



Prevalence of and Interventions to Reduce Health Disparities in Vulnerable Veteran Populations: A Map of the Evidence

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PREFACE

The VA Evidence-based Synthesis Program (ESP) was established in 2007 to provide timely and accurate syntheses of targeted healthcare topics of particular importance to clinicians, managers, and policymakers as they work to improve the health and healthcare of Veterans. QUERI provides funding for 4 ESP Centers, and each Center has an active University affiliation. Center Directors are recognized leaders in the field of evidence synthesis with close ties to the AHRQ Evidence-based Practice Centers. The ESP is governed by a Steering Committee comprised of participants from VHA Policy, Program, and Operations Offices, VISN leadership, field-based investigators, and others as designated appropriate by QUERI/HSR&D.

The ESP Centers generate evidence syntheses on important clinical practice topics. These reports help:

- Develop clinical policies informed by evidence;
- Implement effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures; and
- Set the direction for future research to address gaps in clinical knowledge.

The ESP disseminates these reports throughout VA and in the published literature; some evidence syntheses have informed the clinical guidelines of large professional organizations.

The ESP Coordinating Center (ESP CC), located in Portland, Oregon, was created in 2009 to expand the capacity of QUERI/HSR&D and is charged with oversight of national ESP program operations, program development and evaluation, and dissemination efforts. The ESP CC establishes standard operating procedures for the production of evidence synthesis reports; facilitates a national topic nomination, prioritization, and selection process; manages the research portfolio of each Center; facilitates editorial review processes; ensures methodological consistency and quality of products; produces “rapid response evidence briefs” at the request of VHA senior leadership; collaborates with HSR&D Center for Information Dissemination and Education Resources (CIDER) to develop a national dissemination strategy for all ESP products; and interfaces with stakeholders to effectively engage the program.

Comments on this evidence report are welcome and can be sent to Nicole Floyd, ESP CC Program Manager, at Nicole.Floyd@va.gov.

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EXECUTIVE SUMMARY

INTRODUCTION

Today's Veteran population is racially and ethnically diverse, and includes more women and individuals from vulnerable populations, such as those identifying as lesbian, gay, bisexual, and transgender (LGBT), than at any other time in history. While the equal access nature of the Veterans Health Administration (VHA) may succeed in mitigating some of the disparities related to socioeconomic status (SES), it does not directly address the potential for disparities related to sociodemographic factors (*eg*, race/ethnicity, gender, LGBT identity, age), geographic location, and mental health status. An understanding of whether disparities in utilization, health, or healthcare exists for Veterans belonging to vulnerable populations is vital. Both the Veterans Administration (VA) and the VHA have emphasized the mitigation and elimination of health disparities in their strategic plans, and have outlined specific goals in the VHA Health Equity Plan and the Blueprint for Excellence.¹ Over the last decade, the VA Evidence-based Synthesis Program (ESP) and other organizations have published systematic reviews examining the quality of the health and healthcare experienced by a variety of vulnerable Veteran populations.

Despite the VHA's commitment to reducing disparities, the rate at which health and healthcare disparities affect Veterans remains unclear. In order to guide future research and policy decisions for the VA, the VA Office of Health Equity (OHE) partnered with the VA ESP to examine the state of research on health disparities affecting vulnerable Veterans. Previous VA ESP and other VA-funded programs have examined disparities related to race/ethnicity, rural residence, distance, mental health, and women. However, disparities, or the potential for disparities in utilization, health, or healthcare may also affect other Veteran populations, such as older or younger Veterans, lesbian, gay, bisexual, and transgender (LGBT) Veterans, and Veterans of low SES, as well as those with a physical or cognitive disability, or other characteristics. The purpose of this report was to identify studies, 1) examining the prevalence of disparities in the utilization, the quality of healthcare, or the health of Veterans, 2) evaluating the interventions designed to mitigate disparities within the VHA, and 3) examining health disparities and funded through the VA Office of Research and Development that are currently ongoing or were recently closed.

METHODS

Data Sources and Searches

In order to capture the breadth of disparities related to the utilization or quality of Veteran health or healthcare, we expanded the search strategy developed for a 2007 systematic review on racial and ethnic disparities to include additional vulnerable Veteran populations. The search strategy was peer reviewed by a second research librarian using the instrument for Peer Review of Search Strategies (PRESS). To identify relevant articles, we searched MEDLINE, PubMed, PsycINFO, CINAHL, the Cochrane Library, Social Services Abstracts, Sociological Abstracts, and the VA's Health Services Research and Development (HSR&D) website from 2006 to February 2016. To identify additional studies, we contacted the directors of the several VA research offices and evaluated the bibliographies and supplementary materials of relevant VA reviews.

Study Selection

Using pre-specified inclusion criteria, 2 independent reviewers evaluated titles and abstracts for a random 10% of the search yield in order to ensure reliability between reviewers. The remaining 90% was decided by a single reviewer. At the full-text screening stage, 2 independent reviewers assessed all articles for inclusion, and discordant results were resolved through consensus. We included studies of Veteran populations that had a comparison group and examined disparities in outcomes related to utilization, the quality of healthcare, or patient health. We included all study designs except for systematic or nonsystematic reviews, which were manually searched for eligible studies.

Data Abstraction and Quality Assessment

Data from included studies were abstracted by one investigator and confirmed by a second. From each study, we abstracted data related to study design, setting, population, clinical area, number of participants, groups compared, outcomes, mediators, and whether a disparity was present for each outcome type. For intervention studies, we also abstracted a description of the intervention and whether the study reported positive or equivalent findings.

Given that the purpose of our review was to identify and classify the broad body of research related to health disparities affecting Veterans, we did not formally assess the quality of individual studies. Instead, we calculated a rough estimate of confidence for each study based on the study design, whether the study controlled or adjusted for confounding variables, number of sites, and sample size.

Data Synthesis and Analysis

We mapped original research by each of our target populations: race or ethnicity; women; mental health; age; rural residence; distance from a Veterans Affairs Medical Center (VAMC) or treatment facility (including studies examining Community Based Outpatient Clinics [CBOCs]); SES; homelessness; era of military service; LGBT identity; and disability.

We categorized prevalence studies for each population into those examining the following outcome categories: 1) utilization, 2) the quality of care (*ie*, processes of care, patient evaluations of care, intermediate outcomes), or 3) patient health outcomes. For each category, we recorded whether a study found a disparity, no disparity, or whether the findings within an outcome category were mixed or unclear. For intervention studies, we classified interventions as: 1) system-level, 2) technology, 3) provider-focused, 4) patient-focused, or 5) multi-component. We also categorized studies for each population as examining: 1) utilization, 2) the quality of care, 3) intermediate or patient health outcomes, 4) patient evaluation of care, or 5) patient factors. If a study reported multiple outcomes within the same category (*eg*, blood pressure screening and control), we classified a study as mixed/unclear if the findings were not in agreement.

RESULTS

Results of Literature Search

Our search of electronic databases, bibliographies, and other sources resulted in a total of 4,364 studies. After title and abstract review, 913 met inclusion criteria. Upon full-text review, we included a total of 464 studies, with 362 studies for Key Question 1 (of which 135 reported

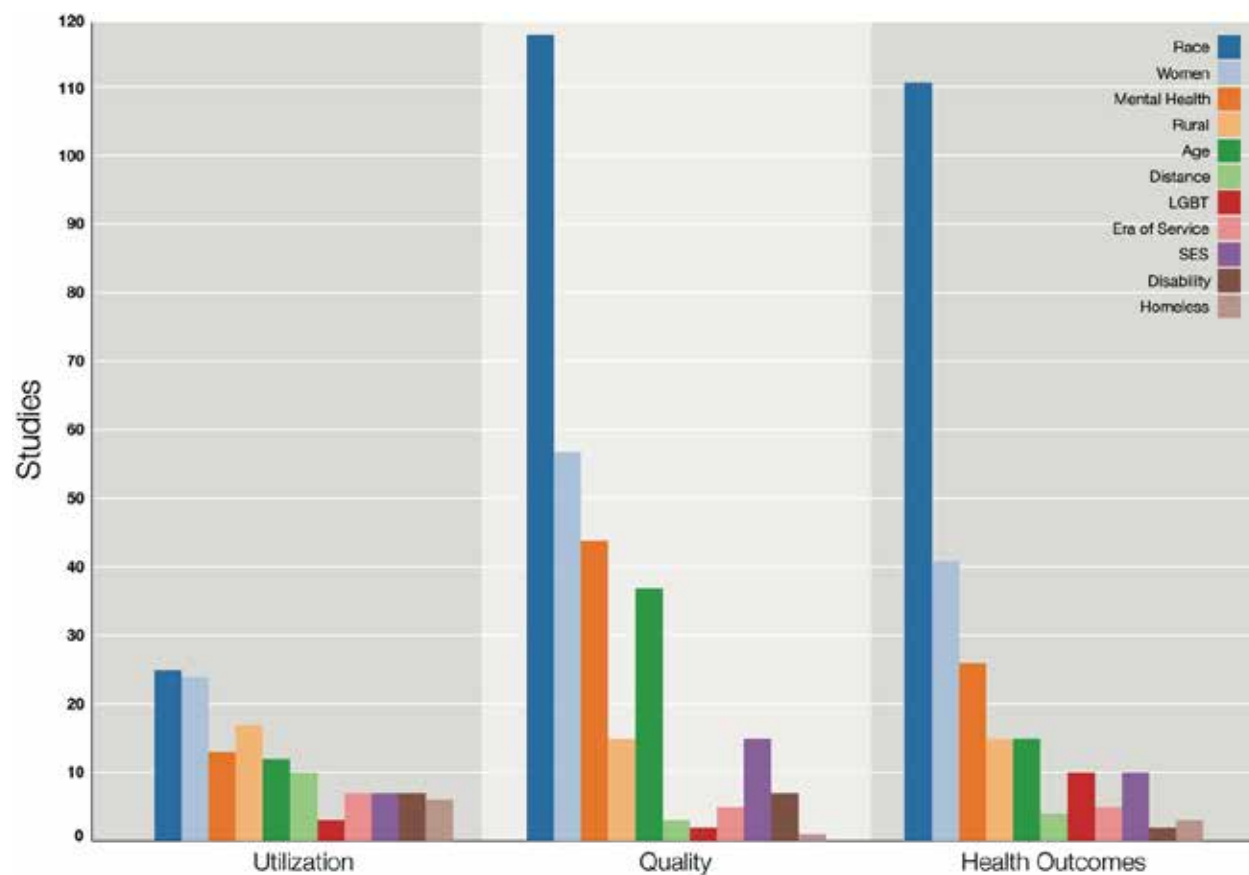
outcomes for more than one disparity population), 64 studies for Key Question 2, and 40 for Key Question 3.

Summary of Results for Key Questions

Key Question 1. For what Veteran groups/populations are health and healthcare disparities prevalent?

Studies examining the prevalence of disparities in Veterans of color were the most highly represented, followed by studies examining disparities in women, and in Veterans with a mental health condition. Very few studies examined disparities related to LGBT identity or homelessness, and only a limited number of studies examined the impact of socioeconomic status (SES) on utilization, health, or quality of care. Disparities findings varied widely by population and outcome.

Figure. Evidence Map: All Studies by Outcome



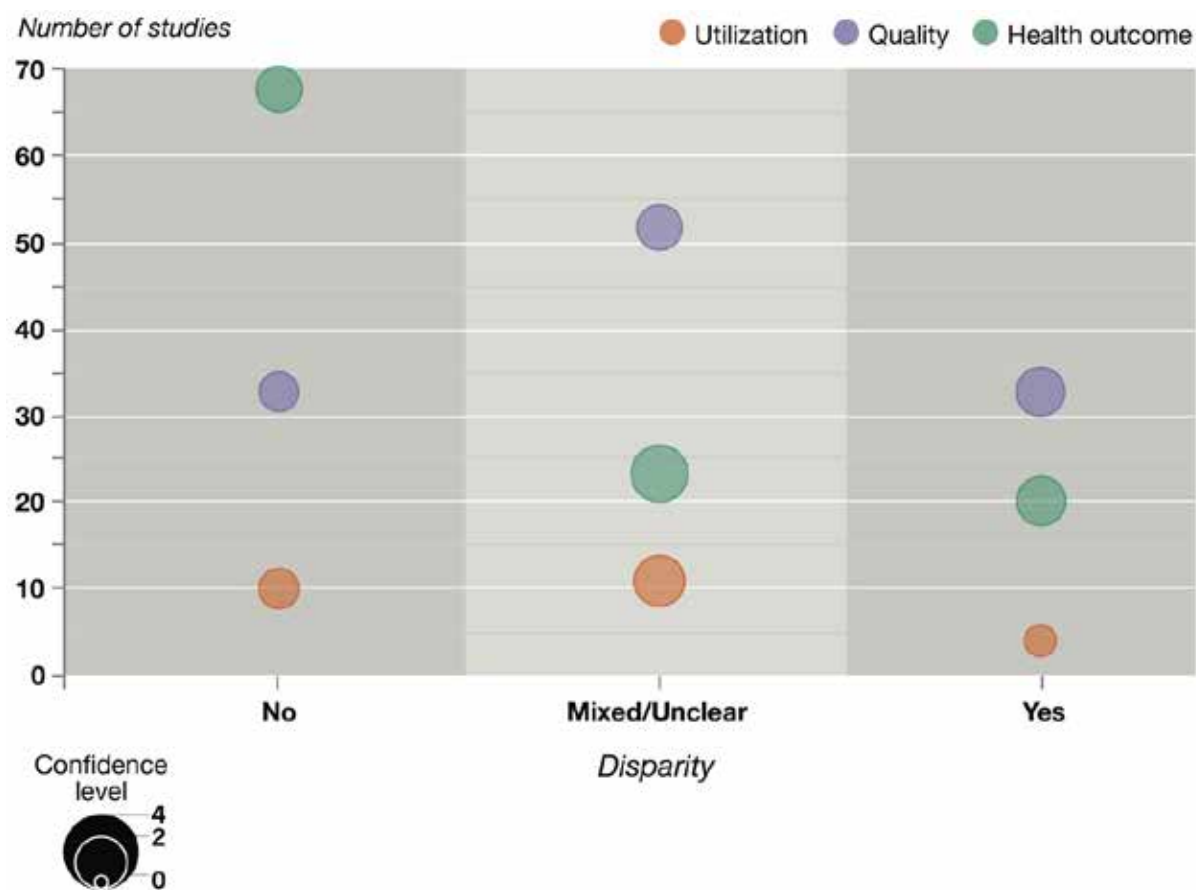
Note: Studies may be represented more than once. 135 studies examined more than one population, and studies often reported multiple outcomes that were included in more than one category; thus, the combined sum of studies across columns may exceed the total number of unique studies for a population. Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care.

Findings by Population

Race and Ethnicity

The 193 studies reporting data on the prevalence of healthcare or health disparities in Veterans by race or ethnicity largely compared the experiences of African American/Blacks to Whites (188 studies). Studies examining the prevalence of disparities affecting Hispanic/Latino Veterans (70 studies) were limited in comparison, and very few studies focused on American Indian/Alaska Natives, Asians, or Pacific Islanders. Across all racial and ethnic groups, patient health and quality of care-related outcomes were more frequently reported, while utilization was the focus of relatively few studies. The majority of studies found no or mixed/unclear evidence of racial or ethnic disparities, although this varied some with the outcome evaluated. The preponderance of studies examining health outcomes found no evidence of disparities. Findings amongst studies examining quality of care outcomes varied substantially with roughly equal proportions finding evidence for and against disparities. Contributing to the overall mean confidence estimates were very few prospective studies, and nearly half of the studies reported less than 10,000 participants. All but a very few studies controlled for confounders, and most were multi-site studies or used national administrative data. The figure below provides a bubble plot illustrating the number of studies providing evidence of no racial and ethnic disparities, mixed or unclear findings, or the presence of racial and ethnic disparities in Veterans for each outcome category.

Maps of the evidence examining the presence of absence of health disparities for other racial and ethnic groups (*ie*, Hispanic/Latino, Asian/Pacific Islander, American Indian/Alaska Native, Native Hawaiian/Pacific Islander) are included in the full report and associated appendices.

Figure. Evidence Map: Health Disparities by Race and Ethnicity

Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Other Vulnerable Populations

Maps of the evidence examining the presence or absence of health disparities by sex, mental health status, age, rurality, distance from a VA medical center, socioeconomic status, disability, era of military service, LGBT identity, and homelessness are provided in main report and associated appendices.

Key Question 2. What are the effects of interventions implemented within the VHA to reduce health disparities?

The largest number of intervention studies performed in the VHA were designed to mitigate disparities experienced by Veterans living in rural areas (13 studies) and those experienced by homeless or low-income Veterans (12 studies). No studies examined interventions designed to address disparities related to LGBT identity.

Figure. Evidence Map: Studies Examining Interventions Designed to Reduce Health Disparities in the VHA by Population and Intervention Type



Legend: The bubble plot shows each study by population (x-axis) by intervention category (y-axis). Bubble size represents sample size, shading or no shading represents study design, and color represents intervention effectiveness.

Key Question 3. What are the research projects designed to identify or mitigate health disparities currently being funded by the VA Office of Research and Development (ORD)?

Studies examining racial and ethnic disparities were the most common, followed by studies targeting Veterans living in rural areas, and studies examining women. We identified no open or recently closed studies funded by the VA Office of Research and Development examining the prevalence of, or interventions designed to mitigate, disparities related to era of military service, LGBT identity, or disability.

DISCUSSION

Our review of the evidence examining health disparities experienced by Veterans yielded 464 studies, with 135 studies examining multiple populations, and many reporting multiple outcomes. For Key Question 1, of the 362 identified, studies examining the prevalence of

disparities related to race and ethnicity were the most common, with the vast majority examining African American/Blacks, and Hispanic/Latinos a very distant second.

Many of the studies examining racial and ethnic minorities found no clear evidence of disparities. However, there were stark differences by racial/ethnic group and type of outcome. The bulk of studies examining racial/ethnic groups that comprise smaller percentages of the overall Veteran population (*eg*, Native Hawaiian, Pacific Islander, Asian) reported no disparities. It is important to note that the lack of significant findings in these smaller racial and ethnic groups may stem from a lack of statistical power due to their relatively small numbers, rather than an absence of disparities. Given that such a large proportion of the evidence base examining racial/ethnic disparities focus on African American/Black Veterans, future research is needed to better understand the rapidly growing Hispanic/Latino and Asian populations, and targeted research is needed to capture the unique characteristics of American Indians/Alaska Natives, Native Hawaiians, and Pacific Islanders.

Also highly represented in the body of research were studies examining the prevalence of disparities by gender, mental health status, and age. Our evidence maps very clearly illustrate the difference in emphasis placed on certain Veteran populations, and highlight the gaps in research – in particular the limited number of studies examining disparities by socioeconomic status, and the lack of studies examining LGBT Veterans. The lack of published research examining the prevalence of disparities in LGBT Veterans was not surprising, given that compared to other vulnerable groups, the LGBT Veteran population is relatively small. In addition, our search spanned 2006 to 2016, and the Don't Ask Don't Tell Repeal Act did not take effect until late 2011.

Maps examining utilization clearly illustrate that for some populations (*ie*, race/ethnicity, mental health, women) utilization of care may not be an area of concern; however, it is extremely salient for other Veteran groups – in particular those living farther from VA medical centers, those living in rural areas, and homeless Veterans. In addition, studies provide some evidence that disparities in the quality of care may exist, particularly related to age, but also in women, Veterans of color, and Veterans with mental health conditions. Finally, maps of studies examining disparities in patient health highlight a distribution of findings that lean towards no disparity or mixed/unclear findings, with the exception of those examining Veterans with mental health conditions or low SES, for whom poorer health outcomes were more commonly found.

For Key Question 2, interventions most often addressed disparities related to rural residence or distance from a VA medical center, homelessness/SES, and mental health. System-level and technology interventions were the most common, and there were just a handful of interventions aimed at providers. Missing completely were studies designed to address disparities related to LGBT identity, and studies were sparse in other areas, such as interventions to address racial and ethnic, sex, and disability-associated disparities. Our intervention map clearly illustrates that studies have reported findings that were either positive or equivalent, or mixed or unclear. However, the many blank or near-empty cells illustrate that the opportunities to further work in this area are many. When examined alongside the 40 identified current or recent VA Office of Research and Development-funded health disparity studies (Key Question 3), we see clear gaps in research related to not only to LGBT identity, but also cognitive and physical disabilities, era of military service, and age.

The task of finding and classifying the body of research related to health disparities affecting Veterans was a challenge, due not only to the breadth of the body of literature, but also the complexity of the topic. Despite casting a wide net for published studies and searching multiple sources for unpublished studies, we are certain that our maps do not contain every published and unpublished study examining disparities in Veterans conducted in the last 10 years. Furthermore, it is important to note that the reported findings our maps illustrate may be skewed as a result of publication bias.

To enable the capture of the presence or absence of disparities experienced by Veterans receiving care outside of the VHA (*eg*, Patient Centered Community Care, Veterans Choice Program, Medicare or Medicaid eligibility), we included all studies examining health disparities affecting Veterans and meeting other inclusion criteria, regardless of site of care. We did not stratify or analyze studies by site of care; thus, our report does not address the question of whether disparities in health and healthcare differ in vulnerable populations of Veterans receiving care within the VHA, in the private sector, or a combination. Given that large numbers of Veterans receive care in the community, instead of, or in addition to VHA care, research is needed to better understand the role of site of care in the prevalence of health disparities experienced by vulnerable Veteran populations.

While a handful of studies reported outcome data related to intersecting identities (*ie*, belonging to multiple vulnerable populations, for example LGBT Veterans of color) the vast majority of studies did not. Although relevant data were mapped for each of the vulnerable populations of interest reported in included studies, our maps do not fully capture those Veterans who may be at increased risk as a result of belonging to multiple vulnerable populations. Future systematic reviews targeting specific populations should include a thorough subgroup examination.

We classified studies broadly by clinical area to provide an overview of the distribution by outcomes examined (*ie*, utilization, quality, health outcomes) in Veteran disparity research. Due to time limitations, we were not able to examine the distribution of clinical areas by population, nor did we conduct any analysis further parsing these categories by specific condition (*eg*, specific types of cancer). In addition to examining vulnerable subgroups, future population specific systematic reviews should also include an analysis of the prevalence of disparities by clinical area or condition.

The vast number of studies and comparisons we examined precluded a formal evaluation of study quality and depth of knowledge. The rough confidence estimates were not intended to replace evaluations of study quality, nor was the intent to provide a standard metric with which to compare study quality between populations. Instead, the purpose of these scores were to allow us to visually represent the relative differences for each population. Furthermore, given that we did not evaluate many important study-level factors that may influence conclusions related to the presence or absence of a disparity across studies (*eg*, appropriateness of confounders, adjustments, and outcomes, sampling bias), the maps presented in this report should not serve as evidence upon which policy decisions affecting the health or healthcare of Veterans are formed, but instead, they should serve as a starting point – and provide the “lay of the land.” The maps in this report inform areas in which more primary research is needed – for example, the limited number of prevalence studies examining disparities by SES highlight a need for additional research to determine whether the health disparities associated with low SES in the general US population are also experienced by Veterans receiving care in VHA settings. In addition,

prevalence studies are needed to better understand our American Indian/Alaska Native, Asian, Pacific Islander, Native Hawaiian, and LGBT Veterans, followed by intervention studies to address the findings. The maps also serve to inform us of the areas and populations for which the research is rich, and for which a traditional systematic review would enable a deeper understanding not only what disparities exist, but also the context and mechanisms through which they occur. Finally, they allow us to see the VHA's strengths and achievements, which in turn may serve to provide motivation to continue to work towards the goal of health equity for all Veterans.

