Pre-post Community-based UT	318 NR 79% (21% other gender) Hispanic/Latino Cancer NR	Two promotora-led (lay health educator) educational sessions delivered over the telephone, in person at a location selected by the participant, or at one of the local businesses 13 months Patient Peer/Lay community outreach	Pre-post	Process of care Knowledge, adherence NR	Mixed	Yes NR Yes Multiple
Waterman, 2019[75] (31227225) RCT Other MO	561 54 years 51% Black 72% Other CC NR	Patient education (Group 1): Explore Transplant at Home patient-guided, 4 modules of KT education sent directly to patients using print, video, and text messages; (Group 3): Explore Transplant at Home educator-guided, the patient-guided intervention plus 4 telephonic discussions with an educator 8 months Patient Peer/Lay community outreach	Standard/usual care	Process of care Patient knowledge (primary), deceased donor kidney transplantation attitude, living donor kidney transplantation attitude NR	Positive	No NR NR Government

Abbreviations: CC = chronic condition, CRC = Colorectal cancer, ER = Emergency room, FIT = fecal immunochemical test, FQHC = federally qualified health center, HBM = Health belief model, KT = kidney transplantation, MBD = Metastatic bone disease, NR = not reported, PMID = PubMed Identification Number, RCT = randomized controlled trial, RVR = rapid virologic response, SCT = Social cognitive theory, SVR = sustained virologic response, TRA = Theory of reasoned action,

Patient Navigation

Table D.8. Characteristics of included studies: patient navigation

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Apter, 2020[76] (32673877) RCT Clinic PA	312 51 years 69% 66% African American, 24% White, 8% Hispanic Asthma NR	Patient navigation 12 months Patient Patient Navigator (employee)	Standard/usual care	Clinical outcomes Asthma control (primary), asthma-related quality of life; yearly rate of ED visits, hospitalizations and prednisone bursts NR	No effect	No NR NR Government
Castaldi, 2017[77] (27357461) Hospital Observational-Cohort NY	117 57 years 100% African American 45%, Hispanic 38.5%, Asian 8%, White 8.5 % Cancer NR	Patient Navigator 12 months Patient Patient Navigator (employee) Patient Telehealth and clinic	Standard/Usual Care	Process of care Compliance with care plan (primary), time to treatment NR	Mixed	Yes NR NR Foundation
Colson, 2020[78] (32385678) RCT Clinic NY	204 35 years 5% Black HIV NR	Peer navigation, support groups, text message reminders 12 months Patient Peer/Lay Community Outreach	Standard/usual care	Process of care Medication adherence NR	No effect	Yes NR NR Government
Corrigan, 2017[79] (28093056) RCT Public Health System IL	67 52 years 39% African American Mental Health NR	Peer navigation 12 months Patient Peer/Lay Community Outreach	Standard/usual care	Clinical outcomes General health status, psychological experience of physical health, recovery NR	Positive	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Cunningham, 2018[80] (29769078) RCT Clinic CA	356 40 years 0% (15% other gender) Black 45%, Hispanic 29%, White 26% HIV NR	Peer navigation 12 months Patient Patient Navigator (employee)	Standard/usual care	Process of care; care utilization; clinical outcomes Viral suppression, linkage to care, retention to HIV care (primary), Current ART use, retention and adherence knowledge, physical health, mental health NR	Positive	Yes NR NR Government
DeGroff, 2017[81] (28676254) RCT Hospital MA	843 55 years 56% Hispanic 40%, Black 40%, White 15%, other, unspecified 5% Cancer NR	Bilingual lay navigators provided individualized education 6 months Patient Patient Navigator (employee)	Standard/usual care	Process of care Colonoscopy within 6 months NR	Positive	Yes NR NR Government
DuHamel, 2020[82] (31742670) RCT Hospital NY	304 60 years 62% Hispanic/Latino Cancer NR	Patient navigation, CDC print materials, culturally target materials for Latinos 12 months Patient Patient Navigator (employee)	Head-to-Head	Process of care Screening colonoscopy NR	No effect	No NR NR Government
Fang, 2017[83] (27869293) RCT Community-based PA, NJ	705 53 years 100% Asian Cancer NR	Culturally relevant cancer education program, patient navigation 12 months Patient Multiple	Standard/usual care	Equity of service Cervical cancer screening in the 12 months (primary), assessment of navigation services NR	Positive	No NR NR Foundation

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Horny, 2017[84] (29162073) Observational-Cohort Hospital MA	292 56 years 55% Latino 45%, Black 44% Diabetes NR	Patient navigation Patient navigation 180 days Patient Peer/Lay Community Outreach	Standard/usual care	Process of care; clinical outcomes; care utilization HbA1c, low-density lipoprotein cholesterol, triglycerides, random urine microalbumin, appointment attendance NR	Mixed	No NR NR Foundation
Ma, 2018[85] (29131316) RCT Hospital PA	1834 patients, 32 churches 52 years 58% Asian Cancer NR	Interactive group education, patient navigation, and the engagement of health care providers, church leadership and church members in the medical field 12 months Patient Provider/Clinician	Standard/usual care	Process of care Proportion screened for HBV (primary),difference in HBV vaccination completion rates NR	Positive	Yes NR NR NR
Martin, 2017[86] (28812930) IS Clinic WI	402 NR NR African American Cancer NR	Patient (community) and provider education, immunochemical fecal occult blood test (iFOBT) distribution, and patient navigation 18 months Patient + Health Professional Multiple	Pre-post	Process of care Screening uptake (primary), cancer detected NR	Positive	Yes NR NR Multiple

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Menon, 2020[87] (31676898) Herman, 2022[88] (35081762) RCT Community-based AZ	345 NR 65% Hispanic/Latino Cancer NR	Group education, patient navigation 12 months Patient + System Community health workers	Head-to-head	Care utilization; process of care Scheduling a clinic appointment, and completion of CRC screening NR	Positive	Yes NR NR Nonprofit
Molina, 2018[89] (28933653) RCT Hospital IL	2536 59 years 100% African American Cancer NR	Patient Navigation 2 years Patient Patient Navigator (employee)	Standard/usual care	Process of care Adherence to initial referral and time to a definitive diagnosis (cancer/not cancer) NR	Positive	Yes NR NR Government
Reuland, 2017[90] (28505217) RCT Community-based NC, NM	265 58 years 65% Latino 62%, non-Latino white 15%, non-Latino Black or mixed race 23% Cancer NR	Combination decision aid plus patient navigation NR Patient Peer navigator	Standard/usual care	Process of care CRC screening NR	Positive	Yes NR NR Multiple
Rovner, 2023[91] (36745390) NonRCT Hospital PA	200 67 years 75% Black Diabetes NR	Diabetes education and behavior activation, telehealth visits with a diabetes nurse educator and primary care physicians, and clinical pharmacist recommendations 12 months Patient Multiple	Standard/usual care	Clinical outcomes ED visits, glycemic control, PIMs use, diabetes self-management, diabetes self-efficacy, depression, and medical trust	No effect	No NR NR Government

Study (PMID) **Study Design** **Study Setting** **Study Location (State)**	**Sample Size** **Age (Mean)** **Sex (% Female)** **Race/Ethnicity** **Chronic Condition** **Intersectional Features**	**Intervention Description** **Duration** **Intervention Target** **Intervention Delivery**	**Comparison Description**	**Outcome Category** **Outcomes** **Harms**	**Effect Code for Primary Outcome**	**Community Involvement (Yes/No)** **Applicability (Yes/No)** **Sustainability (Yes/No)** **Funding**
Singal, 2017[92] (27825963) RCT Public health system TX	1800 55 years 41% Hispanic 37.8%, Black 32.1%, and white 28.3% Cancer NR	(Group 1) mailed outreach invitations for screening ultrasound; (Group 2) mailed screening outreach plus patient navigation 2 years Patient Researcher/Admin	Standard/usual care	Process of care Screening participation (primary), time-to-response to outreach activities NR	No effect	Yes NR NR Government
Stitzer, 2018[93] (29883190) RCT Hospital GA, MD, MA, AL, IL, TX, CA, FL, NY, PA	801 45 years 32.6% Hispanic 11.1%; Black 77.5%; White 19.1%; Other (unspecified) 4.8% HIV NR	Project HOPE: (Group 1) patient navigation; (Group 2) patient navigation plus financial incentives 6 months Patient Patient navigator	Standard/usual care	Process of care HIV care visits, verification of active HIV medication prescription NR	Positive	No NR NR Government
Thai, 2022[94] (32880868) Pre-post Community-based VA	96 62 years 100% Asian Cancer NR	Patient navigator to provide emotional support, education, translation, and assistance with medical bills and doctor's appointments 12 months Patient Patient navigator (employee)	Pre-post	Process of care; clinical outcomes; patient experience of care Follow-up appointment adherence, psychosocial outcomes, satisfaction with navigator NR	No effect	Yes NR NR Foundation

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Thom, 2018[95] (30130430) RCT NR CA	192 61 years 34% White 21.4%, African American 56.7%, Asian 3.7%, Native American 2.1%, Pacific Islander 1.6%; other (unspecified) 14.6% COPD NR	Health coaching 9 months Patient Peer/Lay community outreach	Standard/usual care	Clinical outcomes QoL, dyspnea domain score (primary), Number of COPD exacerbations, exercise capacity, self-efficacy of COPD management NR	No effect	Yes NR NR Multiple
Vaughan, 2021[96] (32700217) Vaughan, 2022[97] (35132555) Vaughan, 2020[98] (30839244) Vaughan, 2017[99] (29047326) RCT Clinic TX	89 55 years 72% Hispanic/Latino Diabetes NR	TIME: Telehealth-Supported, Integrated Community Health Workers, Medication-Access 12 months Patient + System Multiple	Standard/usual care	Clinical outcome HbA1c (primary), BP, BMI, Weight, adherence NR	Positive	Yes NR NR Government

