MDHHS
Michigan Department of Health & Human Services
Office of Equity and Minority Health

Addressing Health Disparities in Diverse Communities

A SYSTEMATIC REVIEW OF THE LITERATURE

COVID-19 Validates Disparities in Health Outcomes and a Need for Culturally Responsive Research

In July 2020, the Centers for Disease Control made the following declaration regarding health disparities and COVID-19:

> *Long-standing systemic health and social inequities have put many people from racial and ethnic minority groups at increased risk of getting sick and dying from COVID-19.*

HEALTH DISPARITIES

To many, this comes as no surprise as it is well documented, according to Williams and Cooper (2020), that there are more than 100 years of research confirming that health disparities exist. For example, research has shown that African American and Native American individuals die sooner for most of the leading causes of death, have higher death rates, and experience illness more than Whites. Research has also shown that there are direct correlations to health risks, poor outcomes and overall quality of life and the inequities in the social determinants of health that affect these groups.

> **According to Goode and Harrison (2000), a long-standing and well documented pattern of disparity continues to plague racially and ethnically diverse populations in this nation as it relates to the incidence of illness, disease and death. This pattern of disparity is evident both in health care outcomes and utilization… it is evident that disproportionate poverty, discrimination in the delivery of health care and the reluctance of health care organizations to provide culturally and linguistically competent care are indeed contributing factors.**

DISPARITIES IN RESEARCH

It is often hypothesized that in order to address health disparities, more research is needed that includes participation of racial and ethnic minority groups. It is well known that minority populations are much less likely than their white counterparts to participate in research, even on health topics that disproportionately affect those communities. According to Konkel (2015) Blacks and Latinos make up 6 percent of all participants in federally funded clinical trials, yet they account for 30 percent of the U.S. population. The premise is that the involvement of persons of culturally, racially and ethnically diverse groups will provide information needed to develop knowledge, identify strengths and risk factors, and inform efforts to determine preventive and treatment interventions, health education and public health policy (Goode and Harrison, 2000). In addition, there is a need for research that documents racial/ethnic variations in response to treatment. Experts warn that existing health disparities may be exacerbated without the involvement of more racially diverse research cohorts (Konkel).

There are significant barriers in establishing and implementing research in partnership with diverse communities and the broad range of organizations and programs concerned with health. Goode and Harrison (2000) cite several barriers, including that some members of racially and ethnically diverse groups shun participation in research studies because of historical mistrust due to past experiences with racism, bias and/or exploitation. Additionally, some diverse communities have not equitably benefited from their participation in research. Differing values and social, cultural, religious and spiritual beliefs related to health may also inhibit or prevent certain individuals and groups from participating in research protocols and studies (Goode and Harrison, 2000).

CULTURALLY RESPONSIVE RESEARCH

The use of research and evaluation strategies that are culturally responsive and that promote equity are proposed for improving research overall and for increasing the involvement and perspectives of diverse communities.

> *According to Frierson, Hood, and Hughes (2002), culturally responsive evaluators honor the cultural context in which an evaluation takes place by bringing needed, shared life experiences and understandings to the evaluation tasks at hand and hearing diverse voices and perspectives. The approach requires that evaluators critically examine culturally relevant but often neglected variables in project design and evaluation (p. 75).*

Andrews, Parekh, and Peckoo (2019) in their paper entitled, How to Embed a Racial and Ethnic Equity Perspective in Research: Practical Guidance for the Research Process, propose five guidelines for ensuring racial and ethnic equity in research (p. 7-9).

They suggest that researchers:

01. **Examine their own backgrounds and biases.**

Researchers should examine their own racial, ethnic and cultural backgrounds, as well as their experiences (or lack of experiences) with racism and/or privilege and consider how these factors influence the direction of their research.

02. **Make a commitment to dig deeper into the data.**

Recognizing and documenting differences in outcomes among racial and ethnic groups is not enough and often results in designating an intrinsic deficit of the population under study. Researchers must also identify the underlying systemic and contextual causes of disparities. This is vital for understanding outcomes in communities of color, where there has been a historical distortion or disregard of truths for the purposes of perpetuating racist systems and beliefs.

03. **Recognize that the research process itself has an impact on communities, and researchers have a role in ensuring research benefits communities.**

Embedding a racial and ethnic equity perspective in the research ensures that it benefits the communities of study and that they feel honored and valued in the partnership. This is important given that there is a history of researchers utilizing practices in communities of color that have caused harm, been exploitative and inhumane, and resulted in mistrust.

04. **Engage communities as partners in research.**

It is important that those most impacted be placed at the center of problem-solving conversations. Researchers should have a genuine partnership with communities and work together to define topics of interest, brainstorm solutions, and present findings generated by the study.

05. **Guard against the implied or explicit assumption that white is the normative, standard, or default position.**

When examining disparities, it is common practice for researchers to make comparisons to outcomes of White individuals. These comparisons risk making the suggestion that communities of color should aim to achieve to that standard. “A racial and ethnic equity approach moves beyond looking at disparities or “closing gaps” and shifts the focus to better outcomes for all while acknowledging that tailored solutions are necessary” (Andrews et al., 2019, p. 0).

Future research for addressing disparities should follow these guidelines to improve research practices in diverse communities.

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A Word From the Office of Equity and Minority Health

Foreword

We encourage dissemination of these strategies to improve health outcomes for racial and ethnic minorities. Our goal is to share material included in the literature and promote effective interventions. We hope you will review the findings included in this report and consider them when you are developing programs, issuing request for proposals, and determining the types of endeavors to fund. We are committed to sharing research findings and evaluation results as it pertains to improving health and social outcomes for racial and ethnic populations and encourage dissemination of this information widely.

These are some of the key points from the research highlighting factors that have led to positive health outcomes for racial and ethnic minorities.

MULTI-LEVEL APPROACHES

Findings of this systematic literature-review revealed that promise is being shown by interventions that tackle health issues that have been identified as a disparity for specific ethnic, racial, cultural or linguistic groups from a multi-level approach. This means that successful approaches incorporate several practices that have been shown to facilitate improved outcomes in minority populations. Often, they do so at multiple levels such as: individual, community, health provider, health system and policy.

SYSTEMIC CHANGE

Even greater impacts were found when health organizations made system-wide changes such as bridging the physician/patient gap through nurse-led case management, implementing inter-connected patient health records and adopting culturally tailored practices.

CULTURALLY COMPETENT SERVICES

Only one systematic review (Griner & Smith, 2006) made mental health the primary focus of their study. They found that mental health interventions had a moderately strong benefit when they were culturally adapted, were twice as effective if they were conducted in the clients' native language, and were four times more effective when they targeted specific cultural groups.

Among other noteworthy findings are those by Chin et al. (2012) who reported promising results when interventions used patient navigators and actively involved family and community members in patient care.

Many studies focused on increasing health literacy among participants. Across the studies, it was found that these strategies were most effective when interventions used culturally tailored components. For instance, in a study by Masi, Blackman, and Peek (2007), cultural and linguistic tailoring included native language materials and classroom instruction, a tailored breast cancer risk letter or phone call, and assistance by nurse practitioners.

FINANCIAL AND LOGISTICAL CONCERNS

Chin et al. (2007) reported that "interventions that addressed financial and logistical concerns were more effective than reminder-based systems among low-income women. These interventions include same-day mammography, assistance with transportation and childcare, and free mammograms" (p. 8). A similar finding was reported by Masi et al., 2007 who reported on a study that found increased mammography when women were provided with transportation, appointment scheduling, and dependent care. Thus, when there were logistical and financial barriers, it was not enough for studies to simply remind women that they should have a mammogram. Interventions were needed to help them overcome barriers such as lack of transportation and provision of childcare.

PROVIDER AVAILABILITY

Another key finding was the importance of addressing the social determinant of health (access to health care services): provider availability. Articles consistently identified provider availability as a social determinant that positively impacted health. Specifically, 32 studies discussed topics that were applicable to this category including patient navigators, community health workers, or similar roles. In addition, for most studies, these individuals were found to positively impact the measured health outcome(s). Some studies credited their effectiveness, in part, to the intentional selection of individuals who were racially, ethnically, culturally, or linguistically similar to the minority participants being served.

Overview: Office of Equity and Minority Health

The Office of Minority Health was established by executive order in 1988 as the coordination body for addressing health disparities and health inequities faced by Michigan's racial ethnic minority populations. The Office became the Health Disparities Reduction and Minority Health Section in 2004 during a reorganization of the department. The new name of the office is the Office of Equity and Minority Health (OEMH) as of January 2020.

Minority Health Bill, P. A. 653 was passed in 2006 and became effective in January 2007. The law mandates MDHHS to create a structure and policy to address health disparities. OEMH is responsible for assessing progress and drafting an annual report to the Legislature as outlined in the act.

The mission of OEMH is to provide a persistent and continuing focus on assuring health equity and eliminating health disparities among Michigan's populations of color (African Americans, Native Americans/Alaska Natives, Arab and Chaldean Americans, Asian Americans and Pacific Islanders, and Hispanics/Latinos).

OEMH partners with a variety of areas throughout MDHHS to implement equity strategies to improve outcomes for Michigan residents, specifically the state's racial and ethnic populations. The office also partners with organizations with expertise in serving racial and ethnic residents to collect, analyze and disseminate data to guide services, programming and allocation of resources. OEMH provides training on several topics, including equity, cultural competency and implicit bias, and offers technical assistance on how to incorporate equity decision making into policy, programming and budgeting. Finally, OEMH partners with local communities to address the social determinants of health (Office of Equity and Minority Health, 2020).

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OEMH provides expertise and technical assistance on:

- protocols for collecting, analyzing and reporting out minority health data
- best practices for community engagement
- access to minority and social determinants of health data
- strategies to build community-level capacity to improve minority health
- implementing organizational change initiatives to achieve equity
- training and professional development on equity and cultural competency

Health Disparities in Michigan

COVID-19

According to Executive Order No. 2020-55, signed by Michigan Governor Gretchen Whitmer, COVID-19 revealed that the state is still battling pervasive racial disparities. A press release reported that at the creation of the Coronavirus Task Force in April 2020, 40 percent of the state's COVID-19-related deaths were among African Americans, a group that represented only 13.6 percent of Michigan's population (State of Michigan, 2020).

In its 2018 and 2019 Health Equity Reports, the state noted other specific disparities in health and social determinants. The Michigan Department of Health and Human Services (MDHHS) reported:

MORTALITY

- Black and Native American infants die at three times higher rates compared to Whites.
- The mortality rate for kidney disease in the state's African American and Arab American populations was 1.9 times and 1.8 times the rate of the state average, respectively.
- The mortality rate for diabetes in the state's Arab American and African American populations was 1.7 times and 1.6 times the rate of the state average, respectively.
- The mortality rate for chronic lower respiratory disease in the state's Native American population was 1.5 times the rate of the state average.

DISEASE PREVALENCE

- Asians are 18 times more likely to have Chronic Hepatitis B compared to Whites.
- The prevalence of Chronic Obstructive Pulmonary Disease (COPD) in the state's Native American population and African American population was 2.1 times and 1.3 times the prevalence of the state average, respectively.
- The prevalence of any form of cardiovascular disease in the Native American population and Hispanic/Latinx population was 1.7 times and 1.2 times the prevalence of the state average, respectively.

SOCIAL DETERMINANTS OF HEALTH

- Arab Americans experienced poverty at 2.9 times the rate of the state average and the African American population experienced poverty at 2.4 times that of the state average.
- Hispanic and Latinx Americans older than 25 years of age were three times less likely to attain a high school diploma as the state average. Arab Americans older than 25 years of age were 2.4 times less likely to attain a high school diploma as the state average.
- Michigan's African American and Native American populations have 2.3 times and 1.9 times the unemployment rate as the state average, respectively.

Health Disparities in Michigan — continued

As part of its mandate by the state, MDHHS “strives to promote better health outcomes, reduce health risks, and support stable and safe families while encouraging self-sufficiency” (Michigan Department of Health and Human Services, n.d.). The Office of Equity and Minority Health supports these efforts through multi-faceted programs including those geared toward community and data capacity building and by engaging with topics such as Targeted Universalism and the CDCs social ecological model for violence prevention. The current report falls under another of its strategies, which is to identify research-based interventions that have been shown to improve positive health outcomes for individuals who are culturally, ethnically, racially and linguistically diverse.

This review's guiding research question is:

What policies and strategies — evidence-based, evidence-informed, or promising, address health disparities and/or social determinants of health and contribute to improved health outcomes for culturally/ethnically/racially/linguistically diverse individuals and communities?

Executive Summary

INTRODUCTION

Numerous efforts have been made to improve public health in the United States. Despite this, health disparities persist and are prevalent across a range of health measures and outcomes for culturally, ethnically, racially, and linguistically diverse groups. Researchers, policy makers, and other stakeholders have continued to develop a growing body of research on evidence-based, evidence-informed, or promising practices that could address and eliminate health disparities.

This current report focuses on this body of research for specific groups based on four broad categories loosely defined as: race – as identified by OEMH's mission to target populations of color in Michigan (African Americans, Native Americans/Alaska Natives, Arab and Chaldean Americans, Asian Americans and Pacific Islanders, and Hispanics/Latinos), ethnicity – presumed similarities such as ancestry, culture – presumed behaviors and norms within a group, or linguistics – language.

This report sought to identify strategies that were evidence-based, evidence-informed, or promising. Evidence-based studies were well-designed, used well-documented processes, and were positively impactful in one or more outcomes. In addition, sufficient information was made available so that the processes could be replicated to obtain similar positive results. Optimally, this also meant that the processes had been used multiple times in multiple settings with similar positive results. One such evidence-based strategy was the use of Community Health Workers (CHWs).

In contrast, evidence-informed research was well-designed, well-documented, and/or had positively impactful processes. However, for those processes, some parts were not explained in sufficient detail, they may not be feasible in other settings, there were limited examples of the processes being used, the ways they were used were substantively different from one setting to another, or the results were inconsistent. For example, many studies sought to increase patient health literacy. However, strategies tended to be unique from study to study. In addition, many of these studies implemented multiple strategies and few analyzed the impact of their specific literacy-related components.

Promising practices may have been unique processes and/or they were used a limited number of times. However, they were sufficiently well-designed, well-documented, or positively impactful to provide a foundation upon which other work could be built. For example, culturally-tailored strategies were promising in that multiple studies reported that they were positively impactful. However, most studies did not provide well-documented information about the cultural tailoring. In other cases, there was insufficient information about how the strategy was used compared to how it was designed to be used. An example of a promising practice was the provision of literature in participants' native languages. Results tended to indicate that this positively impacted participants' health outcomes. However, studies rarely identified how the literature was translated, whether it was consistently explained to all participants, or whether there were data to link the health outcomes to the translated literature.

PRES adapted a framework proposed by Gough, Oliver, and Thomas (2012) to do the following:

- Determine the conceptual framework, questions, eligibility, and appraisal criteria for the review
- Search the library literature and ascertain the existence of the grey literature such as government-funded reports or unpublished papers or evaluations that adhered to standard conventions of scholarly research
- Code and process the literature, including quality appraisal, based on the conceptual framework and research questions
- Synthesize and interpret the literature in a final report

LITERATURE REVIEW FINDINGS

While the larger goal is to provide strategies so that all individuals can achieve optimal health, the goal of this review is to provide readers with a compendium of best and promising practices that have been shown to reduce a health issue that has been defined as being different for specific racial, ethnic, cultural, or linguistic groups. In some research studies and for some specific health issues, disparities were reduced between participants who were White and participants who were culturally, ethnically, racially, or linguistically diverse. An example of this would be an intervention that improved colorectal cancer (CRC) screening among African American participants such that there was no longer a large gap in the CRC screening levels of African Americans and White individuals (Grubbs et al., 2013). While these outcomes are not to be minimized, it is even more important for researchers to compare outcomes, not simply between racial/ethnic groups, but rather to nationally recognized standards of optimal health.

In other research studies, comparisons were not made between individuals of diverse groups and White individuals. Instead, these studies tested interventions that demonstrated significant positive outcomes for individuals within a particular group. An example would be an intervention targeted to Hispanic Americans that found that those in the intervention group had greater levels of after-intervention health care coverage compared to participants in the control group who did not receive similar types of support in applying for health care (Flores, 2009). Studies that met either of these two criteria were included for analysis, coding, and summarization.

STUDIES WERE ORGANIZED INTO TWO GROUPS, EACH CONTAINING MULTIPLE SUB-GROUPS

01. Health Related Categories

Cancer; diabetes; health of children and youth; heart disease; hypertension; obesity/physical activity; HIV/STDs; opioid/substance abuse; and mental health

02. Selected Social Determinants of Health

Availability of resources to meet daily needs (ARDN) (including housing and environmental factors) access to health care services (AHCS) (including provider availability, access to health care, and health organization/physician impact); socioeconomic conditions; access to mass media and emerging technologies; transportation options; and language/literacy (including health literacy and translation services)

The selected social determinants were identified during the literature review process. They were coded based on terms identified in Healthy People 2020, which builds on the work of the Secretary's Advisory Committee on Health Promotion and Disease Prevention Objectives for 2020 and 2010. According to Health People 2020 (2010), examples of social determinants include:

- Availability of resources to meet daily needs (e.g., safe housing and local food markets)
- Access to educational, economic, and job opportunities
- Access to health care services
- Quality of education and job training
- Availability of community-based resources in support of community living and opportunities for recreational and leisure-time activities
- Transportation options
- Public safety
- Social support
- Social norms and attitudes (e.g., discrimination, racism, and distrust of government)
- Exposure to crime, violence, and social disorder (e.g., presence of trash and lack of cooperation in a community)
- Socioeconomic conditions (e.g., concentrated poverty and the stressful conditions that accompany it)
- Residential segregation
- Language/literacy
- Access to mass media and emerging technologies (e.g., cell phones, the Internet, and social media)
- Culture

Discussion Summary

Findings of this systematic literature-review revealed that promise is being shown by interventions that tackle health issues that have been identified as a disparity for specific ethnic, racial, cultural, or linguistic groups from a multi-level approach. This means that they incorporate several practices that have been shown to facilitate improved outcomes in minority populations. Often, they do so at multiple levels such as: individual, community, health provider, health system, and policy. For instance, positive outcomes have been found when interventions focused on increasing both participant health literacy and AHCS: provider availability by using Patient Navigation (PN) or Community Health Workers (CHWs).

Improved outcomes were obtained from approaches that targeted multiple levels such as: individual, community, health provider, health system, and/or policy. For instance, positive outcomes have been found when interventions focused on increasing both participant health literacy and access to health care services (AHCS).

According to Walton, Snead, Collinsworth, and Schmidt (2012) "CHWs can reduce the burden on other medical providers and reduce the cost of health care delivery by supporting patient needs that do not require the expertise of a clinician and helping patients avoid unnecessary hospitalizations and other expensive forms of acute care" (p. 162).

In addition, studies found that physicians had an impact when they were supportive of efforts to overcome health disparities and began using best practices on a consistent basis. Even greater impacts were found when health organizations made system-wide changes such as bridging the physician/patient gap through nurse-led case management, implementing inter-connected patient health records, and adopting culturally tailored practices. Research indicated that culturally tailored interventions were those that were adapted to represent the culture and meet the needs of the individual(s) or communities being served.

> *Greater impacts were found when health organizations made system-wide changes such as bridging the physician/patient gap through nurse-led case management, implementing inter-connected patient health records, and adopting culturally tailored practices.*

Throughout the studies, it was found that improving health, preventing chronic conditions, and tackling diseases were most successful when interventions addressed inter-related social determinants. Statistically significant and/or positive results tended to be seen in interventions that included linguistically and culturally competent processes, increased the health literacy of participants, implemented strategies to address multiple health-impacting factors, and expanded provider availability through PN and CHWs.

For example, in studies on the health of children and youth, data overwhelmingly indicated that when mothers received education and support around breastfeeding, they were significantly more likely to start and continue breastfeeding. Studies also found that CHWs and others in similar roles were effective in helping families in multiple areas including increasing immunization rates, reducing the burden of juvenile asthma, decreasing obesity, and increasing physical activity and consumption of fruits and vegetables. These trends were found in studies on cancer, diabetes, hypertension, heart disease, and all the other health-related topics identified in this report.

A brief summary of each category is described below.

FINDINGS BY HEALTH-RELATED CATEGORY

01. Cancer

Nineteen studies suggested promising and best practices to reduce the cancer-related health burden faced by specific racial, cultural, or linguistic groups. Most utilized educational interventions targeting health-behaviors such as understanding of the disease, medication adherence, and self-care. Some studies were designed after considering two or more factors that negatively impacted health outcomes. Linguistically and culturally adapted interventions were then selected to overcome these factors, increase health literacy, expand provider availability through CHWs and patient navigators, and support participants and their care teams.

02. Diabetes

Seventeen studies focused on diabetes. Findings indicated that diabetes-related health behaviors and outcomes could be improved through targeted approaches that include CHWs, PN, disease-specific health literacy, care-coordination strategies, community coalitions, and provision of resources for individuals who lack the resources to meet their daily needs (e.g., transportation and nutritional foods). Changes at the health-care-systems level were also made.

03. Mental Health

Fifteen studies highlighted interventions on mental health either as a sub-topic in systematic reviews or in individual studies. While findings varied, many found that mental health interventions had benefits when they were culturally adapted, used patient navigators, involved family and community members, and included educational/training components.

04. Obesity/Physical Activity

Fifteen studies focused on interventions that were effective in increasing physical activity, improving overall diet, or specifically increasing fruit and vegetable intake. They targeted adults, children, families, and/or a combination of these groups. Outcomes included healthier habits such as consuming more fruits and vegetables, engaging in more physical activity, and understanding nutritional information.

05. Health of Children and Youth

Fourteen studies targeted outcomes related to the health of children and youth. A group of studies found positive changes for breastfeeding initiation, duration, and/or exclusivity. Another set of interventions targeted childhood asthma. These employed multi-layered asthma prevention strategies such as addressing the home environment, teaching patients self-management skills, involving family, providing specialist-clinic referrals, and/or engaging the children's schools. In most studies, CHWs played a prominent role in establishing effective links and facilitating the flow of education and understanding between providers, patients, families, and communities.

FINDINGS BY HEALTH-RELATED CATEGORY — continued

06. Hypertension

Twelve studies addressed the topic of hypertension and many impacted health outcomes when they included CHWs or other support professionals, health literacy, and/or culturally tailored strategies including healthy adaptations to recipes. Many studies reported positive hypertension related outcomes such as improvements in blood pressure control.

07. HIV/STDs

Eleven studies highlighted the topic of HIV/STDs. Most included interventions that targeted health literacy, PN and CHWs, and culturally tailored interventions. For populations at high risk for HIV-AIDS, studies on testing, prevention, and efficacy noted the importance of stigma reduction and support systems such as CHWs. In one study, intervention group participants were effectively supported to participate in AIDS clinical trials (ACTs).

08. Heart Disease

Ten studies suggested promising practices to address heart disease. Most of them echoed the strategies proposed by the Robert Wood Johnson Foundation (Chin, Walters, Cook, and Huang, 2007). First, use multifactorial interventions that target a combination of factors at the patient level (e.g., health literacy or adherence), provider level (e.g., increased cultural competence), health care organizational level (e.g., electronic registries), and health care systems level (e.g., multidisciplinary teams). Second, use cultural tailoring and third, implement nurse-led interventions.