ABBREVIATIONS

ACSC	Ambulatory care-sensitive condition
ADL	Activities of daily living
AIDS	Acquired immune deficiency syndrome
APM	Antipsychotic medication
ARNP	Advanced Registered Nurse Practitioner
BASIS-24®	Behavior and Symptom Identification Scale
BMI	Body mass index
CABG	Coronary artery bypass graft
CBOC	Community Based Outpatient Clinics
CINAHL	Current Index to Nursing and Allied Health Literature (nursing information database; Cinahl Information Systems, Inc.)
CKD	Chronic kidney disease
CV	Cardiovascular
DM	Diabetes mellitus
EBM	Ovid Evidence-based Medicine Reviews
ECG	Electrocardiogram
ED	Emergency department
EEG	Electroencephalogram
ESP	Evidence-based Synthesis Program
GAF	Global Assessment of Functioning
HCV	Hepatitis C virus
HEDIS	Healthcare Effectiveness Data and Information Set
HF	Heart failure
HIV	Human immunodeficiency virus
HRME	High risk medications for the elderly
HSR&D	Health Services Research and Development
HUD-VASH	U.S. Department of Housing and Urban Development–Veterans Affairs Supported Housing
ICM	Intensive case management
KQ	Key question
LDL	Low-density lipoprotein
LGB	Lesbian, gay, or bisexual
LGBT	Lesbian, gay, bisexual, or transgender
LOS	Length of stay
MDD	Major depressive disorder
MPR	Medication possession ratio
MRI	Magnetic resonance imaging
N	Number
NR	Not reported
OEF	Operation Enduring Freedom
OHE	Office of Health Equity
OIF	Operation Iraqi Freedom
OND	Operation New Dawn
ORD	VA Office of Research and Development
PCP	Primary care provider

PCS	Office of Patient Care Services
PICOTS	Population, interventions, comparators, outcomes, timing, and setting
PRESS	Peer Review of Search Strategies
PTSD	Posttraumatic stress disorder
QOL	Quality of life
RCT	Randomized controlled trials
SES	Socioeconomic status
TB	Tuberculosis
T-CBT	Telephone-administered cognitive behavioral therapy
TEP	Technical Expert Panel
VA	Veterans Affairs
VAMC	Veterans Affairs Medical Center
VHA	Veterans Health Administration
WWII	World War II

EVIDENCE REPORT

INTRODUCTION

Today's Veteran population is racially and ethnically diverse, and includes more women and individuals from vulnerable populations, such as those identifying as lesbian, gay, bisexual, and transgender (LGBT), than at any other time in history. While the equal access nature of the Veterans Health Administration (VHA) may succeed in mitigating some of the disparities related to socioeconomic status (SES), it does not directly address the potential for disparities related to sociodemographic factors (*eg*, race/ethnicity, gender, LGBT identity, age), geographic location, and mental health status. An understanding of whether disparities in utilization, health, or healthcare exists for Veterans belonging to vulnerable populations is vital. Both the Veterans Administration (VA) and the VHA have emphasized the mitigation and elimination of health disparities in their strategic plans, and have outlined specific goals in the VHA Health Equity Plan and the Blueprint for Excellence.^{1,2} Over the last decade, the VA Evidence-based Synthesis Program (ESP) and other organizations have published systematic reviews examining the quality of the health and healthcare experienced by a variety of vulnerable Veteran populations.

RACE AND ETHNICITY

Three VA ESP reviews have examined the topic of racial and ethnic disparities. A comprehensive review by Saha et al (2007) examined racial and ethnic disparities within the VHA, factors contributing to disparities, interventions designed to mitigate disparities, and ongoing research funded by the VA Health Services Research and Development (HSR&D).³ Findings included no clear pattern of disparities by clinical area; however, disparities were more prevalent for processes requiring a higher degree of decision making, communication, or effort; process of care outcomes such as blood pressure, glucose, and cholesterol favored White Veterans; and disparities affected African American/Black and Hispanic/Latino Veterans most significantly.³ In 2011, Quinones and others focused on interventions to reduce racial and ethnic disparities both inside and out of the VHA, and identified 5 studies examining Veterans of color (African American/Black, Hispanic/Latino, American Indian/Alaska Native).⁴ Most recently, Peterson et al (2015) published a limited evidence brief updating Saha et al's review. The evidence brief included only a synthesis of morbidity and mortality outcomes, and was accompanied by supplementary data tables describing additional outcomes such as access to care, screening, and other process of care and patient outcomes.⁵ Findings included higher morbidity/mortality rates for African American/Black Veterans (as compared to Whites) associated with a wide range of conditions (*eg*, colon cancer, chronic kidney disease [CKD], Human Immunodeficiency Virus [HIV], diabetes, posttraumatic stress disorder [PTSD], venous thromboembolism), and for Hispanic/Latino Veterans with hepatitis C.⁵

WOMEN'S HEALTH

Women are currently the fastest-growing cohort within the Veteran community, and by 2040 will make up 16% of the Veteran population.⁶ A recent study of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) Veterans receiving care through the VHA found that women were more likely than men to have back, musculoskeletal, and joint problems in the year after returning from deployment, with the odds increasing up to 7 years post-deployment.⁷ A 2014

study examining trends in gender disparities associated with gender-neutral VHA clinical measures from 2008-2014 found that gender differences in screening for depression and PTSD were eliminated over the study period, and there were significant reductions in disparities related to hypertension and diabetes control, although disparities remained in other areas. For example, in 2012, female Veterans with a history of diabetes or ischemic heart disease had higher average low-density lipoprotein (LDL) levels and lower rates of appropriate statin prescriptions than their male counterparts (79.5% of female Veterans versus 88.9% of males), increasing their risk for future cardiovascular events.⁸

In 2006, an ESP review by Goldzweig et al assessed the body of VA research related to women's health. The review identified 182 studies published from 1978 to 2004, which were largely observational and descriptive in nature, with only 2 randomized controlled trials (RCTs).⁹ An update examining research published between 2004 and 2008 was published in 2010. Findings were consistent with increasing attention to issues related to disparities in care for women Veterans, with 195 articles identified, of which 5 were RCTs.¹⁰ Since 2008, the VA and VHA have made a significant effort to increase awareness of women's health and reduce disparities. In 2008, the VA launched a Women's Health improvement initiative, including a 5-year plan to reduce disparities, and in 2011 Women's Health became part of the Office of Patient Care Services (PCS), allowing for better integration of services and coordination of care.^{11,12} In addition, women Veteran's health has increasingly become a research priority in the VA. An update to the 2010 ESP review on women's health was recently published.^{13,14}

MENTAL HEALTH

Veterans experience a high burden of mental health conditions. According to a recent analysis of VHA utilization by OEF, OIF, and Operation New Dawn (OND) Veterans, 57.6% of Veterans receiving care through the VHA were diagnosed with a mental health condition, with more than half diagnosed with PTSD.¹⁵ In addition, individuals with mental health conditions experience a disproportionately high rate of co-occurring medical conditions, such as diabetes and pulmonary and cardiovascular disease.¹⁶ A 2014 ESP review examined disparities in the receipt of preventive care, or the management of chronic conditions among Veterans and non-Veteran adults with mental health disorders.¹⁷ Findings related to mammography, pap smears, and colorectal cancer screening within the VHA were inconsistent, with Veterans with a mental health condition less likely to receive a pneumococcal vaccine, and those with diabetes less likely to receive eye and foot exams. However, Veterans with a mental health condition and comorbid diabetes were more likely to receive HbA1c monitoring, and Veterans with PTSD and depressive disorders were more likely to be both screened for tobacco use and referred to smoking cessation counseling.¹⁷

RURAL RESIDENCE AND DISTANCE

Roughly 3 million Veterans – one-third of all Veterans served by the VHA – live in rural areas.¹⁸ 2 reviews have focused specifically on the health of rural Veterans. In 2008, the VA National Center for Patient Safety published a review examining the status of rural Veterans' health, associated characteristics of care, and variables related to disparities, such as access, utilization patterns, rural care delivery models, and healthcare settings used by Veterans.¹⁹ More recently, an ESP review examined urban versus rural ambulatory care in VHA and non-VHA settings.²⁰ The review focused on differences in healthcare access and utilization between rural and urban

patients, as well as differences in process of care and patient outcomes. Findings indicated lower cancer screening rates (*eg*, breast, cervical) and higher suicide rates associated with differential use of antidepressants in patients living in rural areas, and that despite better continuity of care with a specific primary care provider (PCP), patients living in rural areas were more likely to have a physician extender as their PCP, and have poorer access to specialty care, including mental health providers. A second ESP review examined interventions to improve access to care, and addressed issues related to both rural residence and distance from a VA medical center. The review concluded that there was a fair amount of evidence that interventions to improve access were effective at improving outcomes such as utilization and patient satisfaction, but that more research was needed examining the quality of care and patient health.²¹

LESBIAN, GAY, BISEXUAL, AND TRANSGENDER (LGBT)

Recent estimates indicate that roughly 2.2% of military personnel in the United States identify as lesbian, gay, or bisexual (LGB),²² with data based on the 2000 Census estimating nearly one million LGB Veterans.²³ In addition, estimates based on the 2011 American Community Survey (ACS) suggest that there are more than 130,000 transgender Veterans.²⁴ Studies examining health disparities experienced by LGBT Veterans are limited, and to our knowledge, no systematic reviews have been published to date. The limited research that exists indicates that transgender Veterans are more likely to be diagnosed with nearly all psychological and physical health conditions.²⁵ In addition, across all care providers, LGB Veterans are less likely to seek medical care, are more likely to be HIV+, and are more likely to have activity limitations due to physical, mental, or emotional problems.²⁶ In addition, studies have also found that LGBT Veterans may fear mistreatment related to their LGBT identity,²⁷ that sexual orientation is often not assessed by providers at the VHA,²⁸ and that when surveyed, many VHA providers believed it was inappropriate to discuss sexual orientation in a clinical setting and/or felt uncomfortable doing so.²⁹

THE CURRENT REVIEW

Despite the VHA's commitment to reducing disparities, the rate at which health and healthcare disparities affect Veterans remains unclear. In order to guide future research and policy decisions for the VA, the VA Office of Health Equity (OHE) partnered with the VA ESP to examine the state of research on health disparities affecting vulnerable Veterans. Previous VA ESP and other VA-funded programs have examined disparities related to race/ethnicity, rural residence, distance, mental health, and women. However, disparities, or the potential for disparities in utilization, health, or healthcare may also affect other Veteran populations, such as older or younger Veterans, LGBT Veterans, and Veterans of low SES, as well as those with a physical or cognitive disability, or other characteristics. The purpose of this report was to identify studies, 1) examining the prevalence of disparities in the utilization, the quality of healthcare, or the health of Veterans, 2) evaluating the interventions designed to mitigate disparities within the VHA, and 3) examining health disparities funded through the VA Office of Research and Development that are currently ongoing or were recently closed. To characterize the original research relevant to disparities in Veterans and the interventions designed and implemented within the VHA to address them, we provide high level evidence maps. Our findings will inform stakeholders of the areas in which disparities may be present, and will also highlight the populations for which more research is needed to better understand and address the need for equitable healthcare for all Veterans.

METHODS

TOPIC DEVELOPMENT

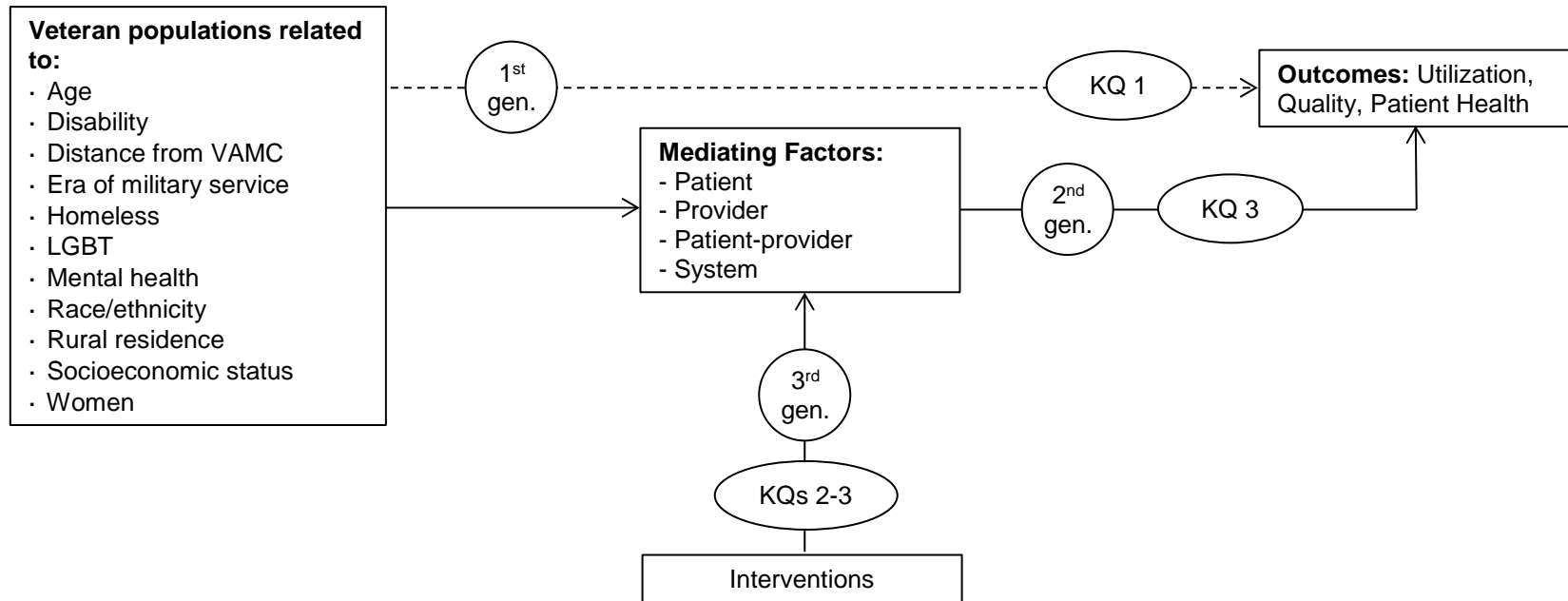
This topic was submitted to the VA ESP Coordinating Center for development by Uchenna Uchendu, MD, Director of the VHA Office of Health Equity. The research questions for this evidence map were developed after a topic refinement process that included a preliminary review of published peer-reviewed literature, and consultation with internal partners, investigators, and stakeholders. The key questions for the map are as follows:

Key Question 1. For what Veteran groups/populations are health and healthcare disparities prevalent?

Key Question 2. What are the effects of interventions implemented within the VHA to reduce health disparities?

Key Question 3. What are the research projects designed to identify or mitigate health disparities currently being funded by the VA Office of Research and Development (ORD)?

Our approach was guided by an analytic framework developed for a 2007 systematic review by Saha et al, which examined racial and ethnic disparities in the VHA. We expanded the analytic framework to include additional Veteran populations for whom a disparity may exist (see Figure 1).³ In the framework, first-generation studies are those that examine the prevalence of disparities in the utilization, quality of care, and health of Veterans. These studies are used to inform Key Question 1, and are included in Key Question 3. Second-generation studies examine mediating factors that may contribute to disparities for any given group/population (*eg*, perceived discrimination), and are included only in our search for currently funded research (Key Question 3). Third-generation studies examine interventions designed to reduce disparities. These studies are used to address Key Question 2, and are included in Key Question 3. Some studies may fall into more than one generational category. In these cases, only the data relevant to the key questions in this report were extracted.

Figure 1. Analytic Framework: Prevalence of and Interventions to Reduce Disparities in Veterans

Abbreviations: gen. = generation; KQ = Key Question; LGBT = lesbian, gay, bisexual, transgender; VAMC = Veteran Affairs Medical Center.

SEARCH STRATEGY

We conducted a primary review of the literature by systematically searching, reviewing, and analyzing the scientific evidence as it pertained to the Key Questions in the report. In order to capture the breadth of disparities related to the utilization or quality of Veteran health or healthcare, we expanded the search strategy developed by Saha et al³⁰ to include additional vulnerable Veteran populations. The search strategy was peer reviewed by a second research librarian using the instrument for Peer Review of Search Strategies (PRESS).^{31,32} For Key Questions 1 and 2, we searched the following databases for relevant literature published from 2006 through February 2016: MEDLINE, PubMed, PsycINFO, CINAHL, the Cochrane Library, Social Services Abstracts, Sociological Abstracts, and the VA's Health Services Research and Development (HSR&D) database (see Appendix A). To identify ongoing and recently completed VA research projects for Key Question 3, we searched the VA's HSR&D database for relevant studies completed or expected to be completed in 2015 or later.

We also evaluated the excluded studies and supplementary materials for Peterson et al's (2015) VA ESP evidence brief,⁵ and the bibliographies of included primary studies and relevant systematic and non-systematic reviews, including Gierisch et al's (2014)¹⁷ VA ESP review on disparities on the quality of care for patients with mental illness, Spont et al's (2011)²⁰ VA ESP review examining ambulatory care in rural versus urban populations, Bean-Mayberry et al's (2010)¹⁰ VA ESP review examining women's health in the VA, and Kehle et al's (2011)²¹ ESP review examining interventions to improve Veterans' access to care. To identify published and unpublished studies for all Key Questions, we searched ClinicalTrials.gov and the VA HSR&D and ESP websites, and contacted the directors of several VA research offices known to emphasize health disparity research (Appendix A).

STUDY SELECTION

Criteria for population, interventions, comparators, outcomes, timing, and setting (PICOTS) were developed in collaboration with Dr. Uchendu and a Technical Expert Panel (TEP; listed in Appendix B), and are provided in Table 1. Using pre-specified inclusion criteria (Appendix C), 2 independent reviewers evaluated titles and abstracts for a random 10% of the search yield in order to ensure reliability between reviewers, with the remaining 90% decided by a single reviewer. We reviewed funded research for inclusion according to the same pre-specified inclusion criteria. At the full-text screening stage, 2 independent reviewers assessed all articles for inclusion, and discordant results were resolved through consensus or consultation with a third reviewer.

We included only studies of Veteran populations examining health disparities. For all Key Questions, we included studies with a comparison group within the same population or another relevant group, as well as studies providing a pre-post intervention comparison. We included studies examining outcomes related to the utilization, the quality of healthcare, or patient health outcomes. We included all study designs except for systematic or nonsystematic reviews, which were manually searched for eligible studies.

Table 1. PICOTS by Key Question

Key Questions (KQs)	KQ1. For what Veteran groups/populations are health and healthcare disparities prevalent?	KQ2. What are the effects of interventions implemented within the VHA to reduce health disparities?	KQ3. What are the research projects designed to identify or mitigate health disparities currently being funded by the VA Office of Research and Development (ORD)?
Population	Veterans only		
Interventions	NA	Any interventions <i>designed specifically</i> or are being specifically used to reduce disparities, or examine mediators associated with health disparities for Veterans.	
Comparators	<ul style="list-style-type: none">Control group within the same groupComparison to other groups relevant to the population		
Outcomes	<ul style="list-style-type: none">Utilization of healthcare servicesQuality of healthcare services<ul style="list-style-type: none">1. Intermediate/proce ss of care measures2. Patient evaluations of carePatient health outcomes	<ul style="list-style-type: none">Utilization of healthcare servicesQuality of healthcare services<ul style="list-style-type: none">1. Intermediate/process of care measures2. Patient evaluations of carePatient health outcomesMediators<ul style="list-style-type: none">1. System level (eg, distribution of services)2. Provider level (eg, racial bias)3. Patient level (eg, trust)4. Provider-patient level (eg, communication)	
Timing	No restrictions		
Study design	Original research, systematic review, or meta-analysis		
Setting	VHA or community settings		

DATA ABSTRACTION

Data from studies meeting inclusion criteria were abstracted by one investigator and confirmed by a second. From each study, we abstracted data related to study design, setting, population, number of subjects, clinical topic, groups compared, outcomes, type of intervention (when applicable), whether a mediator was examined (and type), and a summary of findings for each outcome type.

QUALITY ASSESSMENT

Given that the purpose of our review was to identify and classify the body of research related to health disparities affecting Veterans, we did not formally assess the quality of individual studies. For Key Question 1, we instead calculated a rough estimate of confidence for each study based on study design, whether the study controlled or adjusted for confounding variables, number of sites, and sample size. Table 2 outlines the criteria we used for scoring. For Key Question 2, we simply note the study design and sample size.

Table 2. Description of confidence scores used for Key Question 1

Category; Points	Description
Study Design 0 to 1	1 point for prospective studies. 0 points for all other designs.
Controlled for Confounders -1 to 0	-1 point if the study did not control for confounding variables. 0 points for all others.
Study Site(s) 0 to 1	1 point for multi-site studies and data from national samples. 0 points for single-site study.
Sample Size 0 to 2	Key Question 1: 2 points for studies with samples \geq 100,000. 1 point for studies with samples \geq 10,000. 0 points for studies $<$ 10,000.

DATA SUMMARY

Our search for vulnerable populations was intentionally broad, to capture the breadth of disparities related to health or healthcare affecting Veterans. We mapped original research by abstracting relevant data for each Key Question and disparity population: race or ethnicity; women; mental health; age; rural residence; distance from a Veterans Affairs Medical Center (VAMC) or treatment facility (including studies examining Community Based Outpatient Clinics [CBOCs]); socioeconomic status (SES); homelessness; era of military service; lesbian, gay, bisexual, or transgender (LGBT) identity; and disability. We purposefully separated studies examining rural populations from those examining distance from a VAMC. Although challenges related to lack of access due to distance are likely applicable to Veterans living in rural areas, we suspect that the health and healthcare of rural Veterans may also be influenced by additional cultural factors specific to living in rural areas.

We categorized studies for each population into those examining the following outcome categories:

- 1) utilization (*eg*, inpatient, outpatient, specialty care visits),
- 2) the quality of care (*eg*, processes of care [such as blood pressure screening], patient evaluations of care, intermediate outcomes [such as blood pressure control]),
- 3) patient health outcomes (*eg*, mortality)

For each category, we recorded whether a study found a disparity, no disparity, or whether the findings within an outcome category were mixed or unclear. If a study reported multiple outcomes within the same category (*eg*, blood pressure screening and control), we classified a study as mixed if the findings were not in agreement (*eg*, found significantly fewer screenings, but no difference in blood pressure control).

We classified a finding as a disparity if it conflicted with the clinically appropriate or expected outcome for each vulnerable population. For example, a study that found higher mortality rates in Veterans of color, compared to White Veterans, would be classified as a disparity. However, for studies examining age-related or era of military service-related disparities, we did not consider higher mortality rates in older adults and/or earlier eras of service (*eg*, WWII or Vietnam) to be a disparity in health, for we would expect higher mortality rates in older populations. For outcomes related to outpatient utilization, we classified lower utilization as a disparity for populations for which we know access is a primary issue (*eg*, distance from a VA Medical Center or rural residence). However, for studies examining other types of disparities, if the rate at which the study

population *should* be utilizing outpatient care was unclear, we classified significantly higher or lower rates of utilization as mixed or unclear, as we could not determine if those rates reflected better or poorer Veteran health, or if they represented a disparity related to access or other factors. For age-related disparities, if a study found either older or younger adults to be at a disadvantage that was not clinically normative, we classified it as a disparity.

For studies examining interventions designed to reduce disparities (Key Question 2), we categorized interventions into 1) patient-focused interventions, 2) provider-focused interventions, 3) technology interventions, and 4) system-level interventions. For each study we recorded whether the study findings were positive/no difference between the intervention and usual care (*eg*, non-inferiority studies), not positive/equivalent, or if findings were mixed or unclear. Similar to studies examining prevalence, if a study examining multiple outcomes reported both positive and negative findings, we classified the study as mixed or unclear. Also similar to Key Question 1, utilization outcomes were classified as mixed or unclear if the rate at which a population *should* be utilizing care was unclear. By default, we classified studies examining Community Based Outpatient Clinics (CBOCs) as examining distance from a VAMC, unless the article included a measure of rurality or specifically described the study population as living in a rural area.

RATING THE BODY OF EVIDENCE

The purpose of our report was to describe the state of health disparities affecting Veterans by identifying and classifying current research. Thus, we did not formally assess the overall body of evidence. For Key Question 1, in lieu of a rating of the overall strength of evidence, for each outcome category (*ie*, utilization, the quality of care, patient health outcomes) *within* each vulnerable population, we provide a mean estimate of confidence for all studies reporting a) a disparity, b) no disparity, or c) that we determined were mixed or unclear (see Table 2 for a description of confidence scores for Key Question 1). We provide no estimates of confidence for Key Questions 2 or 3.