Abbreviations: ART = Antiretroviral therapy, BMI = body mass index, BP = blood pressure, CDC = centers for disease control, COPD = Chronic obstructive pulmonary disease, CRC = Colorectal cancer, ED = Emergency department, HbA1c = Glycated hemoglobin, HBV = Hepatitis B virus, HIV = human immunodeficiency virus, IS = implementation science, NR = not reported, PMID = PubMed Identification Number, QoL = Quality of life, RCT = randomized controlled trial

Prevention/Lifestyle Support

Table D.9. Characteristics of included studies: prevention/lifestyle support

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Ahn, 2018[100] (28279084) Pre-post Community-based TN	149 51 years 75% African American 81%, White 10.2%, Hispanic 8.8% Diabetes, Obesity NR	Church Health Center's Diabetic Obesity Weight Loss Pilot Program-Healthy Living (CHC-HL) 18 months Patient Multiple	Standard/usual care	Clinical outcomes BMI, HbA1c, blood pressure, cholesterol, triglycerides (primary), changes in self-reported outcomes NR	Positive	Yes NR NR Foundation
Bachhuber, 2017[101] (29212532) IS FQHC NY	9119 49 years 68% Hispanic 55%, 10% Black, 35% any other race Mental health, substance abuse NR	Alcohol Screening and Brief Intervention, screening 1 year Patient + Health Professional Provider/Clinician	Pre-post	Process of care Documentation of screening, screening positive for unhealthy drinking, and documentation of BI provision NR	Positive	No NR NR Government
Blow, 2017[102] (28127808) RCT Hospital MI	780 31 years 56% Black 52.2%, White 39.2% HIV NR	Virtual health counseling 12 months Patient Provider/Clinician	Standard/usual care	Clinical outcomes Drug use at 6 and 12 months (primary), weighted drug-days and days of marijuana use NR	No effect	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Brown, 2022[103] (35849139) RCT Nonprofit System CA	1087 NR 100% Asian 37%, White 26%, Hispanic 24%, Black 5%, Pacific Islander 5% Diabetes NR	Telehealth diabetes prevention lifestyle program 6 weeks – 6 months Patient Provider/Clinician	Standard/usual care	Patient experience of care Acceptability of behavior change techniques, acceptability of program components, and perceived success NR	Mixed	No Yes NR Nonprofit
Castaneda, 2018[104] (28634873) IS Clinic CA	200 59 years 73% Hispanic/Latino Cancer NR	(1): opportunistic clinic visit "in-reach" intervention; (2): system-level "outreach" intervention 1 year Patient + Health Professional + System CHW	Pre-post	Process of care Screening uptake (primary), and guideline appropriate follow-up NR	Positive	No NR NR Multiple
Daumit, 2020[105] (32530472) RCT Clinic MD	269 49 years 53% White 51%, Black 46% Cardiovascular disease NR	Health coach and nurse counseling, care coordination 18 months Patient Provider/Clinician	Standard/usual care	Clinical outcomes Change in the risk of cardiovascular disease from the global Framingham Risk Score NR	Positive	No NR NR Government
Dawson-Rose, 2017[106] (29229000) RCT Clinic CA	208 45 years 23% Black 40%, Caucasian 31%, Hispanic 17% HIV NR	Computer-administered or clinician-administered SBIRT 6 months Patient Provider/Clinician	Head-to-Head	Clinical outcomes Specific Substance Involvement Scores NR	Mixed	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Fung, 2018[107] (29578592) RCT Clinic CA	395 60 years 81% Asian Cancer NR	Education seminars 2 months Patient Researcher/Admin	Head-to-Head	Process of care Changes in knowledge, attitudes, and screening completion/intent NR	Mixed	Yes NR NR Government
Lim, 2019[108] (31807731) NonRCT Community-based NY	160 46 years 69% Asian (Sikh) Diabetes NR	Facilitated group sessions (nutrition/cooking, physical activity, stress management, healthcare consultations) 6 months Patient Community health worker	Pre-post	Process of care Weight, BMI, Physical Activity, diet, blood pressure and health self-efficacy (primary), cholesterol, glucose, diabetes knowledge NR	Mixed	Yes NR NR Government
Lutes, 2017[109] (28660719) RCT Community-based NC	200 53 years 100 African American Diabetes NR	Phone-based education 12 months Patient Community health worker	Head-to-Head	Clinical outcomes; process of care Change between groups in HbA1c, weight and blood pressure (primary), self-reported empowerment, diabetes self-efficacy scale, medication adherence, self-care NR	Mixed	Yes NR NR Multiple
Mayer, 2019[110] (31441328) RCT Community-based NY	402 44 years 85% Latino 73%, Black 23% Diabetes NR	Patient education 6 months Patient Peer/Lay Community Outreach	Standard/usual care	Clinical outcomes Achieved 5% weight loss, reduced probability of developing diabetes over the next 7.5 years NR	Mixed	Yes NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Samuel-Hodge, 2022[111] (35422132) Pre-post FQHC NC	255 57 years 72.2% Non-Hispanic Black 87.4%, Non-Hispanic white 9.9% Cardiovascular disease NR	The CHANGE Intervention: A CHW-delivered, low-intensity, 4-month behavioral lifestyle intervention promoting a southern-style Mediterranean dietary pattern and physical activity 4 months Patient Community health worker	Pre-post	Process of care Weight, blood pressure, self-reported dietary and physical activity behaviors NR	Mixed	Yes NR NR Government
Schneider, 2021[112] (33306562) RCT Other IL	413 26 years Black 0% (6% trans/feminine) HIV NR	The intervention is composed of 2 parts: (1) a half-day, small group training workshop led by intervention staff and (2) a series of check-in calls (or “boosters”) between intervention staff and participants 110 weeks Patient Researcher/Admin	Head-to-Head	Process of care; care utilization PrEP referral, linkage to clinical care among network members NR	Positive	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Schulz, 2017[113] (27357203) Pre-post Community-based MI	603 47 years 90% Latino 35.2%, Non-Latino Black 60.5%, Non-Latino white 0.7%; Other (unspecified) 3.6% Cardiovascular disease NR	Walk Your Heart to Health (WYHH) 32 weeks Patient Peer/Lay Community Outreach	Pre-post	Process of care Adherence/participation, association between participation and steps; associations between steps and cardiovascular risk NR	Positive	Yes NR NR Government
Stolley, 2017[114] (28628363) RCT Community-based IL	246 58 years 100% African American Cancer NR	Moving Forward: Interventionist-guided weight loss program supporting behavioral changes 6 months Patient Other	Standard/usual care	Process of care Anthropometric body composition, behavioral outcomes NR	Mixed	Yes NR NR Government
Taylor, 2018[115] (29428830) RCT Community-based DC	213 58 years 100% African American Other CC NR	(Group 1): supervised facility-based exercise intervention; (Group 2): home-based exercise intervention 6 months Patient NR	Standard/usual care	Clinical outcomes HRQoL NR	No effect	Yes NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Victor, 2018[116] (29527972) Observational-Cohort Community-based CA	319 55 years 0% Black Hypertension NR	Pharmacist-led: barbers encouraged meetings in barber- shops with specialty-trained pharmacists who prescribed drug therapy under a collaborative practice agreement with the participants' doctors 6 months Patient Other	Head-to-Head	Clinical outcomes Systolic blood pressure (primary), diastolic blood pressure Rate of meeting blood pressure goals Number of antihypertensive drugs, adverse drug reactions, self-rated health, patient engagement NR	Positive	Yes NR NR Multiple
Wagner, 2021[117] (33957271) Polomoff, 2022[118] (34838475) Wagner, 2022[119] (36307274) RCT Community-based CT	188 56 years 78% Cambodian Diabetes NR	Diabetes Risk Reduction through Eat, Walk, Sleep and Medication Therapy Management" (DREAM): cardiometabolic lifestyle curriculum 12 months Patient Peer/Lay community outreach	Head-to-Head	Process of care; care utilization; Patient experience of care Fidelity, satisfaction, attendance, medication adherence, barriers, beliefs NR	Positive	Yes NR NR Multiple
Yi, 2019[120] (31400096) Pre-post Community-based NY, NJ	348 55 years 64.2% Asian Hypertension NR	Keep on Track (KOT) Program: community blood pressure monitoring program 6 months Patient Multiple	Pre-post	Clinical outcomes; process of care Health-related self-efficacy, systolic blood pressure, diastolic blood pressure NR	Mixed	Yes NR NR Government

Abbreviations: BI = brief intervention, BMI = body mass index, CC = chronic condition, CHW = Community health workers, HbA1c = Glycated hemoglobin, FQHC = federally qualified health center, HRQoL = Health-related quality of life, NR = not reported, PMID = PubMed Identification Number, PrEP = pre-exposure prophylaxis, RCT = randomized controlled trial, SBIRT = Specific substance involvement score

Self-Management Support

Table D.10. Characteristics of included studies: self-management support

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Applegate, 2021[121] (33443695) RCT Clinic NY	140 52 years 46% Hispanic 58%, not Hispanic 42%, White 7.6%, Black and/or African American 18.9%, Asian 5.3%, More than one race 5.3%, Unknown/not reported 62.9% Hypertension, Mental health, Obesity NR	Project ACTIVE: designed to provide personalized and patient-centered preventive care in a busy urban ambulatory clinic 12 months Patient + System Multiple	Standard/usual care	Process of care Change in number of unfulfilled preventive care goals from the 12 USPSTF grade A and B recommendations, and gain in estimated life expectancy NR	Positive	No NR NR Government
Ben-Zeev, 2018[122] (29793397) RCT Clinic NH	163 49 years 41% African American 65%, White 27%, other or more than 1 race 7.4% Mental health NR	FOCUS: a multimodal, smartphone-delivered intervention for people with serious mental illness that includes three components- FOCUS application (app), clinician dashboard, and mHealth support specialist 2 years Patient + System Provider/Clinician	Head-to-Head	Clinical outcome; process of care; patient experience of care Engagement, satisfaction, and general psychopathology NR	Mixed	No NR NR NR