09. Opioid/Substance Abuse

Nine studies focused on opioid/substance abuse. None were about opioid treatments because the literature revealed that these were medication-assisted interventions and were outside the scope of this review. One study was on opioid monitoring by physicians and found that monitoring consistency was below national guideline-recommendations. However, in this study, Black patients were more likely than White patients to receive guideline-recommended monitoring. The other eight studies tackled smoking cessation and results were inconsistent. In some studies, positive results were found for interventions with nurses or CHWs, cultural tailoring (e.g., acknowledging and addressing unique psychosocial challenges based on ethnic, racial, cultural, and/or linguistic group), and multi-level interventions to facilitate behavioral changes (e.g., offering both education sessions and counseling).

FINDINGS BY SELECTED SOCIAL DETERMINANTS OF HEALTH

01. Language/Literacy: Health Literacy

Fifty-three studies focused on language/literacy: health literacy. Effective interventions used culturally tailored components, engaging strategies such as skills-based instruction and hands-on activities, and CHWs or other support individuals.

FINDINGS BY SELECTED SOCIAL DETERMINANTS OF HEALTH — continued

02. Language/Literacy: Translation Services

Thirty-three studies included some form of linguistic responsiveness. These included a variety of services including translating educational materials, surveys, prescription labels, and medication consulting. Numerous languages were included, among them were Spanish, Hmong, Arabic, Japanese, Somali, and others.

03. Access to Health Care Services (AHCS): Provider Availability

Thirty-two studies highlighted AHCS: provider availability. These interventions increased availability by using CHWs, nurses, patient navigators, care-coordinators, or promotoras - a title given to CHWs in some Hispanic communities. These support professionals had varied roles; however, they generally provided more time-intensive, facilitative support than could be given by physicians or specialists.

04. Access to Health Care Services (AHCS) - AHCS: Health Organization/Physician Impact

Twenty-six studies highlighted AHCS: health organization/physician impact. Generally, organizational level changes included multidisciplinary teams and disease management practices that were diffused throughout medium-sized to large portions of the health system (e.g., electronic health registries, adoption of disease-specific national guidelines).

05. Access to Health Care Services (AHCS) - AHCS: Access to Healthcare

Twenty-five studies focused on AHCS: access to healthcare. Among other topics, researchers discussed positive health outcomes related to the State Children's Health Insurance Program (SCHIP), cancer control efforts in the state of Delaware, and case managers effectively obtaining insurance for previously uninsured Latino children.

06. Socioeconomic Conditions

Twenty-one studies indicated that they addressed socioeconomic conditions. Although few provided details of the specific interventions or their impacts on participants' socioeconomic conditions, they suggested that these interventions contributed to positive health outcomes. For example, a study by Monsen et al. (2017) found significant, positive changes in women who received support services to address social and behavioral determinants of health (SBDH).

There is also a long history of research on the relationships between health and specific socioeconomic factors. For this reason, this current review/report contains a special section on the social determinant: crime, violence, and social disorder. This section contains studies that did not meet all the criteria to be included in this review/report; however, the topic of crime/violence was viewed as necessary for inclusion. For instance, in the special section, a study by Thornton et al. (2016) found that moving from low- to middle-income housing decreased the risk of extreme obesity and diabetes and improved mental health, well-being, and physical activity.

FINDINGS BY SELECTED SOCIAL DETERMINANTS OF HEALTH — continued

07. Availability of Resources to Meet Daily Needs (ARDN) - ARDN: Environmental Factors

Sixteen studies discussed interventions on ARDN: environmental factors. These included food insecurity, farmers' markets, and home-based allergens.

08. Transportation Options

Fourteen studies helped participants overcome a lack of transportation to study-related appointments. These services were provided in studies serving children and those targeting adults.

09. Access to Mass Media and Emerging Technologies

Six studies discussed access to mass media and emerging technologies. A majority of this current report's 65 studies incorporated well established technologies including telephones, multi-media education, and electronic health data. However, for the purposes of this review, this section only discussed interventions that were innovative/cutting-edge or that used mass media to disseminate health information to large portions of an intended study population.

10. Availability of Resources to Meet Daily Needs (ARDN) - ARDN: Housing

Four studies highlighted interventions on ARDN: housing. Three discussed CHWs or similar support professionals providing housing assistance. The fourth study highlighted that, in its sample, the concentration of neighborhood poverty was very different for African American vs. White participants.

Introduction

It has also been acknowledged that in the United States there is an inequitable health burden and uneven distribution of social determinants of health based on race, culture, and language. In 2000, a report from the Surgeon General revealed that people of color experienced worse health outcomes when compared to Whites. At that time, legislation focusing on the reduction of health disparities was passed by Congress and signed into law by President Bill Clinton. Among other actions, the law created the National Center for Minority Health and Health Disparities within the National Institutes of Health (NIH). It also authorized the Agency for Healthcare Research and Quality to measure progress on the reduction of disparities on an ongoing basis.

These agencies were guided by research indicating that six disparity areas were pervasive in affecting multiple racial and ethnic minority groups at multiple stages of life. These six areas were: cancer screening and management, cardiovascular disease, diabetes, HIV/AIDS, immunization rates, and infant mortality. These concerns were also focused upon in 2000 by the initiative **Healthy People 2010**. This work outlined the nation's health objectives for the 21st century. Released by Donna Shalala, former Secretary of the Department of Health and Human Services (DHHS), this initiative has been updated every decade and the current version, **Healthy People 2030**, continues to tackle health disparities.

The foundation laid by **Healthy People** sparked similar initiatives at the federal, state, and local levels. Through them, researchers have sought to identify and target non-health related factors that are intertwined with health and health disparities. These factors include socioeconomic status, environmental hazards, neighborhood safety, and access to health services. As outcomes reveal gaps in intervention strategies, it has become clear that prevention efforts must be tailored to the needs of the individuals and their communities.

In addition, **Healthy People** has prompted improvements in the collection and use of standardized population-level data on demographics and health. Through this data collection and analysis, researchers such as Dreeben (2001) have found that in comparison to Whites, African Americans exhibit higher levels of cancer, hypertension, diabetes, obesity, and sexually transmitted infections. Additionally, Native Americans are twice as likely as Whites to have diabetes (Centers for Disease Control, 2017).

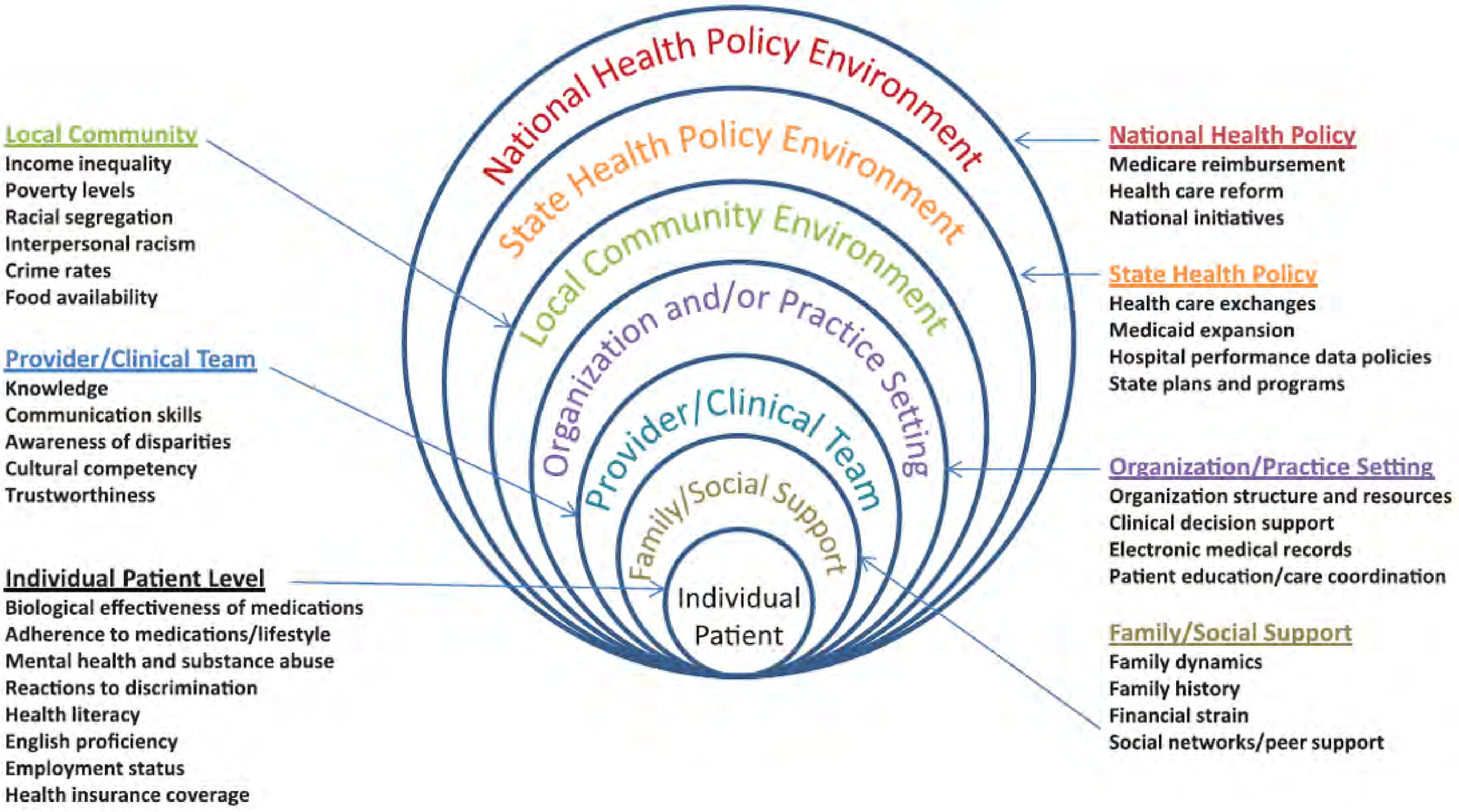
Given these differences associated with race and ethnicity, researchers have highlighted the importance of considering these characteristics in efforts to study and solve health disparities. As noted by the National Academies of Sciences, Engineering, and Medicine (2017) "race and ethnicity are extremely salient factors when examining health inequity… Therefore, solutions for health equity need to account for the social, political, and historical context of race and ethnicity in this country" (p. 58).

Nápoles and Stewart (2018) note that the National Institutes of Health (NIH) recommend several strategies for using evidence-based interventions (EBIs) to address health disparities. First, identify EBIs – those that are research-tested and found to be effective in achieving desired outcomes. Second, acknowledge that EBIs tend to be developed and tested in mainstream populations and are not usually designed for or specifically intended to reach populations experiencing health disparities. Third, EBIs must be translated so they can be designed for and implemented in the communities and populations in which health disparities exist.

As researchers continue to follow recommendations similar to those made by the NIH, the body of literature about health disparities continues to grow. At the same time, evidence continues to point to the intertwined nature of health outcomes, race, socioeconomic conditions, and other variables. Multiple visual representations have been created to show these complexities and inter-relationships. One such example was created by researchers looking at disparities in hypertension prevention and control (Mueller, Purnell, Mensah, and Cooper, 2015, p. 700). Their visual is republished with permission in Figure 1 below.

In moving beyond identifying the challenges and complexities of addressing health disparities, the current report seeks to highlight strategies and solutions. This research was commissioned by the Office of Equity and Minority Health (OEMH) within the Michigan Department of Health and Human Services (MDHHS). The review/report was created by Public Research and Evaluation Services (PRES), focuses on the United States, and presents a systematic review of well-supported and promising evidence-based practices designed and/or implemented to reduce a health disparity.

Figure 1 — Multilevel influences on disparities in hypertension prevention and control (Mueller et al., 2015, p. 700)[1]



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[1] Mueller M, Purnell TS, Mensah GA, Cooper LA, Reducing Racial and Ethnic Disparities in Hypertension Prevention and Control: What Will It Take to Translate Research into Practice and Policy?, American Journal of Hypertension 2015; 28 (6): 699–716, doi:10.1093/ajh/hpu233. Reproduced by permission of Oxford University Press on behalf of the American Journal of Hypertension, Ltd. v1.4

The research question guiding the literature review was:

What policies and strategies — evidence-based, evidence-informed, or promising — address health disparities and/or social determinants of health and contribute to improved health outcomes for culturally/ethnically/racially/linguistically diverse individuals and communities?

Methods

This review adhered to a framework adapted by PRES from the work of Gough et al. (2012) to: 1) Determine the conceptual framework, questions, eligibility, and appraisal criteria for the review; 2) Search the library literature and ascertain the existence of the grey literature; 3) Code and process the literature, including quality appraisal, based on the conceptual framework and research questions; and, 4) Synthesize and interpret the literature in a final report.

This systematic review sought to identify the literature and its characteristics and synthesize it for the Office of Equity and Minority Health, Michigan Department of Health and Human Services. Figure 2 in Appendix C and the code set in Appendix D contain more detailed information about the literature review process and inclusion and exclusion criteria.

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FOCUS ON INTERVENTIONS TARGETING HEALTH DISPARITIES OR IMPROVING MINORITY HEALTH OUTCOMES

During the initial phases of this systematic review, it was observed that health-disparities reduction is somewhat of an emerging field of research. Studies were more often focused on improving health outcomes than on reducing health disparities. Nevertheless, there were a small number that had identified interventions that eliminated or significantly reduced the differences among the participants being studied. Thus, this review included interventions that used constructs that were similar or related to health disparities. Specifically, studies were only included if they were found to improve health outcomes in minority populations. Some studies were Randomized Controlled Trials (RCTs) and others were not; however, the non-RCTs were found to have promising outcomes that might be replicable by RCTs in the future.

LITERATURE SEARCH

The literature search included the electronic databases PubMED, Google Scholar, and the EBSCOhost database system. Initially, health-related search terms included: cancer, diabetes, heart disease, hypertension, obesity, physical activity, HIV/STD, mental health, opioids, and infant mortality. Among these initial search categories, the areas of opioids and infant mortality yielded few studies. Rather, for the criteria of opioids, search results tended to include medication-assisted interventions, which are outside the scope of this review. These search results also yielded interventions targeting substance addiction and substance abuse, specifically smoking cessation. For this reason, the category became "opioid/substance abuse." Similarly, the search-term infant mortality tended to yield studies focused on the positive relationship between infant health and breastfeeding interventions. These and other non-adult interventions were then grouped into the category "health of children and youth." Additional search terms included: health disparities, health disparity reduction, or health interventions with positive results in minority participants. Social determinants were not included in the search terms; however, as was expected, they were variables in many of the research studies that sought to improve health or reduce differences or disparities for individuals and communities that are culturally/ethnically/racially/linguistically diverse.

SCREENING PROCESS

As shown in Figure 2 in Appendix C, after initial screenings, 674 studies were imported into the review on the EPPI-Reviewer4™ online review system. Duplicates were then removed, and after screening on titles and abstracts, 168 studies remained. A total of 155 items were selected for full-text review; however, only 134 of these studies had electronic documents that could be accessed, reviewed, and coded. Thus, this review includes 65 documents published between 2001 and 2019 that, after the full-text review, met all criteria for inclusion. The code set for this review is provided in Appendix D.

Organization of the Report

The section titled "topic summaries from the peer-reviewed literature" presents the literature synthesis for each of the topic areas. Table 1 in Appendix A provides more detailed information for each of the 65 studies. This table presents summaries of included studies as well as information on the first author and year published, article title, race/ethnicity and gender of the participants, whether the study was an individual study or meta-analysis/systematic review, and whether it was an RCT or non-RCT. In these summaries, for ease of entry into table format, where possible, acronyms are used.

Table 2 in Appendix B presents strategies that have been implemented to address health disparities in diverse communities. This table lists each of the included articles in alphabetical order by first author and year published. It also identifies the category(ies) of disease(s) or social determinant(s) that are discussed by each article.

Document Characteristics

It was found that race/ethnicity was not provided in some research articles. Others identified race/ethnicity as only two groups of either Caucasian/Whites or “minorities.” Still others identified one or more minority groups but then specified a sub-group of their minority participants as: other, multiple races/ethnicities, or unknown. For those reasons, the broad category/code of “not specified” is used in this report. This category includes individuals identified in research articles by the terms: minorities, other, multiple races/ethnicities, unknown, not specified, or unspecified.

The most studied race/ethnicity was African American (n=50), followed by Hispanic/Latino (n=41), and Caucasian/White (n=37). The next most studied group was the broad category of race/ethnicity “not specified” (n=27), followed by Asian American/Pacific Islander (n=23), Native American/Alaska Native (n=15), and Arab Americans/Chaldean Americans (n=5). In terms of gender, the majority of studies focused on both males and females (n=44). There were 12 studies on females only, 7 in which gender was not specified, and 2 on males only.

This systematic literature-review found that of applicable health-related topics, cancer (n=19) was the most studied followed by diabetes (n=17). Mental health and obesity/physical activity were studied by the same number of articles (n=15). The next most studied topics were health of children and youth (n=14), hypertension (n=12), HIV/STDs (n=11), heart disease (n=10), and opioid/substance abuse (n=9).

Generally, in the included studies, social determinants of health were not studied directly, rather, in the designs of many studies, they were addressed and analyzed as factors to improve health outcomes among participants. In this review, the Healthy People 2020 (2010) categories were used as a foundation for coding social determinants. Three of the categories were incorporated without subcategories, they were: socioeconomic conditions (e.g., concentrated poverty and the stressful conditions that accompany it), access to mass media and emerging technologies, and transportation options. Three categories were subdivided into subcategories that were then treated as distinct, mutually exclusive codes. The first was language/literacy that was divided into two categories of language/literacy: health literacy and language/literacy: translation services. Access to Health Care Services (AHCS) was divided into three categories and became AHCS: provider availability, AHCS: health organization/physician impact, and AHCS: access to healthcare. The third and final sub-divided category was Availability of Resources to meet Daily Needs (ARDN) that became the two categories of ARDN: environmental factors (e.g., food security/insecurity, availability of healthy food supplies, employment) and ARDN: housing.

Of the 65 included studies, 36 were non-Randomized Controlled Trials (non-RCTs), 19 were meta-analyses or systematic reviews that included both RCTs and non-RCTs, and 10 were individual RCT.

Among these categories of social determinants of health, the most researched was language/literacy: health literacy such as participants’ knowledge related to a medical condition or specific disease (n=53). Language/literacy: translation services (n=33) and

AHCS: provider availability (n=32) were studied with almost the same frequency. AHCS: health organization/physician impact was the next most studied category (n=26) followed by AHCS: access to healthcare (n=25), socioeconomic conditions (n=21), ARDN: environmental factors (n=16), and transportation options (n=14). The least studied categories were access to mass media and emerging technologies (n=6) and ARDN: housing (n=4). More information is provided in Table 2 in Appendix B. Of the 65 included studies, 36 were non-Randomized Controlled Trials (non-RCTs), 19 were meta-analyses or systematic reviews that included both RCTs and non-RCTs, and 10 were individual RCT studies.

Sixty-three studies focused on at least one health-related topic and at least one social-determinant. Only two studies targeted social determinants but did not address a specific health topic. One, Basu (2001) focused on the role of primary care physicians (PCPs) in reducing racial disparities in referral-sensitive admissions. These types of procedures are fairly discretionary, often elective, highly technological, require a referral from a PCP to a procedural specialist, and might include procedures such as joint replacement, pacemaker insertion, or coronary angioplasty. The second study, Aqtash and Van Servellen (2013) researched health-promoting lifestyle behaviors (e.g., nutrition, physical activity, and stress management) among Arab immigrants. Therefore, although these two studies did not target specific health outcomes, their findings are applicable to this discussion of promoting more desirable health outcomes for diverse individuals and communities.

The current review found 24 articles that met the inclusion criteria and were meta-analyses or systematic reviews. Meta-analyses and systematic reviews present several benefits and challenges to a review such as this one. The primary benefit could be the relative statistical and research power that comes from pooling studies. A primary challenge might be the likelihood that studies could be included in multiple meta-analyses and might skew the findings of this review. It

was felt that this challenge was minimal because after scrutiny, it was found that individual meta-analyses often included unique studies. In instances where a study was included in multiple reviews, it was found that each review analyzed unique components of interventions or provided statistical analyses that were unique. Therefore, including meta-analyses added to, but did not duplicate, findings.

Another unique challenge was determining whether to include meta-analyses and systematic reviews that included non-U.S. populations. One issue was that international studies could have participant-groups that were not comparable to U.S.-based participant groups. Conversely, these meta-analyses had the potential to add to the body of research on health disparities and improving health outcomes for individuals who are racially, ethnically, culturally, or linguistically diverse. For those reasons, two inclusion criteria were established. First, for a meta-analysis or systematic review to be included, the number of non-U.S. studies had to be less than 25 percent of the total included studies. For example, in Bull, Dombrowski, McCleary, and Johnston (2014), 30 studies were conducted in the United States and five in other countries. There was insufficient information provided to identify non-U.S. studies and remove them; nevertheless, the meta-analysis met the inclusion criteria of having 25 percent or fewer non-U.S. studies.

Second, the meta-analysis or systematic review had to provide sufficient data that allowed U.S. findings to be validated for consistency with the findings of the overall meta-analysis. For example, Chapman and Pérez-Escamilla (2012), conducted a meta-analysis of interventions to increase breastfeeding practices. For this study, it was found that, consistent with the findings when non-U.S. studies were included in the analyses, U.S.-based interventions also produced greater breastfeeding practices compared to control groups. In the current report, there are 24 meta-analyses or systematic reviews. Of these, 20 are U.S.-based and four include non-U.S. studies. Within these four, internationally based research projects comprise 25 percent or less of the total number of included studies.

Topic Summaries From the Peer-Reviewed Literature

FINDINGS BY HEALTH-RELATED CATEGORY

Cancer (n=19)

Among these studies, it was found that slightly more than half were individual studies (n=10) where only one research project was being conducted. The other nine were either meta-analyses, which are studies that synthesize the quantitative findings from multiple studies or they were systematic reviews, which are studies that could synthesize quantitative and/or qualitative findings from multiple studies. For studies on cancer, the most included social determinant was language/literacy: health literacy (n=16) and was addressed through educational interventions aimed at making changes in health-behavior such as self-care and medication adherence. AHCS: provider availability (n=15) was the second most addressed through interventions that included patient navigators, CHWs, nurse practitioners, case managers, or other supporting roles. The reviews among these studies were Anderson et al. (2015) and Flores (2009); individual studies included Beckham et al. (2008) and Enard et al. (2015). Other applicable studies are shown in Table 2 in Appendix B. Two social determinants, AHCS: access to healthcare and language/literacy: translation services were each addressed by 11 studies. The two categories of socioeconomic conditions and AHCS: health organization/physician impact were each addressed by nine studies. Within cancer-focused studies, the four least-studied determinants were ARDN: environmental factors (n=5), transportation options (n=5), ARDN: housing (n=2), and access to mass media and emerging technologies (n=1). By race/ethnicity, cancer studies focused on African Americans (n=14), Hispanics/Latinos (n=12), Caucasians/Whites and unspecified races (n=9), Asian Americans/Pacific Islanders (n=6), Native Americans/Alaska Natives (n=3), and Arab Americans/Chaldean Americans (n=2).