PEER REVIEW

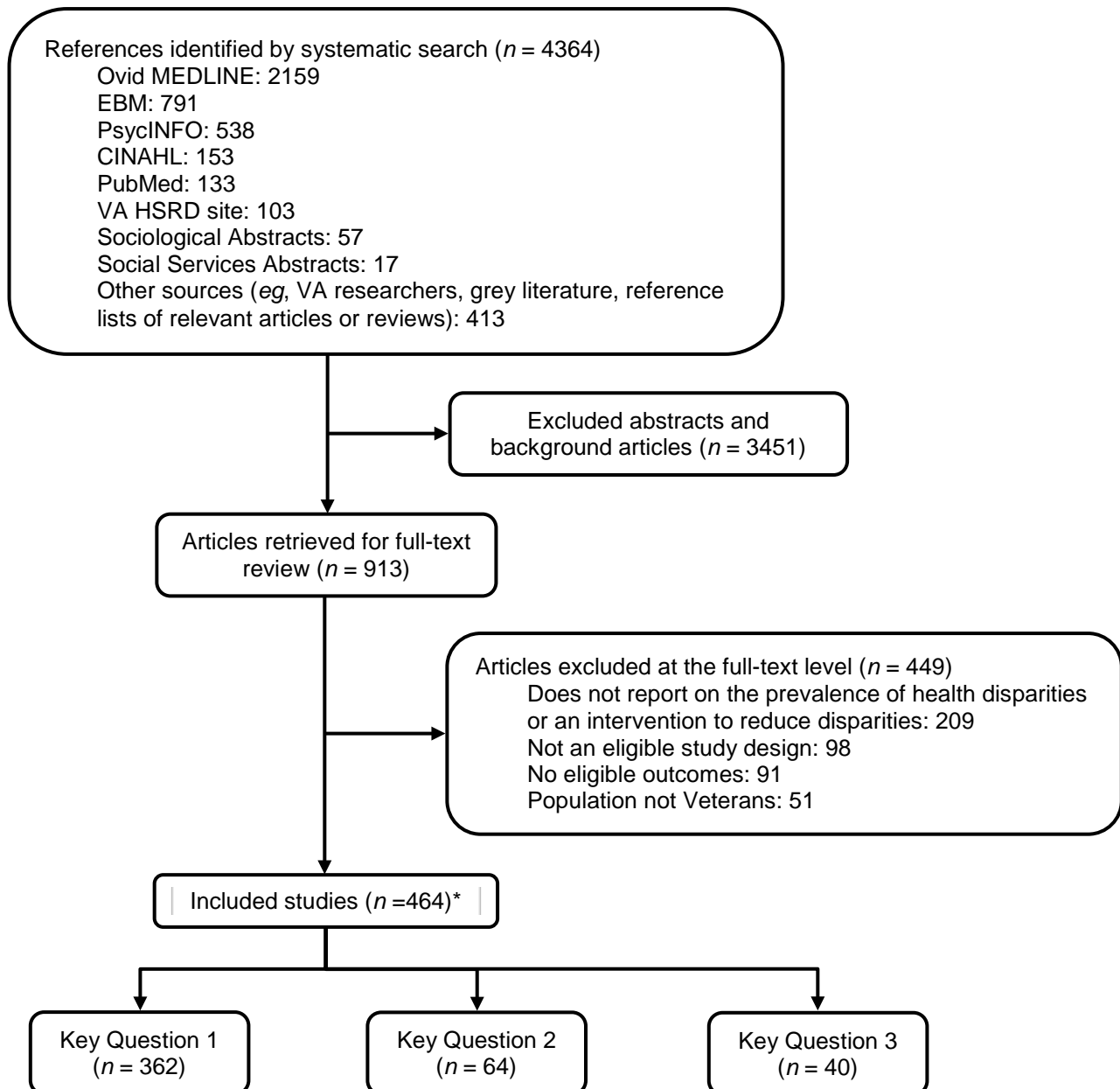
A draft version of this report was reviewed by 4 individuals with technical expertise and clinical leadership. Their comments and our responses are presented in Appendix B.

RESULTS

LITERATURE FLOW

Our search of electronic databases, bibliographies, and other sources resulted in a total of 4,364 studies. After title and abstract review, 913 met inclusion criteria. Upon full-text review, we included a total of 464 studies, with 362 studies for Key Question 1 (of which 135 reported outcomes for more than one disparity population), 64 studies for Key Question 2, and 40 for Key Question 3 (Figure 2).

Figure 2. Literature Flow Chart



* 2 studies were included for both Key Question 1 and Key Question 2.

KEY QUESTION 1: For what Veteran groups/populations are health and healthcare disparities prevalent?

Summary of Findings

Across all outcomes, 193 studies reported the prevalence of racial or ethnic disparities in the utilization or quality of health or healthcare in Veterans. We identified 112 studies that examined disparities affecting women, and 74 studies examined disparities affecting Veterans with mental health conditions, most commonly major depressive disorder (MDD), posttraumatic stress disorder (PTSD), and schizophrenia. Very few studies examined disparities in the health or healthcare experienced by LGBT Veterans (9 studies), and homeless Veterans (7 studies), and only a limited number of studies examined the influence of socioeconomic status (31 studies). Table 3 provides the number of identified studies by vulnerable Veteran population, for each of the 3 outcome categories (utilization, quality of care, patient health outcomes).

Table 3. Distribution of Total Studies and Studies Across Outcome Categories for Each Population

Population	Total Studies	Utilization Studies N (%)	Quality of Care Studies N (%)	Patient Health Outcome Studies N (%)
Race/Ethnicity	193	24 (12.4)	117 (60.6)	111 (57.5)
African American/Black	188	24 (12.8)	110 (58.5)	82 (43.6)
Hispanic/Latino	70	9 (12.9)	40 (57.1)	26 (37.1)
American Indian/Alaska Native	21	4 (19.0)	8 (38.1)	11 (52.4)
Asian or Asian and/or Pacific Islander ^a	18	4 (22.2)	8 (44.4)	9 (50.0)
Native Hawaiian and/or Pacific Islander ^a	5	1 (20.0)	2 (40.0)	3 (60.0)
Women	112	24 (21.4)	57 (50.9)	41 (36.6)
Mental Health	74	13 (17.6)	44 (59.5)	26 (35.1)
Age	60	12 (20.0)	37 (61.7)	15 (25.0)
Rural Residence	39	17 (43.6)	15 (38.5)	15 (38.5)
Distance	15	10 (66.7)	3 (20.0)	4 (26.7)
Socioeconomic Status	31	7 (22.6)	15 (48.4)	10 (32.3)
Military Era of Service	15	7 (46.7)	5 (33.3)	6 (40.0)
Lesbian, Gay, Bisexual, Transgender	9	3 (33.3)	2 (22.2)	9 (100)
Disability	16	7 (43.8)	7 (43.8)	2 (12.5)
Homeless	7	6 (85.7)	1 (14.3)	3 (42.9)

Note: Studies may be represented more than once. 135 studies examined more than one population, and studies often reported multiple outcomes that were included in more than one category; thus, the combined sum of studies across columns may exceed the total number of unique studies for a population.

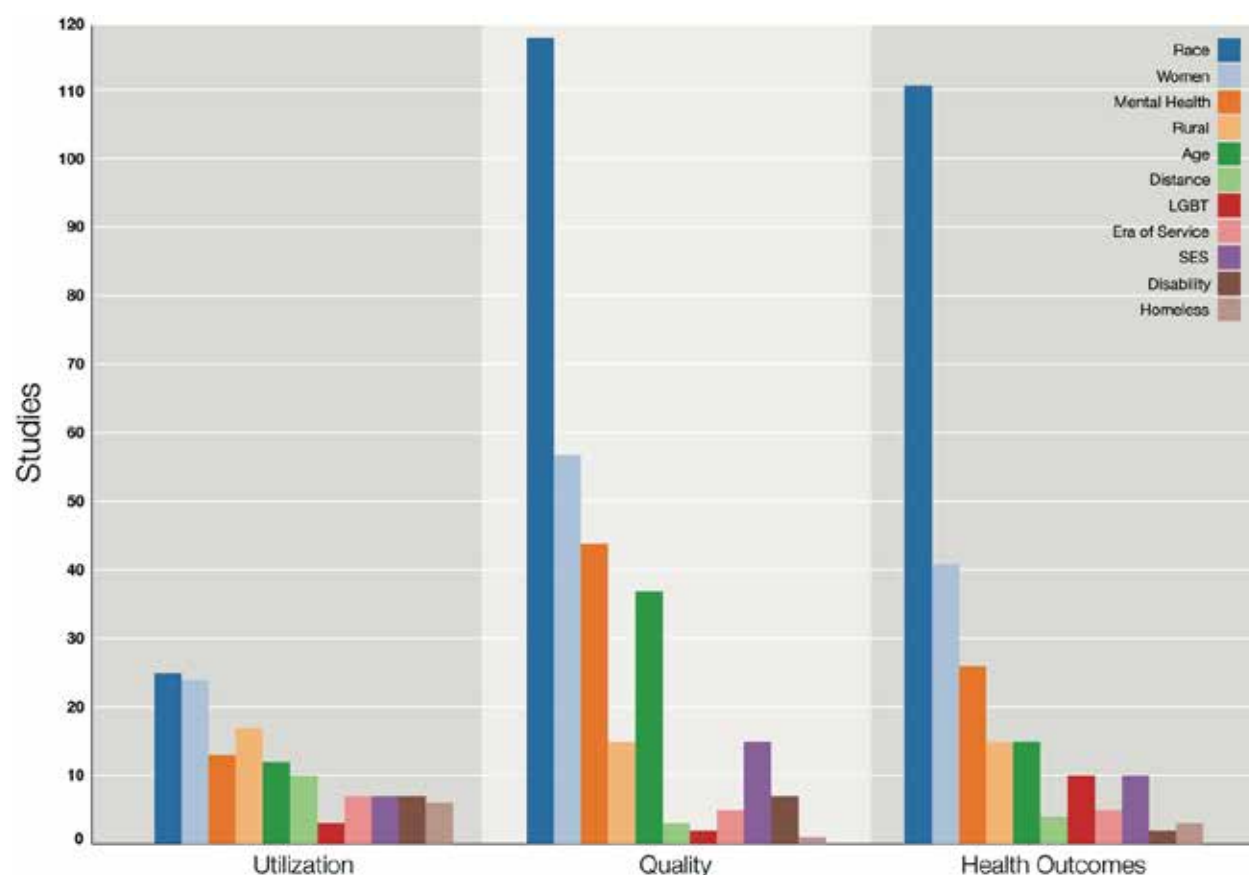
^a Pacific Islanders were grouped inconsistently – sometimes being combined with Asians, and other times reported separately with Native Hawaiians.

^b Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care

Across all populations, 84 studies examined outcomes related to utilization, 191 studies examined the quality of care, and 153 studies examined patient health outcomes. In general, studies examining racial/ethnic disparities focused more heavily on outcomes related to the quality of care and patient health, whereas studies examining disparities related to rural residence, distance,

homelessness, era of military service, and disability placed a greater emphasis on outcomes related to utilization (see Table 3 and Figure 3).

Figure 3. Evidence Map: All Studies by Outcome



Note: Studies may be represented more than once. 135 studies examined more than one population, and studies often reported multiple outcomes that were included in more than one category; thus, the combined sum of studies across columns may exceed the total number of unique studies for a population. Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care.

We grouped studies into 39 distinct but broad clinical areas. Mental health was the most widely studied, followed by cardiovascular disease, cancer, and diabetes. Most of the studies in cardiovascular disease (69.2%), cancer (76.3%), and diabetes (63.3%) reported outcomes related to the quality of care (see Appendix D for the distribution of studies by clinical area and outcome category).

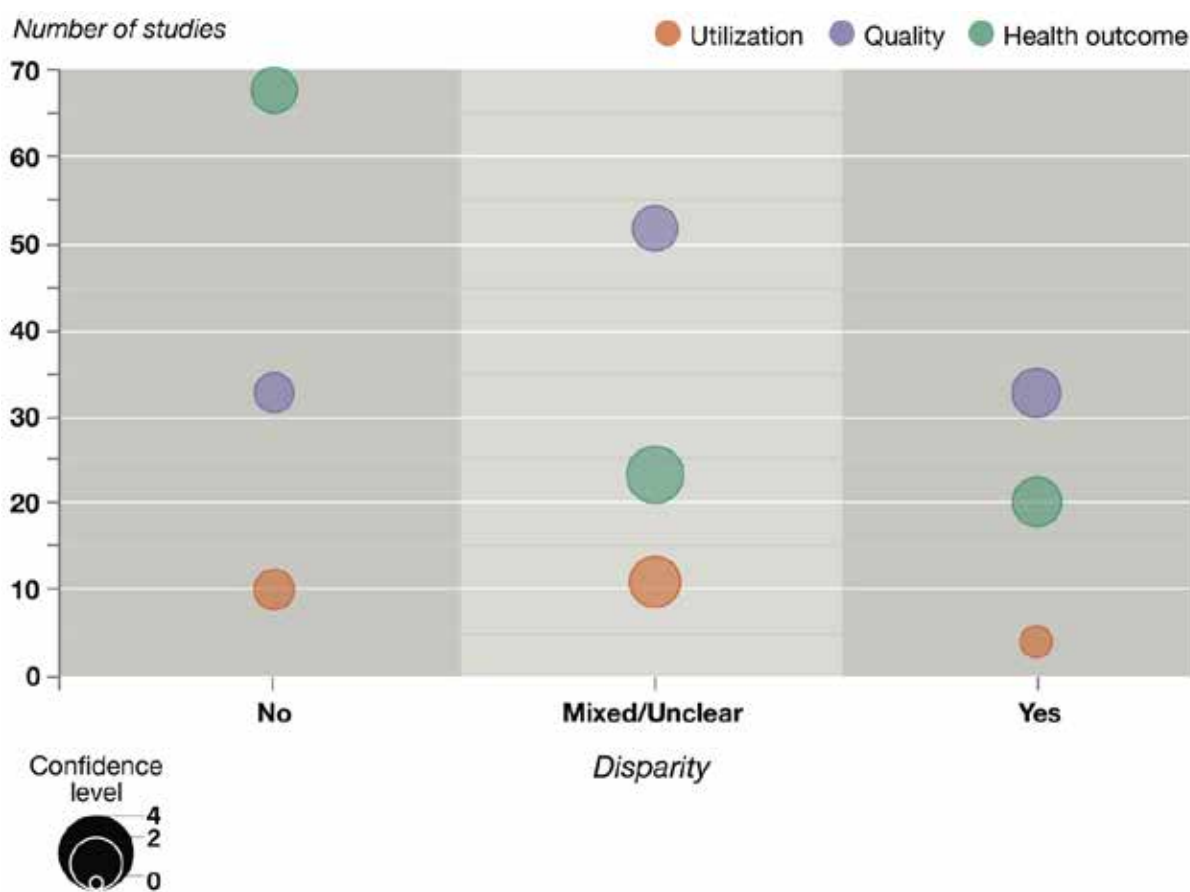
Findings According to Population

Race and Ethnicity

The 193 studies reporting data on the prevalence of healthcare or health disparities in Veterans by race or ethnicity largely compared the experiences of African American/Blacks to Whites (188 studies). Studies examining the prevalence of disparities affecting Hispanic/Latino Veterans (70 studies) were limited in comparison, and very few studies focused on American Indian/Alaska Natives, Asians, or Pacific Islanders (see Table 3). Across all racial and ethnic groups, patient health and quality of care-related outcomes were more frequently reported, while utilization was the focus of relatively few studies. The majority of studies found no or mixed/unclear evidence of racial or ethnic disparities, although this varied some with the outcome evaluated. The

preponderance of studies examining health outcomes found no evidence of disparities. Findings amongst studies examining quality of care outcomes varied substantially with roughly equal proportions finding evidence for and against disparities, particularly for African American/Black Veterans. Mean confidence estimates for African American/Black Veterans and to a certain extent Hispanic/Latino Veterans were lower than for other racial/ethnic groups. However, this is likely a function of the larger number of studies examining these populations, and regression toward the mean. Contributing to the overall mean confidence estimates were very few prospective studies, and nearly half of the studies reported fewer than 10,000 participants. All but a very few studies controlled for confounders, and most were multi-site studies or used national administrative data. Figure 4 provides a bubble plot illustrating the number of studies providing evidence of no racial and ethnic disparities, mixed or unclear findings, or the presence of racial and ethnic disparities in Veterans for each outcome category.

Figure 4. Evidence Map: Health Disparities in Veterans by Race and Ethnicity



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

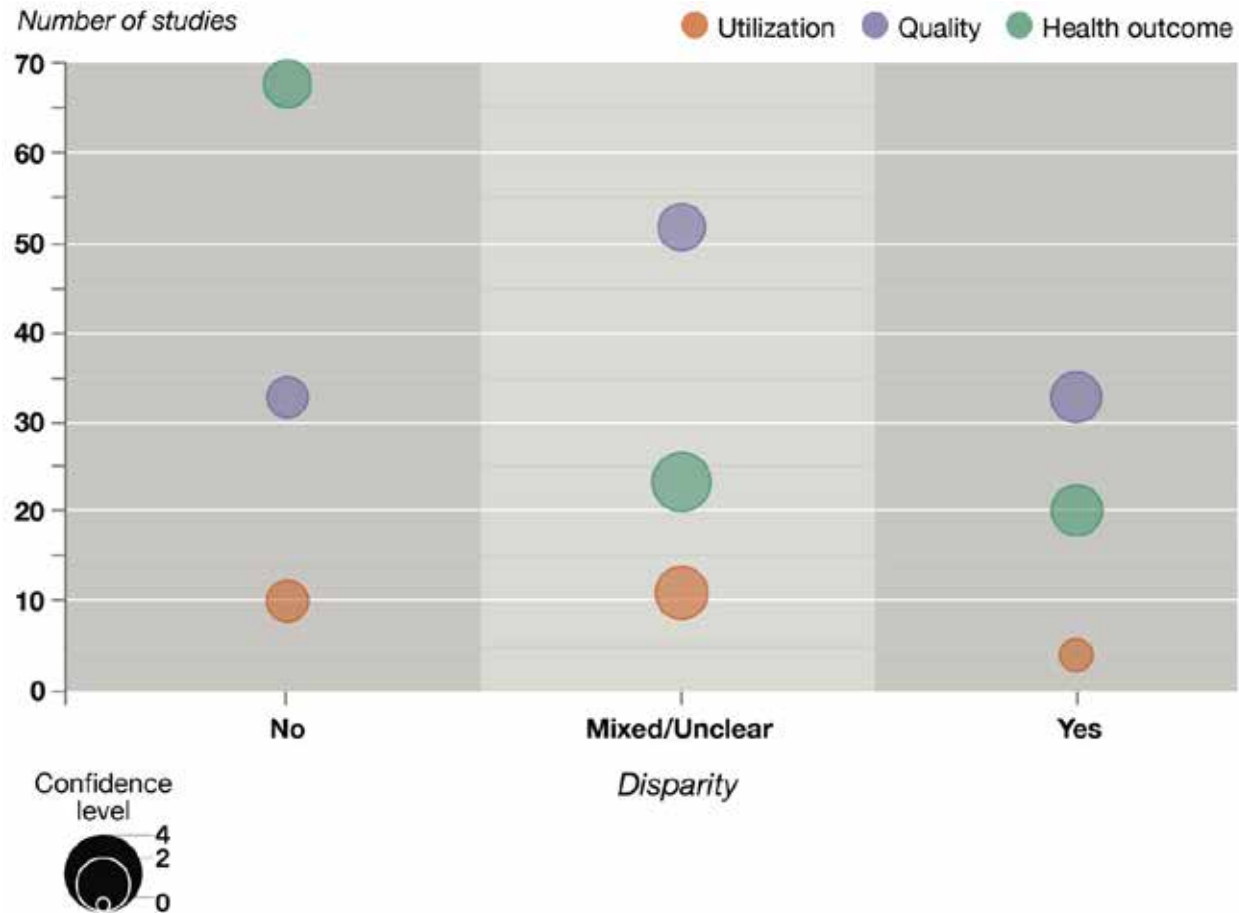
When examining Veterans of color by racial or ethnic group, findings for both African American/Black Veterans and Hispanic/Latino Veterans were similar to the overall race/ethnicity findings. Very few studies examined utilization, and studies examining patient health reported little evidence of disparities (see Appendix E for the African American/Black evidence map and study-level data table). However, Hispanic/Latino Veterans differed from both African

American/Black Veterans and the overall race/ethnicity findings when examining quality of care outcomes, with larger proportions of studies reporting evidence of a disparity or mixed/unclear findings and a smaller percentage of studies reporting evidence of no disparities (see Appendix F for the Hispanic/Latino evidence map and study-level data table). The distribution of findings for studies examining American Indian/Alaska Native Veterans was similar to the overall findings for race/ethnicity (see Appendix G for the American Indian/Alaska Native evidence map and study-level data table). Conversely, studies examining Asian, Native Hawaiian, and Pacific Islander Veterans found no clear evidence of disparities across all outcome categories. However, sample sizes were small, and there may not have been the power to detect differences (see Appendix H for the Asian/Pacific Islander evidence map and study-level data table and Appendix I for the Native Hawaiian/Pacific Islander evidence map and study-level data table).

Women

We identified 112 studies providing data on the presence or absence of disparities in utilization, the quality of care, and the health of female Veterans. Across all outcomes, 52 studies reported evidence of no disparity, 39 studies reported mixed or unclear findings, and 25 studies identified a disparity in health or healthcare. Half of the studies reported quality of care outcomes, with outcomes related to utilization the least represented. Across all outcomes, more studies found evidence of no disparity or mixed or unclear findings. Of the 24 studies examining disparities related to utilization only one study found evidence of a disparity – that while women Veterans did not differ from men in their use of VHA outpatient health and mental health services, their non-VHA utilization was significantly higher (see Figure 5).³³

Among studies examining gender-related disparities, we identified very few prospective studies, and the vast majority of studies were multi-site or examined national administrative data. In general, sample sizes were large, and most studies controlled for confounding variables (see Appendix J for study-level data table).

Figure 5. Evidence Map: Health Disparities Among Women Veterans

Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Mental Health

Seventy-four studies examined disparities affecting Veterans with mental health conditions. Included studies compared both Veterans with and without mental health conditions, as well as outcomes by single or comorbid mental health conditions. Across all outcomes, 15 studies found no evidence of a disparity, 32 studies reported mixed or unclear findings, and 31 studies found evidence of a disparity (see Figure 6). Studies reporting the prevalence of disparities for Veterans with mental health conditions examined outcomes related to the quality of care more than others, with a limited number of studies examining utilization. Across outcome categories, findings of a disparity or mixed or unclear findings were more common than not. There was wide variation in mean confidence estimates, due in large to the small number of studies examining disparities related to utilization or patient health outcomes (see Appendix K for the mental health study-level data table).

Figure 6. Evidence Map: Health Disparities in Veterans with a Mental Health Condition



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Other Populations

We also mapped the evidence related to the presence or absence of disparities in utilization, the quality of care, and patient health experienced by Veterans according to age (see Appendix L for the age evidence map and study-level data table), rural residence and distance from a VA Medical Center (see Appendix M for the rural residence and distance evidence map and study-level data table), socioeconomic status (see Appendix N for the socioeconomic status evidence map and study-level data table), disability (see Appendix O for the disability evidence map and study-level

data table), era of military service (see Appendix P for the era of service evidence map and study-level data table), LGBT identity (see Appendix Q for the LGBT evidence map and study-level data table), and homelessness (see Appendix R for the homeless evidence map and study-level data table).

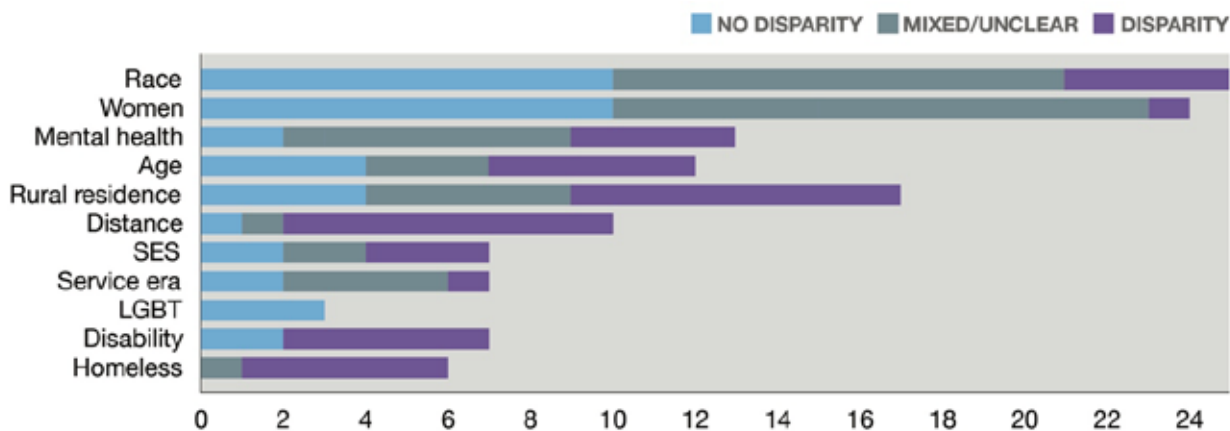
Findings varied widely by population and depended on the outcome category examined. For example, 11 of 15 of studies examining distance from a VAMC reported evidence of a disparity (8 of which examined outcomes related to utilization), as did 6 of the 7 studies examining homeless Veterans. However, only one of the 9 studies examining LGBT Veterans found evidence of a clear disparity, with 6 reporting evidence of none. Among studies examining disparities associated with socioeconomic status, few differences were reported in the quality of care. However, 6 of 10 studies examining patient health reported poorer outcomes in low SES Veterans. In studies comparing outcomes by age, a similar number of studies reported poorer outcomes associated with older or younger Veterans for both utilization and patient health outcomes. However, more studies examining the quality of care found poorer outcomes associated with older age.

Findings by Outcome Type

Utilization

Across all populations, outcomes related to utilization of care were the least studied (84 studies), and utilization outcomes comprised less than a quarter of the studies examining disparities related to race/ethnicity, women, mental health conditions, age, and socioeconomic status. Conversely, a much stronger emphasis was placed on the utilization of care in studies examining disparities related to rural residence, distance from a VA medical center, era of military service, LGBT identity, disability, and homelessness. Studies examining many of the populations in which utilization outcomes were less emphasized (*ie*, race/ethnicity, women, mental health) reported evidence of no disparities, or findings were mixed or unclear, whereas a larger proportion of the studies in populations emphasizing utilization (*ie*, rural residence, distance from a VAMC, disability, homelessness) reported evidence of a disparity. Studies examining era of military service and LGBT Veterans were the exceptions, with utilization outcomes more commonly examined, but with very few disparities reported. Figure 7 highlights the number of studies reporting no disparity, mixed or unclear findings, and a disparity in utilization by population.