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Bouchard, 2019[123] (30285186) RCT Clinic IL	181 68 years 0% White 56%, Black 39%, Hispanic 3%, Asian 1% Cancer NR	Cognitive behavioral stress management 12 months Patient Provider/Clinician	Head-to-Head	Patient experience of care Participant engagement and acceptability of tablet-delivered CBSM NR	Mixed	No NR NR Government
Boulware, 2020[124] (31705466) RCT Clinic MD	159 57 years 74% African American Hypertension NR	Disease management support, home BP monitor 12 months Patient Community Health Worker	Head-to-Head	Clinical outcomes BP control (JNC-7) (primary), BP change NR	No effect	No NR NR Academic
Bruhl, 2020[125] (32151753) RCT Clinic TX	263 NR NR Black Asthma NR	Disease management support via telephone and guidebook 12 months Patient + Health professional Provider/Clinician	Head-to-Head	Process of care; care utilization; clinical outcomes Asthma control (ACT), asthma quality of life (MiniAQLQ), and ED visits over the previous 12 months NR	Mixed	No NR NR Nonprofit
Cabral, 2018[126] (29306990) Observational-Cohort Clinic FL, NY	348 39 years 26% African American 52%, Hispanic 44%, Other, unspecified 4% HIV NR	Peer Navigation + education 12 months Patient Peer/Lay Community Outreach	Standard/usual care	Care utilization; clinical outcomes Retention in care and viral suppression at 12 months NR	No effect	No NR NR Nonprofit

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Cene 2017[127] (27886435) Primary Care Practices Observational-Cohort NC	525 58 years 68% African American 54%, White 56% Hypertension NR	Phone coaching/BP monitoring at home 24 months Patient Provider/Clinician	Pre-post	Clinical outcomes Blood pressure (primary), racial differences NR	Mixed	Yes NR NR Government
Dang, 2017[128] (28051357) RCT Hospital FL	61 55 years 36% White 75%, Black 25% Cardiovascular disease NR	Mobile phone-assisted case management 3 months Patient Provider/Clinician	Standard/usual care	Process of care Self-Efficacy for Managing Chronic Disease, health distress scale, general health NR	Mixed	No NR NR NR
Daugherty, 2021[129] (34913976) RCT Clinic CO	960 60 years 60% Black 55%, White 45% Hypertension NR	Writing exercise delivered immediately prior to a clinic appointment 6 months Patient Provider/Clinician	Standard/usual care	Process of care Adherence to BP medications (primary), systolic and diastolic BP NR	No effect	No NR NR Government
Eck, 2021[130] (34264812) QI FQHC NC	93 58 years 44% Black 65%, Hispanic 30% Hypertension NR	Patient education 1 year Patient Provider/Clinician	Pre-post	Process of care Self-monitoring blood pressure NR	Positive	No NR NR Foundation
Egede, 2017[131] (28337686) RCT Hospital SC	255 53 years 45% African American Diabetes NR	Telephone-delivered behavior skills 12 months Patient Other	Head-to-Head	Clinical outcomes HbA1c NR	No effect	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Ell, 2017[132] (28684357) Oh, 2018[133] (29588293) RCT Clinic CA	348 56 years 85% Hispanic/Latino Mental health, diabetes NR	Bilingual promotoras, psychoeducational sessions 12 months Patient + Health Professional Community Health Worker	Standard/usual care	Process of care; clinical outcomes Receipt of depression care, prescription adherence, symptom improvement NR	No effect	No NR NR Nonprofit
Hazard Vallerand, 2018[134] (29466352) RCT Clinic MI	310 55 years 65% African American Cancer NR	Nurse-delivered home and telephone intervention 12 weeks Patient Provider/Clinician	Standard/usual care	Clinical outcomes Pain, distress, function NR	Mixed	No NR NR Government
Heisler, 2019[135] (31027477) RCT Hospital MI	300 63 years 3% Black 62%, White 36% Diabetes NR	Peer coaching, weekly phone calls 12 months Patient Peer/Lay Community Member	Head-to-Head	Clinical outcomes HbA1c (primary), blood pressure, diabetes social support NR	No effect	No NR NR Government
Heitkemper, 2017[136] (29059017) RCT FQHC NY	220 51 years 67 % Hispanic 52%, African American 42% Diabetes NR	Health education via mailings, monetary and lottery incentives 12 months Patient + System Researcher/Admin	Standard/usual care	Process of care Length of MODD sessions, type of help needed during sessions, and focus of MODD during sessions NR	Mixed	No NR NR Government
Hightow-Weidman, 2021[137] (33740213) RCT Clinic FL, IL, NY, LA, NC	146 21 years 0% Black 80%, White 13% HIV NR	Behavioral intervention mobile app 39 weeks Patient Patient Navigator (employee)	Head-to-Head	Process of care Viral load suppression (primary), engagement in care, ART uptake, ART adherence NR	NR	No NR NR Government

Study (PMID) **Study Design** **Study Setting** **Study Location (State)**	**Sample Size** **Age (Mean)** **Sex (% Female)** **Race/Ethnicity** **Chronic Condition** **Intersectional Features**	**Intervention Description** **Duration** **Intervention Target** **Intervention Delivery**	**Comparison Description**	**Outcome Category** **Outcomes** **Harms**	**Effect Code for Primary Outcome**	**Community Involvement (Yes/No)** **Applicability (Yes/No)** **Sustainability (Yes/No)** **Funding**
Levy, 2018[138] (29555621) IS Clinic NY	113 50 years 45.1% Hispanic/Latino Diabetes NR	Mobile Insulin Titration (MITI) program: text-based insulin titration program into real-world settings 12 weeks Patient + System Multiple	Pre-post	Process of care; clinical outcome; care utilization MITI program outcomes, MITI clinical outcomes, MITI process outcomes, percentage providers making at least one referral, MITI patient satisfaction, and MITI program feedback NR	Positive	No Yes NR Foundation
Liu, 2019[139] (30239620) RCT Clinic IL	121 24 years 0% Latino 35%, Black 29%, Asian 9% HIV NR	Multicomponent behavioral change using SMS and interactive online content 9 months Patient Other	Standard/usual care	Process of care Change in retention and medication adherence (primary), acceptability and use of PrEPmate NR	Positive	No NR NR Government
Lynch, 2019[140] (30963440) RCT Community-based IL	211 55 years 70% African American Diabetes NR	Culturally tailored lifestyle improvement through food and exercise 18 months Patient Multiple	Head-to-Head	Clinical outcomes Difference in change in HbA1c at 12 months (primary), improvements in nutrition knowledge, diet quality, physical activity and medication adherence; hospitalizations, ER visits during study NR	No effect	Yes NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Maly, 2017[141] (28418767) Mixed-method Hospital CA	212 53 years 100% Hispanic/Latino Cancer NR	Individually tailored treatment summary and survivorship care plan, in-person counseling 1 year Patient + Health Professional Multiple	Standard/usual care	Process of care Physician implementation of specific recommendations for each survivorship care need identified for each participant, patient adherence to recommended survivorship care up to the 12-month interview NR	Positive	No NR NR Government
Mayberry, 2017[142] (27595710) Pre-post FQHC TN	80 50 years 68% Black/African American 68%, Hispanic/Latino 7%, Other (unspecified) 6% Diabetes NR	MEssaging for Diabetes (MED): includes daily text messages and weekly automated calls using interactive voice response (IVR) technology 3 months Patient Researcher/Admin	Pre-post	Clinical outcomes HbA1c NR	Mixed	No NR NR Multiple
Menon, 2022[143] (34895775) RCT FQHC OH, AZ	69 47 years 84% Hispanic/Latino Diabetes, mental health NR	Health coaching phone calls and in-person visits 6 months Patient Patient Navigator (employee)	Standard/usual care	Clinical outcomes Decreased HBA1c, anxiety and depression (primary), increased self-efficacy NR	Positive	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Nelson, 2017[144] (28182863) Gray, 2021[145] (34424331) RCT Other WV	287 53 years 48.8% White 45.6%, Black 26.5%, AI/AN 6%, Asian 5.7%, Multiracial 7%; Other (unspecified) 9.2% Diabetes NR	Peer Support for Achieving Independence in Diabetes (Peer-AID): low-intensity CHW diabetes self-management intervention in which a local health department provided CHW services to a community health center, public hospital, and US Department of Veterans Affairs (VA) hospital 12 months Patient Community health worker	Standard/usual care	Clinical outcomes HbA1c (primary), blood pressure QoL, healthcare utilization NR	No effect	Yes NR NR Government
Patel, 2017[146] (28034579) RCT Other MI	422 43 years 100% African American Asthma NR	Telephone-based self-regulation intervention: The program was delivered by trained health educators through a series of 6 telephone counseling sessions (30-45 minutes in duration, 2 weeks apart) 24 months Patient Other	Standard/usual care	Clinical outcomes, care utilization Symptoms, asthma control, QoL, healthcare utilization NR	Positive	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Patel, 2021[147] (34468691) RCT Other PA	500 59 years 69.6% Black 66.2%, white 22.8%, other (unspecified) 11% Cardiovascular disease NR	Evaluation of the Novel Use of Gamification With Alternative Goal-setting Experience (ENGAGE): All participants used a wearable device to track daily steps, established a baseline level, and were then randomly assigned to an attention control or 1 of 4 gamification interventions that varied only on how daily step goals were set (self-chosen or assigned) and implemented (immediately or gradually) 24 weeks Patient Other	Head-to-Head	Process of care Changes in daily steps (9-16 weeks) (primary), change in daily steps (baseline to 8 week follow-up) NR	Positive	No NR NR Academic
Pekmezaris, 2019[148] (30418101) RCT Hospital NY	104 60 years 43% Black 69%, Hispanic 31% Cardiovascular disease NR	Telehealth self-monitoring (TSM): TSM comprised two main components: (1) daily vital signs self-monitoring and (2) weekly telehealth visits between the patient and the research nurse coordinator 90 days Patient Researcher/Admin	Head-to-Head	Clinical outcomes; care utilization Avoidable hospital admission ED visits, hospitalization, depression, anxiety NR	No effect	Yes NR NR Nonprofit