While this section will highlight findings from some of these studies, more details can be obtained in Tables 1 and Table 2 in the Appendices.

Although the studies on cancer were highly heterogeneous in most areas, they were homogeneous in reporting on interventions and strategies that showed promising results in improving health outcomes for individuals of color. Many of the studies, such as Purnell et al. (2016), shared a commonality in that they first considered two or more factors that had been found to negatively impact health outcomes for people of color. These multiple challenges were then addressed through intervention components such as increasing health literacy, expanding provider availability through PN and CHWs, and designing processes that were linguistically and culturally competent. Two studies not included in the review by Purnell et al. confirm these results. One example was seen in the study by Enard et al. (2015) that provided a treatment group with multiple tailored services from patient navigators fluent in both English and Spanish, education to increase health literacy, counseling, and logistical support in the participant’s language of choice. It was found that the intervention made a statistically significant difference in participants adhering to colorectal cancer (CRC) screening guidelines. Another study on CRC found that when African American participants were exposed to information showing progress (e.g., Blacks are improving over

Cancer (n=19) — continued

time), they had more positive emotional reactions and were more likely to want to be screened compared with two dimensions of disparity information (e.g., Blacks are doing worse than whites and Blacks are improving, but less than whites) (Nicholson et al., 2008).

Similarly, data from a systematic review by Gorin, Badr, Krebs, and Das (2012) found positive health outcomes from multi-level strategies impacting the patient, family and social supports, providers, health organizations, the local community, and/or policies at the state and national levels. In this review, data indicated that the most common levels were the individual, provider team/group, family, and community. Gorin et al. found positive effects on several health behavior outcomes including cancer prevention and screening. Additional evidence came from a study of women who were supported by a CHW and who attended educational sessions on breast, cervical, and colorectal cancer. Statistically significant positive changes were found on knowledge of screening guidelines and beliefs/attitudes regarding early detection of cancer (Mojica, Morales-Campos, Carmona, Ouyang, and Liang, 2016). Likewise, O'Brien, Halbert, Bixby, Pimentel, and Shea (2010) employed CHWs to help women increase their health-literacy of cervical cancer and pap smear adherence. At the six-month follow-up, statistically significant differences were found for all measures including adherence to pap smear screening and cervical cancer knowledge.

Diabetes (n=17)

For studies on diabetes, there was one more meta-analysis or systematic review (n=9) compared to the number of individual studies (n=8). For this disease/topic, the most addressed social determinant was language/literacy: health literacy (n=16) followed by AHCS: provider availability (n=12) and AHCS: health organization/physician impact and language/literacy: translation services (both n=11). Socioeconomic conditions were next (n=9), followed by AHCS: access to healthcare (n=7). ARDN: environmental factors and transportation options were addressed by the same number of studies (n=6). Access to mass media and emerging technologies was addressed the least (n=1). Diabetes studies included the following races/ethnicities: African Americans (n=13), Caucasians/Whites and Hispanics/Latinos (n=11), Asian Americans/Pacific Islanders (n=8), Native Americans/Alaska Natives (n=5), unspecified races (n=4), and Arab Americans/Chaldean Americans (n=2).

This section discusses findings from some of the diabetes-related studies; however, more details can be obtained in Table 1 and Table 2 in the Appendices.

Results from these studies indicated that diabetes-related health behaviors and outcomes can be improved through targeted approaches that include CHWs, PN, disease-specific health literacy, healthcare system-level changes, care-coordination strategies, community coalitions, and provision of resources for individuals who lack the resources to meet their daily needs (e.g., transportation, nutritional foods, etc.). This was seen in a study by Plescia, Herrick, and Chavis (2008). Three strategies were implemented including a community coalition, the use of lay-health advisors, and changes to community environments. These environmental changes included deploying a culturally specific mass-media campaign and installing a local farmer's market. Statistically significant improvements were seen for some subgroups, such as in physical activity and smoking cessation for women and physical activity for middle-aged adults.

Likewise, in a systematic review of the literature, Ricci-Cabello et al. (2014) found that diabetes-focused educational programs produced statistically significant improvements in clinical outcomes. In this review, when studies utilized similar interventions and/or provided similar types of data, meta-analyses were conducted. Results showed that educational programs improved measured outcomes including fasting blood glucose, HbA1c, blood pressure, lipid profiles, weight, Body Mass Index (BMI), and/or waist circumference. HbA1c was also significantly decreased in studies included in the review by Peek et al. (2007). A later study by Walton et al. (2012) was designed to include patient-reported needs that were compiled from previous interventions with CHWs. These requests included health-literacy education, communication, respect, removal of financial constraints, and access to medication and transportation. To be responsive to these needs, the program recruited and trained CHWs, built upon existing community infrastructures, and formed partnerships with local clinics. In addition, CHWs were integrated into the health care system's care-coordination strategy through an electronic diabetes registry that was used to track patient metrics and facilitate communication between CHWs and primary care clinicians.

Changes at the health-care-systems level were also reported in a study by Sequist, Adams, Zhang, Ross-Degnan, and Ayanian (2006) who studied whether system-wide diabetes mellitus (DM) quality improvement initiatives had an impact on between-group differences in health outcomes. Researchers analyzed changes in patients receiving testing and controlling their low-density lipoprotein (LDL) cholesterol levels. For both testing and controlling LDL, overall rates increased, and the White-Black difference decreased significantly. For this study, it was not specified whether DM outcomes of groups (by race, gender, or other demographics) were compared with national guidelines for optimal DM management.

Mental Health (n=15)

Mental health focused studies were more likely to be included in meta-analyses or systematic reviews (n=10) versus individual studies (n=5). Language/literacy: health literacy was the most included social determinant (n=13), followed by language/literacy: translation services (n=11), AHCS: health organization/physician impact (n=9), and AHCS: provider availability (n=7). Lesser studied areas were socioeconomic conditions and ARDN: environmental factors (for both n=6), AHCS: access to healthcare (n=5), transportation options (n=3), and ARDN: housing (n=1). By race/ethnicity, these studies focused on African Americans, Caucasians/Whites, and Hispanics/Latinos with equal frequency (n=11). This was followed by Asian Americans/Pacific Islanders (n=9), individuals of unspecified races/ethnicities (n=8), Native Americans/Alaska Natives (n=6), and Arab Americans/Chaldean Americans (n=2).

> *Mental health interventions were twice as effective if they were conducted in the client's native language, and were four times more effective when they targeted specific cultural groups.*

The following are highlights from some of the studies in this category; Table 1 and Table 2 in the Appendices provide greater details on each study.

The majority of studies focused on mental health either in individual studies or as a sub-topic in systematic reviews. Only one systematic review (Griner & Smith, 2006) made mental health the primary focus of their study. They found that mental health interventions had a moderately strong benefit when they were culturally adapted, were twice as effective if they were conducted in the client's native language and were four times more effective when they targeted

Mental Health (n=15) — continued

specific cultural groups. Among other noteworthy findings from reviews are those by Chin et al. (2012) who reported promising results when interventions used PN and actively involved family and community members in patient care. In another review, Alegria, Carson, Goncalves, and Keefe (2011) found that African American youth with mental illness may actually be delayed in receiving treatment because their strong social supports may allow families to avoid seeking professional assistance. In a later individual study, promising findings were reported by Hijazi et al. (2014) who found that a brief narrative exposure therapy helped Iraqi refugees overcome some of the effects of post-traumatic stress.

Researchers found promising results when interventions used Patient Navigation (PN) and actively involved family and community members in patient care.

In a study on suicide prevention, Teo et al. (2016) found that participants who received the intervention training were statistically significantly more likely to: 1) directly ask about suicidal thoughts (question), 2) encourage the individual to seek mental health treatment (persuade), and 3) provide a specific phone number for the person to get help (refer). Under the category of mental health, three studies focused on pain management. These reports were included because they discussed how pain affects mental health. Two were individual studies (Kalauokalani et al., 2007 and Parker et al., 2011) and one was a systematic review (Quiñones et al., 2011). For instance, in the study conducted by Parker et al., statistically significant positive results were achieved in pain reduction for minority seniors who received education using the Arthritis Foundation's Self-Help Program. Participants also reported improvements in their mood and quality of life.

Obesity/Physical Activity (n=15)

It was found that, among studies focused on obesity/physical activity, there was one more meta-analysis or systematic review (n=8) than individual studies (n=7). In attempting to improve health outcomes relating to obesity and physical activity, studies were more likely to focus on language/literacy: health literacy (n=15) than on any other social determinant. This was followed by AHCS: provider availability and language/literacy: translation services (for both n=7). AHCS: health organization/physician impact was the next most studied (n=6) followed by socioeconomic conditions (n=5) and AHCS: access to healthcare (n=4). The three least studied social determinants were ARDN: environmental factors and transportation options (both n=3) and access to mass media and emerging technologies (n=1). By race/ethnicity, obesity/physical health studies focused on African Americans (n=11), Hispanics/Latinos and Caucasians/Whites (n=10), Asian Americans/Pacific Islanders (n=7), Native Americans/Alaska Natives and unspecified races (n=6), and Arab Americans/Chaldean Americans (n=2).

While this section will highlight findings from some of these studies, more details can be obtained in Table 1 and Table 2 in the Appendices.

In this group of studies on obesity/physical activity, it was found that several interventions were effective in increasing intake of fruits and vegetables and physical activity. For example, the Healthy Living Program (HeLP), was a community-based, family-oriented obesity-treatment program. It effectively delivered health education that helped families adopt healthier habits such as buying less junk/fast food, consuming more fruits and vegetables, and preparing and eating meals together more often. It also increased families' physical activity (PA) levels (Cason-Wilkerson, Goldberg, Albright, Allison, and Haemer, 2015).

In another program focused on both diet and exercise, Novotny et al. (2012) provided intervention participants with healthier meal choices, information on increasing physical activity (PA), and group-based classes. In the intervention group, there were increases in fruit intake with each year of the study intervention and PA also increased. In a study focused mainly on exercise, Messiah et al. (2015) found that the Fit-2-Play after-school program significantly, positively impacted several health outcomes including percentage of participants with normal systolic blood pressure, children's overweight/obese body mass index (BMI) that compared their weight and height, and subscapular skinfold measurements that provided one estimate of their total body fat. Similar findings were reported by Jaber et al. (2011) in a study of an Arabic adaptation to the Diabetes Prevention Program (DPP) curriculum. Study data revealed that in this group of participants at week 24, there was statistically significant mean weight loss and high levels of increase in physical activity (Jaber et al.).

Health of Children and Youth (n=14)

Studies on health of children and youth were included as meta-analyses or systematic reviews (n=8) and as individual studies (n=7). Among social determinants, the most frequently studied were language/literacy: health literacy (n=13), AHCS: provider availability (n=8), AHCS: health organization/physician impact (n=7), and AHCS: access to healthcare (n=6). ARDN:

Health of Children and Youth (n=14) — continued

environmental factors, language/literacy: translation services, and socioeconomic conditions were equally studied (n=5). The three least studied categories were transportation options (n=4), access to mass media and emerging technologies (n=2), and ARDN: housing (n=1). By race/ethnicity, studies on health of children and youth focused on African Americans (n=15), Hispanics/Latinos (n=12), unspecified races and Caucasians/Whites (n=8), Asian Americans/Pacific Islanders and Native Americans/Alaska Natives (n=6), and Arab Americans/Chaldean Americans (n=1).

The following are highlights from some of the studies in this category; more details can be obtained in Table 1 and Table 2 in the Appendices.

Among the 14 studies on health of children and youth, CHWs played a prominent role in establishing effective links and facilitating the flow of education and understanding between providers, patients, families, and communities. The reviews found positive changes for breastfeeding initiation, duration, and/or exclusivity. For example, a meta-analysis by Chapman and Pérez-Escamilla (2012) found greatly improved breastfeeding initiation, duration, or exclusivity in studies with interventions such as peer counseling, breastfeeding-specific clinic appointments, group prenatal education, and hospital/Special Supplemental Nutrition Program for Women, Infants, and Children enhancements. Similar positive breastfeeding outcomes were found in the reviews by Flores (2009); and Jones et al. (2015) as well as in a later individual study by Farr et al. (2019).

Interventions targeting childhood asthma were addressed by two systematic reviews (Cheng et al.,2013 and Chin et al., 2009) and one individual study (Shani et al., 2015). These interventions employed multi-layered asthma prevention strategies such as addressing the home environment, providing the support of CHWs, teaching patients self-management skills, involving family, providing specialist-clinic referrals, and/or engaging the children’s schools. The study by Shani et al. also focused on immunizations and found that successful pediatric-focused interventions included components such as parental education, strengthened communication between families and providers, and coordination of support with nurses or social workers. All studies on juvenile asthma reported improved identification of individuals with asthma, increased numbers of routine-care visits for asthma management, and reduced emergency or urgent-care uses.

Hypertension (n=12)

The topic of hypertension was the focus of individual studies (n=3) far less often than by meta-analyses or systematic reviews (n=9). The most studied social determinant was AHCS: health organization/physician impact (n=10). Three areas were investigated by the same amount of studies (n=7): AHCS: access to healthcare, AHCS: provider availability, and language/literacy: health literacy. Socioeconomic conditions and ARDN: environmental factors were both included in four studies. This can be compared with transportation that was only included by three studies. By race/ethnicity, hypertension-focused studies included African Americans, Hispanics/Latinos, and Caucasians/Whites (n=11), Asian Americans/Pacific Islanders (n=9), Native Americans/Alaska Natives (n=6), unspecified races (n=4), and Arab Americans/Chaldean Americans (n=1).

Hypertension (n=12) — continued

In this section, findings are presented from some of the studies focused on hypertension; however, more details can be obtained in Table 1 and Table 2 in the Appendices.

Generally, hypertension-related interventions had a positive impact on outcomes when they included CHW support, patient health literacy education, and/or culturally tailored strategies, such as healthy adaptations to recipes that were culturally or ethnically relevant to the groups who were participating in the study. Review studies reported positive hypertension related outcomes such as improvements in blood pressure control or related measures (Mueller et al., 2015 and Ricci-Cabello et al., 2014). Similarly, Cheng, Raisch, Borrego, and Gupchup (2013) found positive relationships between pharmaceutical care and economic, clinical, and/or humanistic outcomes (ECHOs) such as hypertension. Likewise, in a large systematic review of interventions that addressed hypertension, Davis, Vinci, Okwuosa, Chase, and Huang (2007) found that sodium restrictions produced positive results, especially in African Americans. In contrast, in their systematic review of 17 studies on resilience, hypertension, and diabetes, Pesantes et al. (2015) found interventions that had no effect on blood pressure; however, they did positively affect HbA1c levels.

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HIV/STDs (n=11)

For studies on HIV/STDs, there were more meta-analyses or systematic reviews (n=7) compared to the number of individual studies (n=4). Language/literacy: health literacy received the greatest focus (n=10) followed by both AHCS: access to healthcare and AHCS: provider availability (n=6). AHCS: health organization/physician impact and language/literacy: translation services were also equally studied (n=4). This was followed by transportation options (n=3) and socioeconomic conditions and access to mass media and emerging technologies (both n=2). Two categories were included in one study each, they were ARDN: housing (Bogart et al., 2017) and ARDN: environmental factors (Anderson et al., 2015). By race/ethnicity, HIV/STD-based studies focused on African Americans (n=9), Hispanics/Latinos (n=8), Caucasians/Whites and Asian Americans/Pacific Islanders (both n=5), unspecified races and Native Americans/Alaska Natives (n=4), and Arab Americans/Chaldean Americans (n=1).

While this section will highlight findings from some of these studies, more details can be obtained in Table 1 and Table 2 in the Appendices.

Increasing some facet of health literacy was the primary focus of most studies on HIV/STDs. The review by Chin et al. (2012) found that when education was interactive; for example when it required the learner to apply the learned skills, it was more effective than when the individual was a passive learner sitting and listening to a lecture. This study, and others (individual study by Bogart et al., 2017 and review by Anderson et al., 2015), highlighted the positive impact of PN and culturally tailored interventions. In the study by Bogart et al., culturally congruent practices were those that were customized to fit the values, beliefs, traditions, and practices of the participants. In this study, the intervention included electronic monitoring of antiretroviral adherence, group education, and individual counseling sessions that were increased

HIV/STDs (n=11) — continued

if data indicated nonadherence. During sessions, the counselor provided psychoeducation, explicitly acknowledged how discrimination and disparities contribute to mistrust, assessed and referred individuals so their unmet needs could be met, and helped create and adapt Individual Service Plans. Data from electronic monitoring software revealed that compared to the control condition, the intervention improved antiretroviral dosage adherence over time.

For populations at high risk for HIV-AIDS, studies on testing, prevention, and efficacy noted the importance of stigma reduction and support systems such as CHWs. For example, a systematic literature-review by Lyles et al. (2007) found significant effects for reductions in injection drug use or needle sharing and number of sexual partners and increased condom use. Similar findings were reported in the review by Flores (2009) from an intervention targeted to African American young women 14-18 years old. In these and other studies on HIV/STDs, results were obtained through interventions such as HIV risk-reduction behavioral interventions, skill building of technical topics such as condom use, personal topics such as relaxation, and interpersonal topics such as communication. In a systematic review by Santa Maria, Markham, Bluethmann, and Mullen (2015), results of 28 parent-based adolescent sexual health interventions found that after the interventions, participants were more likely to report increased parent-child communication and increased parental comfort in talking with their children about sexuality. Interventions used a wide variety of strategies including modeling and discussion, face-to-face interactions, videos, CDs, homework, parent-only sessions, and sessions with parents and children together or separately.

Of studies that sought to increase HIV/STD testing, researchers found that destigmatizing the conditions and normalizing testing were key. Crawford et al. (2016) conducted research in three pharmacies in low-income neighborhoods in New York. In the “comprehensive arm”, a video was shown, and HIV testing was offered with less-stigmatized chronic disease screening tests for blood pressure, glucose, and cholesterol. In the “video arm”, participants viewed a video and were offered HIV-testing. For both of these interventions, participants were marginally significantly more likely to receive an HIV test in the pharmacy compared with those in the “control arm”. Study results suggested that HIV testing can be increased when pharmacies adopt strategies that destigmatize and normalize HIV testing. Similar findings were reported by Carballo-Diéguez, Frasca, Balan, Ibitoye, and Dolezal (2012) who found that when HIV home test (HT) kits were provided, there was high use-acceptability, detection of previously unknown infections, and no sexual intercourse after positive tests. In addition, most participants were willing to buy and continue using HTs. Positive results were also seen in a study by Leonard et al. (2013) to address the disproportionally low participation rates of people living with HIV/AIDS (PLHA) of color who participate in AIDS clinical trials (ACTs). Results indicated that the intervention was highly efficacious in increasing rates of screening and enrollment for ACTs among African American/Black and Latino/Hispanic PLHAs. This ACT2 study used a peer-referral recruitment method called respondent-driven sampling, where peers recruited peers for the study. In contrast Quionones et al. (2011, p. 5) reported “it is interesting to note that at least one review of interventions to reduce HIV/AIDS found that efficacious interventions did not use peer outreach.”

Heart Disease (n=10)

Heart disease was more likely to be included in meta-analyses or systematic reviews (n=8) versus individual studies (n=2). Language/literacy: health literacy was the most studied social determinant (n=10) followed by AHCS: provider availability and AHCS: health organization/physician impact (for both n=8) and socioeconomic conditions (n=6). Three social determinants were each focused upon equally (n=5). They were AHCS: access to healthcare, ARDN: environmental factors, and language/literacy: translation services. The least studied social determinants were transportation options (n=3) and access to mass media and emerging technologies (n=1). By race/ethnicity, studies on heart disease focused on African Americans (n=9), Hispanics/Latinos (n=8), Caucasians/Whites (n=7), Asian Americans/Pacific Islanders (n=6), Native Americans/Alaska Natives (n=5), unspecified races (n=4), and Arab Americans/Chaldean Americans (n=1).

This section discusses findings from some of the studies on heart disease; however, more details can be obtained in Table 1 and Table 2 in the Appendices.

In their multi-study analysis funded by the Robert Wood Johnson Foundation, Chin et al. (2007) highlighted three promising intervention strategies. First, was the use of multifactorial interventions that targeted a combination of factors at the levels of patients (e.g., health literacy or adherence), providers (e.g., increased cultural competence), health care organizations (e.g., electronic registries), and health care systems (e.g., multidisciplinary teams). Second, the article suggested that strategies should be culturally tailored and individualized, such as engaging bilingual providers, using language-appropriate educational materials, and providing case management tailored to the patients. Third, programs should consider deploying nurse-led interventions because they have yielded promising outcomes with numerous diseases, populations, and settings. A comprehensive systematic review for the Veterans Administration by Quiñones et al. (2011) echoed the positive impact of those three strategies. This study also included culturally tailored interventions that used focus groups, provided recipes for the ethnic group(s) being studied, and honored the importance of family structure within specific cultures. Across these studies, the variety of intervention strategies could be categorized in a four-level model created by Purnell et al. (2016) that included: individual patient factors (level 1); family, friends, and social support factors (level 2); provider and organizational factors (level 3); and policy and community factors (level 4).

As with the other disease categories, studies on heart disease also reported positive outcomes when the social determinant of physician availability was addressed through the use of CHWs, PN, LHAs, or nurses (individual study by Plescia et al., 2008 and review by Anderson et al., 2015). Similarly, the review by Davis et al. (2007) found that heart failure (HF) programs decreased hospitalization rates when they included specialty-nurse case-management, health-literacy education, frequent telephone follow-ups with medication adjustments, and oversight by a specialist in heart failure.

Opioid/Substance Abuse (n=9)

Opioid/substance abuse was more included in meta-analyses or systematic reviews (n=7) versus individual studies (n=2). Language/literacy: health literacy was included slightly more often (n=8) than AHCS: health organization/physician impact (n=7) or AHCS: provider availability (n=5). The four areas of socioeconomic conditions, AHCS: access to healthcare, ARDN: environmental factors, and language/literacy: translation services were each included with the same frequency (n=4). The least included social determinant was transportation options (n=2). By race/ethnicity, studies focused on opioid/substance abuse included African Americans (n=7), Caucasians/Whites and Hispanics/Latinos (n=6), unspecified races and Native Americans/Alaska Natives (n=4), Asian Americans/Pacific Islanders (n=3), and Arab Americans/Chaldean Americans (n=1).

This section will highlight findings from some of these studies; however, more details can be obtained in Table 1 and Table 2 in the Appendices.

Literature searches revealed that opioid treatments were medication-assisted interventions and were outside the scope of this review. Therefore, for this category of opioid/substance abuse, most included studies focused on smoking cessation. The one study on opioids was conducted by Becker et al. (2011) and found that the consistency of monitoring by physicians was below national guideline-recommended strategies for opioid analgesics. However, it was found that Black patients were more likely than White patients to receive guideline-recommended monitoring. Smoking-cessation-focused interventions produced inconsistent results. Some studies reported positive results when they were: supported by nurses or CHWs, multi-faceted (e.g., facilitated patient education sessions and provided counseling), and/or culturally tailored (e.g., recognized and addressed the unique psychosocial challenges faced by individuals of different ethnic, racial, cultural, and/or linguistic groups). For instance, the review by Davis et al. (2007) found that interventions for smoking cessation produced mixed results. Quit rates were generally low and results were not significant. However, promise was shown when the interventions were patient-directed, pharmacological, and combined with counseling and health education on concrete approaches to developing quit plans and dealing with triggers. Generally, there is a need for greater focus on cessation interventions targeted to diverse populations. This is particularly the case for Arab Americans who have the unique cultural challenge of water pipe smoking (Rice, Weglicki, Templin, Jamil, and Hammad, 2010).