Figure 7. Evidence Map: Utilization by Population

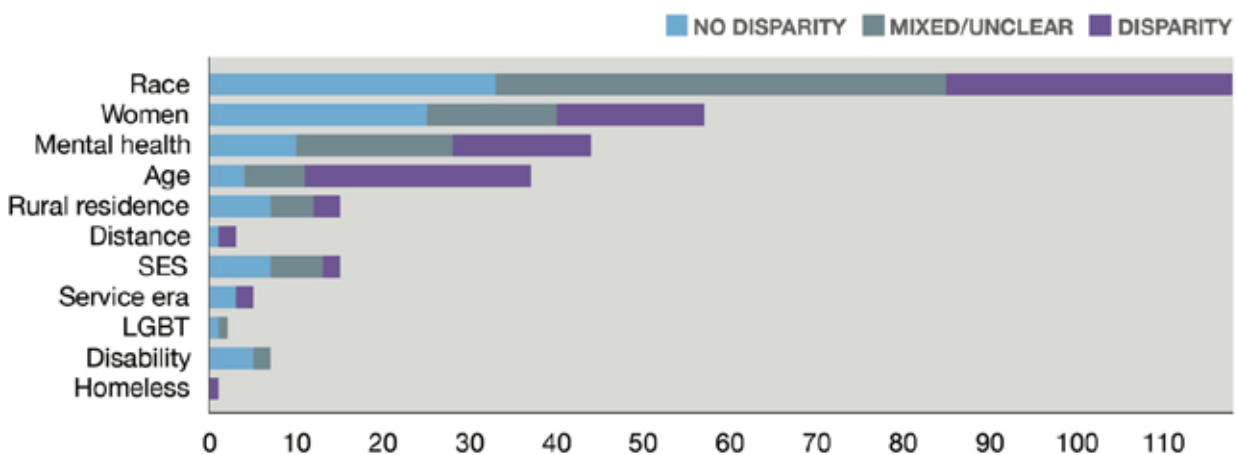


Quality of Care

With 191 identified studies, outcomes related to the quality of care experienced by Veterans were the most widely studied, and comprised a large proportion of the outcomes of interest in populations such as race/ethnicity, mental health, women, and age. Conversely, in studies examining populations such as homeless Veterans, LGBT Veterans, and Veterans living greater distances from a VAMC, outcomes related to the quality of care were less emphasized.

For all populations but age, the distribution of studies leaned towards those reporting mixed/unclear findings or evidence of no disparities (see Figure 8).

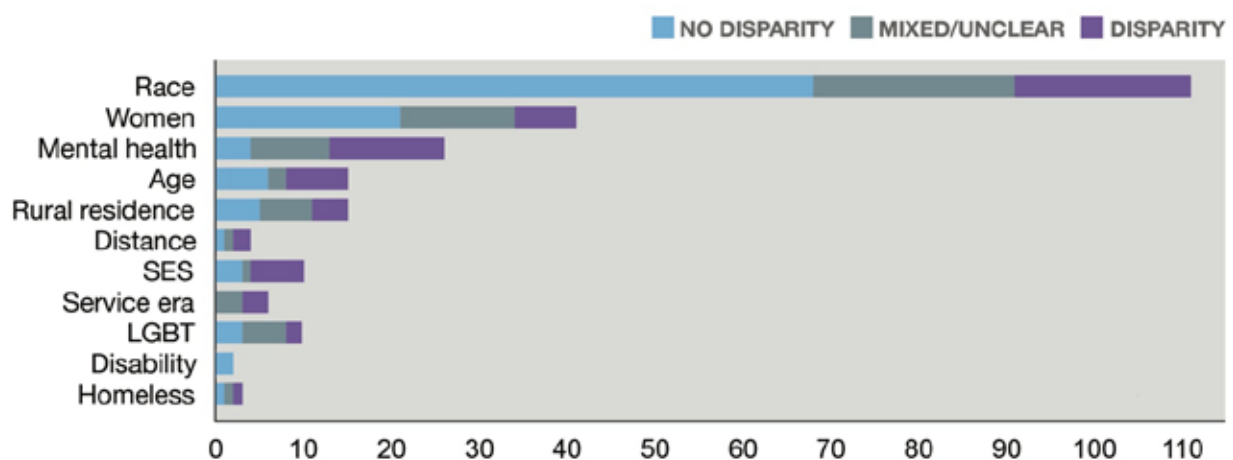
Figure 8. Evidence Map: Quality of Care by Population



Health Outcomes

Of the 153 studies examining patient health outcomes, for the majority of populations, very few studies reported evidence of a disparity. The exceptions were findings related to Veterans with mental health conditions, and Veterans of lower socioeconomic status, for whom poorer health outcomes were more commonly found (see Figure 9).

Figure 9. Evidence Map: Health Outcomes by Population



KEY QUESTION 2: What are the effects of interventions implemented within the VHA to reduce health disparities?

Summary of Findings

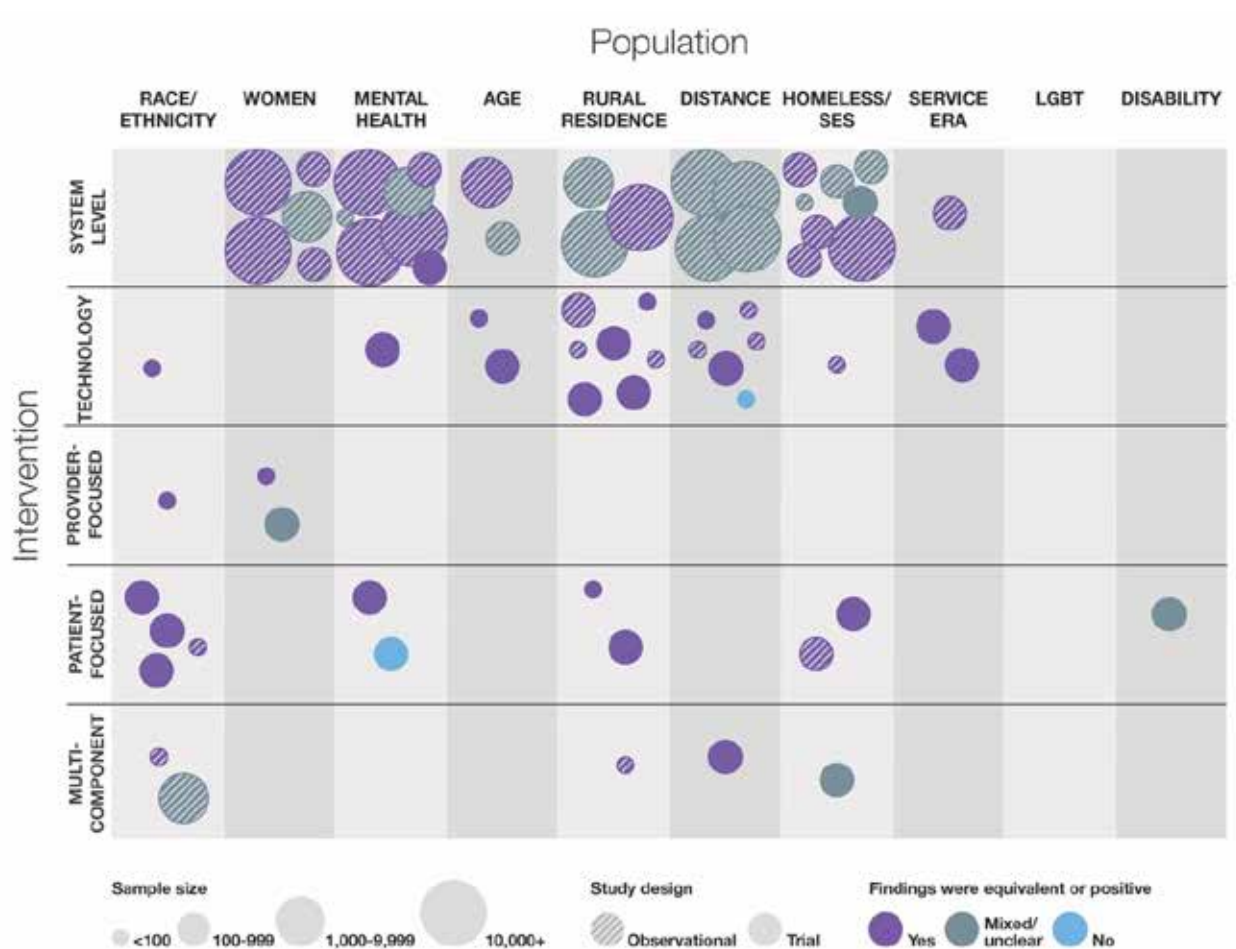
We identified 64 studies of interventions implemented within the VHA which were designed to reduce health disparities. The largest number of studies were designed to mitigate disparities experienced by Veterans living in rural areas (13 studies) and those experienced by homeless or low-income Veterans (12 studies). No studies examined interventions designed to address disparities related to LGBT identity (see Table 4).

Table 4. Distribution of Total Studies and Studies Across Intervention Type for Each Population

Population	Total Studies	System-level	Technology	Provider-focused	Patient-focused	Multi-component
Rural Residence	13	3 (23.1)	7 (53.8)	1 (7.7)	2 (15.4)	-
Homeless/SES	12	8 (66.7)	1 (8.3)	-	2 (16.7)	1 (8.3)
Distance from a VA Medical Center	11	4 (36.4)	6 (54.5)	-	-	1 (9.0)
Mental Health	10	7 (70.0)	1 (10.0)	-	2 (20.0)	-
Race/Ethnicity	8	-	1 (12.5)	1 (12.5)	4 (50.0)	2 (25.0)
Women	7	5 (71.4)	-	2 (28.6)	-	-
Age	4	2 (50.0)	2 (50.0)	-	-	-
Era of Military Service	3	1 (33.3)	2 (66.7)	-	-	-
Disability	1	-	-	-	-	1 (100.0)
Lesbian, Gay, Bisexual, Transgender (LGBT)	-	-	-	-	-	-
Total Key Question 2:	64	30 (46.9)	20 (31.2)	3 (4.7)	11 (17.2)	5 (7.8)

Figure 10 provides a map illustrating studies by population, type of intervention studied, and study design. Colors indicate whether the study reported that the intervention was positive or equivalent (*ie*, non-inferiority studies), and bubble size represents the number of participants. Appendix S provides study-level detail.

Figure 10. Evidence Map: Studies Examining Interventions Designed to Reduce Health Disparities in the VHA by Population and Intervention Type



Legend: The bubble plot shows each study by population (x-axis) by intervention category (y-axis). Bubble size represents sample size, shading or no shading represents study design, and color represents intervention effectiveness.

As the bubble plot illustrates, interventions designed to mitigate health disparities in the VHA have largely been system-level and technology interventions, and with the exception of 2 studies,^{34,35} all studies reported positive or equivalent (eg, non-inferiority studies) findings, or reported findings that were mixed or unclear. Studies were largely observational in design; however, we also identified a number of smaller randomized and non-randomized controlled trials, which primarily examined technology or patient-focused interventions.

Findings by Type of Intervention

System-level Interventions

The 30 studies examining system-level interventions were designed to reduce or eliminate disparities experienced by female Veterans, Veterans with mental health conditions, older adults, those living in rural areas or living a significant distance from a VA medical center, homeless Veterans, and OEF/OIF/OND Veterans. We identified no system level interventions designed to address disparities related to race or ethnicity, LGBT identity, or disability. Two-thirds of the studies focused on outcomes related to general health, with many examining utilization or the primary care experience, and 7 studies examined outcomes related to mental health. Most of the identified studies were observational, with nearly all studies retrospectively examining administrative data. We identified only 2 trials. The first compared the quality of life, psychotic symptom reduction, and substance use in homeless Veterans randomly assigned to the U.S. Department of Housing and Urban Development–Veterans Affairs Supported Housing (HUD-VASH), intensive case management (ICM), or usual care,³⁶ and the second compared rates of smoking cessation in Veterans with PTSD randomly assigned to smoking cessation treatment integrated with PTSD treatment, or referral to a smoking cessation clinic.³⁷ Other examples of interventions include community based outpatient clinics (CBOCs) to address distance to a VAMC, travel reimbursement, women’s health clinics, co-located or integrated mental health and primary care, and primary care clinics tailored to the needs of homeless Veterans. About half of the studies reported only positive or equivalent findings, with the remainder of studies classified as mixed or unclear, most of which examined multiple outcomes. See Appendix S for more detail.

Technology Interventions

Twenty studies examined interventions utilizing technology – most commonly a form of telehealth. More than half of the studies were designed to mitigate disparities for rural Veterans (7 studies) or to improve access for Veterans living farther distances from a VA medical center (6 studies). Interventions also targeted older Veterans,^{38,39} American Indian/Alaska Native Veterans,⁴⁰ homeless Veterans,⁴¹ OEF/OIF/OND Veterans,^{42,43} and Veterans with substance use disorders.⁴⁴ Thirteen of the studies were trials, and 11 of the 20 studies had sample sizes smaller than 100. The largest study included 667 participants.⁴⁴ Twelve studies examined outcomes related to mental health, with other clinical areas including cardiovascular disease,^{45,46} HIV,^{47,48} pain,^{39,49,50} neurology,⁵¹ and general healthcare utilization.⁴¹ Nearly all studies reported positive or equivalent findings. Only one study reported a negative finding. The study compared telephone-administered cognitive behavioral therapy (T-CBT) to usual care (in person CBT) at a CBOC, and found that despite treatment compliance and therapists that were assessed as highly competent, there were no time by treatment effects associated with T-CBT.³⁵ See Appendix S for more detail.

Provider-focused Interventions

Three trials examined provider-focused interventions.⁵²⁻⁵⁴ 2 of the studies examined gender awareness/competence interventions designed to address disparities experienced by female Veterans,^{53,54} and the third focused on improving the quality of care for African American/Black Veterans.⁵² 2 studies reported positive findings,^{52,55} with one study, which compared an educational program targeting deficits in the gender awareness domains of gender-role ideology, sensitivity, and knowledge to a program on managing stress in the workplace, reporting mixed results.⁵³

Patient-focused Interventions

The 11 studies examining patient-focused interventions targeted outcomes in a range of clinical areas, including general health,⁵⁶⁻⁵⁸ mental health,^{34,59} cardiovascular disease,^{60,61} diabetes,⁶² spinal cord injury,⁶³ orthopedics,⁶⁴ and osteoarthritis.⁶⁵ All but 2 studies^{64,65} were trials. Four of the 11 studies examined interventions designed to mitigate racial or ethnic disparities,^{60,62,64,65} 2 targeted homeless Veterans,^{56,59} 2 focused on reducing disparities related to rural residence,^{57,58} 2 were designed for Veterans with mental health conditions,^{34,61} and one focused on Veterans with disabilities.⁶³ We identified no studies of patient-focused interventions targeting women, age, era of military service, or LGBT identity. All but 2 studies reported positive or equivalent outcomes – one study compared a male specific and a gender neutral psychoeducational mailing about military sexual trauma to neutral topic mailing, and found no differences in utilization,³⁴ and the other compared a supportive employment program for Veterans with spinal cord injuries to treatment as usual and found that the intervention had no effect on quality of life, and there was no difference between groups.⁶³

Multicomponent Interventions

The 5 studies of multicomponent interventions were designed to reduce health disparities related to race or ethnicity,^{66,67} homelessness,⁶⁸ rural residence,⁵⁵ and distance from a VA medical center.⁶⁹ Three included system level interventions,⁶⁷⁻⁶⁹ and 3 involved technology.^{55,66,69} Sample sizes ranged from 30⁶⁶ to 8,866,⁶⁷ and all studies reported positive/equivalent^{55,66,69} or mixed or unclear findings.^{67,68}

KEY QUESTION 3: What are the research projects designed to identify or mitigate health disparities currently being funded by the VA Office of Research and Development (ORD)?

Summary of Findings

Our search for recently closed and ongoing studies (2015 to present) examining disparities in the utilization, quality of healthcare, and health of Veterans funded by the VA Office of Research and Development resulted in a total of 40 studies. Studies largely include(d) Veterans seen in VHA settings. However, a handful of abstracts did not clearly identify the setting of care, and a few others clearly examined non-VHA settings (*eg*, Choice, Indian Health Service). Across studies, 12 studies examine or were designed to address racial disparities, 10 studies target Veterans living in rural areas, 10 studies focus on women, 7 studies address disparities related to mental health conditions, 5 studies focus on homeless or low-income Veterans, 3 studies address disparities related to distance from a VAMC, and 1 study examines age-related disparities. We identified no studies examining the prevalence or interventions to mitigate disparities related to era of military service, LGBT identity, or disability. Figure 11 illustrates the number of studies across each Veteran population/group, and Table 5 provides more detail.

Figure 11. Number of Open and Recently Closed Health Disparity Studies Funded by the VA Office of Research and Development

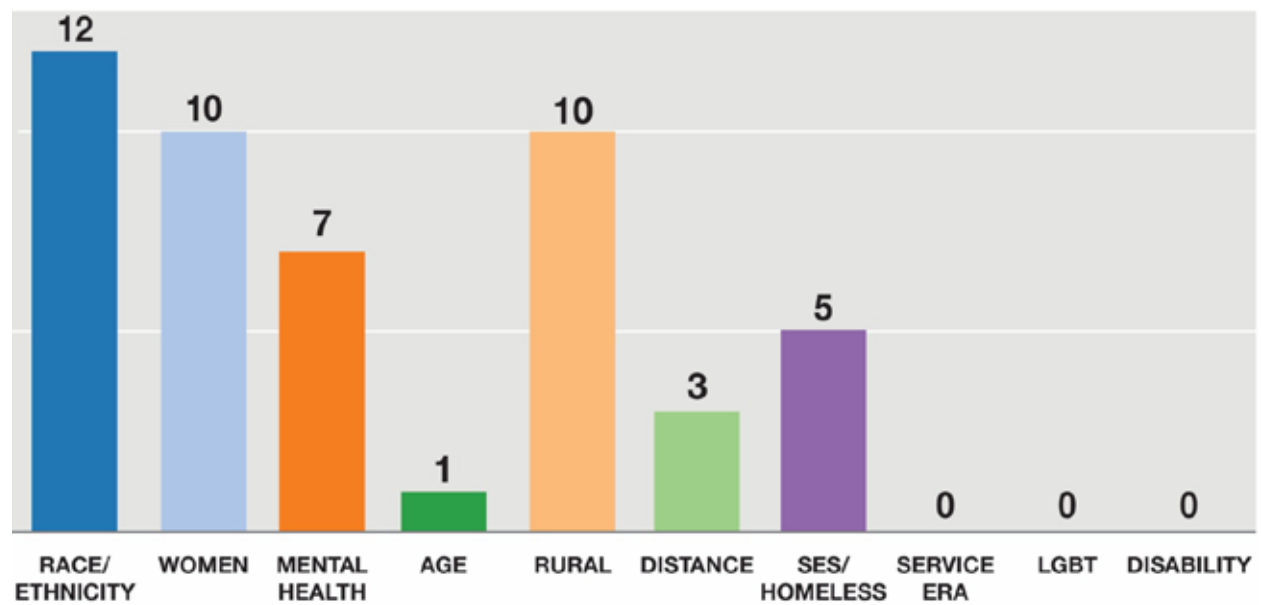


Table 5. Open and Recently Closed Studies Focusing on Health Disparities, Funded by the VA Office of Research and Development

Project Number	Title	Principal Investigator	Funding End	Disparity Type						
				Race	Mental Health	Gender	Rural	Age	SES	Distance
IIR 13-085	Improving VA Weight Management Outcomes: Role of the Residential Environment	Tarlov, E	9/30/2017	X		X	X			
CRE 12-012	Musculoskeletal Diagnoses Cohort: Examining Pain and Pain Care in the VA	Goulet, J	5/31/2017	X		X				
IIR 10-144	Racial and Ethnic Disparities in Satisfaction with VA Care	Zickmund, S	2/28/2015	X		X				
SDR 13-425	Understanding Women's Disparities in Satisfaction with VA Health Care (DISC Women)	Zickmund, S	3/31/2016	X		X				
CRE 12-300	Development and Validation of a Perceived Access Measure	Pyne, J	2/28/2018	X					X	
CRE 12-020	Promoting Evidence-Based Pharmacotherapy for PTSD in CBOCs	Spoont, M	11/30/2017		X					X
IIR 13-315	Effectiveness and Implementation of Brief Cognitive Behavioral Therapy in CBOCs	Cully, J	4/30/2019				X			X
IIR 13-030	A Proactive Walking Trial to Reduce Pain in Black Veterans	Burgess, D	6/30/2019	X						
PPO 13-395	Mental Health Disparities and Communication among African-American Veterans	Eliacin, J	3/31/2016	X						
IIR 11-328	Motivating Providers to Reduce Racial Disparities in Their Own Practice	Burgess, D	5/31/2017	X						
IIR 14-007	Opening the Black Box of Cultural Competence	Saha, S	8/31/2020	X						
IIR 13-080	Staying Positive: An Intervention to Reduce Osteoarthritis Pain Disparities	Hausmann, L	03/31/201	X						
PPO 14-111	SToRytelling to Improve Disease outcomes in Gout: The STRIDE-GO Study	Singh, J	7/31/2015	X						
IIR 10-132	Using Stories to Address Disparities in Hypertension	Houston, T	1/31/2016	X						
RRP 12-524	Access to PTSD Care among Veterans with and without Substance Use Diagnoses	Damon, A	3/31/2015		X					

CDP 12-255	Impact of Mental Illness on Veteran's Palliative Care Access and Outcomes (CDA 11-201)	Garrido, M	9/30/2017		X					
RRP 14-180	Implementation of Stigma Reduction Intervention for Primary Care Providers	Mittal, D	9/30/2015		X					
IIR 11-306	Improving PTSD Service Delivery for Veterans with Severe Mental Illness	Grubaugh, A	12/31/2016		X					
IIR 13-319	Motivationally Enhanced Mobile Delivery of MOVE! to Veterans with Mental Illness	Cohen, A	3/31/2017		X					
SDP 12-177	PACT to Improve Health Care in People with Serious Mental Illness (SMI-PACT)	Young, A	12/31/2018		X					
CRE 12-008	Evaluation of Quality and Coordination of Outsourced Care for Women Veterans	Bastian, L	2/28/2017			X				
CRE 12-038	Impacts of Delivery of Comprehensive Women's Health Care in the VA	Yano, E	8/31/2016			X				
CRE 12-026	Implementation of VA Womens Health Patient Aligned Care Teams WH-PACTs	Yano, E	2/28/2017			X				
CRE 12-039	Web and Shared Decision Making for Reserve/National Guard Women's PTSD Care	Sadler, A	3/31/2017			X				
IIR 12-118	Women Veterans Cohort Study 2	Haskell, S	6/30/2018			X				
SDR 10-012	Women's Health Research Consortium/Practice-Based Research Network	Yano, E	9/30/2016			X				
IIR 10-135	Behavioral Activation Therapy for Rural Veterans with Diabetes and Depression	Naik, A	9/30/2016				X			
VCA 15-245	Differences in Satisfaction with Choice: Laying the Foundation for the Evaluation of the Choice Act	Zickmund, S	9/30/2015				X			
IIR 15-147	Effectiveness of Telehealth Collaborative Care for Veterans with HIV in Rural and Outlying Settings	Ohl, M	7/31/2018				X			
CDP 12-253	Improving Access and Outcomes for Rural Veterans with HIV (CDA 11-211)	Ohl, M	9/30/2017				X			
CRE 12-083	Motivational Coaching to Enhance Mental Health Engagement in Rural Veterans	Seal, K	7/31/2018				X			
PPO 13-153	Personal Health Record-Facilitated Diabetes Self-Management Among Rural Veterans	Lynch, C	6/30/2015				X			
IIR 11-290	Tailoring Interventions for Rural Veterans: What We Need to Know	Fischer, E	3/31/2017				X			

IIR 12-063	VHA-Indian Health Service Collaborations in Rural Health: HBPC	Kramer, B	12/31/2016				X			
IIR 11-285	Computerized Cognitive Training to Improve Cognition in Diabetic Elderly Veterans	Silverman, J	3/31/2018					X		
IIR 13-317	Group Motivational Interviewing (GMI) For Homeless Veterans In VA Services	Santa Ana, E	1/31/2019						X	
IIR 10-333	Improving Outcomes for Homeless Veterans with Peer Support	Ellison, M	5/31/2017						X	
IIR 15-095	Primary Care Quality and Homeless Service Tailoring	Kertesz, S	6/30/2020						X	
IIR 13-296	Systems for Helping Veterans Comprehend Electronic Health Record Notes	Yu, H	11/30/2018						X	
CRE 12-310	Adapting and Implementing the Blended Collaborative Care Model in CBOCs	Owen, R	9/30/2019							X

DISCUSSION AND CONCLUSION

Our review of the evidence examining health disparities experienced by Veterans yielded 464 studies, with 135 studies examining multiple populations, and many reporting multiple outcomes. For Key Question 1, of the 362 identified, studies examining the prevalence of disparities related to race and ethnicity were the most common, with the vast majority examining African American/Blacks, and Hispanic/Latinos a very distant second. Due to the vast differences between racial and ethnic minorities, we did not include studies which classified all Veterans of color as non-White (see Appendix T).