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Presley, 2020[149] (32700215) RCT Hospital AL	120 55 years 69% African American Diabetes NR	Self-management support Community-based diabetes self-management education (DSME) plus mobile health (mHealth)–enhanced peer support intervention 6 months Patient Community health worker	Head-to-Head	Clinical outcomes HbA1c (primary), diabetes distress, depressive symptoms, self-efficacy NR	No effect	No NR NR Academic
Rao, 2018[150] (29528941) Observational-Cohort HIV clinic IL, AL	239 47 years 100% African American HIV NR	UNITY Workshops: an African American woman living with HIV (i.e., a peer) serving as the primary facilitator 1 year Patient Peer/Lay community outreach	Head-to-Head	Process of care HIV-related stigma, social support NR	No effect	No NR NR Government
Sevelius, 2022[151] (35502891) RCT Community-based CA	278 43 years 0% (68% non-binary/gender queer; 28% other gender) African American/Black 45%, White 75, Latina 33%, Other (unspecified) 11% HIV NR	Healthy Divas consists of 6 peer-led individual sessions, held weekly, and one group workshop facilitated by a healthcare provider with expertise in HIV care and trans health 12 months Patient Multiple	Head-to-Head	Process of care Engagement in HIV care NR	No effect	Yes NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Steinberg, 2019[152] (30905430) RCT Community-based NC	306 51 years 69% Non-Hispanic Black 51%, Non-Hispanic White 30%, Hispanic 13%, Non-Hispanic other (unspecified) 6% Hypertension, Diabetes NR	Track: weight loss intervention 12 months Patient + System Multiple	Standard/usual care	Process of care DASH score NR	Mixed	Yes NR NR Government
Taber, 2018[153] (30714026) Pre-post Clinic SC	60 59 years 42% African American 68%, Non-AA (unspecified) 32% Cardiovascular disease NR	Pharmacist-led, technology-aided, education intervention 6 months Patient + Health professional Multiple	Pre-post	Process of care CVD risk factor control (primary), acute rejections, hospitalizations ED visits, graft loss death NR	No effect	No NR NR Government
Tanner, 2018[154] (30398955) Pre-post Hospital NC	91 25 years NR African American 79.1%, Latino 13.2%, multi-racial (unspecified) 6.6%, white 1.1% HIV NR	weCare: a social media intervention utilizing Facebook, texting, and GPS-based mobile social and sexual networking applications to improve HIV-related care engagement and health outcomes 12 months Patient Other	Pre-post	Process of care; clinical outcomes Reduction in missed HIV care appointments, increases in viral load suppression NR	Positive	Yes NR NR NR

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Thompson, 2021[155] (33454539) RCT Other MO	243 56 years 100% African American Cancer NR	A tablet-computer with survivor stories three times in 12 months 12 months Patient Other	Standard/usual care	Clinical outcomes QoL (primary), depression, concerns about recurrence NR	No effect	Yes NR NR Government
Turner, 2018[156] (29299814) RCT FQHC TX	111 57 years 61% Hispanic 78.4%, Non-Hispanic white 12.6%, Non-Hispanic Black 9% Other CC NR	(Group 1): community arm, CHW delivered nine 1-hour group meetings were held at a local library every 2 weeks for 3 months, then monthly for 3 months; the same session was offered twice weekly; (Group 2): clinic arm, clinic health educator delivered six monthly one- on-one meetings for 30-45 min 6 months Patient Community health worker	Comparative Effectiveness	Process of care Five times sit-to-stand test (primary), Borg perceived effort test, patient-specific functional scale, Symbol-digit modalities test 6-minute walk test Short-form survey, physical component summary Fall; adverse events	Positive	Yes NR NR Multiple

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Washington-Plaskett, 2021[157] (33915812) RCT Other GA	146 56 years 67% Black Cardiovascular disease NR	H360x Intervention for Cardiovascular Disease Self-Management: web-based or mobile application and supports behavior change by providing functionality for improving health literacy and self-efficacy through built-in coaching support for accountability and problem solving 6 months Patient Peer/Lay community outreach	Head-to-Head	Process of care LS7 score (e.g., smoking status, physical activity, weight, diet, blood glucose, cholesterol, and blood pressure) (primary), CVD risk variables NR	No effect	No NR NR Nonprofit

Abbreviations: ACT = Asthma control test, ART = Antiretroviral therapy, BP = blood pressure, CBSM = Community-based service manual, CC = chronic condition, CVD = cardiovascular disease, ED = Emergency department, FQHC = federally qualified health center, HbA1c = Glycated hemoglobin, HIV = human immunodeficiency virus, IS = implementation science, JNC-7 = The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, LS7 = Life's simple 7, MiniAQLQ = Mini Asthma Quality of Life Questionnaire, MITI = Mobile Insulin Titration, MODD = Mean of Daily Difference, NR = not reported, PMID = PubMed Identification Number, QI = quality improvement, QoL = Quality of life, RCT = randomized controlled trial, SMS = short messaging service, USPSTF = United States Preventative Services Task Force

System-Level Quality Improvement

Table D.11. Characteristics of included studies: system level QI

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Behling, 2023[158] (36876238) QI FQHC SC	45,498 58 years 61% Black 67%, White 29% Hypertension NR	Monthly practice facilitation guided by a dashboard with process metrics 1 year Patient + Health Professional + System Provider/Clinician	Standard/usual care	Clinical outcomes Change in hypertension control (primary), measure act partner metrics	Positive	No NR NR Nonprofit
Brown, 2020[159] (33213254) Observational-Cohort Hospital MD	425 63 years 31% Black 56%, White 31%, Hispanic 6%, Asian 3%, Native American 0.5% Cardiovascular disease NR	Staff training coordination 2 years Patient + System Provider/Clinician	Standard/usual care	Clinical outcomes Avoidable hospital admission Mortality rate, major complication rate, and readmission rate NR	Positive	No NR NR NR
Clement, 2019[160] (31233329) Observational-Cohort FQHC NC	196 28 years 0% Black 62%, White 19%, Latino 18% HIV NR	Patient education, medication counseling 2 years Patient + Health Professional + System Provider/Clinician	Pre-post	Process of care Medication adherence rate NR	Positive	No NR NR NR
Cykert, 2020161 (33047340) RCT Clinic NC	146826 65 years 46% White 65%, Black 24% Cardiovascular disease NR	A cardiovascular dashboard that included lists of risk stratified adults and their unmet treatment opportunities 1 year Patient + System Provider/Clinician	Standard/usual care	Clinical outcomes Change in 10-Year ASCVD Risk score among all patients with a baseline score ≥10 percent from baseline to 3 months post intervention NR	Positive	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Cykert, 2019162 (30714689) Cykert, 2020163 (30928088) QI Hospital NC, SC	3798 65 years 45% White 69%, Black 31% Cancer NR	A real-time warning system derived from EHR, race-specific feedback to clinical teams on treatment completion rates, and a nurse navigator 5 years Patient + System Multiple	Standard/usual care	Equity of service Receipt of curative treatment (primary), effects on surgery, and use of radiation NR	Positive	No NR NR Nonprofit
Fontil, 2018164 (30002140) IS Public Health System CA	16000 61 years 50% Hispanic 30%, Asian 29%, Black 20%, White 15% Hypertension, cardiovascular disease NR	Care coordination, data tracking 12 months Patient + System Provider/Clinician	Pre-post	Process of care BP control (primary), and medication plan compliance NR	Positive	No NR NR Foundation
James, 2018[165] (29313223) Observational-Cohort Clinic MA	12555 65 years 50% Hispanic/Latino Hypertension, cardiovascular disease NR	IT alerts to identify patients missing care goals, care coordination 6 months Patient + System Other	Pre-post	Clinical outcomes Improved LDL, and BP NR	Positive	No NR NR Nonprofit

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Kiser, 2020[166] (33105224) QI FQHC AZ	137 NR 100% Hispanic/Latino NR	Components included: 1) team engagement (team meetings); 2) patient engagement via a tool on cervical cancer screening that was provided in both English and Spanish (an adaptation of the Ottawa Personal Decision Guide); 3) a WWHP eligibility screening and enrollment tool for registration staff that included updated registration guidelines and a WWHP registration log in which to record all women enrolled in the program; 4) and the implementation of a case log for case management 60 days Patient + Health Professional + System Multiple	Pre-post	Process of care; care utilization Team engagement; pap tests; enrollment, and staff stress Staff stress	Positive	No NR NR Government
Marshall, 2021[167] (35609161) Mixed-method Clinic CA	298921 Black 16.4%, white 90.1% Hypertension NR	Clinical decision support tool 4 years Patient + Health Professional + System Multiple	Pre-post	Care utilization Thiazide use (primary), BP NR	No effect	No NR NR Academic