In supporting the need for multi-faceted barrier removal and increased access to health care, a systematic review by Alegria et al. (2011) found one group of studies that showed increased access to substance abuse treatment when minority youth had greater access to the State Children's Health Insurance Program (SCHIP). This review also found that matching placements to clinical needs helped retain youth in treatment and reduced post-treatment substance use. Another individual study (Haas et al., 2015) found statistically significant positive outcomes, such as increased nicotine quit rates when multiple, layered smoking cessation strategies were used. In this study, participants received a four-component intervention that involved telephone-based motivational counseling with tobacco treatment specialists (TTS), six weeks of free nicotine replacement therapy (NRT), community-based referrals to address socio-contextual mediators, and integration of these elements into their electronic health records (EHRs). In addition to counseling sessions, the TTS encouraged participants to address socio-contextual mediators of tobacco use (e.g., domestic violence, food, education, employment) by using HelpSteps.com, a community resource database. Although requesting a resource referral did not impact smoking cessation, those who used the referral were more likely to stop smoking than those who did not use the referral (43.6% vs 15.3%; P < .001). Conversely, a 35 study meta-analysis by Bull et al. (2014) identified only initial, small positive effects, such as improvements in diet, increases in physical activity, and smoking cessation. However, for studies reporting follow-up results, healthier diet was the only outcome that was maintained.

FINDINGS BY SELECTED SOCIAL DETERMINANTS OF HEALTH

To avoid redundancy, this section on social determinants will not include the same quantitative data as was reported in the section on findings by health-related category. However, similar to those findings, this section is organized from greatest to least addressed category and will focus on highlighting some of the studies within each category. Table 2 in Appendix B provides more specific information on which studies dealt with each category of health and/or social determinant. Table 1 in Appendix A provides more details, descriptions, and summaries of each study.

Language/Literacy: Health Literacy (n=53)

Fifty-three studies included language/literacy: health literacy in their interventions. This was likely the most included social determinant because, as one study noted, “the patient is ultimately the most significant provider of medical care, enabling patients with diabetes to learn how to manage their own disease is a vitally important mission for health care institutions” (Beckham, Bradley, Washburn, and Taumua, 2008, p. 425).

> *Strategies were most effective when interventions used culturally tailored components. For instance, in a study by Masi, Blackman, and Peek (2007), cultural and linguistic tailoring included native language materials and classroom instruction, a tailored breast cancer risk letter or phone call, and assistance by nurse practitioners who had received cultural sensitivity training.*

This is true for other health conditions as well. For that reason, many studies focused on increasing health literacy among participants. Across the studies, it was found that these strategies were most effective when interventions used culturally tailored components. For instance, in the review by Masi, Blackman, and Peek (2007), cultural and linguistic tailoring included native language materials and classroom instruction, a tailored breast cancer risk letter or phone call, and assistance by nurse practitioners who had received cultural sensitivity training.

Interventions also showed promise when they were delivered in engaging ways such as using skills-based instruction as was reported in the review by Chin et al. (2012) or were facilitated through patient navigators, CHWs, peer instructors, or other support individuals (study by Enard et al., 2015). Intervention formats varied widely from phone sessions for colorectal cancer (review by Naylor, Ward, and Polite, 2012) to video game-based learning about diabetes care (study by Ruggiero et al., 2014). Many studies used print-based materials such as in a study on prostate cancer (review by Sajid, Kotwal, and Dale, 2012) and others used a combination of methods and media such as in the study on suicide prevention by Teo et al. (2016).

Language/Literacy: Translation Services (n=33)

A little more than half (n=33) of the 65 studies included some form of linguistically responsive component. For example, the review by Cheng et al. (2013) identified studies in which interventions included services such as translating prescription labels and educational materials or providing medication consulting through interpreters. In their systematic review, Griner and Smith (2006) found that adaptations were made for non-English speakers and for clients with limited literacy. In addition, 21 percent of their studies provided oral administration of written materials. They found that for participants whose native language was other than English, interventions were twice as effective if they were conducted in the clients' native language. In the systematic review by Chin et al. (2009), one study mailed reminder cards in Spanish or English. To overcome linguistic barriers in their study on diabetes, Beckham et al. (2008) employed CHWs who were familiar with participants' languages or they used family members as translators. At the time in Hawaii, where the study was conducted, it was legal to do so.

The benefits of linguistic adaptations were discussed in reviews such as Masi et al, (2007) who found that when Spanish-speaking women viewed the educational videos in Spanish, there was a statistical association with increased breast cancer knowledge and intention to discuss mammography with a physician. Similarly, in a study by Aqtash and Van Servellen (2013) on Arab American immigrants, the survey was available in English and Arabic. Although this linguistic accommodation was not a variable of focus in the study, researchers noted that the response rate was higher among those who requested the Arabic version (86% for Arabic vs. 73% for English).

Access to Health Care Services (AHCS) - AHCS: Provider Availability (n=32)

Almost half of the 65 studies (n=32) recognized that AHCS: provider availability is an important social determinant of health. To address this need, interventions used patient navigators, CHWs, nurses, care-coordinators, and promotoras - a title given to CHWs in some Hispanic communities. Although their roles varied from study to study, these individuals generally provided more time-intensive, facilitative support than could be provided by physicians or specialists. For instance, the review by Chin et al. (2009) found that CHWs established effective links and facilitated the flow of education and understanding between providers, patients, families, and communities. In this systematic review by Chin et al., an asthma outreach worker "coordinated with schools and housing authority to ensure adherence to asthma management plan and placement of children in better environments" (p. 14). In another study (Haas et al., 2015), a tobacco treatment specialist (TTS) helped to coordinate treatment components, such as prescription medication needs, with the participant's primary care clinician.

Access to Health Care Services (AHCS) - AHCS: Health Organization/Physician Impact (n=26)

In this review, the category of AHCS: health organization/physician impact was included in 26 studies. They suggested that when changes and improvements were made across an entire health system, they tended to contribute to positive outcomes. For instance, in a systematic review by Flores (2009) a one-year population-based observational breastfeeding intervention was conducted in a Navajo community. One of the program's three components was a health organization-level intervention that included a task force, videotaped instruction for caseworkers, and a three-day health care provider conference on lactation management. On every measure (such as breastfeeding initiation, duration, or exclusivity) intervention participants had statistically significant improvements compared to the control group.

The review by Chin et al. (2007) highlighted that another benefit of system-wide interventions is the ability to create multidisciplinary teams. Rather than a siloed model of patient care, these collaborative efforts engage multiple specialists and providers. In taking this a step further, Purnell et al. (2016) presented a review that highlighted 15 gaps in the literature on disparities. One was the need to enhance linkages between health care systems and the communities they serve. Another was the need for interventions to address the entire spectrum of care for conditions - from prevention to post-discharge treatment. Both gaps could be addressed by health organization-level interventions.

Access to Health Care Services (AHCS) - AHCS: Access to Healthcare (n=25)

Twenty-five studies sought to improve health outcomes by providing participants with increased access to healthcare. For instance, in their study on substance use disorders and minority youth, Alegria et al. (2011) found increased access to substance abuse treatment when youth had greater access to the State Children's Health Insurance Program (SCHIP). Similar findings were observed in other studies on policy changes that allowed individuals to receive insurance and access to healthcare services.

For instance, in the Delaware-based study by Grubbs et al. (2013) cancer control efforts included a cancer treatment program for the uninsured that covered the costs of cancer care for two years. This and two other initiatives were studied, and it was found that in the sample of individuals studied, colorectal cancer (CRC) screening rates increased for all individuals 50 years and older and that African Americans receiving screenings at the same rates as Whites. Although, it was not specified whether the screening rates of any racial group were at optimal levels, the study reported that Delawareans were being diagnosed at earlier stages and the mortality rate difference was declining between Whites and African Americans.

In the review by Flores (2009) an intervention evaluated the effectiveness of a community-based case manager intervention that helped families navigate the sign-up process to insure uninsured Latino children. Findings showed that, compared to the control group, intervention participants had statistically greater levels of health insurance receipt, coverage continuity, and parental satisfaction. They also had lower time-intervals to obtain coverage.

Health insurance coverage was predictive of health-promoting lifestyle behaviors (HPLB) in a study of Arab American immigrants from the Middle Eastern region of the Levant. In this study of 205 participants, Aqtash and Van Servellen (2013) found that having health coverage predicted HPLB (p=.049). In addition, multivariate analysis revealed that among this group of Arab immigrants, significant determinants of HPLB were degree of acculturation to Euro-American culture, perceived social support, perceived self-efficacy, and having health insurance.

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Socioeconomic Conditions (n=21)

Of the 21 studies on this topic, some identified, planned for, and/or designed interventions to address socioeconomic conditions. However, few provided detailed descriptions of the interventions and whether they had lasting impacts on the socioeconomic conditions of participants. Studies did, however, report findings suggesting that these socioeconomically targeted interventions contributed to positive health outcomes. For instance, in an individual study, Haas et al. (2015) provided multiple free supports such as telephone-based motivational counseling with tobacco treatment specialists (TTS), six weeks of free nicotine replacement therapy (NRT), and community-based referrals to address socio-contextual mediators. In this study, researchers found that tobacco cessation was higher in the treatment vs. the usual care group. In addition, simply requesting a community referral did not impact smoking cessation; it was those who used the referral who were more likely to stop smoking (compared to those who requested but did not use the referral). Information was not provided about how these referrals impacted the socioeconomic status of participants.

Socioeconomic Conditions (n=21) — continued

In a systematic review of 58 studies (six international and 52 US-based), many interventions engaged with the communities themselves to tackle issues such as socioeconomic conditions and health. Researchers grouped the coalitions into three categories: “grass roots” and predominantly community-based; partnerships between academic institutions and communities; and public health agencies working with communities. These interventions tackled a wide variety of health topics such as diabetes, cancer screening, asthma, mental health, and HIV screening. (Anderson et al., 2015)

A secondary dataset analysis by Monsen et al. (2017) found significant, positive changes in women who received support through public health nurse interventions. These support services addressed social and behavioral determinants of health (SBDH) and the women's' related levels of knowledge, behavior, and status. In women who received this pregnancy and parenting support, it was found that compared to White women, women in the minority groups had greater gains in the measured SBDH. Therefore, although the minority/White difference was not completely removed in this study, interventions such as this one are showing potential in supporting individuals who face socioeconomic challenges.

Availability of Resources to Meet Daily Needs (ARDN) - ARDN: Environmental Factors (n=16)

To be included in the category ARDN: environmental factors, studies had to address issues from the Healthy People 2020 (2010) category titled availability of resources to meet daily needs. The basic need of shelter/housing was tackled as a separate grouping of ARDN: housing. All other basic needs were collapsed into ARDN: environmental factors. These included food (insecurity and security), paucity of healthy food supplies, lack of utilities such as running water and heat, and factors that were tied to an individual's living environment such as stressful living conditions (e.g., domestic violence or squalor in and around the home).

As Osypuk et. al. (2010) put it, there are clear patterns of racial residential segregation that still persist in American society. Therefore, when research strategies are being designed, interventions must seek to overcome the environmental factors that are inherent in impoverished segregated communities. Kosoko-Lasaki (2019) used the term “community efficacy” to describe the concept that, to move forward, communities must gain confidence in their ability to support behavioral changes in citizens.

This type of “community efficacy” was supported by studies such as Plescia et al. (2008) in which a farmers' market was added to a community that lacked access to healthy food supplies. In Shani et al. (2015) a comprehensive juvenile-asthma intervention targeted such issues as home-based allergens. Similarly, in the systematic review by Masi et al. (2007) two studies, used a “sociomedical” model of case management and also addressed issues related to housing, work, food security, substance use/abuse, domestic violence, and mental health.

Transportation Options (n=14)

As shown in Table 2 Appendix B, there were 14 studies that specifically indicated that transportation was a social determinant of health that they sought to address. In some studies, these services were provided so that children could receive an intervention even if their parents could not afford transportation. This resulted in participants having greater access to services and improved outcomes such as increased immunization rates (Szilagyi et al., 2002) and higher levels of physical activity (Messiah et al., 2015). In other studies, transportation was coordinated by CHWs or other program staff so that all participants had the same level of access to services. These services included participating in counseling sessions to increase HIV/AIDS antiretroviral treatment adherence (Bogart et al., 2017), receiving breast cancer screening, diagnosis, and treatment (Masi et al., 2007), and overcoming barriers to participating in AIDS clinical trials (Leonard et al., 2013).

Chin et al. (2007) reported that “interventions that addressed financial and logistical concerns were more effective than reminder-based systems among low-income women. These interventions included same-day mammography, assistance with transportation and childcare, and free mammograms” (p. 8).

When there were logistical and financial barriers, it was not enough for studies to simply remind women that they should have a mammogram. Interventions were needed to help them overcome barriers such as lack of transportation or childcare.

A similar finding was reported by Masi et al., 2007 who reported on a study that found increased mammography when women were provided with transportation, appointment scheduling, and dependent care. Thus, when there were logistical and financial barriers, it was not enough for studies to simply remind women that they should have a mammogram. Interventions were needed to help them overcome barriers such as lack of transportation or childcare.

Access to Mass Media and Emerging Technologies (n=6)

For the purpose of this review, to be included in the category access to mass media and emerging technologies, studies had to describe technology-based interventions that were innovative and cutting-edge (emerging technologies) (n=4) or that disseminated health information to large portions of the intended study population (mass media) (n=2). Although only six studies reported on interventions that met these criteria, most of the 65 studies incorporated well established technologies including telephone support, multi-media education, and electronic health data.

For instance, reviews by Cheng et al., 2013; Davis et al., 2007; Glick et al., 2012 and individual studies by Mojica et al., 2016; Szilagyi et al., 2002 reported the use of telephone communications including telemedicine and PN. Video-based or web-based education were highlighted in reviews by Chapman & Perez-Escamilla, 2012; Flores, 2009; and Sajid et al., 2012 and in individual studies by Crawford et al., 2016; Leonard et al., 2013; and Parker et al., 2011. One study, by Haas et al. (2015), used interactive voice response (IVR). Reviews by Davis et al., 2007 and by Mueller et al., 2015 reported that patients received electronic reminders tied to their charts, medications, and appointments. Also, at the patient level, reviews by Peek et al., 2007 and Santa Maria et al., 2015 included studies that incorporated computer-based or online self-management, coaching, peer support, or educational modules. At the level of health care organizations, technological interventions included electronic health records (EHRs), chronic disease management software, and system-wide registries (in reviews by Chapman and Perez-Escamilla, 2012 and Chin et al., 2007; and in studies by Sequist et al., 2006 and Walton et al., 2012).

One of the mass media interventions was the New Orleans-based health focused study by Beaudoin et al. (2007) that utilized mass media in the form of radio, television, and signage on buses and streetcars. The second was the Native American (Navajo) community breastfeeding study that was included in the review by Flores (2009) and incorporated messages on radio and billboards. Of the four studies that included innovative or emerging technologies, one was app based (Farr et al., 2019), another used medication-cap electronic monitoring (Bogart et al., 2017), and the third was the video game, Diabetes Island (Ruggiero et al., 2014). The fourth was included in the systematic review by Purnell et al. (2016) and was the Maryland-based initiative, Reducing Disparities and Controlling Hypertension in Primary Care (Project ReD CHiP). It incorporated a computer-based dashboard that was updated monthly with EHR data on race/ethnicity and blood pressure control. This was then used to increase physician awareness of patient hypertension control and inform quality improvement strategies at the clinic-level.

Availability of Resources to Meet Daily Needs (ARDN) - ARDN: Housing (n=4)

The social determinant of housing was discussed by four studies. One investigated the disease of HIV/STDs and focused on African Americans. This study by Bogart et al. (2017) was an evidence-based HIV treatment adherence intervention in which a counselor for the Rise program provided support services including substance-use treatment and housing assistance.

Although housing was not specifically targeted by Bradley et. al. (2002), it was a factor that was highlighted by the study. These researchers found that in their analysis of breast cancer datasets, a little over 10 percent (a vast minority) of White women versus a little over 80 percent (a vast majority) of African American women lived in census tracts with a 13 percent or higher poverty level.

Continuing the focus on housing and its effect on health, Kosoko-Lasaki (2019) found a relationship between a perceived lack of neighborhood safety and a negative attitude toward physical activity. Perception was also important in a study by Budd (2015) that found a relationship between parents' perceived neighborhood-barriers and children's sedentary behaviors. For White parents, a perceived barrier was neighborhood speed limits being exceeded by drivers. In contrast, for minority parents, it was crime rates. This important connection between community/housing and health can then be considered in the face of research showing that minorities are still systematically facing discriminatory practices in real estate. This was seen in a large study sponsored by the Department of Housing and Urban Development (Turner, Ross, Galster, and Yinger, 2002). In it, researchers conducted 4,600-paired tests in 23 metropolitan areas nationwide and found that there were still discriminatory practices that affected where and how minorities were able to rent and buy homes.

Special Section on the Social Determinant: Crime, Violence, and Social Disorder

Systematic reviews, such as this one, often have inclusion criteria that result in the exclusion of research studies that may add to the field being studied. This was the case in one crucial social determinant, exposure to crime, violence, and social disorder. The initial search process did not yield crime/violence -based studies that met all the inclusion criteria. One reason is that this social determinant is not typically a variable upon which health-outcome focused interventions are directed. However, it is so closely tied to health that it is being included in this special section of the review.

According to a review of multiple studies by Thornton et al. (2016) “Exposure to disadvantage can have deleterious neurodevelopmental and biological consequences beginning in childhood that accumulate and produce disease. Yet current intervention strategies to reduce health disparities do not typically take a “life-course perspective” and tend to be disease specific” (p. 1). Thornton et al. also reported that, in one of the studies, moving to a middle-income neighborhood was associated with better self-reported health and decreased exposure to neighborhood violence. In another of the studies highlighted by Thornton et al., a Nurse Family Partnership targeted first-time mothers who also had low-income levels. Researchers estimated that the long term per participant net benefit of the program was $18,054 and came largely from reductions in child abuse, crime, violence, and other high-risk behaviors.

In being sensitive to the “life-course perspective” proposed by Thornton et al. (2016), in this special section of this current report, many of the crime/violence-reduction interventions focused on youth. There is extant literature around the cycle of socio-economic disparities that are related to behavioral problems in children, that then contribute to criminal behavior in youth, that in turn correlate with lower socio-economic outcomes in adulthood and parenthood. According to Acri et al. (2016), “Disruptive behavior disorders (DBDs) are chronic, impairing, and costly behavioral health conditions that are four times more prevalent among children of color living in impoverished communities as compared to the general population. This disparity is largely due to the increased exposure to stressors related to low socioeconomic status including community violence, unstable housing, under supported schools, substance abuse, and limited support systems” (p. 1). Thus, it would be important to highlight interventions that resulted in outcomes that have the promise of breaking this cycle.

For example, the potential for ending the cycle of violence was seen in a relatively brief pregnancy-based intervention that lasted from four to eight sessions. It sought to affect intimate partner violence and pregnancy outcomes and was an RCT with usual care (n=523) and intervention (n=521) participants. Intervention recipients participated in individually tailored evidence-based counseling sessions. Program effectiveness was measured with logistic regression to model intimate partner violence, victimization recurrence and to predict minor, severe, physical, and sexual intimate partner violence. Results indicated that women in the intervention group were less likely to experience recurrent episodes of intimate partner violence victimization (odds ratio [OR] 0.48, 95% confidence interval

[CI] 0.29–0.80). Study authors suggest that prenatal care should include screenings and interventions for intimate partner violence and other psychosocial and behavioral risks (Kiely, El-Mohandes, El-Khorazaty, and Gantz, 2010). Although the sample size was extremely small (n=12), valuable findings were also reported in a study by South, Kondo, Cheney, and Branas (2015). Implemented in Philadelphia, Penn., this study sought to highlight the impact of neighborhood blight on ambulatory heart rate. Participants engaged in a self-paced, prescribed walk before (pre) and three months after (post) a greening treatment of a vacant lot in their neighborhood. It was found that heart rates decreased significantly when the view was of the greened vacant lot compared to either a non-greened vacant lot or no vacant lot. Walking is an often-prescribed form of physical activity; however, if neighborhood conditions contribute to stressful responses, then the health benefits could be dampened. For this reason, these findings warrant further study of remediating neighborhood blight and greening initiatives and the impact they have on stress and other health outcomes.

Three studies (one systematic review and two individual studies) focused on hospital-based violence intervention programs (VIPs) targeted to individuals, including youth, who sought emergency medical care. Although the systematic review found mixed results, these studies suggest that VIP interventions show promise toward reducing violent behaviors. The first of these studies targeted youth (14 to 20 years old) from October 2011–March 2015. Enhanced usual care (EUC) individuals (n=146) received a resource brochure. Intervention participants received the Project Sync 30-minute therapist-delivered behavioral intervention (BI) (n=263) that included motivational interviewing, cognitive skills training, participant goals, tailored feedback, decisional balance exercises, role-playing exercises, and linkages to community resources. Validated survey measures were collected at baseline (100%, n=409) and at a 2-month follow-up assessment (91%, n=373). Based on self-reports, therapy-group BI participants had greater reductions in frequency of violent aggression and increased self-efficacy for avoiding fighting. No significant changes were found for victimization. Thus, for the youth in this intervention, the strategies demonstrate promise in decreasing the frequency of violent aggression and increasing self-efficacy to avoid fighting (Carter et al., 2016).

Similar findings were seen in the second individual VIP study. If focused on the program Prescription for Hope (RxH) and included 328 patients enrolled between January 2009 and August 2016. Data collected from a regional health information exchange database indicated a 4.4 percent recidivism rate (defined as recurrent presentations for injury due to violence). Specifically, researchers found that only 15 patients recidivated and of these, only five were admitted for their injuries. Study findings indicate that, for this group of participants, RxH resulted in low, long-term recidivism for most participants. Secondary findings also suggested that VIPs should link participants with organizations that work to prevent suicide, substance use disorders, and other unintentional injuries (Bell et al., 2018). In the third VIP study, a systematic review of 22 studies, mixed results were found. Two observational studies showed significant reductions in recidivism as did one of 12 RCTs. Researchers suggested that more research is needed with larger sample sizes (Strong, Shipper, Downton, and Lane, 2016).

Overview of the Grey Literature

A review of the grey literature, defined as reports and other documents that have not undergone peer-review was conducted using the terms:

- Health Disparities
- Status of Health Disparities
- Health Disparities and Minority Populations

Seven pivotal reports/documents emerged from this search. They are described below:

Overview of the Grey Literature — continued

Title: Health Disparities and Strategies Reports

Citation: Health Disparities and Strategies Reports. (2018, July)

Retrieved from: The Centers for Disease Control and Prevention
Health Disparities and Strategies Reports website
(URL: https://bit.ly/3iE1ddk)

Description: The CDC Health Disparities and Inequalities Reports (CHDIR) and the Strategies for Reducing Health Disparities reports highlight effective public health programs that have reduced disparities. These reports have been developed since 2011, with the most recent version being the 2016 supplement. Interventions that have been used to address disparities by race and ethnicity, socioeconomic status, geographic location, disability, and/or sexual orientation across a range of conditions are included in these reports, with the most recent edition including highlights of the following interventions land findings:

Traditional Foods Project

Designed to provide diabetes prevention education to Native Americans and Alaska Natives, the initiative focuses on the wisdom of cultural knowledge in promoting health and preventing diseases like type 2 diabetes. Strategies include harvesting local foods and playing traditional games.