Many of the studies examining racial and ethnic minorities found no clear evidence of disparities. However, there were stark differences by racial/ethnic group and type of outcome. The bulk of studies examining racial/ethnic groups that comprise smaller percentages of the overall Veteran population (*eg*, Native Hawaiian, Pacific Islander, Asian) reported no disparities. It is important to note that the lack of significant findings in these smaller racial and ethnic groups may stem from a lack of statistical power due to their relatively small numbers, rather than an absence of disparities. Given that such a large proportion of the evidence base examining racial/ethnic disparities focuses on African American/Black Veterans, future research is needed to better understand the rapidly growing Hispanic/Latino and Asian populations, and targeted research is needed to capture the unique characteristics of American Indians/Alaska Natives, Native Hawaiians, and Pacific Islanders.

Also highly represented in the body of research were studies examining the prevalence of disparities by gender, mental health status, and age. Our evidence maps very clearly illustrate the difference in emphasis placed on certain Veteran populations, and highlight the gaps in research – in particular the limited number of studies examining disparities by socioeconomic status, and the lack of studies examining LGBT Veterans. The lack of published research examining the prevalence of disparities in LGBT Veterans was not surprising, given that compared to other vulnerable groups, the LGBT Veteran population is relatively small. In addition, our search spanned 2006 to 2016, and the Don't Ask Don't Tell Repeal Act did not take effect until late 2011.

Maps examining utilization clearly illustrate that for some populations (*ie*, race/ethnicity, mental health, women) utilization of care may not be an area of concern; however, it is extremely salient for other Veteran groups – in particular those living farther from VA medical centers, those living in rural areas, and homeless Veterans. In addition, studies provide some evidence that disparities in the quality of care may exist, particularly those related to age, but also in women, Veterans of color, and Veterans with mental health conditions. Finally, maps of studies examining disparities in patient health highlight a distribution of findings that lean towards no disparity or mixed/unclear findings, with the exception of those examining Veterans with mental health conditions and those of low socioeconomic status, for whom poorer health outcomes were more commonly found.

For Key Question 2, interventions most often addressed disparities related to rural residence or distance from a VA medical center, homelessness/socioeconomic status, and mental health. System-level and technology interventions were the most common, and there were just a handful of interventions aimed at providers. Missing completely were studies designed to address

disparities related to LGBT identity, and studies were sparse in other areas, such as interventions to address racial and ethnic, sex, and disability-associated disparities. Our intervention map clearly illustrates that studies have reported findings that were either positive or equivalent, or mixed or unclear. However, the many blank or near-empty cells illustrate that the opportunities for further work in this area are many. When examined alongside the 40 identified current or recent VA Office of Research and Development funded health disparity studies (KQ3), we see clear gaps in research related to not only to LGBT identity, but also cognitive and physical disabilities, era of military service, and age.

The task of finding and classifying the body of research related to health disparities affecting Veterans was a challenge, due not only to the breadth of the body of literature, but also the complexity of the topic. Despite casting a wide net for published studies and searching multiple sources for unpublished studies, we are certain that our maps do not contain every published and unpublished study examining disparities in Veterans conducted in the last 10 years. Furthermore, it is important to note that the reported findings our maps illustrate may be skewed as a result of publication bias.

To enable the capture of the presence or absence of disparities experienced by Veterans receiving care outside of the VHA (*eg*, Patient Centered Community Care, Veterans Choice Program, Medicare or Medicaid eligibility), we included all studies examining health disparities affecting Veterans and meeting other inclusion criteria, regardless of site of care. We did not stratify or analyze studies by site of care; thus, our report does not address the question of whether disparities in health and healthcare differ in vulnerable populations of Veterans receiving care within the VHA, in the private sector, or a combination. Given that large numbers of Veterans receive care in the community instead of or in addition to VHA care, research is needed to better understand the role of site of care in the prevalence of health disparities experienced by vulnerable Veteran populations.

While a handful of studies reported outcome data related to intersecting identities (*ie*, belonging to multiple vulnerable populations, for example LGBT Veterans of color) the vast majority of studies did not. Although relevant data were mapped for each of the vulnerable populations of interest reported in included studies, our maps do not fully capture those Veterans who may be at increased risk as a result of belonging to multiple vulnerable populations. Future systematic reviews targeting specific populations should include a thorough subgroup examination.

We classified studies broadly by clinical area to provide an overview of the distribution by outcomes examined (*ie*, utilization, quality of care, patient health outcomes) in Veteran disparity research. Due to time limitations, we were not able to examine the distribution of clinical areas by population, nor did we conduct any analysis further parsing these categories by specific condition (*eg*, specific types of cancer). In addition to examining vulnerable subgroups, future population specific systematic reviews should also include an analysis of the prevalence of disparities by clinical area or condition.

The vast number of studies and comparisons we examined precluded a formal evaluation of study quality and depth of knowledge. The rough confidence estimates were not intended to replace evaluations of study quality, nor was the intent to provide a standard metric with which to compare study quality between populations. Instead, the purpose of these scores was to allow us to visually represent the relative differences for each population. Furthermore, given that we

did not evaluate many important study-level factors that may influence conclusions related to the presence or absence of a disparity across studies (*eg*, appropriateness of confounders, adjustments, and outcomes, sampling bias), the maps presented in this report should not serve as evidence upon which policy decisions affecting the health or healthcare of Veterans are formed. Instead, they should serve as a starting point – and provide the “lay of the land.” The maps in this report inform areas in which more primary research is needed – for example, the limited number of prevalence studies examining disparities by SES highlight a need for additional research to determine whether the health disparities associated with low SES in the general US population are also experienced by Veterans receiving care in VHA settings. In addition, prevalence studies are needed to better understand the disparities faced by our American Indian/Alaska Native, Asian, Pacific Islander, Native Hawaiian, and LGBT Veterans, followed by intervention studies to address the findings. The maps also serve to inform us of the areas and populations for which the research is rich, and for which a traditional systematic review would enable a deeper understanding not only of what disparities exist, but also the context and mechanisms through which they occur. Finally, they allow us to see the VHA’s strengths and achievements, which in turn may serve to provide motivation to continue to work towards the goal of health equity for all Veterans.

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- 444. Gray KE, Katon JG, Callegari LS, Cordasco KM, Zephyrin LC. Gynecologists in the VA: do they enhance availability of sex-specific services and policies in the emergency department? *Med. Care*. 2015;53(4 Suppl 1):S76-80.
- 445. Sambamoorthi U, Bean-Mayberry B, Findley PA, Yano EM, Banerjea R. Organization of care and diagnosed depression among women veterans. *Am. J. Manag. Care*. 2010;16(9):657-665.
- 446. Washington DL, Bean-Mayberry B, Mitchell MN, Riopelle D, Yano EM. Tailoring VA primary care to women veterans: association with patient-rated quality and satisfaction. *Womens Health Issues*. 2011;21(4 Suppl):S112-119.

APPENDIX A. SEARCH STRATEGIES

LIST OF VA CENTERS CONTACTED FOR STUDIES

Mental Illness Research, Education and Clinical Centers (MIRECCs)	
New England MIRECC - VISN 1	
Center for Integrated Healthcare - VISN 2 (CIH)	
Center of Excellence for Suicide Prevention - VISN 2	
VISN 3 MIRECC	
VISN 4 MIRECC	
VA Capitol Health Care Network MIRECC - VISN 5	
Mid-Atlantic MIRECC - VISN 6	
South Central MIRECC - VISN 16	
VISN 17 Center of Excellence (COE) for Research on Returning War Veterans	
Rocky Mountain Network MIRECC - VISN 19	
Northwest MIRECC - VISN 20	
Sierra Pacific MIRECC - VISN 21	
Desert Pacific MIRECC - VISN 22	
The National Center for PTSD	
Geriatric Research Education and Clinical Centers (GRECCs)	
Ann Arbor	
Baltimore	
Birmingham/Atlanta	
Bronx/New York Harbor	
Cleveland	
Durham	
Gainesville	
Greater Los Angeles	
Little Rock	
Madison	
Miami	
Minneapolis	
New England (Bedford Division)	
New England (Boston Division)	
Palo Alto	
Pittsburgh	
Puget Sound (Seattle & American Lake Divisions)	
Salt Lake City	
San Antonio	
Tennessee Valley	
Other Centers	
Ann Arbor, MI: Center for Clinical Management Research (CCMR)	
Bedford, MA and Boston, MA: Center for Healthcare Organization and Implementation Research (CHOIR)	
Charleston, SC: Charleston Health Equity and Rural Outreach Innovation Center (HEROIC)	
Durham, NC: Center for Health Services Research in Primary Care	
Hines, IL: Center of Innovation for Complex Chronic Healthcare (CINCCH)	
Houston, TX: Center for Innovations in Quality, Effectiveness and Safety (IQESt)	
Indianapolis, IN: Center for Health Information and Communication (CHIC)	
Iowa City, IA: Center for Comprehensive Access & Delivery Research and Evaluation (CADRE)	
Los Angeles, CA: Center for the Study of Healthcare Innovation, Implementation and Policy (CSHIIP)	
Minneapolis, MN: Center for Chronic Disease Outcomes Research (CCDOR)	
North Florida/South Georgia and Tampa: Center of Innovation on Disability and Rehabilitation Research (CINDRR)	
North Little Rock, AR: Center for Mental Healthcare and Outcomes Research (CeMHOR)	

Palo Alto, CA: Center for Innovation to Implementation (Ci2i): Fostering High Value Care
Pittsburgh and Philadelphia, PA: Center for Health Equity Research & Promotion (CHERP)
Portland, OR: Center to Improve Veteran Involvement in Care (CIVIC)
Providence, RI: Center of Innovation in Long-Term Services and Supports for Vulnerable Veterans
Salt Lake City, UT: Informatics, Decision-Enhancement and Analytic Sciences Center (IDEAS 2.0)
Seattle, WA and Denver, CO: Center of Innovation for Veteran-Centered and Value-Driven Care
West Haven, CT: Pain Research, Informatics, Multi-morbidities, and Education (PRIME) Center

SEARCH STRATEGY

DATABASES/WEBSITES:

- Medline
- PubMed (non-Medline materials)
- CINAHL
- PsycINFO
- EBM Reviews (CDSR, DARE, HTA, Cochrane CENTRAL)
- Social Services Abstracts
- Sociological Abstracts
- HSR&D
- ESP
- Clinicaltrials.gov

SEARCH STRATEGIES

Ovid MEDLINE(R) and Ovid OLDMEDLINE(R) 1946 to November Week 3 2015,
Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations January 07, 2016
 Date Searched: January 8, 2016

1	Healthcare disparities/	9988
2	Health equity/	18
3	Health status disparities/	9840
4	Health services accessibility/	57487
5	"Health Services Needs and Demand"/	45916
6	Delivery of health care/	72039
7	Quality of health care/	62070
8	Attitude of health personnel/	99786
9	Professional-patient relations/	23109
10	Physician-patient relations/	64369
11	Nurse-patient relations/	32266
12	Dentist-patient relations/	7810
13	Patient satisfaction/	65439
14	(Discriminat* or Disparit* or parity or Inequal* or Unequal or equal or Inequit* or Equity or equitable or undertreat* or under-treat* or overtreat* or over-treat* or access or accessible or accessibility).tw.	733163
15	or/1-14	1147372
16	Transgendered persons/ or health services for transgendered persons/	673

17	Homosexuality/	12115
18	Homosexuality, male/	11279
19	Homosexuality, female/	2942
20	Bisexuality/	3134
21	Transsexualism/	3152
22	(LGBT* or lesbian* or homosexual* or gay or gays or bisexual* or transgender* or transsexual* or sexual* orient*).tw.	25554
23	exp Socioeconomic factors/	370883
24	homeless persons/	6085
25	"transients and migrants"/	9084
26	(Socio-demographic* or Sociodemographic* or socioeconomic* or socio-economic* or SES or sociocultural* or socio-cultural* or poverty or indigent or low-income or class or classes or disadvantaged).tw.	578928
27	female/ or (women* or female* or gender* or sex or sex-based).tw.	7512980
28	exp religion/ or religio*.tw.	66505
29	rural population/ or urban population/ or (rural-urban or rural or urban or inner-city).tw.	211536
30	"Aged, 80 and over"/ or exp Aged/ or Dental Care for Aged/ or health services for the aged/ or Middle Aged/ or Young Adult/ or (aged or aging or frail or old or older or senior* or elderly or middle-aged).tw.	5317645
31	health services for persons with disabilities/ or (disabilit* or disabled or handicap*).tw.	160130
32	mental health/	25017
33	mental disorders/	130378
34	Psychotic Disorders/	34754
35	Schizophrenia/	88315
36	Schizophrenia, catatonic/	549
37	Schizophrenia, disorganized/	523
38	Schizophrenia, paranoid/	3831
39	Shared Paranoid Disorder/	290
40	Schizoid Personality Disorder/	574
41	Schizotypal Personality Disorder/	2346
42	Affective disorders, psychotic/	2181
43	Bipolar Disorder/	34398
44	Cyclothymic Disorder/	548
45	Stress disorders, traumatic/	533
46	Combat Disorders/	2768
47	Stress disorders, post-traumatic/	24281
48	Stress disorders, traumatic, acute/	352
49	(psychotic or schizotyp* or schizophren* or schizoid* or schizoaffective or bipolar or mania* or hypomania* or hypo-mania* or manic or cyclothymic or PTSD or post-traumatic stress or posttraumatic stress or ((severe* or serious* or chronic* or persistent*) adj mental* ill*).tw.	194414
50	Population groups/	3059

51	Race relations/	2391
52	Minority groups/	11512
53	Continental Population Groups/	17748
54	American Native Continental Ancestry Group/	409
55	African continental ancestry group/	34133
56	Asian Continental Ancestry Group/	44531
57	Oceanic Ancestry Group/	7908
58	African Americans/	47804
59	Hispanic Americans/	21985
60	Indians, north American/	12856
61	Asian Americans/	6309
62	exp Ethnic groups/	125175
63	(Ethnic* or race* or racial* or minority or minorities or African-American* or Black or Blacks or Hispanic* or Chicano* or Chicana* or Latino* or Latina* or Hispanic* or Asian-American* or Native American* or Indian or Indians).tw.	388894
64	((vulnerable adj2 population*) or subgroup* or sub-group* or subpopulation* or sub-population* or stratif*).tw.	336981
65	cultural competency/ or (cultural* competen* or microinsult* or microaggression*).tw.	5885
66	or/16-64	10050541
67	exp "United States Department of Veterans Affairs"/ or exp Veterans Health/ or exp Hospitals, Federal/ or exp Veterans Disability Claims/ or exp Veterans/ or hospitals, veterans/ or gulf war/ or vietnam conflict/ or world war ii/ or afghan campaign 2001-/ or iraq war, 2003-2011/	27660
68	(veteran* or VA or "Veterans Affairs" or VHA or "Veterans Health Administration" or VAMC).tw.	42658
69	or/67-68	54931
70	and/15,66,69	4547
71	(2006* or 2007* or 2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014* or 2015* or 2016*).ed.	9401974
72	70 and 71	2687
73	limit 72 to english language	2627
74	limit 73 to (comment or editorial or letter or news)	94
75	73 not 74	2533
76	75 not "visual acuity (VA)".tw.	2394
77	remove duplicates from 76	2247

Ovid PsycINFO 1806 to February Week 1 2016

Date searched: 02/10/2016

1	exp Health Disparities/	4969
2	treatment barriers/	3119
3	Health care services/	31595
4	health care delivery/	18244
5	"quality of care"/	10412

6	health care utilization/	13133
7	Health personnel attitudes/	15627
8	(Discriminat* or Disparit* or parity or Inequal* or Unequal or equal or Inequit* or Equity or equitable or undertreat* or under-treat* or overtreat* or over-treat* or access or accessible or accessibility or bias or biases).tw.	319804
9	or/1-8	386469
10	transgender/	2391
11	homosexuality/ or "homosexuality (attitudes toward)"/	9473
12	male homosexuality/	12005
13	lesbianism/	9222
14	bisexuality/	5765
15	exp Transsexualism/	2660
16	(LGB or LGBT* or lesbian* or homosexual* or gay or gays or bisexual* or transgender* or transsexual* or sexual* orient*).tw.	37571
17	socioeconomic status/ or income level/ or lower class/ or social class/ or disadvantaged/ or poverty/ or socioeconomic class attitudes/ or lower class attitudes/	45398
18	homeless/ or homeless mentally ill/	5988
19	(Socio-demographic* or Sociodemographic* or socioeconomic* or socio-economic* or SES or sociocultural* or socio-cultural* or poverty or indigent or low-income or class or classes or disadvantaged).tw.	241258
20	Female.po. or exp Sex Discrimination/ or (women* or female* or gender* or sex or sex-based).tw.	1309280
21	religion/ or exp religious beliefs/ or exp religious organizations/ or exp religious practices/ or exp religious prejudices/ or religio*.tw.	83080
22	exp Rural Environments/ or exp Urban Environments/ or (rural-urban or rural or urban or inner-city).tw.	80027
23	("300" or "320" or "340" or "360" or "380" or "390").po. or "aging (attitudes toward)"/ or age discrimination/ or "aged (attitudes toward)"/ or (aged or aging or frail or old or older or senior* or elderly or middle-aged).tw.	565721
24	disabilities/ or learning disabilities/ or multiple disabilities/ or reading disabilities/ or disability discrimination/ or "disabled (attitudes toward)"/ or (disabilit* or disabled or handicap*).tw.	131195
25	mental health/	47131
26	mental disorders/ or chronic mental illness/ or "mental illness (attitudes toward)"/	74701
27	exp psychosis/	99080
28	exp schizophrenia/	77765
29	schizophrenia/ or acute schizophrenia/ or catatonic schizophrenia/ or childhood schizophrenia/ or paranoid schizophrenia/ or process schizophrenia/ or "schizophrenia (disorganized type)"/ or schizophreniform disorder/ or undifferentiated schizophrenia/	77765
30	schizoid personality disorder/	624
31	exp Folie A Deux/	174
32	exp Schizotypal Personality Disorder/	1323
33	affective disorders/	12270
34	bipolar disorder/	21866
35	exp Cyclothymic Personality/	203

36	posttraumatic stress disorder/	24848
37	acute stress disorder/	507
38	(psychotic or schizotyp* or schizophren* or schizoid* or schizoaffective or bipolar or mania* or hypomania* or hypo-mania* or manic or cyclothymic or PTSD or post-traumatic stress or posttraumatic stress or ((severe* or serious* or chronic* or persistent*) adj mental* ill*).tw.	202517
39	"racial and ethnic groups"/ or racism/ or "race and ethnic discrimination"/ or stereotyped attitudes/ or social discrimination/	32753
40	african cultural groups/	1822
41	asians/ or chinese cultural groups/ or japanese cultural groups/ or korean cultural groups/ or south asian cultural groups/ or southeast asian cultural groups/ or vietnamese cultural groups/	19866
42	"latinos/latinas"/ or mexican americans/	23357
43	minority groups/ or alaska natives/ or american indians/ or arabs/ or blacks/ or hawaii natives/ or inuit/ or jews/ or romanes/	64581
44	pacific islanders/ or hawaii natives/	719
45	indigenous populations/ or alaska natives/ or american indians/ or inuit/	10306
46	(Ethnic* or race* or racial* or minority or minorities or African-American* or Black or Blacks or Hispanic* or Chicano* or Chicana* or Latino* or Latina* or Hispanic* or Asian-American* or Native American* or Indian or Indians).tw.	223875
47	((vulnerable adj2 population*) or subgroup* or sub-group* or subpopulation* or sub-population* or stratif*).tw.	57013
48	cultural sensitivity/ or cross cultural treatment/ or cross cultural differences/ or (cultural* competen* or microinsult* or microaggression*).tw.	54787
49	or/10-48	2096947
50	military veterans/ or (veteran* or VA or "Veterans Affairs" or VHA or "Veterans Health Administration" or VAMC).tw.	18623
51	and/9,49-50	2139
52	(2006* or 2007* or 2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014* or 2015* or 2016*).up.	1868212
53	and/51-52	1555
54	limit 53 to ("column/opinion" or "comment/reply" or editorial or letter)	62
55	53 not 54	1493

Ovid EBM Reviews:

Cochrane Central Register of Controlled Trials January 2016

Cochrane Database of Systematic Reviews 2005 to February 03, 2016

Database of Abstracts of Reviews of Effects 1st Quarter 2016

Health Technology Assessment 1st Quarter 2016

Date Searched: 02/11/2016

1	(Discriminat* or Disparit* or parity or Inequal* or Unequal or equal or Inequit* or Equity or equitable or undertreat* or under-treat* or overtreat* or over-treat* or access or accessible or accessibility).tw.	428980
2	(LGBT* or lesbian* or homosexual* or gay or gays or bisexual* or transgender* or transsexual* or sexual* orient*).tw.	575
3	(Socio-demographic* or Sociodemographic* or socioeconomic* or socio-economic* or SES or sociocultural* or socio-cultural* or poverty or indigent or low-income or class or classes or disadvantaged).tw.	25289

4	(women* or female* or gender* or sex or sex-based).tw.	137925
5	religio*.tw.	512
6	(rural-urban or rural or urban or inner-city).tw.	8281
7	(aged or aging or frail or old or older or senior* or elderly or middle-aged).tw.	92909
8	(disabilit* or disabled or handicap*).tw.	15908
9	(psychotic or schizotyp* or schizophren* or schizoid* or schizoaffective or bipolar or mania* or hypomania* or hypo-mania* or manic or cyclothymic or PTSD or post-traumatic stress or posttraumatic stress or ((severe* or serious* or chronic* or persistent*) adj mental* ill*).tw.	18814
10	(Ethnic* or race* or racial* or minority or minorities or African-American* or Black or Blacks or Hispanic* or Chicano* or Chicana* or Latino* or Latina* or Hispanic* or Asian-American* or Native American* or Indian or Indians).tw.	20288
11	((vulnerable adj2 population*) or subgroup* or sub-group* or subpopulation* or sub-population* or stratif*).tw.	43614
12	(cultural* competen* or microinsult* or microaggression*).tw.	92
13	or/2-12	269480
14	(veteran* or VA or "Veterans Affairs" or VHA or "Veterans Health Administration" or VAMC).tw.	4420
15	and/1,13-14	1318
16	(2006* or 2007* or 2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014* or 2015* or 2016*).yr.	444071
17	15 and 16	913
18	17 not "visual acuity (VA)".tw.	842
19	limit 18 to english language [Limit not valid in CDSR,DARE; records were retained]	826
20	remove duplicates from 19	804

EBSCOHOST CINAHL

Date Searched: April 12, 2016

Limits**Published Date:** 20060101-20160531;**English Language;****Exclude MEDLINE records;****Publication Type:** Abstract, Book, Book Chapter, Case Study, Clinical Trial, Journal Article, Meta Analysis, Meta Synthesis, Proceedings, Randomized Controlled Trial, Review, Systematic Review;**Age Groups:** Adult: 19-44 years, Middle Aged: 45-64 years, Aged: 65+ years, Aged, 80 and over

#	Search Terms	Result
S64	S14 AND S60 AND S63	183
S63	S61 OR S62	21,073
S62	veteran* or VA or "Veterans Affairs" or VHA or "Veterans Health Administration" or VAMC	21,073
S61	(MH "Hospitals, Veterans") OR (MH "United States Department of Veterans Affairs") OR (MH "Vietnam Veterans") OR (MH "Veterans")	15,589
S60	S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26	2,152,898

	OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42 OR S43 OR S44 OR S45 OR S46 OR S47 OR S48 OR S49 OR S50 OR S51 OR S52 OR S53 OR S54 OR S55 OR S56 OR S57 OR S58 OR S59	
S59	(cultural* W1 competen*) or microinsult* or microaggression*	7,869
S58	(MH "Cultural Competence")	6,731
S57	(vulnerable W2 population*) or subgroup* or sub-group* or subpopulation* or sub-population* or stratif*	52,613
S56	Ethnic* or race* or racial* or minority or minorities or African-American* or Black or Blacks or Hispanic* or Chicano* or Chicana* or Latino* or Latina* or Hispanic* or Asian-American* or Native American* or Indian or Indians	137,488
S55	(MH "Ethnic Groups+")	102,418
S54	(MH "Asians")	15,314
S53	(MH "Native Americans")	7,294
S52	(MH "Hispanics")	24,005
S51	(MH "Blacks")	40,786
S50	(MH "Minority Groups")	8,668
S49	(MH "Race Relations")	749
S48	TX psychotic or schizotyp* or schizophren* or schizoid* or schizoaffective or bipolar or mania* or hypomania* or hypo-mania* or manic or cyclothymic or PTSD or post-traumatic stress or posttraumatic stress or ((severe* or serious* or chronic* or persistent*) W3 mental* ill*))	94,623
S47	(MH "Stress Disorders, Post-Traumatic")	14,388
S46	(MH "Cyclothymic Disorder")	97
S45	(MH "Bipolar Disorder")	7,897
S44	(MH "Affective Disorders, Psychotic")	498
S43	(MH "Schizotypal Personality Disorder")	199
S42	(MH "Paranoid Disorders")	478
S41	(MH "Schizophrenia")	17,261
S40	(MH "Psychotic Disorders")	7,397
S39	(MH "Mental Disorders")	40,135
S38	(MH "Mental Health")	19,042
S37	disabilit* or disabled or handicap*	117,918
S36	(MH "Health Services for Persons with Disabilities")	16
S35	aged or aging or frail or old or older or senior* or elderly or middle-aged	740,517
S34	(MH "Middle Age") OR (MH "Age Specific Care")	663,638
S33	(MH "Health Services for the Aged") OR (MH "Dental Care for Aged") OR (MH "Aged") OR (MH "Aged, 80 and Over")	557,338