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Saunders, 2022[168] (35580278) QI Clinic OH	6348 NR NR Hypertension Non-Hispanic Black 50% NR	Coaching quality improvement 18 months Patient + System Provider/Clinician Multiple	Pre-post	Clinical outcome Hypertension control NR	Positive	No NR NR NR
Steinbock, 2022[169] (33938485) QI Community-based DC, FL, GA, KY, LO, MD, MI, NC, SC, TN, TX, VA	110775 NR NR African American, Latina (% unspecified) HIV NR	ECHO Collaborative: virtual communities of practice to measurably increase viral suppression rates in populations disproportionately affected by HIV 12 months Patient + System NR	Pre-post	Clinical outcome; process of care Viral suppression rates, and gaps in viral suppression rates NR	Positive	Yes NR NR Government
Weaver, 2019[170] (30793960) QI MI	192 44 years 44, 3% unknown gender Black 54%, White 32%, Hispanic 8%, unknown (unspecified) 5% Diabetes NR	Patient navigation 6 months Patient + System Patient Navigator	Standard/usual care	Clinical outcomes; process of care No shows, and HbA1c NR	Positive	No NR NR NR
Walker-Smith, 2020[171] QI Clinic TX	18 health professionals/146 patients NR 100% Hispanic Cancer NR	Implementing concurrent educational and clinic referral strategies in a primary care clinic 3 months Health professional + System Provider/Clinician	Pre-post	Process of care; care utilization Knowledge, and screening initiation NR	Positive	No NR NR NR

Abbreviations: ASCVD = Atherosclerotic Cardiovascular Disease, BP = blood pressure, FQHC = federally qualified health center, HbA1c = Glycated hemoglobin, IS = implementation science, LDL = low-density lipoprotein, NR = not reported, PMID = PubMed Identification Number, QI = quality improvement, RCT = randomized controlled trial, IT = information technology

Transition of Care

Table D.12. Characteristics of included studies: transition of care

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Bailey, 2019[172] (31270786) Pre-post Nonprofit system TN	2235 59 years 58.6% Non-Hispanic Black 70%, other(unspecified) /Hispanic 10%, Non-Hispanic White 20% Hypertension, diabetes, asthma, mental health, and other CC NR	SafeMed care transition model: emphasizes early identification and patient engagement in the hospital followed by intensive community-based follow-up for a minimum of 45 days after hospital discharge post-hospital care transition, care coordination and compliance with care plan 2 years Patient + System Hospital/community providers	Pre-post	Care utilization Avoidable hospital admission Primary care physician visits, hospitalization, ED visits, 30-day readmissions, and medical expenditure NR	Mixed	No NR NR Government
Feldman, 2020[173] (31541606) RCT Clinic NY	495 NR 57% Black 70%, Hispanic 30% Hypertension NR	Health coaching in home care 12 months Patient Provider/Clinician	Standard/usual care	Clinical outcomes Systolic blood pressure NR	No effect	No NR NR Government

Study (PMID) Study Design Study Setting Study Location (State)	Sample Size Age (Mean) Sex (% Female) Race/Ethnicity Chronic Condition Intersectional Features	Intervention Description Duration Intervention Target Intervention Delivery	Comparison Description	Outcome Category Outcomes Harms	Effect Code for Primary Outcome	Community Involvement (Yes/No) Applicability (Yes/No) Sustainability (Yes/No) Funding
Lyon, 2019[174] (30472318) RCT Hospital DC	223 dyads 50 years 42% African American HIV NR	Two sessions using the FACE advanced care planning 3 months Patient Provider/Clinician	Head-to-Head	Care utilization Advance directive completion and documentation in medical record NR	Positive	No NR NR Government

Abbreviations: CC = chronic condition, ED = Emergency department, NR = not reported, PMID = PubMed Identification, RCT = randomized controlled trial

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Appendix E. Existing Evidence Reviews

Table E.1. Characteristics of evidence reviews on strategies to reduce racial and ethnic disparities and improve health outcomes

Author (Year) Search Date Study Location(s) Study Setting(s) Study Design(s) ROB	Purpose of Systematic Review (Study Author Reported)	Individual Studies (K) Total Review Sample Size (N Range) US Race/Ethnicity Chronic Condition(s) Intersectional Features	Outcome(s)	Intervention(s)	Systematic Review Findings (Effectiveness of Interventions)	Harms Applicability Sustainability
Anderson, 2022[1] Inception - March 2021 USA Multiple RCT Yes	To examine the existing literature for studies that have centered or substantively included Black and Hispanic diabetes patients in clinical trials to assess the effectiveness of telehealth interventions in improving glycemic control.	K=10 N range:17-637 African American/Black, Hispanic/Latino Diabetes NR	HbA1c	Telehealth interventions (telephone calls, text messages, web-based portals, virtual visits)	Telehealth interventions showed positive benefit in improving glycemic control among Black and Hispanic diabetes patients.	NR NR NR

Author (Year) **Search Date** **Study Location(s)** **Study Setting(s)** **Study Design(s)** **ROB**	**Purpose of Systematic Review (Study Author Reported)**	**Individual Studies (K)** **Total Review Sample Size (N Range)** **US Race/Ethnicity** **Chronic Condition(s)** **Intersectional Features**	**Outcome(s)**	**Intervention(s)**	**Systematic Review Findings (Effectiveness of Interventions)**	**Harms** **Applicability** **Sustainability**
DeRosa, 2022[2] 2001 - 2017 USA NR Multiple Yes	1. What decision navigation interventions, services, or programs are used to support the decision-making of racial and ethnic minority adults diagnosed with breast or prostate cancer? 2. Can decision navigation interventions and decision-making support improve overall survival and quality of life (QoL) among racial and ethnic minority adults with breast or prostate cancer? 3. Are health disparities or inequalities discussed among different racial and ethnic minority adults diagnosed with breast or prostate cancer who receive decision-support interventions or services?	K=10 N range:15-195 African American/Black, Hispanic/Latino, Asian Breast cancer, prostate cancer NR	QoL	Decision-making support interventions (decision aids, trained personnel, delivery models and frameworks, and educational materials)	Decision-making support interventions show positive benefit in improving patient-reported factors among racial and ethnic minorities.	NR NR NR

Author (Year) **Search Date** **Study Location(s)** **Study Setting(s)** **Study Design(s)** **ROB**	**Purpose of Systematic Review (Study Author Reported)**	**Individual Studies (K)** **Total Review Sample Size (N Range)** **US Race/Ethnicity** **Chronic Condition(s)** **Intersectional Features**	**Outcome(s)**	**Intervention(s)**	**Systematic Review Findings (Effectiveness of Interventions)**	**Harms** **Applicability** **Sustainability**
Enyioha, 2020[3] Inception - 2020 105-USA NR RCT Yes	To provide a review of the evidence for mHealth and web-based interventions for diabetes and obesity in African American and Hispanic patients.	K=7 N range: 18-371 African American/Black, Hispanic/Latino Diabetes NR	BMI, weight change, waist circumference, HbA1C	M-Health and web-based interventions	Three studies reported positive benefits for weight loss. One study reported a positive benefit for glycemic control.	NR NR NR
Evans, 2022[4] January 2015 - December 2020 USA NR NR No	To understand how studies have used electronic telecommunication technology to increase awareness, uptake, adherence, and persistence in PrEP care among Black and Hispanic/Latino persons and how it can reduce social structural barriers that contribute to disparities in HIV infection.	K=10 N range: 25-398 African American/Black, Hispanic/Latino HIV NR	Patient awareness, uptake, adherence, persistence	Telecommunication interventions (eHealth, telehealth, mHealth)	Telecommunication interventions showed mixed results.	NR NR NR

Author (Year) Search Date Study Location(s) Study Setting(s) Study Design(s) ROB	Purpose of Systematic Review (Study Author Reported)	Individual Studies (K) Total Review Sample Size (N Range) US Race/Ethnicity Chronic Condition(s) Intersectional Features	Outcome(s)	Intervention(s)	Systematic Review Findings (Effectiveness of Interventions)	Harms Applicability Sustainability
Eze, 2022[5] January 2016 - August 2021 USA NR Multiple No	1. In what ways do bias and discrimination influence outcomes of musculoskeletal pain management? 2. What interventions have been examined to reduce bias and discrimination in the management of musculoskeletal pain?	K=13 N range: NR African American/Black, Hispanic/Latino Musculoskeletal conditions NR	Discrimination on pain and disability Racial and/or ethnic concordance or discordance Provider bias	Clinician education and perspective-taking, patient decision tools, and community outreach tools	Overall, interventions show positive benefit in reducing bias, discrimination and disparities in musculoskeletal pain outcomes. Mixed results were seen in provider-patient racial and/or ethnic concordance on pain outcomes.	NR NR NR
Wang, 2022[6] Inception - November 2021 USA Community healthcare setting Multiple No	To improve one or more aspects of the PrEP care continuum among MSM in the US, by summarizing included studies and their socioecological mechanistic levels, implementation modalities (peer/couple-based, technology-assisted, social network, etc.), and which aspects of the PrEP cascade (e.g., initiation, uptake, and adherence) they targeted.	K=42 N range: NR African American/Black, Hispanic/Latino HIV NR	PrEP uptake, adherence	PrEP regimen interventions, technology-assisted interventions, personalized interventions, peer-based interventions, couples-based interventions, social network interventions, community targeted interventions, healthcare/institution targeted interventions, multilevel interventions	PrEP regimen interventions show positive benefit. Technology-assisted interventions show positive benefit. Peer-based interventions show mixed results. Community-level interventions show positive benefit. Healthcare/institution-level interventions show mixed results. Multilevel interventions show positive benefit.	NR NR NR