Boston Children's Hospital's Community Asthma Initiative

This project was created in response to the prevalence of Black and Hispanic children being hospitalized with asthma-related complications. Results from the program showed that the involvement of community health workers can significantly reduce hospitalizations in these populations. According to the website, this program has been adapted and expanded to other cultures, and in other cities and states.

Title: Health Disparities Subcommittee at CDC

Citation: Health Disparities Subcommittee at CDC. (2017, December).

Retrieved from: The Centers for Disease Control and Prevention
Health Disparities Subcommittee at CDC website
(URL: https://bit.ly/3c3JN7A)

Description: Chartered in 2005, the Health Disparities Subcommittee (HDS) was established for the purpose of providing high-level counsel to the Advisory Committee to the Director of the CDC on CDC's efforts to address health equity in achieving the agency's health impact goals. This subcommittee, which meets biannually, has made meeting agendas and minutes accessible to the public. The last documented meeting was in 2018.

As of 2017, the HDS has offered eight recommendations for achieving health equity:

- Develop a CDC framework for action to achieve health equity.
- Identify and monitor indicators of health equity.
- Align universal interventions that promote better public health, with more targeted, culturally tailored interventions in communities at highest risk to reduce health disparities and achieve health equity.
- Support the rigorous evaluation of both universal and targeted interventions and, where indicated, the use of culturally appropriate evaluation strategies to establish best practice approaches to reduce health disparities and achieve health equity.
- Build community capacity to implement, evaluate, and sustain programs and policies that promote health equity, especially in communities at highest risk.
- Support training and professional development of the public health workforce to address health equity.
- All centers, institutes, and offices should:
    - Support adherence to the health disparities and health equity requirements in the Funding Opportunity Announcement template.
    - Establish weights for the health equity and health disparities requirements in the objective review process.
    - Monitor health equity and health disparities activities among selected grantees.
- For current and planned CDC public health surveys, surveillance systems, and datasets (including e-case report forms):
    - Review current and planned data collection instruments to assure they are consistent with best practices for asking about language preference and proficiency; and that translated surveys are culturally and linguistically appropriate.
    - When presenting or publishing data, report on R/E groups with the highest level of granularity available in the dataset, disaggregating groups with highly varying health indicators, such as Asians and Pacific Islanders, and Hispanic/Latino subgroups.

Overview of the Grey Literature — continued

Title: The Guide to Community Preventive Services

Citation: The Guide to Community Preventive Services. (2017, December).

Retrieved from: The Community Guide's
About The Community Guide website
(URL: https://bit.ly/3iBY2Df)

Description: The Community Guide is a resource provided by the Community Preventive Services Task Force (CPSTF), a panel of "independent, nonpartisan, nonfederal" public health and prevention experts. The experts provide evidence-based recommendations and findings for hundreds of health intervention approaches, including health equality. Technical and administrative support of the CPSTF is provided by the CDC. This guide is designed to complement decision tools such as Healthy People 2020 and the Guide to Clinical Preventive Services.

Title: Health Impact in 5 Years

Citation: Health Impact in 5 Years. (2018, October).

Retrieved from: The Centers for Disease Control and Prevention
Health Impact in 5 Years website
(URL: https://bit.ly/3c2N9YD)

Description: Health Impact in 5 Years (HI-5) is an initiative that highlights non-clinical, community-wide approaches that have evidence reporting 1) positive health impacts, 2) results within five years, and 3) cost effectiveness and/or cost savings over the lifetime of the population or earlier. The 14 interventions use community-wide approaches to affect broad health outcomes and address several health conditions at once. Eight are focused on making healthy choices easier: School-based Programs to Increase Physical Activity, School-based Violence Prevention, Safe Routes to School (SRTS), Motorcycle Injury Prevention, Tobacco Control Interventions, Access to Clean Syringes, Strategies for Alcohol Products, and Component Worksite Obesity Prevention. The other six interventions focus on social determinants of health: Early Childhood Education, Clean Diesel Bus Fleets, Public Transportation System Introduction or Expansion, Home Improvement Loans and Grants, Earned Income Tax Credits, and Water Fluoridation.

Title: Integrating Social Care Into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health

Citation: National Academies of Sciences, Engineering, and Medicine. (2019). Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health. Washington, DC: The National Academies Press (URL: https://bit.ly/35JaqgQ).

Retrieved from: The National Academies of Sciences, Engineering, and Medicine. Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health (URL: https://bit.ly/3kIe5Wr)

Description: In many cases, social determinants of health encompass patterns of social risk factors that contribute to increased disease and death. The National Academies of Science, Engineering, and Medicine conducted an 18-month study to address five key areas of social determinants of health: economic stability, education, social and community context, health and health care, and neighborhood and built environment. A committee of 18 subject-matter experts was appointed to examine the potential impact on health outcomes when health care and services are designed with consideration of both social needs and social determinants of health. This committee identified five activities with the potential of facilitating the integration of social care into health care: awareness, adjustment, assistance, alignment, and advocacy. Furthermore, upon the committee's review of evidence based upon these activities, three key necessities for successful integration were identified: an appropriately staffed and trained workforce, health information technology innovations, and new financing models. According to the committee, the accomplishment of the five (5) following goals would result in better integration of social care into health care:

- Design health care delivery to integrate social care into health care, guided by the five health care system activities—awareness, adjustment, assistance, alignment, and advocacy.
- Build a workforce to integrate social care into health care delivery.
- Develop a digital infrastructure that is interoperable between health care and social care organizations.
- Finance the integration of health care and social care.
- Fund, conduct, and translate research and evaluations on the effectiveness and implementation of social care practices in health care settings.

Title: Efforts in Michigan Through the Office of Equity and Minority Health

Citation: Health Disparities Reduction and Capacity Building Grants

Retrieved from: Michigan Department of Health and Human Services Bureau of Grants and Purchasing. Grant Request for Proposal, RFP Number: MHDP-2019 (URL: https://bit.ly/3iGfo1Q) and Grant Request for Proposal, RFP Number: MHCCB-2021 (URL: https://bit.ly/33AZQpB)

Description: The Michigan Department of Health and Human Services Office of Equity and Minority Health Health Disparities Reduction/Minority Health Grant is designed to improve data access and availability for racial and ethnic minority populations. The Minority Health Community Capacity Building Initiative is aimed at supporting community-level projects that build capacity to identify and implement programs, policies, and practices to address social determinants of health that contribute to health inequities in Michigan.

Discussion Summary

In the sections on findings by health-related category and findings by selected social determinants of health, categories were presented in order from greatest to least number of applicable studies. In instances where two or more categories were tied (e.g., mental health and obesity/physical activity each had 15 applicable studies) the categories are presented in alphabetical order. Among the 63 studies that focused on specific health-related topics, many tackled more than one health concern. For example, among diabetes studies, nine also focused on hypertension; eight on heart disease and obesity/physical activity; six on mental health; four on opioid/substance misuse with the same number focusing on cancer; and three on HIV/STDs with the same number focusing on health of children and youth.

In a similar process of tackling multiple, often related topics, most studies also addressed one or more social determinant of health. For example, for studies that addressed socioeconomic conditions, 20 also focused on language/literacy: health literacy, 17 on AHCS: provider availability, 14 on language/literacy: translation services, 12 on each of the following topics: AHCS: access to healthcare, AHCS: health organization/physician impact, and ARDN: environmental factors, nine on transportation options, three on ARDN: housing, and one on access to mass media and emerging technologies.

As mentioned in the discussion of Figure 1 in the introduction section, the literature suggests that multi-level approaches are showing promise in tackling health disparities. This means that interventions should include as many of the following levels as possible: the patient, his/her family members or other social support systems, health providers, health organizations and systems, community organizations, and policy making entities at the local, state, and national levels. For instance, in their systematic review, Mueller et al. (2015) analyzed the quantity and quality of multi-level interventions such as patient self-management, home blood pressure (BP) monitoring, community health workers (CHWs), and communication skills training. According to the authors, these multi-level interventions were to address the “known barriers to reducing racial disparities in hypertension prevention and control” (Mueller et al., 2015, p. 700).

Including multiple levels and factors have at least two benefits for researchers. First, by incorporating research-based multi-level strategies in an intervention, the project design minimizes extraneous variables that might dampen the impact of effective interventions. Second, multi-level interventions are more likely to position participants to overcome the multiple factors that put them at risk for negative health outcomes. These types of multi-level strategies were used, and positive outcomes were reported in studies such as Grubbs et al. (2013) that focused on outcomes related to colorectal cancer (CRC) screenings from 2002 to 2009. During this time period, the state of Delaware collected CRC data on a three-pronged initiative to: increase colorectal cancer (CRC) screenings for all Delawareans, cover the costs of cancer care for two years for those who were uninsured, and reduce cancer disparity for African Americans. In discussing the positive outcomes from these initiatives, Grubbs et al. (2013) wrote “These data demonstrate that the disparities in CRC screening, incidence, and advanced stage of disease have been eliminated and the mortality rate difference is declining between Whites and African Americans in Delaware" (p. 1929).

While not all studies included multi-level interventions or reported improvements on the magnitude found by Grubb et al. (2013), to be included in this current report, a study had to produce positive outcomes for study participants. An example of positive outcomes from a non multi-level, shorter, less far-reaching intervention was reported by Bleich et al. (2012). This was a six-month study with four corner stores in Baltimore, Maryland. During this time, all four stores received base-line data collection and three types of sign-based interventions during which data were collected. This study found that when African American adolescents were made aware of the sugar content of iced tea and sport drinks, purchases of water increased significantly and the purchases of sugar-sweetened drinks declined significantly.

Another key finding was the importance of addressing the social determinant of health AHCS: provider availability. Articles consistently identified provider availability as a social determinant that positively impacted health. Specifically, 32 studies discussed topics that were applicable. Some included ways in which provider availability was augmented through patient navigators, CHWs, or individuals in similar roles. In addition, for most studies, these supporting individuals were found to positively impact the measured health outcome(s). Some studies credited their effectiveness, in part, to the intentional selection of individuals who were racially, ethnically, culturally, or linguistically similar to the minority participants being served. In some studies, these roles were filled by nurse practitioners, case managers, or peer educators. Across the studies, these individuals served a wide variety of roles including recruiting participants, helping individuals complete paperwork, teaching classes, and coordinating resources so participants could overcome barriers to treatment adherence.

Provider availability was augmented through patient navigators, CHWs, or individuals in similar roles. For most studies, these supporting individuals were found to positively impact the measured health outcome(s). Some studies credited their effectiveness, in part, to the intentional selection of individuals who were racially, ethnically, culturally, or linguistically similar to the minority participants being served.

Cultural tailoring was another important intervention that showed promise. These strategies harnessed the growing literature that behavior changes occur more quickly when an intervention leverages the individual's culturally based practices, products, philosophies, or environments. Stated another way, a culturally tailored program "takes into account participants' personal preferences that are rooted in culture" (Peek, Cargill, and Huang, 2007, p. 5). For example, in their study of Arab American immigrants, Aqtash and Van Servellen (2013) made several culturally-, ethnically-, linguistically-, and religiously- responsive accommodations. To respect the cultural preference for trust in oral assertions, explicit verbal consent was used in place of signed written consent forms. Similarly, to respect cultural and religious practices, survey instruments were collected by individuals whose genders were congruent with the participants submitting the survey.

This review is timely because, as Chin et al. (2012) state in their study funded by the Robert Wood Johnson foundation, we are no longer at the point of studying disparities. It is time for organizations to begin tackling this issue.

They offer a roadmap that begins with the following six steps:

01. Recognize disparities and commit to reducing them.
02. Implement a basic quality improvement structure and process.
03. Make equity an integral component of quality improvement efforts.
04. Design the intervention(s).
05. Implement, evaluate, and adjust the intervention(s).
06. Sustain the intervention(s).

Throughout this review, it was confirmed that when interventions made an impact, many of these strategies were in place. For this reason, it is important that these and similar steps be infused throughout projects that seek to ensure optimal health for all and/or tackle and eliminate between-group health differences and disparities.

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Appendix A: Table 1

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Alegria et al. (2011); Disparities in treatment for substance use disorders and co-occurring disorders for ethnic/racial minority youth	African American, Caucasian/White, Hispanic/Latino, Native American/ Alaska Native, not specified; Male and Female; Systematic review or meta-analysis; Non-RCT	This systematic review evaluated studies focused on behavioral health services for ethnic and racial minority youth. In some cases, the studies sought to reduce ethnic and racial between-group differences in outcomes related to substance abuse and behavioral health. In other instances, the focus was on highlighting strategies that were found to be effective in improving care for minority youth. Positive outcomes were seen when studies made cultural adaptions such as including participants' cultural values and concepts and providing care in the patients' native language. However, matching the ethnicity of patients and providers was found to produce positive effects in some cases and no effect in others. Adaptations were made to treatment approaches such as Multi-Dimensional Family Therapy (MDFT), Multi-Systemic Therapy (MST), Brief Strategic Family Therapy (BSFT), and Structural Ecosystems Therapy (SET). One group of studies showed that when minority youth had greater access to the State Children's Health Insurance Program (SCHIP) or Medicaid, they had increased access to substance abuse treatment and other health care services. The review also highlighted the important role of schools in the behavioral health continuum. Authors noted that children and youth receive a majority of behavioral health services at the request of school personnel and these services may be provided at school. Another set of studies highlighted a confounding finding. On the one hand, extended social networks were shown to diminish what the study termed as "strain" for African American families coping with hardship. On the other, this reduction in strain was related to delays in youth being referred for treatment. Studies found that youth preferred individual (vs. group) treatment sessions for secondary prevention of alcohol abuse. In addition, they liked when their placements were matched to their clinical needs. Such matching was identified as a way to help retain patients in treatment and reduce post-treatment substance use.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Anderson et al. (2015); Community coalition-driven interventions to reduce health disparities among racial and ethnic minority populations	African American, Arab, American/ Chaldean American, Asian American / Pacific Islander Caucasian/White, Hispanic/Latino, Native American/ Alaska Native; Male and Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	This systematic review was conducted on six international and 52 US-based studies of community coalition-driven interventions. These coalitions were labeled as “grass roots” and predominantly community-based; academic institutions with communities; or public health agencies and communities. It was found that effects could not be grouped because these studies were very diverse in constructs, relationships, and methodological designs. Despite this, the review found fairly consistent positive effects when health education was provided in group settings and was led by professional staff. Positive results were also found when community health outreach workers were used. Studies addressed a wide variety of health topics including cancer screening, asthma, diabetes, depression, and HIV screening.
Aqtash & Van Servellen (2013); Determinants of health-promoting lifestyle behaviors among Arab immigrants from the region of the Levant	Arab American; Male and Female; Individual Study; Non-RCT	A study of Arab American immigrants found that health insurance coverage was predictive of health-promoting lifestyle behaviors (HPLB). These included nutrition, physical activity, health responsibility, interpersonal relations, stress management, and spiritual growth activities. The sample was of 205 participants from the Middle Eastern region of the Levant (Palestinians, 36.1%; Jordanians, 28.7%; Syrians, 24.3%; and Lebanese, 10.7%) who were primarily Muslim (95.1%), highly educated (50% with a university or post graduate degree and 24.0% with a college degree), and had health insurance (80.6%). It was found that having health coverage predicted HPLB (p=.049). Similarly, among this group of Arab immigrants, multivariate analysis indicated that significant determinants of HPLB were (in order of strength from greatest to least) perceived self-efficacy, perceived social support, degree of acculturation to Euro-American culture, and having health insurance.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Ayash et al. (2011); A community intervention: AMBER: Arab American breast cancer education and referral program	Arab American, African American; Female; Individual Study; Non-RCT	The New York City-based Arab American Breast Cancer Education and Referral Program (AMBER) was guided by Community Based Participatory Research principles and was part of the New York State Cancer Services Partnership (CSP). AMBER benefited from having Arab American staff who could connect with community partners and the target population. The program's three-pronged approach involved: "(A) community capacity building and information dissemination, (B) system readiness to "receive" Arab American breast health patients, and (C) individual-level counseling and Navigation" (Ayash et al., 2011, p. 1042). The program developed an Arabic language curriculum; delivered breast cancer risk reduction and early detection methods and community resources; and held focus groups to create a staff cultural responsiveness training curriculum. In addition, patient navigators and health educators supported both insured and uninsured women with making appointments through the CSP, accompanying the women to their appointments, and (c) assisting them with follow-up care. During AMBER's first 2 years, (2007-2009) 22 workshops educated 597 women and 11 Arab American health fairs and events reached 1,735 additional attendees. The organization also identified 189 underserved women who needed assistance, supported 68 with screenings, reconnected four individuals with care, and helped in the detection and support of one woman who was diagnosed with breast cancer.
Basu & Clancy (2001); Racial disparity, primary care, and specialty referral	African American, Caucasian/White, Not specified; Male and Female; Individual Study; Non-RCT	Conducted in the New York City area, this research study found that access to primary care physician (PCP) supply may be important in admissions of African Americans for referral-sensitive procedures. According to the authors "Referral- sensitive surgeries are fairly discretionary, often elective, high-technology procedures, which often involve or require a referral from a PCP to a procedural specialist. These surgical procedures include hip or joint replacement, breast reconstruction after mastectomy, pacemaker insertion, organ and bone marrow transplantation, most coronary artery bypass graft surgery, and coronary angioplasty" (Basu & Clancy, 2001, p. 65). Specifically, Black adults had a 25% higher rate of admissions if they lived in high-PCP areas compared with those who lived in low-PCP areas. In contrast, White and Hispanic adults were more likely to receive referral-sensitive admissions if they lived in low-PCP areas. The authors proposed that this might explain some of the racial disparity in specialty referrals and referral-sensitive admissions. It may also indicate that Blacks could achieve greater health outcomes if PCP supply were increased in their communities.

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Beaudoin et al. (2007); Promoting healthy eating and physical activity: Short-term effects of a mass media campaign	African American, Caucasian/White, Not specified; Male and Female; Individual Study; Non-RCT	This study highlighted a five-month, health-focused, New Orleans-based mass media campaign. Television and radio ads targeted the predominantly African American urban population to increase walking and fruit and vegetable consumption. Random-digit-dial telephone surveys were conducted at baseline in 2004 and following the onset of the campaign in 2005. There were significant increases in positive attitudes toward walking and fruit and vegetable consumption.
Becker et al. (2011); Racial differences in primary care opioid risk reduction strategies	African American, Caucasian/White; Male and Female; Individual Study; Non-RCT	For this study, researchers found that Black patients were more likely than White patients to receive guideline-recommended strategies of opioid analgesic monitoring. However, in general, the consistency of monitoring was below national guideline-recommended strategies for opioid analgesic monitoring. In multiple models of analysis, Black patients were more likely than White patients to receive urine drug testing, regular office visits, and restricted early refills. Across all groups, urine testing was the least consistently used monitoring strategy. Authors cautioned that this finding may indicate what they termed as a “reverse disparity.” According to the authors, this occurs when traditionally vulnerable groups receive care consistent with expert recommendations and guidelines, but other groups do not. They propose that, because, in this study, White patients are receiving more lax monitoring, they are also receiving lower quality of care regarding monitoring outcomes. The authors suggest that this disparity is concerning in light of research showing that, compared with other racial/ethnic groups, Whites may be at greater risk of abusing prescription drugs.

STUDY SUMMARIES

Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Beckham et al. (2008); Diabetes management: utilizing community health workers in a Hawaiian/Samoan population	Asian American/Pacific Islander, Caucasian/White; Male and Female; Individual Study; Non-RCT	This diabetes-related study used a multi-level intervention that included community health workers (CHWs), an interdisciplinary team, removal of barriers to care, and culturally responsive participant-goal-based education. Linguistic barriers were overcome by CHWs who were familiar with participants' languages or by using family members as translators. Culturally tailored strategies included respect of cultural customs, mores, and diet. In addition, interested family members were welcomed into the educational sessions, a recipe collection featured healthy Samoan and Hawaiian cuisine, and a list was maintained of culturally appropriate substitutes for unhealthy foods. Results indicated that the intervention was effective in supporting participants in reducing their HbA1c. There were 116 participants and 74% were either Native Hawaiian or Samoan. Eighty participants completed the intervention and had a mean reduction in HbA1c of 2.2+/-1.8% (p.<.01). This compared with a 0.2+/-1.5% reduction for those without the CHW intervention.
Bleich et al. (2012); Reduction in purchases of sugar-sweetened beverages among low-income black adolescents after exposure to caloric information	African American; Male and Female; Individual Study; Non-RCT	Conducted April to October of 2010 in Baltimore, MD with Black adolescents, this study found that presenting calorie information about sugar-sweetened beverages (SSB) reduced the number of SSB purchases. The intervention included four corner stores that all received base-line data collection and three types of sign-based interventions during which data were collected. According to researchers, signs were categorized and displayed the following messages "caloric condition 1—'Did you know that a bottle of soda or fruit juice has about 250 calories?'; caloric condition 2—'Did you know that a bottle of soda or fruit juice has about 10% of your daily calories?'; and caloric condition 3—'Did you know that working off a bottle of soda or fruit juice takes about 50 minutes of running?' (Bleich et al., 2012, p. 330). Data revealed that purchases of water increased significantly and those of iced tea and sports drinks decreased significantly. However, there was an increase in purchases of fruit drinks. Researchers proposed that this could be due to adolescents perceiving fruit drinks as healthier than soda or iced tea. They suggested that it may also indicate that the young people were not able to adequately distinguish between 100% juice and sugar-sweetened fruit drinks.