S32	rural-urban or rural or urban or inner-city	76,119
S31	(MH "Rural Population") OR (MH "Urban Population")	9,915
S30	religio*	17,661
S29	(MH "Religion and Religions+") OR (MH "Religion and Medicine")	31,964
S28	women* or female* or gender* or sex or sex-based	1,401,842
S27	(MH "Women") OR (MH "Women's Health Services") OR (MH "Women's Health")	38,714
S26	TX Socio-demographic* or Sociodemographic* or socioeconomic* or socio-economic* or SES or sociocultural* or socio-cultural* or poverty or indigent or low-income or class or classes or disadvantaged	304,744
S25	(MH "Transients and Migrants")	2,592
S24	(MH "Homeless Persons")	3,746
S23	(MH "Socioeconomic Factors+") OR (MH "Poverty+") OR (MH "Social Class+")	238,185
S22	LGBT* or lesbian* or homosexual* or gay or gays or bisexual* or transgender* or transsexual* or sexual* orient*	14,195
S21	(MH "GLBT Persons")	1,996
S20	(MH "Transsexuals") OR (MH "Transsexualism")	878
S19	(MH "Bisexuals") OR (MH "Bisexuality")	1,526
S18	(MH "Lesbians")	1,840
S17	(MH "Homosexuals, Male")	3,332
S16	(MH "Homosexuals") OR (MH "Homosexuality")	5,515
S15	(MH "Transgendered Persons")	916
S14	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13	658,248
S13	TX Discriminat* or Disparit* or parity or Inequal* or Unequal or equal or Inequit* or Equity or equitable or undertreat* or under-treat* or overtreat* or over-treat* or access or accessible or accessibility	489,015
S12	(MH "Patient Satisfaction")	37,275
S11	(MH "Dentist-Patient Relations")	1,389
S10	(MH "Nurse-Patient Relations")	22,318
S9	(MH "Physician-Patient Relations")	22,780
S8	(MH "Professional-Patient Relations")	23,124
S7	(MH "Attitude of Health Personnel")	28,790
S6	(MH "Quality of Health Care")	50,683
S5	(MH "Health Care Delivery")	33,123
S4	(MH "Health Services Needs and Demand")	16,847
S3	(MH "Health Services Accessibility")	56,992

S2	(MH "Health Status Disparities")	2,748
S1	(MH "Healthcare Disparities")	3,464

ProQuest Sociological Abstracts

Date Searched: April 20, 2016

Set	Search	Results
S16	S1 AND S14 AND S13 Limits applied (2006-2016 publication date)	85
S15	S1 AND S14 AND S13	231
S14	S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12	528,219
S13	ab(veteran* OR VA OR "Veterans Affairs" OR VHA OR "Veterans Health Administration" OR VAMC) OR su(veterans)	2,551
S12	ab(cultural* competen* OR microinsult* OR microaggression*)	1,986
S11	ab(vulnerable population* OR subgroup* OR sub-group* OR subpopulation* OR sub-population* OR stratif*) or su(social stratification)	34,383
S10	ab(Ethnic* OR race* OR racial* OR minority OR minorities OR African-American* OR Black OR Blacks OR Hispanic* OR Chicano* OR Chicana* OR Latino* OR Latina* OR Hispanic* OR Asian-American* OR Native American* OR Indian OR Indians) or su(American Indians or Arab Americans, or Asian Americans or Black Americans or Eskimos or Hispanic Americans or Jewish Americans or African Cultural Groups or Asian Cultural Groups or Middle Eastern Cultural Groups or Latin American Cultural Groups or North American Cultural Groups or Oceanic Cultural Groups or Race or Ethnicity)	178,830
S9	ab(psychotic OR schizotyp* OR schizophren* OR schizoid* OR schizoaffective OR bipolar OR mania* OR hypomania* OR hypo-mania* OR manic OR cyclothymic OR PTSD OR post-traumatic stress OR posttraumatic stress OR severe* mental* ill* OR serious* mental* ill* OR chronic* mental* ill* OR persistent* mental* ill*) or su(mental illness or schizophrenia or psychopathology or posttraumatic stress disorder or bipolar disorders or cyclothymia)	9,545
S8	ab(disabilit* OR disabled OR handicap*) or su(handicapped or physically handicapped)	10,467
S7	ab(aged OR aging OR frail OR old OR older OR senior* OR elderly OR middle-aged) or su(aging or elderly or middle aged adults)	71,149
S6	ab(rural-urban OR rural OR urban OR inner-city) or su(rural urban differences or urban rural differences or rural areas or urban areas)	56,206
S5	ab(religio*) or su(religions or Religious Cultural Groups)	77,095
S4	ab(women* OR female* OR gender* OR sex OR sex-based) or su(womens health care or working women or females or sexism or sex role attitudes or sexual inequality)	180,772
S3	ab(Socio-demographic* OR Sociodemographic* OR socioeconomic* OR socio-economic* OR SES OR sociocultural* OR socio-cultural* OR poverty OR indigent OR low-income OR class OR classes OR disadvantaged) or su(socioeconomic factors or social background or social factors or sociocultural factors or sociodemographic factors or socioeconomic status or poverty or rural poverty or rural poor or urban poverty or urban poor or income inequality or social inequality or social class)	165,056
S2	ab(LGBT* OR lesbian* OR homosexual* OR gay OR gays OR bisexual* OR transgender* OR transsexual* OR sexual* orient*) or su(Lesbianism or bisexuality or homosexuality or transsexuality or homophobia)	15,518
S1	ab(Discriminat* OR Disparit* OR parity OR Inequal* OR Unequal OR equal OR Inequit* OR Equity OR equitable OR undertreat* OR under-treat* OR overtreat* OR over-treat* OR access OR accessible OR accessibility) or su(discrimination or racial discrimination or equality or inequality or access)	101,521

ProQuest Social Services Abstracts

Date Searched: April 21, 2016

Set	Search	Results
S16	S1 AND S14 AND S13 Limits applied (2006-2016)	45
S15	S1 AND S14 AND S13	78
S14	S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12	115,167
S13	ab(veteran* OR VA OR "Veterans Affairs" OR VHA OR "Veterans Health Administration" OR VAMC) OR su(veterans)	1,460
S12	ab(cultural* competen* OR microinsult* OR microaggression*)	1,319
S11	ab(vulnerable population* OR subgroup* OR sub-group* OR subpopulation* OR sub-population* OR stratif*) or su(social stratification)	3,826
S10	ab(Ethnic* OR race* OR racial* OR minority OR minorities OR African-American* OR Black OR Blacks OR Hispanic* OR Chicano* OR Chicana* OR Latino* OR Latina* OR Hispanic* OR Asian-American* OR Native American* OR Indian OR Indians) or su(American Indians or Arab Americans, or Asian Americans or Black Americans or Eskimos or Hispanic Americans or Jewish Americans or African Cultural Groups or Asian Cultural Groups or Middle Eastern Cultural Groups or Latin American Cultural Groups or North American Cultural Groups or Oceanic Cultural Groups or Race or Ethnicity)	26,249
S9	ab(psychotic OR schizotyp* OR schizophren* OR schizoid* OR schizoaffective OR bipolar OR mania* OR hypomania* OR hypo-mania* OR manic OR cyclothymic OR PTSD OR post-traumatic stress OR posttraumatic stress OR severe* mental* ill* OR serious* mental* ill* OR chronic* mental* ill* OR persistent* mental* ill*) or su(mental illness or schizophrenia or psychopathology or posttraumatic stress disorder or bipolar disorders or cyclothymia)	9,431
S8	ab(disabilit* OR disabled OR handicap*) or su(handicapped or physically handicapped)	8,327
S7	ab(aged OR aging OR frail OR old OR older OR senior* OR elderly OR middle-aged) or su(aging or elderly or middle aged adults)	30,467
S6	ab(rural-urban OR rural OR urban OR inner-city) or su(rural urban differences or urban rural differences or rural areas or urban areas)	12,811
S5	ab(religio*) or su(religions or Religious Cultural Groups)	4,550
S4	ab(women* OR female* OR gender* OR sex OR sex-based) or su(womens health care or working women or females or sexism or sex role attitudes or sexual inequality)	42,835
S3	ab(Socio-demographic* OR Sociodemographic* OR socioeconomic* OR socio-economic* OR SES OR sociocultural* OR socio-cultural* OR poverty OR indigent OR low-income OR class OR classes OR disadvantaged) or su(socioeconomic factors or social background or social factors or sociocultural factors or sociodemographic factors or socioeconomic status or poverty or rural poverty or rural poor or urban poverty or urban poor or income inequality or social inequality or social class)	34,229
S2	ab(LGBT* OR lesbian* OR homosexual* OR gay OR gays OR bisexual* OR transgender* OR transsexual* OR sexual* orient*) or su(Lesbianism or bisexuality or homosexuality or transsexuality or homophobia)	5,254
S1	ab(Discriminat* OR Disparit* OR parity OR Inequal* OR Unequal OR equal OR Inequit* OR Equity OR equitable OR undertreat* OR under-treat* OR overtreat* OR over-treat* OR access OR accessible OR accessibility) or su(discrimination or racism or bias or prejudice or equality or inequality or access)	23,972

ClinicalTrials.gov

Date Searched: April 22, 2016

(veteran* OR VA OR Veterans Affairs OR VHA OR Veterans Health Administration OR VAMC) AND (discrimination OR discriminate OR discriminated OR disparity OR disparities OR parity OR Inequality OR inequalities OR unequal OR unequally OR inequity OR inequities OR equity OR equitable OR accessible OR accessibility OR prejudice OR prejudicial OR homophobia OR homophobic OR racism OR racist) | Adult, Senior | received from 01/01/2006 to 04/22/2016 = 96 results

APPENDIX B. TECHNICAL EXPERT PANEL AND PEER REVIEW COMMENTS/AUTHOR RESPONSES

TECHNICAL EXPERT PANEL

- Leonard Egede, MD, MS
- Jennifer Gierisch, PhD, MPH
- Kenneth T. Jones, PhD, MSW
- Sara J. Knight, PhD
- Michelle Spoont, PhD
- Donna Washington, MD, MPH
- William B. Weeks, MD, PhD, MBA

PEER REVIEW COMMENTS AND AUTHOR RESPONSES

Question Text	Reviewer Number	Comment	Response
Are the objectives, scope, and methods for this review clearly described?	1	Yes	Thank you.
	2	Yes	Thank you.
	3	Yes	Thank you.
	4	Yes	Thank you.
Is there any indication of bias in our synthesis of the evidence?	1	No	Thank you.
	2	No	Thank you.
	3	No	Thank you.
	4	No	Thank you.
Are there any <u>published</u> or <u>unpublished</u> studies that we may have overlooked?	1	No	
	2	Yes - The following study includes a sub analyses focusing on utilization before and after care directive for transgender Vets - Kauth, M. R., Shipherd, J. C., Lindsay, J., Blosnich, J. R., Brown, G. R., Jones, K. T. (2014). Access to care for transgender veterans in the Veterans Health Administration: 2006–2013. American Journal of Public Health, 104(S4), S532-S534.	Thank you. We did look closely at this study, particularly because of the paucity of research examining the prevalence of health disparities in LGBT Veterans. Upon review, we determined that the study did not meet inclusion criteria based on lack comparison data.

Additional suggestions or comments can be provided below. If applicable, please indicate the page and line numbers from the draft report.	3	No	
	4	No	
	1	Page 5, lines 29-33: Clarify that these are the 3 key questions	Thank you. We have added numbers for clarity.
	1	Page 7, lines 3-6; page 18 line 10 and figure: Discrepancy – 415 studies in text in multiple places, 455 in figure 2. Clarify if there is overlap with more than one key question addressed by some studies.	Thank you. We have changed Figure 2 to accurately reflect the total number of studies, with a note about studies addressing multiple key questions.
	1	Page 7, line 52; page 35, line 30: What 3 disparity classifications are being referred to – are these the 3 key questions?	In the original draft, this referred to the classification of findings (disparity, no disparity, mixed/unclear). We have edited these sentences for clarity.
	1	Page 8, lines 7-9; page 35, lines 43-45: “Missing completely were studies designed to address disparities related to LGBT identify” ADD “, and studies were sparse in other areas, <i>eg</i> , interventions to address racial/ethnic, sex, and disability-associated disparities.”	Added, thank you.
	1	Page 9, line 40: Is citation 4 a VA ESP evidence brief? Please add complete details to the citation listing.	Yes, it is an evidence brief. Thank you. We have updated the reference.
	1	Page 9, line 49: Citation 5 is not the direct source of the statistic that is cited. I suggest substituting for citation 5 the report or website this is quoted in the Study of Barriers to Care for Women Veterans report (it likely comes from the VetPop population projections).	Thank you. We have updated the report to reflect VetPop2014 projections published in the NCVAS February 2017 Women Veterans Report.
	1	Page 11, lines 38-41: Labelling the key questions will make it easier to follow.	We have added numbers to improve readability.
	1	Page 12, lines 23-34: Some studies may describe previously unstudied disparities (1st gen) and also examine mediating factors (2nd gen). How are these studies categorized? If categorized as 2nd gen, then a limitation of this evidence map is that those studies do not contribute to key question 1, and that limitation should be added.	We included all studies meeting inclusion criteria that provided data on the prevalence of health disparities (1 st gen) for KQ1, regardless of whether they also examined mediating factors (2 nd gen). We have added the following statement to clarify: Some studies may fall into more than one generational category. In these cases, only the data relevant to the key questions in this report were extracted.
	1	Page 13: It seems that the “2nd” and “3rd” circles should be in-line with the arrows containing “KQ 3” and “KQs 2 and 3”, respectively.	Thank you. We have made these edits.
	1	Pages 13 & 28: “patient-provider” is a mediating factor in the figure 1 analytic framework, but it is missing as a category in the figure 10 intervention evidence map. That category should be added to the evidence map so that it is clear that there are no studies that fit in that category (assuming that is the case). If those studies are categorized in a different way in the map, then a footnote should be added to the analytic framework specifying where to find those studies.	For KQ2, the intervention categories we mapped were not intended to align directly with the types of mediating factors in the analytic framework. Instead, our map is organized by the focus of the intervention. This allowed us to highlight technology interventions.

	1	Page 16, table 2: Study sites – Clarify how national samples (<i>eg</i> , BRFSS, SHEP) are categorized. Sample size – this scoring biases against studies of small populations within VA (<i>eg</i> , certain race groups and women). That bias should be explicitly stated.	Thank you. We edited the language in Table 2 to reflect one point for multi-site studies and data from national samples. With regard to bias, you are correct that if we were using sample size as a measure of confidence across populations, small samples would be at a disadvantage. However, our confidence scores are presented in a way that they are only relevant within each population (<i>i.e.</i> , for each population, including each racial and ethnic group, we present separate tables with study-level confidence scores, and maps with mean confidence scores represented by bubble size by outcome type/finding). In addition, we prioritized conveying the relative differences, rather than the absolute sizes. To clarify, we have added a statement in our discussion/limitations.
	1	Page 32, table 5: Other than the first 2 rows, the studies appear to be listed alphabetically by title. The table would be much more useful if studies were ordered by disparity type, with studies addressing more than one disparity type grouped together at either the top or bottom of the table.	Thank you. We have re-organized the table based on your suggestion.
	2	Fine job to the authors! Thank you for the opportunity to review Prevalence of and Interventions to Reduce Disparities in Vulnerable Populations within the VA: A Map of the Evidence. I agree with the report's authors in that this product sheds a light on available disparity research and areas ripe for action by VA researchers, program offices, and stakeholders. I offer several comments for consideration. However, and because a lot of the report focuses on maps, I do have specific comments regarding the maps. Visually, I think it is important to list the mean confidence level in the bubbles. Additionally, I am curious about studies classified as mixed/unclear. This may be misleading and I give an example of a study that I am familiar with that was included in the study. I am available to provide additional details as needed.	Thank you.
	2	Page 5 Line 8 - The use of the term "diverse" is broad. Suggest qualifying diverse in terms in race, gender, etc. to bring additional focus that health equity involves addressing issues for groups that have experience inequalities and inequities, historical and contemporary injustices, and other types of marginalization.	Thank you. We have revised the introductory paragraph to be more specific.
	2	Page 5 Line 14 - Suggest referencing the VHA Health Equity Action Plan as it outlines VHA's strategic plan to eliminate health disparities/achieve health equity specifically.	Thank you. The introductions of both the Executive Summary and the Evidence Report now refer to the VHA Health Equity Plan.

	2	Page 5 Line 22 - I would reference partnering with the nominating partner (OHE). For example, other ESPs included the following language: In order to guide future research and policy decisions for the VA, the VA Office of Health Equity partnered with the Evidence-based Synthesis Program (ESP)...	Thank you. Yes, absolutely. We have edited the statement accordingly.
	2	Page 5 Line 23 - Modify to "health disparities affecting vulnerable Veterans"	Thank you. We have added "vulnerable" to this sentence.
	2	Page 5 Line 49 - Suggest changing "all" to "select" as the review does not capture "all Veteran populations for whom a health disparity might exist."	We have changed "all" to "select."
	2	Line 6 Line 12 - Consider alternate word other than "pearled."	We have changed "pearled" to "manually searched."
	2	Page 6 Line 45 - Was a threshold used for the number that had to be in agreement? For example, if 90% of the findings are in agreement classifying the study as mixed may cause undue confusion about the evidence in the article.	No, we did not use a threshold for agreement. Because we classified studies into outcome categories (i.e., utilization, quality, and patient health) a single study may have provided data for more than one category. For example, a hypothetical study may have found no evidence of a disparity in utilization, but may have found evidence of a disparity in the quality of care. Within each outcome category, given the range of clinical areas and the vast number of studies, we were unable to extract the amount of data required to make clinically informed judgements for each study, and did not want to arbitrary cutoffs based on percentages which may be misleading (for example, no disparity may have been identified for the vast majority of outcomes examined, but was identified for the primary outcome of interest). In general, if possible, we aligned our finding with findings of the primary outcomes. However, if a study had multiple primary outcomes of interest (eg, a study of Veterans with diabetes may examine HbA1c testing, HbA1c control, blood pressure testing, blood pressure control, LDL-C testing, LDL-C control), we classified the finding as mixed/unclear if any disagreement existed.
	2	Page 7 Line 8 - Suggest restating Key Question for those who may only read the executive summary.	Thank you. We have added the key questions to this section.
	2	Page 7 Line 14 - What about military era, SES or any other target populations that not included?	Thank you. Instead of adding additional text outlining our findings for each population, we have added maps/figures.
	2	Page 7 Line 36 - Suggest restating this sentence.	Thank you. We have restated this sentence for clarity.
	2	Page 7 Line 59 - This paragraph doesn't reflect what is stated in the prior paragraph. Suggest adding Veterans with memberships in multiple vulnerable groups (although the maps may not convey this fully).	Thank you. We have restated these paragraphs.
	2	Page 8 Line 25 - Strike "of the" in "They inform of the areas"	Thank you, "of the" has been removed.

	2	Page 9 Line 3 - Aforementioned comments in Executive Summary apply to ongoing section as well.	Thank you. Where applicable, we have applied previous comments to the full report.
	2	Page 9 Line 50 - Spell out OEF/OIF if first time used.	Thank you, we have corrected this.
	2	Page 10 Line 26 - Strike Operation Enduring Freedom, Operation Iraqi Freedom, and the parens before and after OEF and OIF. OEF and OIF previously used. See prior comment.	Thank you, we have corrected this.
	2	Page 11 Line 27 - I recommend including the nominating partner. Other reviews have included the following language..."In order to guide future research and policy decisions for the VA, the VA Office of Health Equity partnered with the Evidence-based Synthesis Program (ESP)..."	Thank you. We apologize for this oversight. We have added the recommended language.
	2	Page 12 Line 6 - The topic was developed in collaboration with VHA Office of Health Equity. I would mention that.	Thank you. We apologize for this oversight. We have added reference to the Office of Health Equity to the Topic Development section of Methods.
	2	Page 13 Line 23 - Are the Veteran populations listed according to some order? I'd suggest listing alphabetically or according to evidence of disparity according to key questions.	Thank you. We have alphabetized the list.
	2	Page 14 Line 38 - Identify stakeholder	We have changed "our stakeholder" to "Dr. Uchendu."
	2	Page 16 Line 3 - Is there a citation to support this approach?	Unfortunately, there is not. Previous evidence maps have focused largely on systematic reviews, and have reported the quality ratings assigned by those reviews. Because we examined over 400 primary studies, we were unable to, due to time constraints, perform a formal evaluation of the quality of evidence. We chose these variables to represent a rough estimate of confidence.
	2	Page 20 Line 7 - LGB and Transgender are separate but I believe in all other prior cases LGBT studies were lumped together. Should these be combined?	Thank you. In the draft report, we separated the one study examining transgender Veterans from those examining lesbian, gay, and bisexual (LGB) Veterans to highlight the paucity of research on this population. We understand that it may be confusing, considering we grouped them with studies examining lesbian, gay, and bisexual Veterans for the rest of the report. We have edited the map to reflect studies examining LGBT veterans, consistent with the rest of the report, and have noted in the figure footer that only one study examined transgender Veterans.

	2	Page 21 Line 20 - I am not sure but I think the bubbles, visually, would be easier to understand if the confidence level (number) was included in each bubble.	Thank you. We considered including confidence estimates on the maps. We decided not to include the numerical values, considering that the bubbles represent mean confidence estimates, that the differences between bubbles on most maps were relatively small (and were noticeable when large), and we did not want to add potentially distracting visual information. Study-level confidence estimates are provided for each map (Appendices E-R).
	2	Page 162 Line 45 - Study found disparities in all 10 mental health diagnoses and 14/17 medical diagnoses. I point this out as an example of how the "mixed/unclear" category can be misleading for studies with multiple outcomes.	Yes, this is a good example. This particular study examined outcomes related to utilization, quality, and health outcomes. We classified diagnoses as health outcomes, and did determine that the findings were "mixed/unclear." As mentioned above, we tried to align our determination with primary outcomes, and we tried to, if possible, base our determination on the results authors chose to highlight in the abstract. This particular study's abstract stated, "Multivariate analyses found few differences between homeless and non-homeless ED users on the medical conditions examined, but homeless ED users were more likely to have been diagnosed with a drug use disorder...alcohol use disorder..., or schizophrenia in the past year. We determined that the findings were mixed, given the presence of disparities related to substance use disorders and schizophrenia, but few differences in medical conditions.
	3	The authors have done a very impressive job bringing together an enormous number of studies to address these important Key Questions. The review is well organized, straightforward, and easy to follow. The evidence maps are very well done and convey information clearly. There are some minor stylistic issues that would make the report a bit easier to follow, and some conceptual issues of more significant concern.	Thank you.
	3	In the executive summary would be helpful if the Key Questions were clearly laid out for those readers who will not read the full-length report. Although there is a brief mention of how authors defined study outcome categories of "utilization", "quality", and "health outcome", a more detailed explanation of these terms would help the reader better understand their classification system, and to ascertain the evidence available in each area. Additionally, briefly providing those definitions with each map would allow the reader to continue through the report without having to go back and forth.	Thank you. To better highlight the key questions in the executive summary, we have added numbers to the introduction, and included each key question in full in the results section. In addition, we have added examples to expand our description of our study outcome categories, and include the statement, "Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care" in the footer of each relevant map.