Author (Year) Search Date Study Location(s) Study Setting(s) Study Design(s) ROB	Purpose of Systematic Review (Study Author Reported)	Individual Studies (K) Total Review Sample Size (N Range) US Race/Ethnicity Chronic Condition(s) Intersectional Features	Outcome(s)	Intervention(s)	Systematic Review Findings (Effectiveness of Interventions)	Harms Applicability Sustainability
Aidoo-Frompong, 2021[7] September 2019 - January 2020 USA NR Multiple No	To answer the research questions: What are the cultural factors contributing to the high incidence of HIV among African immigrants? What are the contextually relevant approaches that have been used in HIV prevention efforts targeting this population?	K=17 N range: 14-1060 African American/Black HIV NR	Engagement in prevention behaviors	HIV testing, flexible scheduling, involvement of community leaders in intervention planning and implementation	Flexible scheduling show positive improvement in engagement.	NR NR NR
Gifford, 2021[8] Inception to March 2018 USA, Australia, Peru Multiple Yes	1. identify methodological approaches that have been used in cancer survivorship research. 2. Describe components of cancer survivorship interventions and the reported evidence on their relevance to Indigenous communities. 3. Examine outcomes of the interventions.	K=27 (21 US studies) N range: 24-401 American Indians/Alaska Natives (Indigenous Peoples)* Cancer NR	Screening, physical, mental, emotional, and spiritual outcomes	Community meetings, patient navigation, visual and performing arts, printed, online, or audio materials, healthcare provider education, support groups, telehealth	NR - Did not assess effectiveness.	NR NR NR

Author (Year) Search Date Study Location(s) Study Setting(s) Study Design(s) ROB	Purpose of Systematic Review (Study Author Reported)	Individual Studies (K) Total Review Sample Size (N Range) US Race/Ethnicity Chronic Condition(s) Intersectional Features	Outcome(s)	Intervention(s)	Systematic Review Findings (Effectiveness of Interventions)	Harms Applicability Sustainability
Khoong, 2021[9] January 2005 - July 2019 USA, Spain, Australia, Germany, South Korea, United Kingdom, China, Chile NR Multiple Yes	To describe the impact of mHealth interventions on blood pressure outcomes in populations with disparities in digital health use.	K=29 (16 US studies) N range: 14-1182 African American/Black, Hispanic/Latino Asian (Korean American), Other* Hypertension NR	Blood pressure, medication adherence, engagement, satisfaction	Mobile health strategies (text messaging, mobile applications)	Mobile health strategies show positive benefit in blood pressure, engagement and satisfaction. Mixed results seen in medication adherence.	NR NR NR
Wadi, 2021[10] 2002 - 2018 USA Multiple Yes RCT	To evaluate the methods of cultural tailoring used in lifestyle interventions for T2D prevention or management for populations of Black African ancestry and to examine the effectiveness of such interventions on glycemic control.	K=16 N range: 46-604 African American/Black Diabetes NR	HbA1C	Culturally tailored/adapted lifestyle interventions for African American/Black communities	Culturally tailored/adapted lifestyle interventions show positive benefit for HbA1C.	NR NR NR

Author (Year) **Search Date** **Study Location(s)** **Study Setting(s)** **Study Design(s)** **ROB**	**Purpose of Systematic Review (Study Author Reported)**	**Individual Studies (K)** **Total Review Sample Size (N Range)** **US Race/Ethnicity** **Chronic Condition(s)** **Intersectional Features**	**Outcome(s)**	**Intervention(s)**	**Systematic Review Findings (Effectiveness of Interventions)**	**Harms** **Applicability** **Sustainability**
Ali, 2020[11] Inception - October 2019 USA NR Multiple No	1) describe characteristics of community-based lifestyle interventions which have assessed changes in T2DM glucose and insulin indicators among ethnic South Asian Americans (SAAs) 2) evaluate the effectiveness of these interventions in improving T2DM glucose and insulin indicators.	K=8 N range: 9-2726 Asian (South Asian Americans) Diabetes NR	HbA1C	Community-based lifestyle interventions	Community-based lifestyle interventions show mixed results in HbA1C.	NR NR NR
Hu, 2020[12] Inception - May 2019 USA Primary care clinic Multiple No	To examine the evidence for collaborative care for racial/ethnic minority adults in the United States in improving depression measures.	K=19 N range: 45-7010 Hispanic/Latino, African American/Black, Asian, American Indians/Alaska Native Mental health NR	Depression-related outcomes	Collaborative care models	Collaborative care models show positive benefit in improving depression for racial/ethnic minority patients.	NR NR NR

Author (Year) Search Date Study Location(s) Study Setting(s) Study Design(s) ROB	Purpose of Systematic Review (Study Author Reported)	Individual Studies (K) Total Review Sample Size (N Range) US Race/Ethnicity Chronic Condition(s) Intersectional Features	Outcome(s)	Intervention(s)	Systematic Review Findings (Effectiveness of Interventions)	Harms Applicability Sustainability
Liu, 2019[13] January 2009-June 2019 USA NR Multiple No	To address what types of cancer screening interventions that target racial minority adults age 40 years or older are effective in increasing cancer screening uptake rates?	K=26 N range: 28-9575 African American/Black, Asian, Hispanic/Latino, American Indians/Alaska Native Breast, cervical, colorectal, prostate cancer NR	Screening uptake	Community health workers, culturally tailored educational materials, peer testimony to increase cancer screening	The majority of interventions had positive benefit in cancer screening uptake.	NR NR NR
Luque, 2019[14] May 2003 - September 2017 USA Multiple Multiple Yes	To identify and assess the rigor of recent effectiveness studies to test mammography screening educational interventions focused on U.S. Hispanic women.	K=5 N range: 371-1968 Hispanic/Latino Breast cancer NR	Screening adherence	Interpersonal cancer education Promotora-led	Interpersonal cancer education interventions show low to moderate positive benefit in screening adherence.	NR NR NR

Author (Year) Search Date Study Location(s) Study Setting(s) Study Design(s) ROB	Purpose of Systematic Review (Study Author Reported)	Individual Studies (K) Total Review Sample Size (N Range) US Race/Ethnicity Chronic Condition(s) Intersectional Features	Outcome(s)	Intervention(s)	Systematic Review Findings (Effectiveness of Interventions)	Harms Applicability Sustainability
Nelson, 2020[15] January 1996 - July 2019 USA Multiple Multiple No	To evaluate the effectiveness of patient navigation services in increasing colorectal, breast, and cervical cancer screening rates in populations adversely affected by disparities by conducting a meta-analysis of studies conducted in clinical practice settings in the USA.	K=37 N range: NR African American/Black, Asian (Filipino American), Hispanic/Latino Colorectal, breast, cervical cancer NR	Screening adherence	Patient navigation	Patient navigation interventions showed positive benefit for screening adherence.	NR NR NR
Turnbull, 2020[16] January 2006 - February 2019 USA, Netherlands, Canada, UK, Australia, France, Israel NR Multiple Yes	To investigate the differences in the effectiveness of web-based behavioral change interventions for the self-care of high burden chronic health conditions (e.g., asthma, chronic obstructive pulmonary disease [COPD], diabetes, and osteoarthritis) across socioeconomic and cultural groups.	K=18 (9 US studies) N range: NR NR Asthma, COPD, diabetes NR	Health, behavior, and Psychosocial outcomes	Web-based health interventions	Did not assess effectiveness.	NR NR NR

Author (Year) Search Date Study Location(s) Study Setting(s) Study Design(s) ROB	Purpose of Systematic Review (Study Author Reported)	Individual Studies (K) Total Review Sample Size (N Range) US Race/Ethnicity Chronic Condition(s) Intersectional Features	Outcome(s)	Intervention(s)	Systematic Review Findings (Effectiveness of Interventions)	Harms Applicability Sustainability
Walters, 2020[17] Inception - May 2019 USA, Australia, Iran, China, Japan, Taiwan, Niger, Germany, Denmark NR Multiple Yes	To establish whether controlled health literacy interventions, in adults, are effective for improving health literacy. Two secondary aims, using the studies identified for the primary aim, are to explore whether 1) health literacy interventions lead to a change in health behaviors and 2) which of the eligible studies were conducted with cardiovascular patients and examine the outcomes in this population.	K=22 (8 US studies) N range: NR NR Cardiovascular conditions NR	Health literacy, behavioral outcomes	Health literacy interventions	Health literacy interventions showed mixed results in health literacy and behavioral outcomes.	NR NR NR
Han, 2019[18] 2000-2017 USA Community health centers No	To synthesize the evidence on Community health center (CHC) based interventions.	K=27 N range: 14-10,000 Hispanic/Latino, African American/Black, American Indians/Alaska Natives, Other Diabetes NR	HbA1C, knowledge, medication management, physical activity,	CHC based interventions (one-on-one education sessions, group education sessions, telecommunications)	CHC based interventions overall show positive benefit in HbA1c, but mixed effects were seen across studies.	NR NR NR

Author (Year) Search Date Study Location(s) Study Setting(s) Study Design(s) ROB	Purpose of Systematic Review (Study Author Reported)	Individual Studies (K) Total Review Sample Size (N Range) US Race/Ethnicity Chronic Condition(s) Intersectional Features	Outcome(s)	Intervention(s)	Systematic Review Findings (Effectiveness of Interventions)	Harms Applicability Sustainability
Riley, 2019[19] 2003-2017 USA Multiple Multiple Yes	To conduct a systematic review to establish the evidence base for patient- and family-level interventions to promote ICS adherence among adult black/African Americans.	K=5 N range: 17-333 African American/Black Asthma NR	Medication adherence, asthma control, health care utilization, quality of life, knowledge, self-efficacy	Patient advocacy, problem solving, computer-based motivational interviewing, self-efficacy, education	Interventions show mixed effects in medication adherence.	NR NR NR
Ruiz-Perez, 2019[20] Inception - December 2016 USA Multiple Yes	To identify and characterize the interventions that aimed to improve cancer treatment and followup care in socially disadvantaged groups.	K=36 N range: 18-3521 NR Cancer NR	Quality of life psychosocial factors, knowledge	Organizational changes, education of patients, counseling education of professionals	Interventions show mixed effects.	NR NR NR
Bush, 2018[21] 1998-2011 USA NR Multiple Yes	To systematically evaluate the efficacy of patient navigation in improving timely and appropriate diagnosis and treatment of disease in medically underserved populations.	K=16 N range: NR NR Cancer NR	Interval from diagnosis to treatment	Patient navigation	The majority of studies show patient navigation has positive benefit in shortening intervals from diagnosis and treatment.	NR NR NR