Appendix A: Table 1 — continued

STUDY SUMMARIES

Author (Year); Title	Race/Ethnicity; Gender; Study Type: Individual/Meta-Study	Summary
Bogart et al. (2017); A randomized controlled trial of rise, a community-based culturally congruent adherence intervention for black Americans living with HIV	African American; Male and Female; Individual Study; RCT	RISE, a 6-month culturally congruent adherence counseling intervention for HIV-positive Black men and women, was found to improve antiretroviral dosage adherence over time. In this study, culturally congruent practices were those that were customized to fit the values, beliefs, traditions, and practices of the participants. Peer counselors supported participants in addressing medical-adherence barriers such as medical mistrust, HIV stigma, and lack of resources. During sessions, the counselor provided participants with psychoeducational counseling, explicitly acknowledged that discrimination and disparities contribute to medical mistrust, assessed individuals for unmet needs, referred them to services, and helped create and refine Individual Service Plans based on clients' adherence behaviors. Using random assignment for the 215 participants, this study assigned 107 to receive the intervention and 108 to be in the wait-list control group (n = 108). Daily electronic monitoring was conducted by the Medication Event Monitoring System (AARDEX, Inc.), which used bottle caps that recorded times and dates when the medication bottle was opened. It revealed that adherence in the intervention group improved over time relative to the control group, (OR = 1.30 per month (95% CI = 1.12-1.51), p < 0.001). After 6 months, there was a large cumulative effect (OR = 4.76, Cohen's d = 0.86).
Bradley et al. (2002); Race, socioeconomic status, and breast cancer treatment and survival	African American, Caucasian/White; Female; Individual Study; Non-RCT	This analysis of secondary data was conducted by linking two datasets, Michigan Medicaid enrollment files and the Metropolitan Detroit Surveillance, Epidemiology, and End Results (SEER) registry. It was found that among women insured by Medicaid, compared to White women, African American women were more likely to have surgery for breast cancer. This contrasted with the finding that among women not insured by Medicaid, compared to White women, African American women were more likely to receive no surgical intervention for breast cancer (OR = 1.78; 95% CI =1.16 to 2.72). For this reason, authors concluded that, for this study sample, Medicaid coverage decreased racial differences to some extent. In addition, it was found that, regardless of their Medicaid status, when African American women elected surgery, they were more likely to select breast-conserving surgery. This study did not evaluate either group against national guideline-recommendations for breast cancer treatment and survival.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Bull et al. (2014); Are interventions for low-income groups effective in changing healthy eating, physical activity and smoking behaviors	Race/ethnicity not specified; Male and Female; Systematic review or meta-analysis; RCT	This meta-analysis was conducted by researchers based in the United Kingdom. It included 35 studies of which 30 were US-based and 5 were not. Data were not reported separately based on country; however, this article is included because the studies were overwhelmingly US-based and met the criteria of not having more than 25% non-US studies. Although data on race/ethnicity were not specifically reported in this meta-analysis, it identified some of the recruitment strategies used by the studies. These strategies are consistent with those used when researchers are seeking minority participants; therefore, it was determined that this meta-analysis met the inclusion criteria because it likely would have recruited minority participants and the findings are likely applicable to the current review. According to authors, the included studies used recruitment strategies focused on individuals with low income levels, ethnic groups identified as suffering income inequality, and residents living in what the authors termed as "deprived" areas. In the reported findings, meta-analyses identified small positive effects for diet, physical activity, and smoking. Programs varied and included tailored self-help materials, counseling, increasing health literacy, and programs that were delivered individually or in groups. This meta-analysis found that the interventions were more effective if they targeted one behavior rather than two or more. The authors suggest this may be explained by the argument that "human self-regulation draws on limited resources which may be best applied to one behaviour change target at a time" (Bull, 2014, p. 7). For studies reporting follow-up results, the effects of dietary interventions were maintained. This was not the case for physical activity or smoking.
Carballo-Diéguez et al. (2012); Use of a rapid HIV home test prevents HIV exposure in a high risk sample of men who have sex with men	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino; Male; Individual Study; Non-RCT	In this study of 27 men who have sex with men (MSM), over 50% were racially/ethnically diverse. It was found that when HIV home test (HT) kits were used, there was high use-acceptability, detection of previously unknown infections, and no sexual intercourse after positive tests. Kits were used with approximately 100 partners in private and public spaces. Ten individuals received HIV-antibody positive results and six of the ten were unaware of their status. Most participants strongly desired to continue using HT and were willing to buy them.

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Cason-Wilkerson et al. (2015); Factors influencing healthy lifestyle changes: A qualitative look at low-income families engaged in treatment for overweight children	Hispanic/Latino, Not specified; Male and Female; Individual Study; Non-RCT	Six focus groups' results indicated that the Healthy Living Program (HeLP), a community-based, family-oriented obesity-treatment program, resulted in parents buying less junk/fast food, families consuming more fruits and vegetables, preparing meals and eating together more often, and increasing families' physical activity (PA). The 37 (85% Hispanic) participants identified barriers to maintaining health habits including time, financial costs, parent's lack of time and energy, negative influences of family members, and challenges regarding physical environments. For these families, they wanted to continue implementing recommendations for diet and PA. They identified skills they learned that would likely facilitate these healthy habits including learning how to read labels, parents modeling healthy habits, taking family walks, and the desire to avoid chronic diseases. Parents reported that the healthy changes resulted in unexpected improvements in their children including them sleeping better, feeling happier, and being less irritable.
Chapman & Pérez-Escamilla (2012); Breastfeeding among minority women: Moving from risk factors to interventions	African American, Hispanic/Latino, Not specified; Male and Female; Systematic review or meta-analysis; RCT	In this meta-analysis/review that evaluated 18 interventions that targeted minorities, the study clearly identified African American and Hispanic participants. However, the race/ethnicity of other participants were not specified. All studies included women/mothers. One study, Wolfberg et al. (2004), also included fathers. Two studies were mentioned as making language accommodations Bunik et al. (2010) and Bonuck et al. (2006). Greatly improved breastfeeding initiation, duration, or exclusivity were found for several interventions. These interventions included peer counseling, breastfeeding-specific clinic appointments, group prenatal education, and hospital/Special Supplemental Nutrition Program for Women, Infants, and Children enhancements. In addition, data from six interventions indicated reductions in infant rehospitalizations or morbidity. These six studies were Anderson et al. (2005), Chapman et al. (2011), Bunik et al. (2010), Bonuck et al. (2006), Pugh et al. (2002), and Frank (1987).

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Cheng et al. (2013); Economic, clinical, and humanistic outcomes (ECHOs) of pharmaceutical care services for minority patients: A literature review	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino; Male and Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	Twenty three of the 24 studies in this review found a positive relationship between pharmaceutical care and economic, clinical, and/or humanistic outcomes (ECHOs) in patients from diverse racial/ethnic groups. Economic outcomes included reductions in health care costs, hospitalizations, emergency room visits, clinic visits, and/or drug costs. Clinical outcomes included improved: disease/symptom control, outcomes/adherence, rates of screenings/vaccinations, and patients' understanding and use of health care treatments. Humanistic outcomes included measures of patients' quality of life and satisfaction. Among the review's other results were that about half of the studies primarily evaluated one clinical outcome (vs. multiple clinical outcomes), education/consultation and medication/therapy management were the most commonly evaluated types of pharmaceutical-care services, and nine studies involved inter-disciplinary collaborations between pharmacists and other medical professionals.
Chin et al. (2007); Interventions to reduce racial and ethnic disparities in health care	Race/ethnicity not specified; Gender not specified; Systematic review or meta-analysis; Non-RCT	Finding Answers: Disparities Research for Change, was a program created in 2005 by the Robert Wood Johnson Foundation. Designed to tackle racial and ethnic disparities in cardiovascular disease, depression, and diabetes, the program sought to identify, evaluate, and disseminate information on promising interventions. This article highlighted findings from six other papers and suggested three promising intervention strategies. The first was multifactorial interventions that accounted for and addressed what the authors termed as the multiple components of change and various stages of care. These targeted a combination of factors at the levels of patients (e.g., health literacy or adherence), providers (e.g., increased cultural competence), health care organizations (e.g., electronic registries), and health care systems (e.g., multidisciplinary teams). Second was culturally tailored quality improvements such as engaging bilingual providers, using language-appropriate educational materials, and providing case management tailored to low-income patients. Third was nurse-led interventions that yielded promising outcomes with numerous diseases, populations, and settings.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Chin et al. (2009); Health care quality-improvement approaches to reducing child health disparities	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino, Native American/Alaska Native, Not specified; Male and Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	This article presented lessons learned from disparities research with adult populations. It then explored studies focused on juvenile asthma and immunizations. The authors found that clinical outcomes were significantly improved when interventions used case management, CHWs, or social workers. Improvements were also seen when studies provided patient self-management, involved family, addressed the home environment, provided specialist-clinic referrals, and/or engaged school settings. Overall, pediatric-asthma focused interventions improved the identification of individuals, increased the number of routine-care visits for asthma management, and reduced emergency or urgent-care use. At the organizational-level, impactful changes included physician or provider prompts, provider- and nurse- education, specialist-referrals, care coordination, and provider-caretaker communications. This review found that increasing immunization rates was achieved most effectively through CHWs and other outreach methods with families. CHWs established effective links and facilitated the flow of education and understanding between providers, patients, families, and communities. Although the names of individual studies were not listed in the table of intervention descriptions, it listed two studies in which housing was addressed. In one, outreach workers ensured that children and families were provided with housing assistance. The other study was described as having an asthma outreach worker who “coordinated with schools and housing authority to ensure adherence to asthma management plan and placement of children in better environments” (Chin et al., 2009, p. 14) Only one study was listed as having linguistic adaptations. This study mailed reminder cards in Spanish or English.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Chin et al. (2012); A roadmap and best practices for organizations to reduce racial and ethnic disparities in health care	Race/ethnicity not specified; Gender not specified; Systematic review or meta-analysis; Non-RCT	This paper summarized major lessons learned from five systematic reviews funded by the Robert Wood Johnson Foundation. Interventions focused on asthma, HIV, and three types of cancer: colorectal, prostate, and cervical. The review suggested that interventions consider the six levels that influence a patient's pathway of care: patient, provider, microsystem, organization, community, and/or policy. It also proposed cultural-tailoring such as culturally targeted education materials, patient-provider racial/ethnic concordance, and religious messaging. As required by national policies, data collection should include race, ethnicity, and language (REL). In addition, care teams should be restructured to be multi-disciplinary and/or to include additional members such as intervention-focused nurses, pharmacists, and community/lay health workers. When education was interactive, for example using skills-based instruction, it was more effective than when the patient was a passive learner. Both patient navigation and actively involving family and community members in patient care also showed promise.
Crawford et al. (2016); Pharmacy intervention to improve HIV testing uptake using a comprehensive health screening approach	African American, Hispanic/Latino, Not specified; Male and Female; Individual Study; Non-RCT	Results suggested that HIV testing can be increased when pharmacies adopt strategies that destigmatize and normalize HIV testing. As part of a Pharmacists as Resources Making Links to Comprehensive Testing Services (PHARM-Services) study, research was conducted in three pharmacies in low-income neighborhoods in New York. Of the three pharmacies, one offered a "comprehensive arm" with a video to reduce stigma associated with HIV and then offered HIV testing combined with less-stigmatized chronic disease screenings (blood pressure, glucose, and cholesterol). The second pharmacy offered the "video arm" with the same "Healthy Lifestyles" video which was based on social cognitive behavior theory and then offered HIV testing. The third pharmacy was the "control arm" and only offered HIV testing. It was found that participants in the comprehensive (prevalence ratio [PR] = 1.61, 95% confidence interval [CI] 1.03, 2.49, p=0.08) and video arms (PR=1.59, 95% CI 1.00, 2.53, p=0.09) were marginally significantly more likely to receive an HIV test in the pharmacy compared with those in the control arm.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Davis et al. (2007); Cardiovascular health disparities	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino, Native American/Alaska Native; Male and Female; Systematic review or meta-analysis; Non-RCT	This systematic review reported on 62 interventions that addressed hypertension (n=27), lipids (n=9), tobacco use (n=18), physical inactivity (n=8), heart failure (n=7), and post-myocardial infarction care (n=1). Despite its title, this review found virtually no studies that produced reductions in disparities or between-group differences in health outcomes; data were more available on improving health outcomes in specific populations. For instance, hypertension studies indicated that sodium restrictions produced positive results, especially in African Americans. However, more culturally responsive strategies are needed such as healthy ethnically specific recipes and increasing fresh food supplies in minority neighborhoods. General clinic-reorganization interventions also produced promising results in blood pressure control. Although this review did not provide a great deal of detail on these interventions, it mentioned one example in which a clinic-wide program focused on the quality of care processes in cardiovascular disease. Other strategies included chart-based reminders to prompt physicians to address certain conditions or recommend particular lab services. For example, one program trained providers and staff on identifying smoking status as a vital sign and providing guidelines for addressing this during office visits. Improved lipid levels were seen in health care organization-level interventions and in care management with nurses. Interventions for smoking cessation had mixed results. Although quit rates were generally low and results were not significant. This review found that promise was shown when the interventions were patient-directed, pharmacological, and combined with counseling and health education on concrete approaches to quit plans and triggers. For cessation interventions, provider-targeted education programs were less effective. Greater effectiveness was found for clinic-wide approaches such as having posters and educational materials and engaging numerous members of the care team in supporting smoking cessation. Heart Failure (HF) care management programs were found to decrease hospitalization rates. Successful HF programs included education, specialty-nurse case-management, frequent telephone follow-up with medication adjustments, and oversight by a specialist in heart failure.

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Enard et al. (2015); Patient navigation to increase colorectal cancer screening among Latino Medicare enrollees: A randomized controlled trial	Hispanic/Latino; Male and Female; Individual Study; RCT	Results of this study indicated that the intervention made a statistically significant difference in participants adhering to colorectal cancer screening (CRCS) guidelines. All participants were Latino Medicare enrollees and the control group received materials by mail. The treatment group received tailored services from patient navigators fluent in English and Spanish, education to increase health literacy, counseling, and logistical support in their language of choice. These strategies sought to address possible misconceptions about CRCS, educate participants on screening tests available through Medicare, and facilitate completion of participants' preferred CRCS test. Authors concluded that PN delivered outside the primary care environment has been demonstrated to have a modestly effective impact in increasing CRCS adherence among Medicare enrollees who are Latino.
Farr et al. (2019); Assessing the Feasibility and Effectiveness of Two Prenatal Breastfeeding Intervention Apps in Promoting Postpartum In-Hospital Exclusive Breastfeeding	African American; Female; Individual Study; Non-RCT	This study was conducted on two iPad-based prenatal interventions that could be delivered briefly in less than 10 minutes. The first was champion, a program that uses one module of Coffective®, a free downloadable app. The second was a positive messaging program that provided questions and answers with associated pictures. This intervention was culturally adapted and images reflected the race/ethnicity of the primarily [91%] African American participants. It was found that both interventions could be implemented quickly and were associated with a statistically significant change in the proportion of women who intended (prenatally) and then chose (postpartum) exclusive breastfeeding (EBF). Participants were 243 publicly insured, predominantly (93.8%) African American women.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Flores (2009); Devising, implementing, and evaluating interventions to eliminate health care disparities in minority children	African American, Hispanic/Latino, Native American/ Alaska Native; Male and Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	This review highlighted three interventions that were successful in improving outcomes in children's health. Two of the three studies were RCTs and in all three the intervention and control groups were comprised of participants of the same race/ethnicity. All three studies had large sample sizes of hundreds to thousands of participants, which allowed for sufficient statistical power. All were community-based, culturally- and linguistically- sensitive, and comprised of personnel or peers from the same community, racial, and/or ethnic group as the participants. The first was a 1-year population-based observational breastfeeding intervention in a Navajo community. This program had three components: (1) a community intervention that involved radio, video, billboard messages, and t-shirts; (2) a health care system intervention that included a 3-day health care provider conference on lactation management, a task force, and videotaped instruction for caseworkers; and (3) breastfeeding education for families, including a video, brochures, and a tribal foster-grandparent program. On every measure, intervention participants had statistically significant improvements compared to the control group. The second intervention targeted African American young women 14-18 years old. The intervention enhanced HIV-preventive behaviors, skills, and mediators, and authors indicated that it might have the potential to reduce pregnancy and chlamydia infection. The third intervention evaluated the effectiveness of a community-based case manager intervention that helped families navigate the sign-up process to insure uninsured Latino children. Findings showed that intervention participants had statistically greater levels of health insurance receipt, coverage continuity, and parental satisfaction. They also had lower time-intervals to obtain coverage.
Glick et al. (2012); Cervical cancer screening, diagnosis and treatment interventions for racial and ethnic minorities: A systematic review	African American, Asian American/Pacific Islander, Hispanic/ Latino, Not specified; Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	Thirty-one studies were included in this systematic review on cervical cancer. Among racial and ethnic minorities, improvements were seen in rates of screening, diagnosis, and treatment. Though findings were low or moderate in strength, they suggest that interventions may be effective, particularly those that included patient navigation with telephone support or education.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Gorin et al. (2012); Multilevel interventions and racial/ethnic health disparities	African American, Hispanic/Latino, Not specified; Gender not specified; Systematic review or meta-analysis; Both RCTs and non-RCTs	A descriptive review and meta-analysis, this study found that multilevel interventions (with three or more levels of influence) showed some promise in reducing between-group differences in health outcomes and improving health outcomes for racial and ethnic minorities. Consistent with other disparity-reduction focused researchers, these authors identified multiple levels that have influence on an individual's health outcomes including: the patient, family and social supports, providers, health organizations, the local community, and/or policies at the state and national levels. In this review, data indicated that the most common levels were the individual, provider team/group, family, and community. It was also found that multi-level strategies may produce positive outcomes. Specifically, at the individual level, meta-analyses were conducted on 17 studies with a wide range of behavioral outcomes including hypertension control, physical activity, drug use beliefs, mammography, lung function, tobacco use, and vaccination rates. It was found that the weighted average ES across these studies was low, OR = 1.27 (95% CI = 1.11 to 1.44), and highly heterogeneous, I2 = 71.81 (P < .0001). Three studies were included in meta-analyses for providers or organizations. The included outcomes were health programming, syringe exchange, and patient navigation. The weighted average ES was medium, OR = 2.53 (95% CI = 0.82 to 7.81), and highly heterogeneous, I2 = 82.65 (P = .003).

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Griner & Smith (2006); Culturally adapted mental health intervention: A meta-analytic review	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino, Native American/Alaska Native; Male and Female; Systematic review or meta-analysis; Non-RCT	This meta-analysis of 76 studies found a moderately strong benefit with interventions that were culturally- and/or linguistically- adapted. Of these studies, 14 had control groups that received no intervention and 48 that received alternate interventions (e.g. emotional support groups with no cultural adaptations). However, the review makes no mention of random assignment within the studies. Most studies had cultural content that was explicitly incorporated (n=64) such as storytelling that included cultural folk heroes. Some studies sought to match the ethnicity of therapists and participants (n=47) with some doing so successfully (n=31) and others making attempts at matching (n=16). Many provided linguistic adaptations and included non-English services (n=34). It was also found that 21% of studies provided oral administration of written materials for clients with limited literacy. For participants whose native language was other than English, interventions were twice as effective if they were conducted in the clients' native language. Interventions that targeted specific cultural groups were four times more effective than interventions serving clients from multiple cultural backgrounds.
Grubbs et al. (2013); Eliminating racial disparities in colorectal cancer in the real world: It took a village	African American, Caucasian/White Male and Female; Individual Study; Non-RCT	Several cancer control efforts were implemented in Delaware beginning in 2001 and growing for years after. Three components were a colorectal cancer (CRC) screening program for all Delawareans, a cancer treatment program for the uninsured that covers the costs of cancer care for 2 years, and an emphasis on African American cancer disparity reduction through special programs to reach this community. This research study analyzed the impact of these efforts with a specific focus on outcomes related to colorectal cancer (CRC) screenings from 2002 to 2009. It did not specifically discuss initiatives to increase participants' health literacy or provide education on CRC. Data showed that, in the sample of individuals studied, CRC screening rates increased for all individuals 50 years and older and that African Americans began receiving screenings at the same rates as Whites. However, it was not specified whether the screening rates of any racial group was at optimal levels. In addition, the study reported that Delawareans are being diagnosed at earlier stages and the mortality rate difference is declining between Whites and African Americans. Further, the percent of African Americans diagnosed at advanced and regional stages declined and the percent diagnosed at local stage increased.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Haas et al. (2015); Proactive tobacco cessation outreach to smokers of low socioeconomic status: A randomized clinical trial	African American, Caucasian/White, Hispanic/Latino; Male and Female; Individual Study; RCT	Researchers in this study found that tobacco cessation was higher in the treatment vs. the usual care group (17.8% vs 8.1%; odds ratio, 2.5; 95% CI, 1.5-4.0). Whereas, the control group received usual care from their health care team, the treatment group received a four-component intervention over an 8-10 week period that included: telephone-based motivational counseling with tobacco treatment specialists (TTSs), six weeks of free nicotine replacement therapy (NRT), community-based referrals to address socio-contextual mediators, and integration of these elements into their electronic health records (EHRs). The protocol was Project CLIQ (Community LInk to Quit) and the intervention was based on the Chronic Care Model and the Social Contextual Model for Reducing Tobacco Use. The program used interactive voice response (IVR), a telephone technology that the authors identified as highly cost-effective. Although the IVR script could be provided in English or Spanish, it was not specified whether TTS support was linguistically adapted. The intervention was highly tailored from the counseling topics with the TTS to the optional modules that could be selected based on participants' needs such as stress, weight gain, and menthol use. In addition, the TTS encouraged participants to address socio-contextual mediators of tobacco use (e.g. domestic violence, food, education, employment) by using HelpSteps.com, a community resource database. Results showed that the intervention group had a higher cessation rate. In addition, among the intervention components, it was found that those who participated in telephone counseling were more likely to quit (21.2%vs 10.4%; P < .001). In addition, although requesting a community referral did not impact smoking cessation, those who used the referral were more likely to stop smoking than those who did not use the referral (43.6%vs 15.3%; P < .001).