	3	It is unclear what is meant by some statements, particularly those later in the report. For example, the statement, “Mean confidence estimates for African American/Black Veterans and to a certain extent Hispanic/Latino Veterans, were lower than for other groups, given a much larger literature base, and regression toward the mean,” seems to include several ideas that might be more clear if teased apart or rephrased.	Thank you. We have rephrased this statement for clarity.
	3	There are 3 conceptual issues that the authors should consider. First, by reporting study authors’ conclusions regarding the presence or absence of a disparity, the authors are tacitly agreeing with the studies’ findings. While it may be tempting to provide policy makers with quick summaries of the literature, providing a “rough estimate of confidence for each study” gives the impression that study quality is evaluated and that a firm conclusion exists when this is not the case. Factors that could impact determinations of the presence or absence of a disparity include appropriateness of confounders, biases in sampling, quality and appropriateness of the outcome measures used, and types of analyses and adjustments employed. These limitations are not trivial and should be acknowledged.	Thank you. Although we made our own determinations of whether study findings represented a disparity, you are absolutely correct that we are taking studies on face value, without formal evaluations of study quality. Our intention was never that our findings be used as a basis from which to guide policy, but instead, the hope is that it will serve a tool used to inform future research. We have edited our conclusion, with more emphasis on this point.
	3	Second, in addition to ignoring limitations of the “rough confidence estimate”, the evidence maps for Key Question 1 do not consider whether a statistically significant finding reflects a minimally important difference or whether an or insignificant finding occurs due to insufficient power. For example, Appendix I presents the Evidence Map for Hawaiian and Pacific Islander Veterans. The absence of findings is most likely due to the fact that the numbers of Veterans identifying as HPI are very low, even in large scale studies. This is particularly problematic in studies in which outcomes are low frequency events. Given that this is a very understudied group of Veterans, and it seems premature to convey the impression that no disparities exist for these groups (or any other). This should also be acknowledged in a more detailed limitations section, but perhaps summarizing studies identified for Key Question 1 in a manner similar as was done for Key Question 2 would be more appropriate.	<p>Thank you. You are absolutely correct that findings of no difference in populations such as Native Hawaiians, may be due to a lack of statistical power. We have included a statement to this point in the body of the report, as well as in the discussion, and included a call for targeted research examining these smaller groups.</p> <p>With regard to summarizing Key Question 1 in a manner more similar to Key Question 2 -- We identified 358 studies for Key Question 1, and 64 studies for Key Question 2. The goal of Key Question 1 was to provide an overview of the prevalence of disparities, and the studies examining disparities, for a broad range of populations. Instead of providing study and outcome-level detail for each population, which would have dramatically increased the length of the report, we focused on largest populations within the body of the report, and provided maps and tables for all populations in the appendices. In addition, the 2 questions were very different. For Key Question 2, the focus was the interventions designed to mitigate disparities; thus, we were able to organize our results by type of intervention. However, for Key Question 1, the focus was prevalence. Given that the mechanisms through which disparities occur are likely different by Veteran population, we chose to organize our maps and our findings by population, rather than by type of outcome.</p>

	3	Finally, the authors appropriately note the paucity of studies evaluating possible disparities for LGBT Veterans. However, numerous understudied areas exist that are not acknowledged. For example, despite numerous studies examining lung, prostate and colorectal cancers, none evaluated possible disparities in the prevalence, treatment or outcomes of Veterans with breast cancer or melanoma. Moreover, there is an absence of studies on subgroups of Veteran populations of interest (e.g. Asian women veterans). Clearly, it is unreasonable to expect that all areas in which there is limited or no information will be mentioned; however, it would seem reasonable to acknowledge that the current evidence base is more limited than is suggested by the authors.	Thank you. Due to the number of studies we identified and our time limitations, we broadly categorized studies by clinical area, but did not examine the frequencies of specific conditions. Similarly, we did not have the bandwidth to examine disparities related to the intersecting identities of Veterans belonging to multiple vulnerable populations. The maps presented here are meant to provide a high-level overview, and to inform future research, including systematic reviews. Future population specific systematic reviews (women) should include an examination of both subgroups of interest (eg, racial/ethnic minorities, sexual orientation, age, etc.) and clinical areas. We have added these limitations and recommendations to the report.
	3	The findings for Key Question 2 are concise and well written. This section has similar limitations as the section covering Key Question 1. The results of Key Question 3 are clearly presented and well summarized. This report will be extremely helpful for policy makers in ORD.	Thank you.
	4	The report is very good. It was a big undertaking, and the authors should be commended on their work.	Thank you.
	4	There are a couple of typos in the executive summary (an additional space in line 10, page 7; 'studies' repeated in line 16, page 7).	Thank you, we have corrected these errors.
	4	There are 2 aspects I'd suggest adding, if only in the conclusions section. First would be some kind of context. While it is true that most studies on disparities have evaluated race and gender and rurality/distance to care, these probably represent a relatively high proportion of minorities. It would be helpful to know the prevalence of the LGBT population in the veteran population to be able to contextualize the degree to which studies addressing potential disparities therein might be feasible to do.	Thank you. You are correct. We have added LGBT Veteran estimates to the introduction/background. In addition, we have added a statement to the conclusion referencing both the small number of LGBT Veterans and the Don't Ask Don't Tell Repeal Act, which took effect midway through our search period.
	4	Second, it may be that VA disparities are offset or worsened by non-VA care (where most veterans - even VA users - get healthcare. For instance, we found that minority VA enrollees who used private sector care for CABG went to lower quality private sector hospitals, even though higher quality ones were frequently closer to where they lived (Weeks WB, Fisher ES. Characteristics of VA patients who use low quality private sector CABG centers in New York. Medical Care Research and Review 2007; 64(6):691-705. PMID: 17878291.)	Thank you. We have added a statement that we did not stratify or analyze studies by site of care; thus, are unable to differentiate between care received at the VHA and the private sector. In addition, we have included a statement emphasizing the need for future research examining disparities by site of care.

APPENDIX C. STUDY SELECTION

Inclusion Criteria

1. Language: Is the full text of the article in English?
 Yes..... Proceed to #2
 No.....Code **X1**. STOP
2. Population: Are the participants exclusively Veterans/at a VA Medical Center?
 Yes.....Proceed to #3
 No.....Code **X2**. Add code **B** if retaining for background/discussion. STOP
3. Study Design: Is the study original research, a systematic review or meta-analysis?
 Yes.....Proceed to #4
 No.....Code **X3**. Add code **B** if retaining for background/discussion. STOP
4. Comparator: The study's primary comparison is populations/groups for whom a disparity may exist (*eg*, race/ethnicity, gender, LGBT, age, mental illness, physical or cognitive disability, geographic location, era of military service, etc.)?
 Yes.....Proceed to #5
 No.....Code **X4**. Add code **B** if retaining for background/discussion. STOP
5. Outcomes: Does the study report one or more of the following outcomes: utilization, quality (*ie*, patient outcomes [*eg*, mortality, morbidity], intermediate/process of care measures, patient evaluations of care, direct observation [*eg*, communication patterns], other [*eg*, medication adherence, health education, etc.]? Mediators (*ie*, system level [*eg*, distribution of services], provider level [*eg*, racial bias], patient level [*eg*, trust], provider-patient level [*eg*, communication]) without an accompanying utilization, quality, intermediate/process of care, patient evaluations of care, direct observation, other outcome of interest are excluded.
 Yes.....Proceed to #6
 No.....Code **X5**. Add code **B** if retaining for background/discussion. STOP
6. Intervention: Does the study include interventions that were designed specifically for, or are being specifically used to reduce disparities, or examine mediators associated with health disparities for Veterans?
 Yes.....Code **I** for **KQ2**. STOP
 No.....Code **I** for **KQ1**. STOP

Key Questions

KQ1. For what groups/populations, and in which clinical areas are health and healthcare disparities prevalent within the VHA?

KQ2. What are the effects of interventions implemented within the VHA to reduce health disparities?

KQ3. What research projects have been funded by the VA Office of Research and Development (ORD) to address any of the components in the other key questions from 2010 to present?

APPENDIX D. KEY QUESTION 1 STUDY DISTRIBUTION BY CLINICAL AREA AND CATEGORY

Mental health represented the most widely studied clinical area, followed by cardiovascular disease, cancer, and diabetes. Most of the studies in cardiovascular disease (69.2%), cancer (76.3%), and diabetes (63.3%) reported quality of care outcomes. The table below shows the distribution of studies by clinical area and outcome category.

Table. Distribution of Studies by Clinical Area and Outcome Category

Clinical area	Total studies ^a		Utilization		Quality		Health Outcome	
	N	(%) ^b	N	(%) ^c	N	(%) ^c	N	(%) ^c
Mental health	100	(27.6)	35	(35.0)	36	(36.0)	48	(48.0)
Cardiovascular	52	(14.4)	4	(7.7)	36	(69.2)	21	(40.4)
Cancer	38	(10.5)	2	(5.3)	29	(76.3)	18	(47.4)
Diabetes	30	(8.3)	2	(6.7)	19	(63.3)	12	(40.0)
Pain	19	(5.2)	5	(26.3)	10	(52.6)	7	(36.8)
Utilization	14	(3.9)	12	(85.7)	2	(14.3)	2	(14.3)
Women's health	14	(3.9)	5	(35.7)	6	(42.9)	4	(28.6)
Preventive and ambulatory care	12	(3.3)	4	(33.3)	8	(66.7)		
General health	10	(2.8)	3	(30.0)	7	(70.0)	4	(40.0)
Hepatitis C	8	(2.2)	1	(12.5)	6	(75.0)	4	(50.0)
HIV	7	(1.9)	2	(28.6)	2	(28.6)	4	(57.1)
Geriatrics, Prescribing	6	(1.7)			6	(100.0)		
Renal	6	(1.7)			1	(16.7)	5	(83.3)
Surgery	6	(1.7)	2	(33.3)	1	(16.7)	4	(66.7)
Dementia	5	(1.4)	1	(20.0)	3	(60.0)	2	(40.0)
Inpatient care	4	(1.1)	1	(25.0)	3	(75.0)		
Physical & mental health status	4	(1.1)					4	(100.0)
Pneumonia	4	(1.1)	1	(25.0)	1	(25.0)	4	(100.0)
End-of-life care	3	(0.8)			3	(100.0)		
Quality of life, health-related	3	(0.8)					3	(100.0)
Traumatic brain injury	3	(0.8)	2	(66.7)			2	(66.7)
Access	2	(0.6)	2	(100.0)				
Chronic disease	2	(0.6)					1	(100.0)
Chronic obstructive pulmonary disease	2	(0.6)			1	(50.0)	1	(50.0)
Disability	2	(0.6)			2	(100.0)		
Mortality	2	(0.6)					2	(100.0)
Smoking cessation	2	(0.6)			2	(100.0)		
Clinical pharmacy services	1	(0.3)	1	(100.0)				
Dental	1	(0.3)			1	(100.0)		
Epilepsy	1	(0.3)			1	(100.0)		
Gastroenterology	1	(0.3)			1	(100.0)		
Obstructive sleep apnea	1	(0.3)			1	(100.0)		
Prosthetic care	1	(0.3)			1	(100.0)		
Sleep	1	(0.3)			1	(100.0)		
Transplantation	1	(0.3)			1	(100.0)	1	(100.0)
Varices care	1	(0.3)			1	(100.0)		

Venous thromboembolism	1 (0.3)		1 (100.0)	1 (100.0)
Vitamin D levels	1 (0.3)	1 (100.0)	1 (100.0)	
Wound care	1 (0.3)	1 (100.0)		1 (100.0)

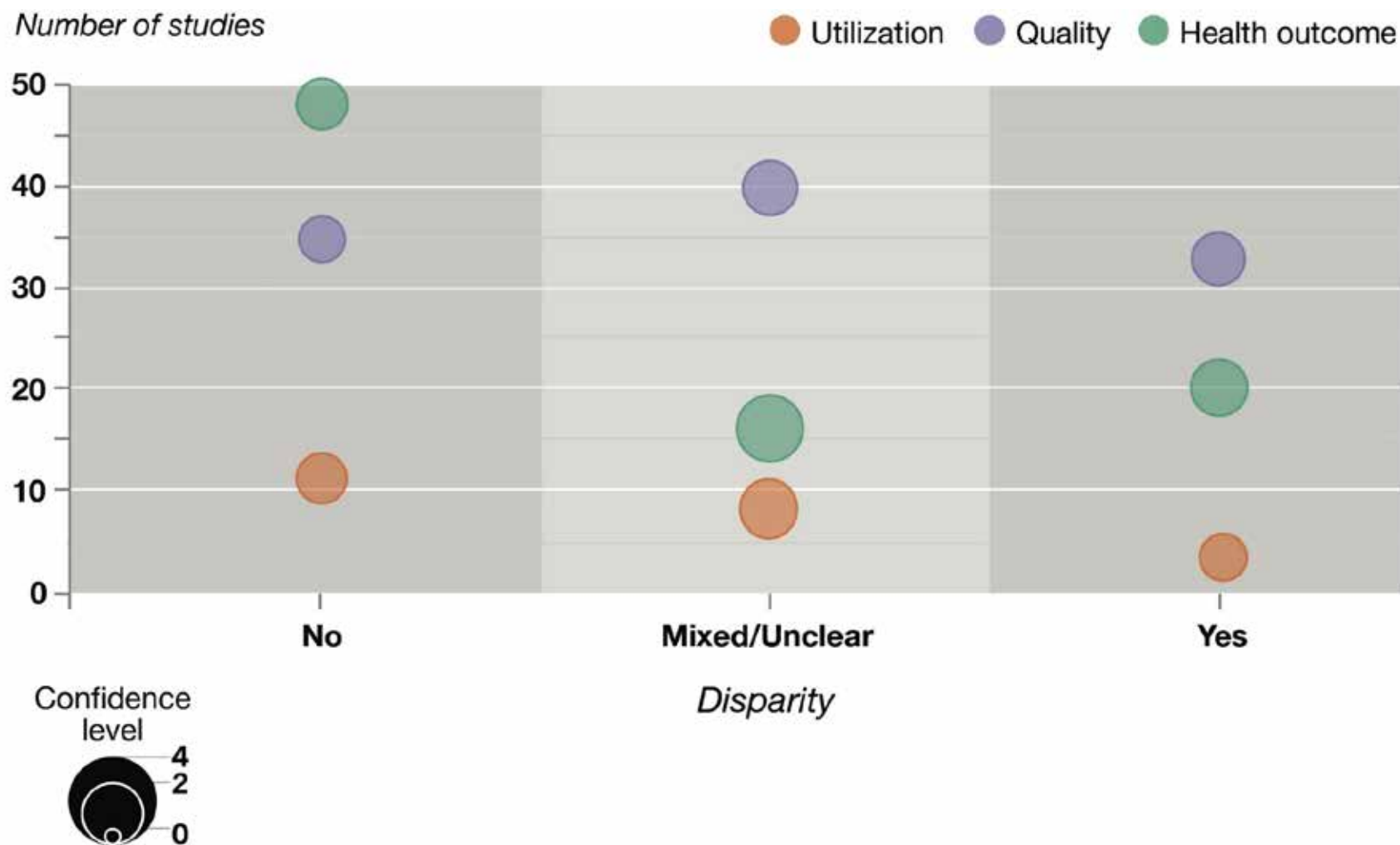
^aTen studies were represented in more than one clinical area.

^bPercent of total included studies (N=362).

^cPercent of total studies in clinical area. Some studies reported outcomes in multiple categories.

APPENDIX E. HEALTH DISPARITIES BY RACE/ETHNICITY – AFRICAN AMERICAN/BLACK

Evidence Map. Health Disparities in Veterans by Race/Ethnicity – African American/Black



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Table. Health Disparities in Veterans by Race/Ethnicity – African American/Black