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Copeland, 2018[22] January 1997 - March 2017 USA NR Yes	To report the results of a meta-analysis con-ducted on the effects of clinical trials in breast cancer screening for African American women between 1997 and 2017.	K=14 N range: 81-1358 African American/Black Cancer NR	Screening	Llay health advisors, tailored counseling, on-site screening	Screening interventions overall showed positive benefit in mammography screening.	NR NR NR
Cunnigham 2018[23] 1997-2015 USA Multiple Multiple Yes	To examine the impact of Diabetes self-management education (DSME) on HbA1c and QoL in African Americans compared to usual care.	K=14 N range: 41-727 African American/Black Diabetes NR	HbA1C, QoL	DSME	Non-significant effect of DSME on HbA1c in African Americans was observed. QoL did show improvement	NR NR NR

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Davis, 2018[24] January 1998- July 2016 USA Multiple Multiple Yes	To determine how implementation strategies and contextual factors influenced the uptake of interventions to increase Fecal Immunochemical Tests (FIT) and Fecal Occult Blood Testing (FOBT) for Colorectal Cancer (CRC) in rural and low-income populations in the United States.	K=27 N range: 1-13 sites Hispanic/Latino, African American/Black, Asian Colorectal Cancer NR	Fecal Immunochemical Tests (FIT) and Fecal Occult Blood Testing (FOBT)	Patient education, client reminders, social media, in-clinic or mailed distribution of FIT/FOBT	Multicomponent interventions can effectively increase fecal testing for CRC across diverse rural and low-income communities	NR NR NR

Author (Year) Search Date Study Location(s) Study Setting(s) Study Design(s) ROB	Purpose of Systematic Review (Study Author Reported)	Individual Studies (K) Total Review Sample Size (N Range) US Race/Ethnicity Chronic Condition(s) Intersectional Features	Outcome(s)	Intervention(s)	Systematic Review Findings (Effectiveness of Interventions)	Harms Applicability Sustainability
Domingo, 2018[25] 2005-2016 USA NR Multiple Yes	To assess what is known about increasing access to and participation in cardiovascular disease (CVD) prevention and control programs among Filipino Americans.	K=7 N range: <100-255 Asian (Filipino American) Cardiovascular disease, diabetes NR	CVD knowledge, behavioral, and participant satisfaction, behavioral outcomes, participant satisfaction	Culturally tailored diabetes prevention virtual sessions for education, coaching, and support; Tailored CVD risk reduction with in-person education, coaching, and support sessions; Stanford's Chronic Disease Self-Management Program	All interventions included in this review were reported to be effective, however, all studies were reported to be of low quality.	NR NR NR

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Lee-Tauler, 2018[26] 2005-2015 USA Multiple Multiple Yes	To identify interventions to improve the initiation of mental health care among racial-ethnic minority groups.	K=35 N range: 27-6829 Hispanic/Latino, African American/Black, Asian, Mental health NR	Antidepressant use, provider attitudes toward depression screening, access to psychotherapy or psychosocial services, self-efficacy and attitudes to identify need for treatment & seeking care, use of healthcare or psychiatric treatment	Collaborative care, psychoeducation, case management, colocation of mental health services within existing services, screening and referral, and a change in Medicare medication reimbursement policy that served as natural experiment.	Reduction of disparities in the initiation of antidepressants or psychotherapy was noted in seven interventions (four involving collaborative care, two involving colocation of mental health services, and one involving screening and referral). Five of these disparities reducing interventions were tested among older adults only.	NR NR NR

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Terens, 2018[27] January 2005-May 2016 North America, UK, Australia, Asia Primary care QI Yes	To review trials of quality improvement (QI) interventions aimed to reduce health inequities among people with diabetes in primary care and to explore the extent to which experimental studies addressed and reported equity issues.	K=58 (47 US Studies) N range: 50-4138 African-American/Black, Hispanic/Latino, Asian (Korean Americans)* Diabetes NR	A1c, DBP, SBP, BMI, LDL, diet behavior (BDA); physical activity (RAPA); depression measured Patient Health questionnaire (PHQ-9), medication adherence, diet, physical activity, emergency department admission (ED)	Quality improvement (QI) interventions (e.g. change in the health system structure or delivery, adjusting roles of care team members, nurse care management model, individualized case management, culturally tailored counseling, home visits, education programs, etc.)	The majority of studies that evaluated interventions targeted at the health care system (n=20), showed significant effect in at least one of the outcomes considered in this review.	NR NR NR

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Ahmed, 2017[28] 1995-2016 USA, Canada, India, UK Multiple RCT Yes	To synthesize evidence from randomized controlled trials for asthma self-management in South Asian and Black populations from different sociocultural contexts and identify barriers and facilitators to implementing self-management.	K=16 (9 US studies) N range: 28-523 Asian (South Asian) and African American/Black populations* Asthma NR	Days absent from school, asthma knowledge, asthma self-care, self-efficacy, self-management, medical visits, hospital visits	Patient education (Education sessions; education-booklet; community education session; education videos)	Interventions in South Asian and African American minoritized communities were less effective than interventions delivered in indigenous populations in South Asia, though the latter trials were at higher risk of bias.	NR NR NR
Bellhouse, 2017[29] 2000-2017 US, Mexico, Belgium Primary care RCT Yes	To assess the effectiveness of community-based health worker (CBHW) interventions for early detection of cancer. Secondary aims were to consider the extent that interventions were based on theory, and potential moderators including behavior change techniques (BCTs).	K=33 (3 US studies) N range: NR African American/Black, Hispanic/Latino, Asian* Cancer NR	Screening adherence	CBHW facilitation to healthcare engagement	BHW interventions are an effective resource for increasing uptake of all 3 types of cancer screening in ethnic minoritized groups in US studies: (n=30), other countries: (n=3).	NR NR NR

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Heitkemper, 2017[30] 2005-2015 USA Multiple RCT Yes	To examine the effect of health information technology (HIT) diabetes self-management education (DSME) interventions on glycemic control in medically underserved patients	K=13 N range: 39-1382 African American/Black, Hispanic/Latino, American Indian/Alaska Native Diabetes NR	HbA1c, self-efficacy, satisfaction with medication information, patient activation or ability to manage one's health, and overall self-care behaviors, diabetes knowledge, medication adherence	HIT DSME (education and support groups, educational materials, reminders and alerts, treatment plans, care assistance and reminders)	Findings suggest that medically underserved patients with diabetes achieve glycemic benefit following HIT DSME interventions, with dissipating but significant effects at 12 months. Telemedicine/teleh ealth interventions were the most successful HIT type because they incorporated interaction with educators similar to in-person DSME.	NR NR NR
Roland, 2017[31] 1990-2013 USA FQHC Multiple Yes	To identify studies of cancer-related CHW/ Patient navigators (PN) interventions in FQHCs, and to describe the components and characteristics of those interventions in order to guide future intervention development and evaluation.	K=24 N range: NR African American/Black, Hispanic/Latino, Asian, American Indians/Alaska Natives Cancer NR	Completion of screening, time to diagnosis, referral for screening, receipt of follow-up wellness exam	Patient navigators and use of CHW to improve cancer outcomes	Findings support the effectiveness of CHW/PN programs to improve completion and timeliness of breast, cervical, and colorectal cancer screening in FQHCs.	NR NR NR

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Collado, 2016[32] 1950-2015 USA Multiple Multiple Yes	1) determine the types of depression treatments that have been evaluated in depressed Latino adults and identify effective forms of psychotherapy, 2) rate the quality of RCT and open label trials (OLT), 3) evaluate the type and extent of cultural modifications made to the extant treatments, 4) delineate limitations and future directions in treatment outcome research in this population.	K= 36 N range: 6-1801 Hispanic/Latino Major depressive disorder NR	ITT, PHQ-9, BDI, CES-D, MADRS, EUC, HRSD/HAM-D, HSCL-20, QUIDS-SR, SDC-20	Culturally adapted depression treatments (Cognitive Behavioral Therapy; Problem Solving Therapy; Interpersonal Therapy; Behavioral Activation)	Psychotherapies that include cultural adaptations and individual therapies are likely preferable relative to non-adapted and group treatment, respectively. Although scarce, telephone and in-home counseling have shown efficacy in reducing depression and increasing retention.	NR NR NR

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Ehrlich, 2016[33] N/A USA, UK, Australia, Canada Multiple Multiple Yes	To answer the research question: ''Can self-management programs that have been adapted or modified still be effective for ethnic minority and Indigenous populations?''	K= 23 (10 US studies) N range: 20-1486 African American/Black, Hispanic/Latino, Asian* Diabetes, cardiovascular disease, hypertension, asthma NR	HBA1c, blood pressure, lipids, diet, physical activity, alcohol and tobacco consumption, monitoring and compliance behaviors, knowledge, skills, self-efficacy, and/or attitude	Culturally responsive self-management interventions that included involvement of peers in web-based support groups, as peer educators and coaches, peer-professional discussion groups, facilitated storytelling, recording peer stories about their self-management journey, or by engaging community health workers	Overall, interventions resulted in more positive health outcomes. than usual care, but findings were inconsistent.	NR NR NR
Genoff, 2016[34] Inception to 2015 USA Multiple Multiple Yes	To systematically review the literature on the impact of patient navigators on cancer screening for limited English proficient (LEP) patients.	K=15 N range: 21-87,916 African American/Black, Hispanic/Latino, Asian (Chinese) Cancer NR	CRC screening, colonoscopy completion, FOBT	Patient navigator programs with language services	Study is limited by the variability in study designs and limited reporting on patient navigator interventions, which reduces the ability to draw conclusions on the full effect of patient navigators.	NR NR NR