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Hijazi, et al. (2014); Brief narrative exposure therapy for posttraumatic stress in Iraqi refugees: A preliminary randomized clinical trial	Arab American; Male and Female; Individual study; RCT	In this study on reducing post-traumatic stress in Iraqi refugees a 2:1 RCT ratio was used to assign intervention (n=41) and control (n=22) participants. The Harvard Trauma Questionnaire was used and a brief narrative exposure therapy (brief NET) intervention was measured at baseline and at 2- and 4-months. Sessions were conducted by therapists who were supervised weekly and received training from a licensed psychologist. Counseling sessions were held at a private location of the participant's choice weekly, occurred once per week for three weeks, and lasted 60-90 minute. As part of the intervention, participant stories were translated into Arabic, typed, and provided to the participant. Data indicated that for this group of control and intervention participants, brief NET produced greater posttraumatic growth (d = 0.83) and well-being (d = 0.54) compared to no intervention.
Jones et al. (2015); Racial and ethnic disparities in breastfeeding	African American, Hispanic/Latino, Native American/ Alaska Native; Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	According to its authors, this study was built upon the foundation set by the breastfeeding-focused systematic review by Chapman and Perez-Escamilla (2012). However, it presented findings from seven studies that were not included in the Chapman and Perez-Escamilla review. Interventions included hospital and home visits, educational programs, peer counseling, and breast-pump loans. It was found that compared to control groups, intervention groups had increased breastfeeding initiation, longer breastfeeding exclusivity, and longer breastfeeding duration.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Jaber et al. (2011); Feasibility of group lifestyle intervention for diabetes prevention in Arab Americans	Arab American; Male and Female; Individual study; Non-RCT	In this study of 71 Arab American adults (> 30 years of age), the Diabetes Prevention Program (DPP) curriculum was translated into Arabic and used along with the Health Belief Model theoretical framework. This was a nurse-led intervention with dietitian support. No diabetes data were presented other than during the screening process when it was mentioned that some individuals (n=4) were excluded because they had diabetes. Participants attended 12 weekly core-curriculum sessions and four weekly group sessions (all sessions were 60–90 minutes) in either mixed gender or all female groups of 10-12 individuals and 86% completed the intervention. Study data revealed that in this group of participants 44% achieved >=7% weight loss, 59% achieved >= 5% reduction in weight, and 78% achieved >= 150-min/week of physical activity. At week 24, the mean weight loss was 5.2 kgs with a standard deviation of 4.4 kg (p < 0.00). Therefore, for this group of Arab American participants, a DPP culturally- and linguistically- adapted, group lifestyle intervention was effective in reducing weight, increasing physical activity, and affecting other health measures.
Kalauokalani et al. (2007); Can patient coaching reduce racial/ethnic disparities in cancer pain control? Secondary analysis of a randomized controlled trial	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino, Not specified; Male and Female; Individual Study; RCT	Sixty-seven cancer outpatients, including 15 minorities, were randomly assigned to an experimental (N = 34) or control (N = 33) group. Intervention participants received a 20-minute session of individualized education and coaching. Goals were to increase knowledge of pain self-management, correct misconceptions about pain treatment, and rehearse an individually scripted patient-physician pain-control dialog. At enrollment, minority patients had significantly more pain than their White counterparts (6.0 vs 5.0, P = 0.05). At follow-up, these differences persisted for minorities in the control group (6.4 vs 4.7, P = 0.01). In contrast, among intervention group participants, pain rates were similar for minority and White participants (4.0 vs 4.3, P = 0.71); however, these rates were not significant. Regression analysis indicated that for this sample, there was a greater reduction in pain for minorities in the intervention group compared to minorities in the control group and Whites in either group (interaction effect =−1.73, 95% CI =−0.06, −3.41, P=0.043). In this study, it was not specified whether pain-control rates were at optimal levels.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Leonard et al. (2013); Description of an efficacious behavioral peer-driven intervention to reduce racial/ethnic disparities in AIDS clinical trials	African American Hispanic/Latino; Gender not specified; Individual Study; Non-RCT	This article presented the ACT2 Project, a targeted peer-driven intervention to address the disproportionally low participation rates of people living with HIV/AIDS (PLHA) of color who participate in AIDS clinical trials (ACTs). The ACT2 study used a peer-referral recruitment method called respondent-driven sampling, where peers recruited peers for the study. It was found that the ACT2 intervention was highly efficacious in increasing rates of screening and enrollment for ACTs among African American/Black and Latino/Hispanic PLHAs. Specifically, ACT screenings were initiated by 56% of the 351 intervention participants compared with <5% of 189 participants in the control arm. Among screened intervention-participants 87.4% completed screening. About half of these were found eligible for ACTs or other biomedical studies (55.5%; 96/173) and almost all of those eligible enrolled in studies and trials (91.7%; 88/96). Researchers suggested four key features that contributed to the intervention's success. The first was the manner in which ACT2 explored the social and structural barriers faced by African American or Latino PLHAs. Specifically, in session one facilitators focused on medical mistrust, research abuses, and federal protections that were put in place to protect participants. Structural barriers were overcome by supporting participants in navigating the complexities of clinical trial settings and systems. The second feature was motivational interviewing, which sought to elicit and resolve ambivalence about health-behavior change. For example, in exercise 8, facilitators used a decisional balance exercise to help participants investigate the pros and cons of being screened (i.e. changing) and not being screened (i.e. staying the same). During this group session, personal concerns were raised and discussed in an open and accepting manner and participants learned about their rights as a potential participant in ACTs. The third feature was the stance that all PLHAs should have access to ACTs, whether or not they wished to make use of that access. During this process they learned about benefits of participating including the potential to receive the newest treatments available. In addition, because some ACTs address complications of HIV/AIDS, participants learned they might benefit by receiving support for 'wasting', lypodystrophy or 'Buffalo Hump', Hepatitis C, high cholesterol, neuropathy, and other health concerns. The fourth and final feature was the navigation support that identified and overcame barriers to screening and enrollment. Navigation included facilitating communications with primary care providers, obtaining medical records, and overcoming barriers such as lack of transportation and need for childcare.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Lyles et al. (2007); Best-evidence interventions: Findings from a systematic review of HIV behavioral interventions for US populations at high risk, 2000–2004	African American, Asian American/Pacific Islander, Caucasian/ White, Hispanic/Latino Native American/ Alaska Native,Not specified; Male and Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	This systematic review highlighted 18 interventions that met the criteria for best evidence according to Prevention Research Synthesis Team efficacy criteria that focuses on the three domains of study design, implementation and analysis, and strength of evidence. Thirteen had study samples with more than 50% minority participants. Significant intervention effects included increased condom use (n=8) and reductions in number of sexual partners (n=3) and injection drug use or needle sharing (n=3). All studies relied on at least 1 behavioral change theory or model. These included Social Cognitive Theory (n=7), Social Learning Theory (n=4), AIDS Risk Reduction Model, Information-Motivation-Behavior Model, and the Theory of Gender and Power (for all three n=3). Almost the same number of studies used staff who were peers (n=6) as studies that used non-peer staff (n=7).
Marshall et al. (2013); Integrating oral and general health screening at senior centers for minority elders	African American, Caucasian/White, Hispanic/Latino; Male and Female; Individual Study; Non-RCT	Findings indicated that diabetes and hypertension screenings can be successfully combined with oral-health services. The Manhattan-based ElderSmile program found that of 580 participants who underwent screening, of those with no previous diagnosis by a physician, many were in the diabetes (7.8%) and pre-diabetes (42.2%) ranges and hypertension (24.6%) and pre-hypertension (37.7%) ranges. Among those with a previous diagnosis by a physician, 38.3% had HbA1c levels that were out-of-control and 37.8% and 39.8% had blood pressure levels that were hypertensive or pre-hypertensive, respectively.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Masi et al. (2007); Interventions to enhance breast cancer screening, diagnosis, and treatment among racial and ethnic minority women	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino Native American/Alaska Native, Not specified; Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	This systematic review was conducted on 42 studies of breast cancer interventions. Of these, 36 focused on screening, five on diagnostic testing, and two on treatment. Among screening-focused strategies, the most effective patient-targeted interventions were culturally tailored and/or addressed financial or logistical barriers. For instance, cultural and linguistic tailoring included native language materials and classroom instruction, tailored breast cancer risk letter or phone call, and assistance by nurse practitioners who had received cultural sensitivity training. Overcoming financial and logistical barriers helped to address social determinants in the category of availability of resources to meet daily needs. To support participants in this way, one study used a model of case management that involved “coordination” of basic case management services and advocating for clients. Another model, used by two studies, was “sociomedical” and also addressed issues related to housing, work, food security, substance use/abuse, domestic violence, and mental health. Although reminders were not effective at the patient-level, they increased physician adherence to mammography guidelines. This review also found that after screening abnormalities were found, when case managers supported women, they engaged in follow-up diagnostic testing. Similarly, in one study of follow-up care, more intervention participants (62%) received their first breast cancer treatment within 30 days of diagnosis compared to control-group participants (40%).
Messiah et al. (2015); Effect of a park-based after-school program on participant obesity-related health outcomes	African American, Caucasian/White, Hispanic/Latino; Male and Female; Individual Study; Non-RCT	The Fit-2-Play after-school program was implemented in a large county-parks system in Florida. The intervention included obesity prevention and emphasized physical fitness and health and wellness education. It was found that from pre- to post-test, the program significantly, positively impacted children’s overweight/obese BMI scores (2.0 to 1.8, $p < .01$), subscapular skinfold measurements (19.4 to 17.5 mm, $p < .01$), mean laps on the Progressive Aerobic Cardiovascular Endurance Run test (10.8 to 12.5, $p = .04$), and percentage of participants with normal systolic blood pressure (from 58.1% to 71.0%, $p = .03$). Participants were children ages 5 to 16 (N = 349, 55% non-Hispanic African American, 40% Hispanic).

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Mojica et al. (2016); Breast, cervical, and colorectal cancer education and navigation: Results of a community health worker intervention	Hispanic/Latino; Female; Individual Study; Non-RCT	This study found that CHW directed interventions were effective in recruiting women to participate in the study, educating them on cancer-related topics, and influencing their cancer knowledge and screening behaviors. Four bilingual and bicultural CHWs provided education to 535 (77%) eligible women and arranged mammograms, pap tests, or stool blood tests for 174 (25%) participants. Another 94 (14%) were placed on a waiting list at a local health center. For women who attended educational sessions, statistically significant positive changes were found on knowledge of screening guidelines and beliefs/attitudes regarding early detection.
Monsen et al. (2017); Social determinants and health disparities associated with outcomes of women of childbearing age who receive public health nurse home visiting services	African American, Asian American/Pacific Islander, Caucasian/ White, Hispanic/Latino Native American/ Alaska Native, Not specified; Female; Individual Study; Non-RCT	Significant, positive changes were found after public health nurse (PHN) interventions addressed social and behavioral determinants of health (SBDH) in women who received pregnancy and parenting support. This study was a secondary analysis conducted on a dataset of 4,263 women in a Midwestern state. However, it did not describe the specific components delivered by the PHNs (e.g., educational sessions, counseling, transportation). Under the PHN model, evidence-based care plans could have included pregnancy surveillance; signs/symptoms and physical warning signs; postpartum teaching, guidance, and counseling; and postpartum changes in anatomy/physiology. There were positive, significant changes from baseline in knowledge ($p < .001$; basic to adequate knowledge), behavior ($p < .001$; what this study termed as “usually appropriate behavior”), and status ($p < .001$; minimal signs/symptoms). Findings indicated that in the measured SBDH outcomes, women in the minority group scored lower on outcome measures; however, when compared to White participants, they had greater gains in the measured SBDH. Thus, for the outcomes measured in this sample, the intervention narrowed but did not eliminate the health outcome gap between minority and White women. It was not specified whether outcome measures were at optimal levels for any racial group.

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Mueller et al. (2015); Reducing racial and ethnic disparities in hypertension prevention and control: What will it take to translate research into practice and policy?	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino, Not specified; Male and Female; Individual Study; Both RCTs and non-RCTs	Of the 39 studies included in this meta-analysis, it was found that 27 demonstrated improved blood pressure (BP) control or related measures such as lifestyle behaviors, medication adherence, or knowledge. Of the six studies that examined disparities, 3 found a reduction in between-group differences in health outcomes. Many interventions included CHWs, patient education, and culturally tailored strategies such as culturally appropriate storytelling and interventions in local community environments including barbershops. Authors suggested that reducing disparities requires training a new cadre of practitioners who are trained to integrate medical, social, psychological, cultural, behavioral, and ecological strategies.
Naylor et al. (2012); Interventions to improve care related to colorectal cancer among racial and ethnic minorities: A systematic review	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino Not specified; Gender not specified; Systematic review or meta-analysis; Both RCTs and non-RCTs	After analyzing 33 studies, this meta-analysis identified interventions that led to modest improvements in colorectal cancer screening rates. Strategies directed toward patients included patient education, phone or in-person contact, and patient navigation. Interventions that targeted providers included educational sessions, reminders, and physician training on communicating with patients who have low health literacy. Improvements were seen on the order of 10 to 15 percentage points for interventions that included patient navigation and patient education via phone or in-person. No relevant interventions focused on post-screening follow up, treatment adherence, or survivorship.

STUDY SUMMARIES

Author (Year); Title	Race/Ethnicity; Gender; Study Type: Individual/Meta-Study	Summary
Nguyen et al. (2019); Women from racial or ethnic minority and low socioeconomic backgrounds receive more prenatal education: Results from the 2012 to 2014 Pregnancy Risk Assessment Monitoring System	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino, Native American/Alaska Native, Not specified; Female; Individual Study; Non-RCT	A large study of 2012–2014 data from the Pregnancy Risk Assessment Monitoring System (PRAMS) for 68,025 participants in 27 states indicated that minority women received higher levels of prenatal health education compared to White women. Specifically, multivariable analysis showed that there were higher odds of receiving comprehensive prenatal health education (for all categories p </=0 .001) for racial or ethnic minorities and women with: a high school degree or less; Women, Infant, and Children (WIC) assistance; and Medicaid during pregnancy. In addition, low household income was associated with receiving counseling on HIV testing, alcohol, and smoking (all p </= 0.001). It was not specified whether prenatal health literacy was at optimal levels for any group based on race, SES, or other factors.
Nicholson et al. (2008); Unintended effects of emphasizing disparities in cancer communication to African-Americans	African American; Male and Female; Individual Study; Non-RCT	When African American participants were exposed to colon cancer (CRC) information showing progress (African Americans are improving over time), they had more positive emotional reactions and were more likely to want to be screened. Conversely, on two dimensions of disparity information (Blacks are doing worse than Whites and Blacks are improving, but less than Whites), participants were less likely to indicate a desire for CRC screening (both p < 0.001). This study was conducted on a community sample of 300 African American adults. It was not specified whether participants were presented with statements comparing progress of Blacks to optimal guideline-recommended levels.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Norris et al. (2006); Effectiveness of community health workers in the care of persons with diabetes	African American, Asian American/Pacific Islander, Caucasian/ White, Hispanic/Latino Native American/ Alaska Native; Male and Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	This systematic review of 18 studies found that CHWs facilitated positive behavioral changes in a number of studies with improvements in diet, physical activity levels, self-monitoring of blood glucose, and other self-care behaviors. For health outcomes, there were significant improvements in HbA1c, lipid levels, and blood pressure. CHWs roles and duties ranged from substantial involvement in patient care to leading education sessions to assisting participants in engaging with needed supports and services.
Novotny et al. (2012); US acculturation is associated with health behaviors and obesity, but not their change, with a hotel-based intervention among Asian-Pacific Islander	Asian American/Pacific Islander, Caucasian/ White, Not specified; Male and Female; Individual Study; Non-RCT	This study was conducted with hotel workers in Hawaii who were primarily Filipino (42%), other Asian (32%), or Pacific Islander (13%). Participants were assigned to the treatment or control group based on the hotel at which they were employed. At both treatment and control hotels, participants were given health assessments/questionnaires. Both groups were provided with oral and written recommendations based on their health risks. At treatment hotels, healthier choices were available for meals, information was provided on increasing physical activity (PA), and group-based classes were held. There was also an increase in fruit intake with each year of the study intervention. It was also found that in the intervention group, PA increased, but it decreased for the control group. At baseline, compared with Whites, Asians and Filipinos had lower levels of PA. However, after the intervention, compared with Whites, these groups had greater increases of PA. It was not specified whether PA levels of groups (by race, gender, or other demographics) were compared with national guidelines for optimal PA.
O'Brien et al. (2010); Community health worker intervention to decrease cervical cancer disparities in Hispanic women	Hispanic/Latino; Female; Individual Study; RCT	In this study, 120 participants were randomly assigned to a control group receiving usual care or a cervical-cancer educational-intervention that was promotora-led. According to study authors, promotora is the title given to community health workers in Hispanic communities. At the 6-month follow-up, statistically significant differences were found for all measures: pap smear screening (65% vs. 36%, p-value 0.02), cervical cancer knowledge (5.4 vs. 3.5, p-value<0.001), and self-efficacy (4.7 vs. 4.0, p-value 0.002) with the intervention group achieving better outcomes.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Oat-Judge et al. (2015); Free pregnancy testing increases maternity care volume in family medicine residencies	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino Not specified; Female; Individual Study; Non-RCT	In this study, offering free pregnancy tests was found to increase the number of maternal care patients in a simple and inexpensive way. At a family-based clinic in North Carolina, for 19 months from May 2011 through November 2012, 241 tests were performed on 224 women of which 58% (n=130) were minorities. Women with positive tests (n=99, 41.1%) were provided information on maternity care and given an opportunity to schedule an initial prenatal visit. Of these 99 women, 74 (74.7%) established prenatal care and 57 of these 74 (77%) were new patients. It was found that the number of obstetric patients increased 13% from 405 to 456; the percentage of self-referred patients increased from 31.9% to 40.8% (p <.001); and the total cost of the 241 pregnancy tests was $256.24. According to study authors, this compares with per-patient revenues of $1,553.
Parker et al. (2011); A comparison of the arthritis foundation self-help program across three race/ethnicity groups	African American, Caucasian/White, Hispanic/Latino; Male and Female; Individual Study; Non-RCT	Statistically significant positive results were found for minority seniors who received education using the Arthritis Foundation Self-Help Program (ASHP). Six weekly classes included topics such as: 1) education regarding pain and its consequences, 2) relaxation skills training, 3) cognitive coping skills training, 4) problem solving, and 5) communication skills training. This study had 112 participants (37 African American, 38 Hispanic, and 37 non-Hispanic White). All three groups reported decreases in pain intensity (p<=.05) and substantial increases in the number of days spent doing stretching, endurance, and relaxation exercises (p<=.01). Non-Hispanic Whites reported increases in mood scores (p=.01). Similarly, Hispanic participants reported increases in mood scores (p=.03), as well as significant improvement in their confidence to self-manage pain (p=.003), and fewer arthritis-related symptoms (p=.02).

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Peek et al. (2007); Diabetes health disparities	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino Native American/Alaska Native; Male and Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	This meta-analysis was conducted on 43 diabetes-focused studies. Of these studies, only two compared health outcomes of non-Hispanic Whites and other groups. While both studies found reductions in health differences, the authors caution that more research must be done in order to make conclusions about health disparities. The other 41 studies examined health changes among participants of a given racial/ethnic group. Results indicated that across the studies, when compared to the control groups, the intervention groups had 0.36% lower HbA1c values (95% CI: 0.27 to 0.45). In this review, interventions were further divided into those focusing on providers, health care systems, multitarget (those focusing on patients, providers, and/or health care organizations), or patient-focused interventions (these were sub-divided into those focusing on generic vs. culturally tailored strategies). According to study authors, “We define ‘culturally tailored’ programs as those that utilized individualized programming that takes into account participants’ personal preferences that are rooted in culture” (Peek, 2007, p. 5). This study found evidence supporting the use of interventions that target patients using culturally and linguistically tailored programs, such as culturally tailored nutrition education and the use of bilingual Mexican American nurses, dietitians, and CHWs, providers through one-on-one feedback and education, and health systems using nurse case managers, CHWs, and nurse clinicians.
Pesantes et al. (2015); Resilience in vulnerable populations with type 2 diabetes mellitus and hypertension: A systematic review and meta-analysis	African American, Asian American/Pacific Islander, Caucasian/White, Hispanic/Latino; Gender not specified; Systematic review or meta-analysis; Both RCTs and non-RCTs	This systematic review of 17 studies defined vulnerable populations as those who have increased risk of suffering adverse health outcomes and/or have less opportunities to manage their chronic conditions. Resilience was defined as maintaining balance through “an intrinsic mechanism of facing, managing or adapting to stressful experiences” (Pesantes et al., 2015, p. 2). Interventions used diverse, culturally tailored strategies such as integrating cultural dietary preferences into health education sessions and having open nonjudgmental discussions about topics that affected participants. Some studies also included linguistic adaptations in the client’s native language. Data revealed slight evidence that resiliency interventions had a positive effect on HbA1c levels but not blood pressure. Meta- analyses were conducted on the seven studies that had more than three months of follow-up and HbA1c means and standard deviations. Pooled effects indicated a reduction (non-standardized) in HbA1c of −0.43 (95% CI −0.68; −0.17).

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Plescia et al. (2008); Racial and Ethnic Approaches to Community Health	African American, Not specified; Male and Female; Individual Study; Non-RCT	Results from this study indicated that health behaviors can be improved through approaches targeted to African Americans. Three strategies were implemented including a community coalition, the use of lay-health advisors (LHA), and changes to policies and community environments. Environmental changes included a culturally specific mass-media campaign and providing a local farmer's market. Survey responses from the intervention community were compared with responses from a statewide survey administered to African Americans whose communities were not included in the intervention, both groups were surveyed in 2001 (pre-test) and 2005 (post-test). Statistically significant improvements were seen among women for physical activity (p=.02) and smoking (p=.03). Improvements were also seen for physical activity among middle-aged adults (p=.01). In addition, at baseline for the intervention group, physical activity rates were statistically-significantly lower (p<.001) and at post-test they were comparable to those of African Americans statewide (p=.38). At baseline both groups had comparable fruit and vegetable consumption rates (p=.68) and at post-test, the intervention group's consumption rates were statistically-significantly higher (p<.001).

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Purnell et al. (2016); Achieving health equity: Closing the gaps in health care disparities, interventions, and research	African American, Caucasian/White, Hispanic/Latino, Not specified Male and Female; Individual Study; Both RCTs and non-RCTs	This systematic review synthesized findings from 10 intervention-studies. The article addressed what authors termed as 15 critical gaps in the literature on health care disparities for people of color. One example of these gaps was the need for enhanced linkages between health care systems and the communities they serve. A second was the need for interventions to address the entire spectrum of care for conditions - from prevention to post-discharge treatment. This review identified 10 studies that positively impacted one or more of the 15 gaps. Five of the studies focused on cardiovascular disease care and five on cancer care. The researchers created a four-level model that included: level 1 - individual patient factors such as education, biology, and socio-demographics; level 2 - family, friends, and social support factors, which included ongoing support; level 3 - provider and organizational factors, for example patient programs, insurance and affordability, and provider-supports; level 4 - policy and community factors such as neighborhood resources. Through these four levels, the model captured many of the complex factors that influence disparities in access to care and quality of health care services. Though each study was different, they shared a commonality in that their unique interventions addressed factors at multiple levels of the model. An example of a highlighted study was the Maryland-based initiative, Reducing Disparities and Controlling Hypertension in Primary Care (Project ReD CHiP) that included interventions at the patient-, provider-, and health system-levels.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Quiñones et al. (2011); Interventions to improve minority health care and reduce racial and ethnic disparities	African American, Asian American/Pacific Islander, Caucasian/ White, Hispanic/ Latino, Native American/Alaska Native; Male and Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	This study initially sought to identify intervention studies designed to reduce racial/ethnic disparities among minority veteran populations. However, due to the limited number of such studies, the review focused on studies on the general population that could yield strategies useful to the Veterans Administration (VA). The study analyzed meta-analyses and systematic reviews on diabetes, arthritis and pain management, preventive and ambulatory care including cancer screening, smoking cessation, physical activity, and diet. This study also included an analysis of reviews/meta-analyses on cardiovascular disease that included studies on hypertension and smoking cessation, HIV/AIDS, mental health, and cross-cutting interventions that included topics such as cultural-competence training and improving quality of care delivered in primary care settings. Across the various health categories, evidence indicated benefits for interventions focused on integrating health care with the community including nurse-led support; community health workers; use of care managers; and patient health education that was culturally tailored including focus groups, recipes for the ethnic group being studied, and understanding the importance of family structure within specific cultures.
Ricci-Cabello et al. (2014); Characteristics and effectiveness of diabetes self-management educational programs targeted to racial/ ethnic minority groups: A systematic review, meta-analysis and meta-regression	African American, Asian American/Pacific Islander, Caucasian/ White, Hispanic/ Latino, Native American/Alaska Native, Not specified Gender not specified; Systematic review or meta-analysis; Both RCTs and non-RCTs	For this study, findings indicated that diabetes-focused educational programs produced statistically significant improvements in clinical outcomes. Educational topics included diet, exercise, self-monitored blood glucose, and medication adherence. Teaching methods included didactic, goal setting, situational problem solving, and cognitive reframing. Statistically significant improvements were seen in 22 (71%) of the studies included in this systematic review. Where possible, meta-analyses were conducted and results showed that educational programs improved fasting blood glucose in 71% of studies, HbA1c in 59% of studies, blood pressure in 57% of studies, lipid profile in 40% of studies, weight/BMI in 28% of studies, or waist circumference in 25% of studies. This review analyzed studies in which: 1) educational programs focused on diabetes self-management (DSM), 2) racial/ethnic minority groups had type 2 diabetes, and 3) at least 90% of the participants were in a minority group.