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Leske, 2016[35] 2000-2015 USA, Australia, Canada, New Zealand Multiple Multiple Yes	To systematically review the evidence-base for the effectiveness of culturally unadapted, culturally adapted and culture-based interventions for Indigenous adults with mental or substance use disorders.	K=16 (7 US studies) N range: 11-939 American Indians/Alaska Natives* Mental health disorders, substance abuse disorder NR	Remission, symptoms, quality of life, functioning, number of interventions delivered	Psychotherapy; Medical management and supportive advice; Community based 12 step substance abuse programs; Cognitive behavioral therapy; motivational interviewing; sweat lodge ceremonies. Drumming circles; talking circles; White Bison 12 Steps program	Inconclusive evidence regarding interventions due to a small and methodologically weak evidence-base.	NR NR NR

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Nathan, 2016[36] 2004-2013 USA Multiple RCT Yes	1) What types of Decision-Making using decision aid (DA) interventions are being tested within minority populations, 2) what conditions do these tested interventions address, and 3) what DA interventions have changed decision quality, patient–doctor communication, and clinical decision outcomes within minority populations?	K=18 N range: 17-693 African American/Black, Asian, Hispanic/Latino Prostate, colorectal (CRC), and breast cancer chronic kidney disease, osteoarthritis NR	Decision quality, communication, clinical decision	Shared Decision-Making using decision aids	DAs have been effective in improving patient-doctor communication and decision quality outcomes in minoritized populations and could help address health disparities. Of the 15 studies that reported on clinical decisions, eight demonstrated significant changes in decisions with DAs.	NR NR NR
Tao 2016[37] 1980-2013 USA, UK Primary care Multiple Yes	To compare the different types of reimbursement system in relation to socioeconomic and racial inequalities in access, utilization and quality of care	K=22 (6 US studies) N range: NR African American/Black, Hispanic/Latino, Asian, and American Indians/Alaska Natives* Diabetes, cardiovascular diseases, chronic obstructive pulmonary disease NR	Process measures, disease-specific outcomes (HbA1c, total cholesterol and mean systolic blood pressure)	Provider pay-for-performance	Little scientific evidence supporting an association between reimbursement system and socioeconomic or racial inequity in access, utilization and quality of primary care.	NR NR NR

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Anderson, 2015[38] 1990-2014 USA, Canada, Australia, England, Netherlands Community-based Multiple Yes	To assess effects of community coalition-driven interventions in improving health status or reducing health disparities among racial and ethnic minority populations.	K=58 (52 US studies) N range: 640 (average) African American/Black, Hispanic/Latino, Asian, Other, American Indian/Alaska Natives * Cancer, HIV, diabetes NR	Quality of life measures, incidence rates, measures of symptoms and functionality, physical activity, smoking status, alcohol consumption, dietary change	Local community coalitions	Findings are inconsistent and the evidence base is weak as a result of inadequate reporting and insufficient studies with rigorous design.	NR NR NR

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Cyril, 2015[39] 1995-2015 USA, Canada, Bangladesh, Africa, China, the United Kingdom, Iran, India Multiple Multiple Yes	To examine the magnitude of the impact of Community-engagement (CE) on health and health inequalities among disadvantaged populations, which methodological approaches maximize the effectiveness of CE, and components of CE that are acceptable, feasible, and effective when used among disadvantaged populations.	K=24 (17 US studies) N range: 23-3986 Hispanic/Latino, African American/Black, American Indian/Alaska Natives - Navajo Indians* Cardiovascular disease, depression, cancer, asthma, mental health disorders NR	Improvements in health behaviors, public health planning, health service access, health literacy	Community-engagement based interventions (community advisory boards, coalitions, health workers, cultural integration)	The findings suggest that CE models can lead to improved health if designed properly and implemented through effective community consultation. One-quarter of the studies reported positive impacts of CE on health outcomes, including reduction in obesity, improvement in mental well-being and quality of life.,	NR NR NR
Ferguson, 2015[40] Inception-August 2014 USA Multiple RCT Yes	To evaluate the effectiveness of diabetes self-management education (DSME) interventions delivered in conjunction with primary care among Hispanic adults with type 2 diabetes mellitus (T2DM).	K=13 N range: 131-585 Hispanic/Latino Diabetes NR	A1C, HbA1c, reduction, self-management, BMI, glycemic control	DSME	DSME in conjunction with primary care is effective in improving glycemic control in Hispanic adults with T2DM.	NR NR NR

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Pesantes, 2015[41] Inception to February 2015 USA Multiple RCT Yes	To synthesize the evidence about interventions to enhance resiliency in managing hypertension or type 2 diabetes in vulnerable populations and to assess the efficacy of these interventions on clinical outcomes	K=17 N range: NR African American/Black, Asian (Chinese Americans), Hispanic/Latino Hypertension, diabetes NR	Changes in blood pressure, changes in HbA1c	Resiliency-oriented interventions in prevention and self-management, coping skills	Outcomes were not fully conclusive. There was some evidence that resilience interventions had a positive effect on HbA1c levels, but not blood pressure	NR NR NR
Salas, 2015[42] inception to 2014 USA Multiple Multiple Yes	A systematic review and meta-analysis of the effect of non-pharmacological cancer pain interventions in cancer populations with social disparities of income, ethnicity, or gender.	K=26 N range: 67-99 African American/Black, Hispanic/Latino Cancer NR	Pain,FACT-B, CES-D, PTGI, health status survey	Non-pharmacological cancer pain interventions (education, coaching, and online support groups); culturally sensitive online cancer support in Spanish	No significant differences in pain reduction between intervention and control groups or between ethnic minorities and their counterparts	NR NR NR

*The review also included study populations from other countries.

Abbreviations: A1C = glycated hemoglobin test; BDI = Beck Depression Inventory — II; CES-D = Center for Epidemiologic Studies Depression Scale; CIDI = Composite International Diagnostic Interview; COPD = chronic obstructive pulmonary disease; CRC= Colorectal Cancer; DBP = diastolic blood pressure; DSME = diabetes self-management education; EUC = Enhanced usual care; FOBT= Fecal Occult Blood Test; ; FACT-B=Functional Analysis of Cancer Therapy; HbA1c = hemoglobin A1C; HIT = health information technology; HRSD/HAM-D = Hamilton Rating Scale for Depression; HIV = human immunodeficiency virus; HSCL-20 = Hopkins Symptom Checklist-20; ICS = inhaled corticosteroid; MADRS = Montgomery–Åsberg Depression Rating Scale; MSM = men who have sex with men; NA = not available; NR = not reported; PMID = PubMed Identification Number; PrEP = pre-exposure prophylaxis; PTGI = Personal growth (posttraumatic growth inventory; RCT = randomized controlled trials; QUIDS-SR = Quick Inventory of Depressive Symptomatology-Self-Report; SBP = systolic blood pressure; SDC-20 = Symptom Checklist Depression Scale; STI = sexually transmitted infection; T2D = type 2 diabetes

Existing Evidence Reviews: Focus on American Indian/Alaska Native Population

Multi-Country Systematic Reviews

Leske, 2016[35]:
6/16 studies are US

- Reese, 2014 - 2% Native American
- O'Malley, 2008 - 67% American Indian/Alaska Native
- Tonigan, 2013 - 47% American Indian
- Villanueva, 2007 - 100% Native American
- Woodall, 2007 - 75% Native American
- Dickerson et al., 2014 - 100% Native American

Gifford, 2021[8]:
21/27 studies are US

- Burhansstipanov, 2012
- Burhansstipanov, 2014
- Krebs, 2013
- Dignan, 2005
- Dockery, 2018
- Doorenbos, 2010
- Guadagnolo & Boylan, 2011
- Guadagnolo & Cina, 2011
- Petereit, 2008
- Petereit, 2011
- Hill, 2010
- Hodge, 2012
- Hodge, 2016
- Mokuau, 2008
- Mokuau, 2012
- Pruthi, 2013
- Cueva, 2010
- Cueva, 2005
- Elliott, 1999
- Sanderson, 2010
- Warson, 2012

Note: Gifford provided a summary statement: Participants' United States Indigenous ethnicity included Native American (n=13; 50%), Alaska Native (n=3; 12%), a combination of Native American and Alaska Native (n=2; 8%), Native Hawaiian (n=2; 8%).

Ehrlich, 2016[33]:
1/23 studies are US

- Sinclair, 2013 - 100% Native Hawaiians and Pacific People

U.S. Systematic Reviews

Hu, 2020[12]:
2/19 studies included Indigenous populations
- Davis, 2011 - 3% American Indian/Alaska Native
- Bowen, 2020 - 17% American Indian/Alaska Native

Liu, 2019[13]:
- 1/15 studies included Indigenous populations
- Mueller, 2017 - 100% American Indian/Alaska Native

Han, 2019[18]:
3/27 studies included Indigenous populations
- Gregg, 2007 - 2.3% Native American
- Scott, 2006 - 1.3% Native American
- Sinclair, 2013 - 100% Native Hawaiians and Pacific People

Heitkemper, 2017[30]:
1/13 studies included Indigenous
- Lorig, 2010 - 100% American Indian/Alaska Native

Tao, 2016[37]:
1/22 studies makes a reference to Native populations. The study reports, “Given the demographics of the Bronx population, there were insufficient numbers of persons of American Indian/Alaska Native and Native Hawaiian/Pacific Islander race, and they were excluded from analyses.”

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