Appendix A: Table 1 — continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Ruggiero et al. (2014); Diabetes island: Preliminary impact of a virtual world self-care educational intervention for African Americans with type 2 diabetes	African American; Male and Female; Individual Study; Non-RCT	Diabetes Island, a virtual-world videogame, was found to be effective in delivering diabetes self-management education to a sample of 41 African American adults. Significant changes were observed for BMI (p<.02); diabetes-related distress (p<.02); environmental barriers to self-care (p<.01) and dietary outcomes (p<.01); and in two subscales physical activity (p<.04) and dietary intake (p<.01). Participants consistently rated the intervention as positive in its ease of use, interest, and perceived impact. To that end, the program was used regularly by most participants during the first two months and then weekly on average in months three through six.
Sajid et al. (2012); Interventions to improve decision making and reduce racial and ethnic disparities in the management of prostate cancer: A systematic review	African American, Caucasian/White, Hispanic/Latino, Not specified; Male; Systematic review or meta-analysis; Both RCTs and non-RCTs	Of the 19 studies included in this review, 14 evaluated interventions for enhancing informed decision-making (IDM) about Prostate Cancer (PCa) screening. The other five evaluated programs to improve quality of life (QOL) for PCa survivors. It was found that knowledge was most increased when IDM was facilitated by educational programs including those that used printed materials, telephone-based strategies, DVDs, and web-based presentations. In this study, cultural sensitivity was defined as an intervention that recognized ethnicity and culture as a central structure of the intervention. These included culturally tailored videos, pamphlets, and question and answer (Q&A) sessions. The review also found that when culturally sensitive cognitive-behavioral interventions targeted treatment-related complications in ethnic minorities, they resulted in improved QOL for minority men treated for localized PCa.
Santa Maria et al. (2015); Parent-based adolescent sexual health interventions and effect on communication outcomes: A systematic review and meta-analyses	Race/ethnicity not specified; Male and Female; Systematic review or meta-analysis; Both RCTs and non-RCTs	A systematic review of 28 US parent-based adolescent sexual health interventions found that 68% of participants were more likely to report increased parent-child communication and 75% reported increased comfort in talking with their children about sexuality. Of the included studies, 18 enrolled mostly minority parents, at least 11 had control group comparisons, 23 were theory-based, and 19 used modeling and discussion with face-to-face interactions, videos, CDs, and homework. The studies most often served parents of adolescents younger than 16 years old, were offered over multiple face-to-face sessions, used combinations of parent and child sessions (e.g. parent only or parents and children together or separately), and averaged seven hours. Theoretical frameworks varied widely including Planned Behavior Theory, Reasoned Action Theory, Social Cognitive Theory, and Eco-Developmental Theory which empowers parents to potentially influence adolescent behavior.

Appendix A: Table 1 – continued

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Sequist et al. (2006); Effect of quality improvement on racial disparities in diabetes care	African American, Caucasian/White; Male and Female; Individual Study; Non-RCT	Conducted within a multispecialty group practice, this research study sought to determine whether system-wide diabetes mellitus (DM) quality improvement initiatives had an impact on racial disparities in the management of DM for patients receiving care. From 1997, when the initiatives were implemented, to 2001 when the data were analyzed, significant improvements were found. Researchers analyzed changes in patients receiving testing and controlling their low-density lipoprotein (LDL) cholesterol levels. For both testing and controlling LDL, overall rates increased and the White-Black difference decreased significantly. In 2001, there was no difference between Black and White women in the sample; however, there was still a statistically significant difference between White men and Black men in both the testing and control groups. The use of statin prescriptions increased; however, the White-Black difference persisted with White patients using statins more often and Black patients being less likely to be prescribed this treatment. It was not specified whether DM outcomes of groups (by race, gender, etc.) were compared with national guidelines for optimal DM management.
Sewali et al. (2015); Cervical cancer screening with clinic-based Pap test versus home HPV test among Somali immigrant women in Minnesota: a pilot randomized controlled trial	African American, Arab American (*These 63 Somalian participants were coded as both African & Arabic*); Female; Individual Study; RCT	This Minnesota-based study trained Somalian community health workers (CHWs) on guidelines for cervical cancer screening, randomization, and use of the home-based Human Papilloma Virus (HPV) "Just For Me" kit. Linguistic and cultural adaptations were made to both the text and illustrations in the home kit. In addition, women without insurance were provided with a list of clinics that offer cancer screening through the Sage program of free or subsidized office visits. This RCT of 64 Somali adult female participants 20-70 years-of-age assessed 3-month completion rates for the home-based HPV kit (n=32) versus standard care clinic-based Pap tests (n=31). Results revealed that completion rates were better for the home-based intervention (65.6%) versus standard care (19.4%).
Shani et al. (2015); Effect of a home intervention program on pediatric asthma in an environmental justice community	African American, Not specified; Male and Female; Individual Study; Non-RCT	Measures of asthma severity and control indicated that this intervention was effective. The program involved 132 children and their families who were primarily African American, peer counselors, a 4- to 6-week intervention, the US Environmental Protection Agency Asthma Home Environment Checklist, the You Can Control Asthma curriculum, asthma-friendly environmental home kits, and Asthma Action Plans. Data also indicated that participants had fewer emergency room visits (p = .006), substantial decreases in school absenteeism (p = .008), and fewer uses of rescue medications (p = .049).

STUDY SUMMARIES		
Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
Szilagyi et al. (2002); Reducing geographic, racial, and ethnic disparities in childhood immunization rates by using reminder/recall interventions in urban primary care practices	African American, Caucasian/White, Hispanic/Latino; Male and Female; Individual Study; Non-RCT	This study found that, in this sample, immunization rates could be increased and between-group differences decreased by using community-based outreach workers (CBOW) and a reminder, recall, and outreach (RRO) system. The study began in 1995 and targeted primary care practices with large percentages of the area's childhood residents. Initially, 8 pediatricians' practices were included and that number expanded to 10 in 1999. Data indicated that in 1999 for 2-year-old children in the inner-city, 15% were non-Hispanic White and the other 85% were Black (58%), Hispanic (21%), or Asian or other than non-Hispanic White (6%). In the comparison geographic areas, non-Hispanic White children were the majority population of 2-year-olds. Specifically, they were 38% in the non-inner-city portions of the city, 84% in the suburbs, and 55% in the county. By mid-1999, the intervention targeted 0- to 2-year-olds at 10 practices and reached 74% of those in the inner city, 61% of the rest of city, 9% of those in the suburbs, and 32% of those in Monroe County. CBOWs tracked immunization rates, provided staged interventions with increasing intensity if/when children fell further behind in their immunizations, and assisted with barrier removal including transportation or home visits. Baseline data were collected in 1993 for immunization rates for 24-month-olds and were as follows: inner city (55%), rest of city (64%), and suburbs (73%). Between the inner city and suburbs, there was an 18% difference in rates. In 1999, rates were similar across geographic areas and races/ethnicities: inner city (84%), rest of city (81%), and suburbs (88%). Similarly, by race/ethnicity rates were White (88%), Black (81%), and Hispanic (87%). In 1999, there was a 4% difference in rates between the inner city and suburbs, a 7% difference between White and Black children, and a 1% difference between White and Hispanic children. It was not specified whether immunization rates of any racial or geographic group were compared with national guidelines for optimal immunization rates.

Appendix A: Table 1 — continued

STUDY SUMMARIES

Author (Year); Title	Race/Ethnicity; Gender; Study Type: Individual/Meta-Study	Summary
Teo et al. (2016); Brief gatekeeper training for suicide prevention in an ethnic minority population: A controlled intervention	Asian American/Pacific Islander, Caucasian/White, Not specified; Male and Female; Individual Study; Non-RCT	According to Teo (2016), gatekeeper training initiatives “have been developed to train frontline individuals, or gatekeepers, in assisting an at-risk person to identify supportive resources. The programs include Mental Health First Aid, Applied Suicide Intervention Skills Training (ASIST), Signs of Suicide (SOS), and Question, Persuade, and Refer (QPR)” (p. 2). In this study, participants who received the intervention training and completed the assessments (n = 67) showed significant increases in all three types of intended gatekeeper behavior compared to control-group participants (n = 39). The control group attended a lecture held in English and focused on the cultural context of suicide in Japan. For the intervention, two events were held, one in English (with about half Japanese and half non-Japanese attendees) and one in Japanese (with almost 100% Japanese attendees). The intervention consisted of a film screening of a 50-minute movie titled “Saving 10,000”, followed by a 15-minute lecture, 15-minute scripted role-play activity, and a 30-minute question-and-answer session in which audience members’ written questions were answered by a panel of four bicultural and bilingual experts. Data revealed statistically significant differences between control group and intervention participants. Specifically, intervention participants were more likely to: 1) directly ask about suicidal thoughts (Question) (p<.01); 2) encourage to seek mental health treatment (Persuade) (p<.01); and 3) provide a specific phone number to get help (Refer) (p<.001).
Walton et al. (2012); Reducing diabetes disparities through the implementation of a community health worker-led diabetes self-management education program	Hispanic/Latino; Male and Female; Individual Study; Non-RCT	Data from this study indicated that participants had a statistically significant decrease in their HbA1c at 18 months. Although there was no analysis by race, the program was targeted to Hispanic community members and this group comprised a majority (70%) of participants. The patient education curriculum was based on the evidence-based Community Diabetes Education (CoDETM) program. For this study, program components were responsive to patient-reported needs from previous interventions with CHWs. These needs included education, communication, respect, removal of financial constraints, and access to medication and transportation. To meet these needs, the program provided CHW recruitment and training, built upon existing community infrastructures, had partnerships with local clinics, integrated CHWs into the health care system’s care-coordination strategy, and developed an electronic diabetes registry to track patient metrics and facilitate communication between CHWs and primary care clinicians.

Appendix A: Table 1 — continued

STUDY SUMMARIES

Author (Year); Title	**Race/Ethnicity; Gender; Study Type: Individual/Meta-Study**	**Summary**
West et al. (2008); Weight loss of black, White, and Hispanic men and women in the diabetes prevention program	African American, Caucasian/White, Hispanic/Latino; Male and Female; Individual Study; RCT	Findings from this study indicated positive weight loss results for individuals in both the intensive lifestyle modification (16-session curriculum to promote healthy dietary and physical activity changes) and metformin (standard lifestyle recommendations and the drug metformin) intervention groups compared with those in the placebo group (standard lifestyle recommendations and a placebo pill). When compared by race and/or gender, all metformin groups had similar weight loss. For the group receiving intensive lifestyle change, weight loss was similar for all groups of men (Hispanics, African Americans, and Whites) and for White and Hispanic women. Conversely, under the intensive lifestyle change intervention, African American women had significantly more weight loss compared with African American women in the placebo group. However, the African American women had significantly lower weight loss compared with the other groups. Authors suggested that this finding warrants further investigation. Although between-group comparisons were made, it was not specified whether results of any group (by race, gender, etc.) were compared to national guidelines for optimal weight management.

Appendix B: Table 2*

*Please note that this table is not screen reader accessible. For assistance reading this table, please contact us at jegedeb@michigan.gov.

Strategies that have been implemented to address health disparities in diverse communities

Author (Year)	Cancer	Diabetes	Mental health	Obesity/physical activity	Health of children and youth	Hypertension	HIV/STDs	Heart disease	Opioid/substance misuse	Language/literacy: health literacy	Language/literacy: translation services	AHCS: provider availability	AHCS: health organization/physician impact	AHCS: access to healthcare	Socioeconomic conditions	ARDN: environmental factors	Transportation options	Access to mass media and emerging technologies	ARDN: housing
Alegria et al. (2011)			x						x	x	x		x	x		x			
Anderson et al. (2015)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Aqtash & Van Servellen											x			x					
Ayash et al. (2011)	x									x	x	x	x	x					
Basu & Clancy (2001)												x							
Beaudoin et al. (2007)				x						x								x	
Becker et al. (2011)									x				x						
Beckham et al. (2008)		x								x	x	x	x				x		
Bleich et al. (2012)				x						x									
Bogart et al. (2017)							x			x		x		x			x	x	x
Bradley et al. (2002)	x													x	x				x

Appendix B: Table 2 — continued

Author (Year)	Cancer	Diabetes	Mental health	Obesity/physical activity	Health of children and youth	Hypertension	HIV/STDs	Heart disease	Opioid/substance misuse	Language/literacy: health literacy	Language/literacy: translation services	AHCS: provider availability	AHCS: health organization/physician impact	AHCS: access to healthcare	Socioeconomic conditions	ARDN: environmental factors	Transportation options	Access to mass media and emerging technologies	ARDN: housing
Bull et al. (2014)				x					x	x									
Carballo-Diéguez et al. (2012)							x			x									
Cason-Wilkerson et al. (2015)				x						x	x								
Chapman & Pérez-Escamilla (2012)					x					x	x	x	x						
Cheng et al. (2013)		x	x		x	x	x	x		x	x		x						
Chin et al. (2007)	x	x	x			x		x	x	x	x	x	x	x	x	x	x		
Chin et al. (2009)					x					x	x	x	x	x	x	x	x		x
Chin et al. (2012)	x		x				x			x	x	x	x						
Crawford et al. (2016)							x							x					
Davis et al. (2007)				x		x		x	x	x			x						
Enard et al. (2015)	x									x	x	x							
Farr et al. (2019)					x					x								x	

Appendix B: Table 2 — continued

Author (Year)	Cancer	Diabetes	Mental health	Obesity/physical activity	Health of children and youth	Hypertension	HIV/STDs	Heart disease	Opioid/substance misuse	Language/literacy: health literacy	Language/literacy: translation services	AHCS: provider availability	AHCS: health organization/physician impact	AHCS: access to healthcare	Socioeconomic conditions	ARDN: environmental factors	Transportation options	Access to mass media and emerging technologies	ARDN: housing
Flores (2009)					x		x			x	x	x		x				x	
Glick et al. (2012)	x									x	x	x		x			x		
Gorin et al. (2012)	x	x	x	x	x			x	x	x		x	x						
Griner & Smith (2006)			x								x		x						
Grubbs et al. (2013)	x											x		x					
Haas et al. (2015)									x	x	x	x			x	x			
Hijazi, et al. (2014)			x								x								
Jaber et al. (2011)		x		x						x	x	x							
Jones et al. (2015)					x					x			x	x					
Kalauokalani et al. (2007)	x		x							x									
Leonard et al. (2013)							x			x		x		x			x		
Lyles et al. (2007)							x			x									

Appendix B: Table 2 — continued

Author (Year)	Cancer	Diabetes	Mental health	Obesity/physical activity	Health of children and youth	Hypertension	HIV/STDs	Heart disease	Opioid/substance misuse	Language/literacy: health literacy	Language/literacy: translation services	AHCS: provider availability	AHCS: health organization/physician impact	AHCS: access to healthcare	Socioeconomic conditions	ARDN: environmental factors	Transportation options	Access to mass media and emerging technologies	ARDN: housing
Marshall et al. (2013)		x				x				x	x	x	x	x	x		x		
Masi et al. (2007)	x		x							x	x	x	x	x	x	x	x		x
Messiah et al. (2015)				x	x					x					x	x	x		
Mojica et al. (2016)	x									x	x	x		x	x				
Monsen et al. (2017)			x		x					x		x			x	x			
Mueller et al. (2015)						x				x	x	x	x		x	x			
Naylor et al. (2012)	x									x	x	x	x		x		x		
Nguyen et al. (2019)					x					x					x				
Nicholson et al. (2008)	x															x			
Norris et al. (2006)		x		x		x		x		x	x	x							
Novotny et al. (2012)				x						x	x								
O’Brien et al. (2010)	x									x	x	x			x				

Appendix B: Table 2 — continued

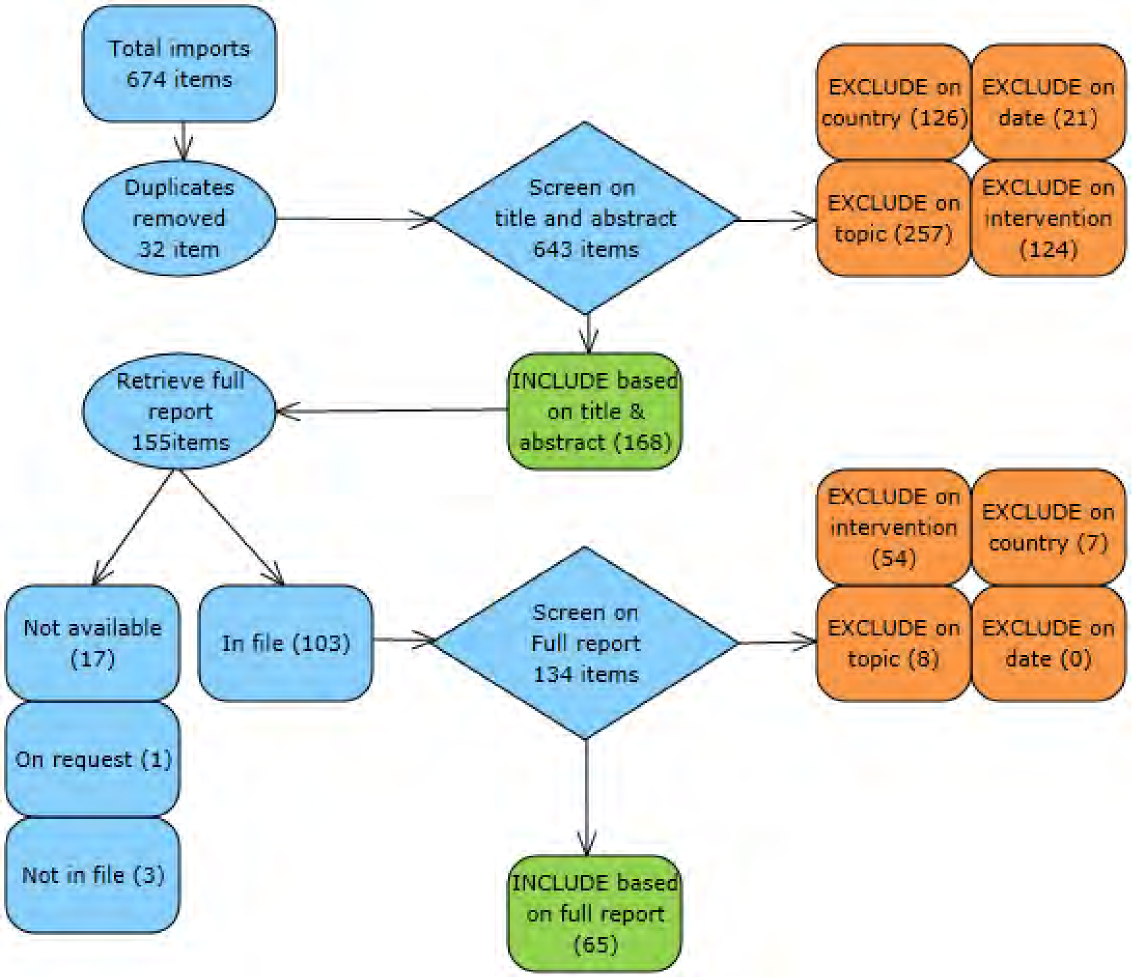
Author (Year)	Cancer	Diabetes	Mental health	Obesity/physical activity	Health of children and youth	Hypertension	HIV/STDs	Heart disease	Opioid/substance misuse	Language/literacy: health literacy	Language/literacy: translation services	AHCS: provider availability	AHCS: health organization/physician impact	AHCS: access to healthcare	Socioeconomic conditions	ARDN: environmental factors	Transportation options	Access to mass media and emerging technologies	ARDN: housing
Oat-Judge et al. (2015)					x									x					
Parker et al. (2011)			x							x	x								
Peek et al. (2007)		x		x		x		x		x	x	x	x	x	x	x	x		
Pesantes et al. (2015)		x	x			x				x	x				x	x			
Plescia et al. (2008)		x						x		x		x			x	x			
Purnell et al. (2016)	x					x		x		x		x	x	x	x	x		x	
Quiñones et al. (2011)	x	x	x	x		x	x	x	x	x		x	x	x	x				
Ricci-Cabello et al. (2014)		x		x		x				x	x	x	x	x	x				
Ruggiero et al. (2014)		x								x						x		x	
Sajid et al. (2012)	x									x									
Santa Maria et al. (2015)							x			x									
Sequist et al. (2006)		x										x							

Appendix B: Table 2 — continued

Author (Year)	Cancer	Diabetes	Mental health	Obesity/physical activity	Health of children and youth	Hypertension	HIV/STDs	Heart disease	Opioid/substance misuse	Language/literacy: health literacy	Language/literacy: translation services	AHCS: provider availability	AHCS: health organization/physician impact	AHCS: access to healthcare	Socioeconomic conditions	ARDN: environmental factors	Transportation options	Access to mass media and emerging technologies	ARDN: housing
Sewali et al. (2015)	x									x	x	x		x					
Shani et al. (2015)					x					x						x			
Szilagyi et al. (2002)					x							x	x	x			x		
Teo et al. (2016)			x							x	x								
Walton et al. (2012)		x								x	x	x	x	x	x		x		
West et al. (2008)		x		x						x									
Total Studies	**19**	**17**	**15**	**15**	**14**	**12**	**11**	**10**	**9**	**53**	**33**	**32**	**26**	**25**	**21**	**16**	**14**	**6**	**4**

Appendix C:

Figure 2 — Flow Chart for Review Selection, Screening, and Inclusion[2]



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[2] Figure reflects software/researchers' calculations for each category.
Due to the dynamic nature of the screening process, totals in each category may be more/less than expected.

Appendix D: Code Set

1. Description of the publication

- a. What is the year of publication?
- b. What is the journal/source?
- c. What is the APA Citation?
- d. Who are the authors?

2. Health Disparities Codes

- a. Health Related
  - i. *Cancer*
  - ii. *Diabetes*
  - iii. *Heart disease*
  - iv. *HIV/STDS*
  - v. *Hypertension*
  - vi. *Health of children and youth*
  - vii. *Mental health*
  - viii. *Obesity/physical activity*
  - ix. *Opioid/Substance use*

- b. Social Determinant Related
  - i. *AHCS: access to healthcare*
  - ii. *AHCS: health organization/physician impact*
  - iii. *AHCS: provider availability*
  - iv. *ARDN: environmental factors*
  - v. *ARDN: housing*
  - vi. *Language/literacy: health literacy*
  - vii. *Language/literacy: translation services*
  - viii. *Socioeconomic conditions*
  - ix. *Transportation options*

3. Description of this article

- a. Separated from meta-analysis/systematic review
- b. Identified by keyword search
- c. Meta-analysis or systematic review

4. RCT or non-RCT

- a. Yes
- b. No

5. Gender of the participants

- a. Male
- b. Female
- c. Both
- d. Not specified
- e. Not applicable

6. Race/ethnicity of participants

- a. African American
- b. Arab American/Chaldean American
- c. Asian American/Pacific Islander
- d. Caucasian/White
- e. Hispanic/Latino
- f. Native American/Alaska Native
- g. Not specified
- h. Not applicable

7. What is the summary of findings/outcomes/results?

MDHHS
Michigan Department of Health & Human Services
Office of Equity and Minority Health

Michigan Department of Health and Human Services Office of Equity and Minority Health