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Agarwal, 2008: Competing risk factor analysis of end-stage renal disease and mortality in chronic kidney disease ⁷⁰	Renal disease	220	Health Outcome	End-stage renal disease, mortality	Mixed/ Unclear	1
Allott, 2014: Racial differences in adipose tissue distribution and risk of aggressive prostate cancer among men undergoing radiotherapy ⁷¹	Cancer (prostate)	308	Quality	Relationship between visceral obesity and prostate cancer	Yes	0
Alston, 2014: Assistive technology and Veterans with severe disabilities: examining the relationships among race, personal factors, medical support, income support, and use ⁷²	Disability	16370	Quality	Use of assistive technology by disabled Veterans	Yes	2
Arora, 2012: The MDRD equation underestimates the prevalence of CKD among blacks and overestimates the prevalence of CKD among whites compared to the CKD-EPI equation: a retrospective cohort study ⁷³	Renal	97451	Health Outcome	Mean estimated glomerular filtration rate at first serum creatinine	No	3
Aujesky, 2007: African American race was associated with an increased risk of complications following venous thromboembolism ⁷⁴	Venous thromboembolism	168	Quality	Processes of care, the time to administration of heparin after the diagnosis, and whether heparin therapy was initiated empirically before the diagnosis was objectively confirmed	No	1
			Health Outcome	Mortality, recurrent venous thromboembolism, major bleeding	Yes	1
Axon, 2011: Racial and ethnic differences in longitudinal blood pressure control in Veterans with type 2 diabetes mellitus ⁷⁵	Diabetes	5319	Quality	Proportion of patients with controlled blood pressure	Yes	0
Ayotte, 2010: Race differences in cardiac catheterization: the role of social contextual variables ⁷⁶	Cardiovascular disease	237	Quality	Access to care	No	2
Backus, 2014: Impact of race/ethnicity and gender on HCV screening and prevalence among US Veterans in Department of Veterans Affairs care ⁷⁷	HCV	5500392	Quality	HCV screening rates	Mixed/ Unclear	2
			Health Outcome	HCV prevalence	Yes	2
Banerjea, 2007: Chronic illness with complexities: Mental illness and substance use among Veteran clinic users with diabetes ⁷⁸	Diabetes, co-occurring substance use and mental	485893	Health Outcome	Mental health status, substance use disorder, combined mental health and substance use disorder, access to care,	Mixed/ Unclear	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
	health disorders in patients with diabetes			and diabetes-related health complications		
Banerjea, 2009: Mental illness and substance use disorders among women Veterans with diabetes ⁷⁹	Mental health in women with diabetes	14984	Health Outcome	Serious mental illness and/or substance use disorder diagnoses	No	2
Banez, 2009: Race and time from diagnosis to radical prostatectomy: does equal access mean equal timely access to the operating room?-- Results from the SEARCH database ⁸⁰	Cancer (prostate)	1532	Quality	Time between biopsy and radical prostatectomy	No	1
Bean-Mayberry, 2009: Does sex influence immunization status for influenza and pneumonia in older Veterans ⁸¹	Preventive care (immunization status)	48424	Quality	Receipt of influenza immunization in the prior influenza season and receipt of pneumonia immunization ever	Yes	2
Bierman, 2007: Sex differences in inappropriate prescribing among elderly Veterans ⁸²	Geriatrics, prescribing	965756	Quality	Zhan criteria for inappropriate prescribing for older adults	No	3
Boehmer, 2016: Dental care in an equal access system valuing equity: Are there racial disparities? ⁸³	Dental	71315	Quality	Receipt of root canal versus extraction	Yes	1
Borrero, 2012: Contraceptive care in the VA health care system ⁸⁴	Women's health (contraceptive care)	103950	Quality	Receipt and type of contraception	Yes	3
Borrero, 2013: Adherence to hormonal contraception among women Veterans: differences by race/ethnicity and contraceptive supply ⁸⁵	Women's health (contraceptive care)	6946	Health Outcome	Adherence to hormonal contraceptive medication	No	1
Braun, 2008: Racial and ethnic differences in the treatment of seriously ill patients: a comparison of African-American, Caucasian and Hispanic Veterans ⁸⁶	Inpatient/acute care, elderly	166059	Quality	Use of life-sustaining treatment (resuscitation, mechanical ventilation, intensive care unit, enteral nutrition, transfusion)	Mixed/ Unclear	3
Bravata, 2008: Racial disparities in blood pressure management among stroke patients ⁸⁷	Cardiovascular (stroke)	287	Quality	Blood pressure control	No	0
Buchanan, 2014: The quality of care provided to patients with varices in the department of Veterans Affairs ⁸⁸	Varices-related care	550	Quality	Rate of meeting specified quality indicators for varices-related care	No	1
Burgess, 2011: Presence and correlates of racial disparities in adherence to colorectal cancer screening guidelines ⁸⁹	Cancer (colorectal)	2115	Quality	Screening adherence	No	1
Burgess, 2011: Presence and correlates of racial	Pain	261448	Quality	Screening for pain	Yes	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
disparities in pain management ⁹⁰						
Burgess, 2013: A national study of racial differences in pain screening rates in the VA health care system ⁹¹	Pain	245504	Quality	Pain screening	Yes	3
Burgess, 2014: Racial differences in prescription of opioid analgesics for chronic noncancer pain in a national sample of Veterans ⁹²	Pain (arthritis and pain management)	99903	Quality	Receipt of any opioid prescription	Mixed/Unclear	2
Butt, 2006: Rates and predictors of hepatitis C virus treatment in HCV-HIV-coinfected subjects ⁹³	HCV, HIV	6502	Quality	Prescribed treatment for HCV	Yes	1
Cannon, 2009: Use of mechanical and noninvasive ventilation in black and white chronic obstructive pulmonary disease patients within the Veterans Administration health care system ⁹⁴	Inpatient/acute care	40498	Quality	Use of mechanical ventilation and noninvasive ventilation	Mixed/Unclear	2
C'De Baca, 2014: Ethnic differences in personality disorder patterns among women Veterans diagnosed with PTSD ⁹⁵	Mental health (personality disorders)	260	Health Outcome	Personality Disorder diagnosis	Yes	0
Cecere, 2012: Adherence to long-acting inhaled therapies among patients with chronic obstructive pulmonary disease (COPD) ⁹⁶	Chronic obstructive pulmonary disease	376	Quality	Medication adherence	Yes	2
Chapko, 2013: Hepatitis C antiviral treatment rates: Understanding racial disparities ⁹⁷	HCV treatment	118	Quality	Decision to start antiviral treatment, likelihood of recommending imaging, patient satisfaction/concerns	Mixed/Unclear	1
Cheng, 2012: Lower use of carotid artery imaging at minority-serving hospitals ⁹⁸	Cardiovascular disease	2162	Quality	Receipt of carotid artery imaging 12 months prior and 2 months post-hospital admission for ischemic stroke	Mixed/Unclear	1
Choi, 2007: Racial differences in end-stage renal disease rates in HIV infection versus diabetes ⁹⁹	HIV	2015891	Health Outcome	Progression to end-stage renal disease	Yes	3
Choi, 2009: White/black racial differences in risk of end-stage renal disease and death ¹⁰⁰	Renal (end-stage renal disease)	2015891	Health Outcome	Progression to end-stage renal disease, time to death, rates of change in estimated glomerular filtration rate	Yes	3
Cone, 2011: Demographic determinants of response to statin medications ¹⁰¹	Cardiovascular (coronary artery disease)	5191	Quality	Achieving goal of LDL-C <100	No	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Copeland, 2008: Treatment adherence and illness insight in Veterans with bipolar disorder ¹⁰²	Mental health	435	Quality	Medication adherence	Yes	0
Copeland, 2011: Ethnicity and race variations in receipt of surgery among Veterans with and without depression ¹⁰³	Surgery, mental health (depression)	309068	Quality	Surgery	Mixed/ Unclear	3
Copeland, 2014: Prevalence of suicidality among Hispanic and African American Veterans following surgery ¹⁰⁴	Mental health, surgery (organ, bone or joint, cancers, vascular, and amputations)	89995	Health Outcome	Diagnosis of suicidal behavior or ideation	Yes	2
Curran, 2009: Individual and program predictors of attrition from VA substance use treatment ¹⁰⁵	Mental health (substance use disorder)	8064	Quality	Rates of attrition	No	1
Dahodwala, 2011: Delayed Parkinson's disease diagnosis among African-Americans: the role of reporting of disability ¹⁰⁶	Dementia, Parkinson's disease	74	Quality	Stage of Parkinson's disease at which patients presented for care	No	0
Daskivich, 2015: Racial parity in tumor burden, treatment choice and survival outcomes in men with prostate cancer in the VA healthcare system ¹⁰⁷	Cancer (prostate)	1258	Quality	Tumor risk, Gleason score, stage	No	1
			Health Outcome	Prostate cancer mortality	No	1
Deswal, 2006: Racial variations in quality of care and outcomes in an ambulatory heart failure cohort ¹⁰⁸	Cardiovascular (heart failure)	18611	Utilization	Heart failure-caused hospitalization	Yes	2
			Quality	Quality of care (documentation of left ventricular ejection fraction, appropriate prescription of angiotensin-converting enzyme inhibitors and beta-blockers, or if intolerant, angiotensin receptor blockers or hydralazine and nitrates among patients intolerant)	Mixed/ Unclear	2
			Health Outcome	1-year mortality	No	2
Dismuke, 2016: Racial/ethnic disparities in VA services utilization as a partial pathway to mortality differentials among Veterans diagnosed with TBI ¹⁰⁹	TBI	14960	Utilization	Number of rehabilitation, neurology, and TBI visits	No	2
			Health Outcome	Mortality	No	2
Dobscha, 2009: Associations between race and ethnicity and treatment for chronic pain in the VA ¹¹⁰	Pain (chronic)	255522	Utilization	Veterans Rand Health Survey-12, question on receipt of treatment for chronic pain in past year	Mixed/ Unclear	3
			Quality	Veterans Rand Health Survey-12,	Yes	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
				question on effectiveness of chronic pain care		
Duffy, 2012: Risk of smoking and receipt of cessation services among Veterans with mental disorders ¹¹¹	Smoking cessation	224193	Quality	Physician advised quitting, physician recommended medication, physician discussed quitting methods	Yes	3
Egede, 2010: Longitudinal differences in glycemic control by race/ethnicity among Veterans with type 2 diabetes ¹¹²	Diabetes	8813	Quality	Mean change in hemoglobin A1c, odds of poor control of hemoglobin A1c (<80%)	Yes	0
Egede, 2011: Longitudinal ethnic differences in multiple cardiovascular risk factor control in a cohort of US adults with diabetes ¹¹³	Cardiovascular disease, diabetes	11203	Quality	Cardiovascular risk factor control (glycemic, blood pressure, LDL-C)	Yes	1
Egede, 2011: Regional, geographic, and ethnic differences in medication adherence among adults with type 2 diabetes ¹¹⁴	Diabetes	690968	Quality	Medication adherence	Yes	3
Egede, 2011: Regional, geographic, and racial/ethnic variation in glycemic control in a national sample of Veterans with diabetes ¹¹⁵	Diabetes	690968	Quality	Hemoglobin A1c level, poor control of hemoglobin A1c (<80%)	Yes	3
Egede, 2012: Racial/ethnic disparities in mortality risk among US Veterans with traumatic brain injury ¹¹⁶	TBI	14690	Health Outcome	Mortality	No	2
Egede, 2013: Differential impact of longitudinal medication non-adherence on mortality by race/ethnicity among Veterans with diabetes ¹¹⁷	Diabetes	629563	Health Outcome	Medication nonadherence-associated mortality	No	3
Ellis, 2009: Racial/ethnic differences in stroke mortality in Veterans ¹¹⁸	Cardiovascular (stroke)	4115	Health Outcome	All-cause mortality	Yes	0
Ellis, 2010: Racial/ethnic disparities in poststroke outpatient rehabilitation among Veterans ¹¹⁹	Cardiovascular (stroke), rehabilitative care	4115	Quality	Receipt of physical therapy, occupational therapy evaluations, visits and procedures	No	0
Ellis, 2013: Factors associated with delays in seeking treatment for stroke care in Veterans ¹²⁰	Cardiovascular (stroke)	100	Utilization	Delay in seeking care for treatment for stroke care	Yes	0
El-Serag, 2014: Racial differences in the progression to cirrhosis and hepatocellular carcinoma in HCV-infected Veterans ¹²¹	HCV, cancer (liver)	149407	Health Outcome	Risk of cirrhosis or hepatocellular cancer	No	3
Fischer, 2007: Lack of ethnic differences in end-of-life care in the Veterans Health Administration ¹²²	End-of-life (palliative) care	217	Quality	Receipt of palliative care measures (advanced directive discussions, treatment of pain if present, symptom-directed plan, do-not-resuscitate orders)	No	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Fischer, 2008: Longitudinal patterns of health system retention among Veterans with schizophrenia or bipolar disorder ¹²³	Mental health (serious mental illness)	164150	Utilization	Retention in VHA care	Yes	3
			Health Outcome	5-year survival	No	3
Fisher, 2006: Barriers to full colon evaluation for a positive fecal occult blood test ¹²⁴	Cancer (colorectal)	538	Quality	Full colon evaluation	No	0
Frei, 2010: Disparities of care for African-Americans and Caucasians with community-acquired pneumonia: a retrospective cohort study ¹²⁵	Pneumonia	40878	Utilization	Length of hospital stay	No	2
			Quality	Antibiotic prescribing, pneumonia processes of care	No	2
			Health Outcome	30-day mortality	No	2
Gaines, 2014: The association between race and prostate cancer risk on initial biopsy in an equal access, multiethnic cohort ¹²⁶	Cancer (prostate)	887	Health Outcome	Prostate cancer risk on initial biopsy and prostate cancer grade	Yes	0
Ganti, 2014: Association between race and survival of patients with non-small-cell lung cancer in the United States Veteran Affairs population ¹²⁷	Cancer	82414	Utilization	Received treatment	Yes	1
			Quality	Stage-appropriate treatment	Yes	1
			Health Outcome	Mortality	No	1
Garrido, 2014: Benzodiazepine and sedative-hypnotic use among older seriously ill Veterans: choosing wisely? ¹²⁸	Geriatrics, prescribing	222	Quality	Potentially inappropriate use of benzodiazepines or other sedative-hypnotics	No	0
Gebregziabher, 2011: Using quantile regression to investigate racial disparities in medication non-adherence ¹²⁹	Diabetes	11272	Quality	Medication adherence	Yes	1
Gerber, 2015: Hormone therapy use in women Veterans accessing Veterans Health Administration care: a national cross-sectional study ¹³⁰	Women's health (hormone therapy)	157195	Quality	Prescription of hormone therapy	No	3
Giordano, 2006: Is there a race-based disparity in the survival of Veterans with HIV? ¹³¹	HIV	5945	Health Outcome	Overall survival, hospital mortality (death during hospitalization or within 30 days of discharge), long-term survival (proportion who survived >30 days post-discharge)	No	1
Goldstein, 2014: Heart matters: Gender and racial differences cardiovascular disease risk factor control among Veterans ¹³²	Cardiovascular disease	24965	Quality	Measures of blood pressure, LDL-C values, hemoglobin A1c levels	Mixed/Unclear	2
Gordon, 2006: Racial differences in doctors' information-giving and patients' participation ¹³³	Cancer (lung)	137	Quality	Provider's information-giving utterances	Mixed/Unclear	1
Gordon, 2014: Examining patients' trust in	Cardiovascular	159	Quality	Trust in physician, trust in VHA	Mixed/	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
physicians and the VA healthcare system in a prospective cohort followed for six-months after an exacerbation of heart failure ¹³⁴	(heart failure)				Unclear	
Graham-Steed, 2013: 'Race' and prostate cancer mortality in equal-access healthcare systems ¹³⁵	Cancer (prostate)	1249	Health Outcome	Prostate cancer mortality	No	1
Groeneveld, 2007: Variation in cardiac procedure use and racial disparity among Veterans Affairs Hospitals ¹³⁶	Cardiovascular (interventions)	300614	Utilization	Receipt of care in academic and non-academic hospitals with <30% or ≥30% black inpatients within 90 days	Mixed/ Unclear	3
Grubaugh, 2006: Racial differences in psychiatric symptom patterns and service use in VA primary care clinics ¹³⁷	Mental health	713	Utilization	Use of VA services and benefits	Mixed/ Unclear	1
			Health Outcome	Rates of trauma, PTSD diagnosis, other psychiatric diagnoses	No	1
Grubaugh, 2008: Racial disparities in trauma exposure, psychiatric symptoms, and service use among female patients in Veterans Affairs primary care clinics ¹³⁸	Mental health	183	Utilization	Service use (inpatient, ED, women's clinic, primary care, mental health)	No	1
			Health Outcome	Rates of PTSD, mood disorder, anxiety, substance use, any mental health disorder	No	1
Grubaugh, 2009: Equity in Veterans Affairs disability claims adjudication in a national sample of Veterans ¹³⁹	Disability	20048	Quality	Disability benefits	Mixed/ Unclear	2
Halanych, 2006: Racial/ethnic differences in diabetes care for older Veterans: Accounting for dual health system use changes conclusions ¹⁴⁰	Diabetes, geriatrics	5931	Quality	Hemoglobin A1c, LDL-C screenings, eye exam	Mixed/ Unclear	1
Haskell, 2008: Determinants of hormone therapy discontinuation among female Veterans nationally ¹⁴¹	Women's health (hormone therapy)	36222	Quality	Hormone therapy discontinuation	No	2
Haskell, 2009: Pain among Veterans of Operations Enduring Freedom and Iraqi Freedom: Do women and men differ? ¹⁴²	Pain	153212	Health Outcome	Pain (reported any pain, reported moderate-severe pain, reported persistent pain)	Yes	3
Hausmann, 2010: The effect of patient race on total joint replacement recommendations and utilization in the orthopedic setting ¹⁴³	Pain (arthritis and pain management)	457	Quality	Receipt of/recommendation for total joint replacement	No	2
Hausmann, 2011: Orthopedic communication about osteoarthritis treatment: Does patient race matter? ¹⁴⁴	Pain (osteoarthritis)	402	Quality	Communication (Roter Interaction Analysis System, Informed Decision Making Model)	No	2
Hausmann, 2013: Racial disparities in the monitoring of patients on chronic opioid therapy ¹⁴⁵	Pain (arthritis and pain management)	1899	Quality	Following recommended opioid monitoring and treatment practices	Yes	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Hausmann, 2013: Understanding racial and ethnic differences in patient experiences with outpatient health care in Veterans Affairs Medical Centers ¹⁴⁶	Preventive and ambulatory care	211459	Quality	Getting needed care, getting care quickly, how well doctors and nurses communicate, rating of personal doctor, nurse, specialist, overall healthcare rating, use of shared decision-making, pharmacy services	Mixed/Unclear	3
Hausmann, 2014: Patterns of sex and racial/ethnic differences in patient health care experiences in US Veterans Affairs hospitals ¹⁴⁷	General health	50471	Quality	Patient reports of positive and negative healthcare experiences at VHA facilities	Mixed/Unclear	2
Heidenreich, 2009: Disparities in VA heart failure care ¹⁴⁸	Cardiovascular (heart failure)	NR - likely large	Health Outcome	Mortality, rehospitalization	Mixed/Unclear	2
Higgins, 2014: Persistent pain and comorbidity among Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn Veterans ¹⁴⁹	Pain (chronic)	5242	Health Outcome	Persistent pain (either self-rated scale, pain diagnosis, pain clinic visit, or opioid prescription)	Yes	1
Hope, 2009: New-onset geriatric epilepsy care: Race, setting of diagnosis, and choice of antiepileptic drug ¹⁵⁰	Epilepsy	9682	Quality	Suboptimal antiepileptic drug prescribing	Yes	1
Horner, 2007: Factors associated with a provider's recommendation of carotid endarterectomy: implications for understanding disparities in the use of invasive procedures ¹⁵¹	Cardiovascular (carotid endarterectomy)	251	Quality	Provider recommendation for carotid endarterectomy	No	2
Hou, 2012: Myelosuppression monitoring after immunomodulator initiation in Veterans with inflammatory bowel disease: a national practice audit ¹⁵²	Gastroenterology (inflammatory bowel disease)	6045	Quality	White blood cell monitoring	No	1
Hou, 2012: Risk of colorectal cancer among Caucasian and African American Veterans with ulcerative colitis ¹⁵³	Cancer (colorectal)	16490	Health Outcome	Colorectal cancer	No	2
Hudson, 2014: Do racial disparities exist in the use of prostate cancer screening and detection tools in Veterans? ¹⁵⁴	Cancer (prostate, screening)	275832	Quality	Prostate-specific antigen screening uptake	Mixed/Unclear	3
Hunt, 2013: Impact of diabetes control on mortality by race in a national cohort of Veterans ¹⁵⁵	Diabetes	892223	Health Outcome	Mortality	Mixed/Unclear	4
Ibrahim, 2008: Race, ethnicity and length of hospital stay after knee or hip arthroplasty ¹⁵⁶	Pain (osteoarthritis)	18263	Utilization	Length of hospital stay	No	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Ilgen, 2009: Exploratory data mining analysis identifying subgroups of patients with depression who are at high risk for suicide ¹⁵⁷	Mental health (depression)	887869	Health Outcome	Suicide	No	2
Irmiter, 2007: Reinstitutionalization following psychiatric discharge among VA patients with serious mental illness: a national longitudinal study ¹⁵⁸	Mental health (serious mental illness)	35527	Health Outcome	Time to reinstitutionalization/rehospitalization	No	1
Jha, 2010: The concentration of hospital care for black Veterans in Veterans Affairs hospitals: implications for clinical outcomes ¹⁵⁹	Cardiovascular, hip fracture, stroke, gastrointestinal hemorrhage, and pneumonia	406537 hospitalizations	Health Outcome	Mortality	Mixed/Unclear	3
Jia, 2010: Racial and ethnic disparities in post-stroke depression detection ¹⁶⁰	Cardiovascular (stroke), mental health	5825	Health Outcome	Diagnosis of post-stroke depression	No	1
Jones, 2015: Characteristics and outcomes of patients with advanced chronic systolic heart failure receiving care at the Veterans Affairs versus other hospitals: insights from the Beta-blocker Evaluation of Survival Trial (BEST) ¹⁶¹	Cardiovascular (advanced chronic systolic heart failure)	898	Health Outcome	Mortality	No	1
Kales, 2010: Who receives outpatient monitoring during high-risk depression treatment periods? ¹⁶²	Mental health (depression)	494673	Utilization	Number of outpatient visits following mental health hospitalization or outpatient initiation of antidepressant medication	No	3
Kalkonde, 2009: Ethnic disparities in the treatment of dementia in Veterans ¹⁶³	Mental health	410	Quality	Neuropsychological testing, depression screening	Mixed/Unclear	0
			Health Outcome	Dementia diagnosis	No	0
Kamalesh, 2007: Stroke mortality and race: does access to care influence outcomes? ¹⁶⁴	Cardiovascular (stroke)	55094	Health Outcome	Mortality	No	2
Kazerooni, 2014: Predictors of adherence to hormonal contraceptives in a female Veteran population ¹⁶⁵	Women's health (contraceptive care)	805	Health Outcome	Adherence to hormonal contraceptive medication	No	0
Keyhani, 2014: The underuse of interventions in Veterans with symptomatic carotid stenosis ¹⁶⁶	Cardiovascular (stroke)	229	Quality	Receipt of carotid intervention	Yes	1
Kilbourne, 2006: Quality of care for substance use disorders in patients with serious mental illness ¹⁶⁷	Mental health (substance use disorder)	8083	Quality	Identification of substance use disorders, initiation of treatment, engagement in treatment	No	1

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Kilbourne, 2008: Guideline-concordant hepatitis C virus testing and notification among patients with and without mental disorders ¹⁶⁸	HCV	19397	Quality	Receipt of HCV testing, notified ≤ 60 days	Mixed/ Unclear	2
			Health Outcome	HCV positive	Yes	2
Kilbourne, 2008: Quality of care for cardiovascular disease-related conditions in patients with and without mental disorders ¹⁶⁹	Cardiovascular (hypertension)	24016	Quality	Poor hypertension control (blood pressure $\geq 160/100$) and good hypertension control (blood pressure $\leq 140/90$).	Mixed/ Unclear	2
Kimerling, 2011: Military sexual trauma and patient perceptions of Veteran Health Administration health care quality ¹⁷⁰	Mental health (military sexual trauma)	164632	Quality	Patient satisfaction with VHA outpatient care	Yes	3
Kokkinos, 2009: Exercise Capacity and All-Cause Mortality in African American and Caucasian Men with Type 2 Diabetes ¹⁷¹	Diabetes	3148	Health Outcome	All-cause mortality	Yes	1
Koo, 2015: Race-ethnicity and gender differences in VA health care service utilization among US Veterans of recent conflicts ¹⁷²	Preventive and ambulatory care	309050	Utilization	Healthcare utilization	Mixed/ Unclear	3
Koscuiszka, 2012: Impact of race on survival in patients with clinically nonmetastatic prostate cancer who deferred primary treatment ¹⁷³	Cancer (prostate)	518	Health Outcome	Mortality	Mixed/ Unclear	0
Koshiol, 2011: Racial differences in chronic immune stimulatory conditions and risk of non-Hodgkin's lymphoma in Veterans from the United States ¹⁷⁴	Cancer (non-Hodgkin lymphoma)	9496	Health Outcome	Risk of non-Hodgkin lymphoma diagnosis by associated condition (infections, allergies, autoimmune conditions)	Mixed/ Unclear	1
Kovesdy, 2013: Survival advantage in black versus white men with CKD: effect of estimated GFR and case mix ¹⁷⁵	Renal (chronic kidney disease)	570808	Health Outcome	5-year mortality	Mixed/ Unclear	3
Kovesdy, 2015: Association of race with mortality and cardiovascular events in a large cohort of US Veterans ¹⁷⁶	Cardiovascular disease	3072966	Health Outcome	Mortality	Mixed/ Unclear	3
Kressin, 2007: Functional status outcomes among white and African-American cardiac patients in an equal access system ¹⁷⁷	Cardiovascular	1022	Quality	Receipt of percutaneous transluminal coronary angioplasty, cardiac catheterization, coronary artery bypass grafting	Mixed/ Unclear	2
			Health Outcome	Functional status	No	2
Kressin, 2007: Hypertensive patients' race, health beliefs, process of care, and medication adherence ¹⁷⁸	Cardiovascular disease	793	Quality	Antihypertensive medication adherence	No	1

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Landrum, 2012: Race and income association with health service utilization for Veterans with heart failure ¹⁷⁹	Cardiovascular (heart failure)	149	Utilization	Heart failure-related outcomes (30-day, 90-day, 1-year and total readmissions, ED visits and total bed days of care)	No	0
Landrum, 2012: Reasons for underuse of recommended therapies for colorectal and lung cancer in the Veterans Health Administration ¹⁸⁰	Cancer	584	Quality	Access, recommendation and receipt of recommended cancer therapy	Mixed/ Unclear	1
Liang, 2013: Outcomes and predictors of incisional surgical site infection in stoma reversal ¹⁸¹	Surgery, surgical site infection	128	Health Outcome	Surgical site infections	No	0
Luca, 2015: Mental health care utilization: how race, ethnicity and veteran status are associated with seeking help ¹⁸²	Mental health	1124	Utilization	Receipt of mental health treatment	No	1
Luncheon, 2012: Health-related quality of life among US Veterans and civilians by race and ethnicity ¹⁸³	Quality of life, health-related	110000	Health Outcome	Physically unhealthy days, mentally unhealthy days, recent activity limitation days	No	3
Lynch, 2010: Racial disparities in all-cause mortality among Veterans with type 2 diabetes ¹⁸⁴	Diabetes	8812	Health Outcome	Time to death	No	0
Lynch, 2015: Geographic and racial/ethnic variations in patterns of multimorbidity burden in patients with type 2 diabetes ¹⁸⁵	Diabetes	892223	Health Outcome	Multimorbidity	Yes	3
Mackenzie, 2010: Impact of rural residence on survival of male Veterans affairs patients after age 65 ¹⁸⁶	Mortality in older adults	372463	Health Outcome	Mortality	No	3
Mattocks, 2015: Infertility care among OEF/OIF/OND women Veterans in the Department of Veterans Affairs ¹⁸⁷	Women's health (reproductive health)	1323	Quality	Received an infertility assessment	Mixed/ Unclear	0
May, 2014: Low uptake of colorectal cancer screening among African Americans in an integrated Veterans Affairs health care network ¹⁸⁸	Cancer (colorectal)	357	Quality	Screening uptake, time to screening	Yes	1
Maynard, 2006: The use of percutaneous coronary intervention in black and white Veterans with acute myocardial infarction ¹⁸⁹	Cardiovascular (acute coronary syndrome)	4209	Quality	Use of percutaneous coronary intervention, 30-day rates of cardiac catheterization, and coronary artery bypass surgery	No	1
Mehta, 2010: Racial disparities in prescriptions for cardioprotective drugs and cardiac outcomes in Veterans Affairs Hospitals ¹⁹⁰	Cardiovascular disease	474565	Quality	Prescriptions for cardioprotective drugs (aspirin, beta-blocker, statin, angiotensin-converting enzyme inhibitor)	Mixed/ Unclear	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
			Health Outcome	Angina, acute myocardial infarction	Yes	3
Merkow, 2013: Efficiency of colorectal cancer care among veterans: analysis of treatment wait times at Veterans Affairs Medical Centers ¹⁹¹	Cancer (colon, rectal)	17487	Quality	Wait time from diagnosis to first-course therapy for colon and rectal cancers	Mixed/Unclear	2
Merriman, 2006: Racial difference in mortality among U.S. Veterans with HCV/HIV coinfection ¹⁹²	HCV, HIV	743	Health Outcome	3-year all-cause mortality	No	0
Meyers, 2008: Racial differences in mortality among men hospitalized in military hospitals ¹⁹³	Cardiovascular, gastrointestinal hemorrhage, stroke, diabetes	14122	Health Outcome	Hospital mortality	No	2
Moore, 2015: Racial, income, and marital status disparities in hospital readmissions within a Veterans-integrated health care network ¹⁹⁴	Inpatient/acute care	8718	Utilization	Number of hospital readmissions	No	1
Morasco, 2010: Clinical characteristics of Veterans prescribed high doses of opioid medications for chronic non-cancer pain ¹⁹⁵	Pain (arthritis and pain management)	1478	Health Outcome	High-dose opioid use	No	0
Morikawa, 2008: Counting alleles in single lesions of prostate tumors from ethnically diverse patients ¹⁹⁶	Cancer (prostate)	153	Quality	8p allelic status	No	1
Myaskovsky, 2012: Perceived discrimination predicts longer time to be accepted for kidney transplant ¹⁹⁷	Renal (end-stage renal disease)	127	Quality	Time to be accepted for kidney transplant	No	1
Nguyen, 2014: Risk factors for Barrett's esophagus compared between African Americans and non-Hispanic Whites ¹⁹⁸	Cancer (esophageal adenocarcinoma)	1952	Health Outcome	Diagnosis of Barrett's esophagus	No	0
Peiris, 2011: Race and vitamin D status and monitoring in male Veterans ¹⁹⁹	Preventive and ambulatory care	14148	Quality	Follow-up testing for vitamin D	Yes	2
Phillips, 2015: Racial/ethnic disparities in monitoring metabolic parameters for patients with schizophrenia receiving antipsychotic medications ²⁰⁰	Mental health (schizophrenia)	30258	Quality	Monitoring of metabolic dysregulation	Yes	1
Polsky, 2007: Is lower 30-day mortality posthospital admission among blacks unique to the Veterans Affairs health care system? ²⁰¹	Pneumonia, congestive heart failure, gastrointestinal bleeding, hip	369155	Health Outcome	30-day mortality	No	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
	fracture, stroke, or acute myocardial infarction					
Polsky, 2008: Short- and long-term mortality after an acute illness for elderly whites and blacks ²⁰²	Pneumonia, congestive heart failure, gastrointestinal bleeding, hip fracture, stroke, or acute myocardial infarction	155529	Health Outcome	30-day to 2-year mortality	Mixed/Unclear	3
Poon, 2010: Racial/ethnic differences in blood pressure control and medication utilization in a cohort of older Veterans with dementia ²⁰³	Cardiovascular (hypertension), Dementia	304	Quality	Use of hypertensive medications, blood pressure control, use of dementia medications, MMSE score	Mixed/Unclear	-1
Poon, 2009: Racial/ethnic disparities in medication use among Veterans with hypertension and dementia: a national cohort study ²⁰⁴	Preventive and ambulatory care	56561	Quality	Prevalence of each medication class and medication adherence	Yes	2
Pugh, 2006: Assessing potentially inappropriate prescribing in the elderly Veterans Affairs population using the HEDIS 2006 quality measure ²⁰⁵	Geriatrics, prescribing	1096361	Quality	Potentially inappropriate prescribing based on HEDIS criteria	No	3
Pugh, 2008: Potentially inappropriate prescribing for the elderly: effects of geriatric care at the patient and health care system level ²⁰⁶	Geriatrics, prescribing	714130	Quality	Potentially inappropriate prescribing in the elderly	No	3
Pugh, 2011: Trends in use of high-risk medications for older Veterans: 2004 to 2006 ²⁰⁷	Geriatrics, prescribing	1567467	Quality	Use of high-risk medications for the elderly	Mixed/Unclear	3
Quinones, 2014: Racial and ethnic differences in receipt of antidepressants and psychotherapy by Veterans with chronic depression ²⁰⁸	Mental health (depression)	62095	Quality	Adequate depression care	Mixed/Unclear	2
Rawaf, 2007: Exploring racial and sociodemographic trends in physician behavior, physician trust and their association with blood pressure control ²⁰⁹	Cardiovascular disease	793	Quality	Blood pressure control	No	1
Richardson, 2008: Effect of race/ethnicity and persistent recognition of depression on mortality in elderly men with type 2 diabetes	Diabetes	14500	Health Outcome	Mortality	No	1

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
and depression ²¹⁰						
Robinson, 2010: Ethnic disparities are reduced in VA colon cancer patients ²¹¹	Cancer (colorectal)	214	Quality	Stage of disease at presentation, mean times from diagnosis to surgical resection, time from surgical consultation to surgery, mean time to adjuvant therapy with among stage III patients	No	0
			Health Outcome	Survival time	No	0
Rogers, 2014: Healthcare utilization following mild traumatic brain injury in female Veterans ²¹²	Preventive and ambulatory care	12144	Utilization	Healthcare utilization, outpatient	Mixed/ Unclear	2
Rose, 2013: Racial/ethnic differences in cardiovascular risk factors among women Veterans ²¹³	Cardiovascular disease risk factors	3611	Quality	Cardiovascular disease risk factors	Yes	1
			Health Outcome	Diabetes diagnosis	Yes	1
Rosen, 2013: Racial differences in Veterans' satisfaction with examination of disability from posttraumatic stress disorder ²¹⁴	Mental health (PTSD)	384	Quality	Patient evaluation of interview quality	Yes	2
Roumie, 2011: Prevalence of inadequate blood pressure control among veterans after acute ischemic stroke hospitalization: a retrospective cohort ²¹⁵	Cardiovascular (stroke, hypertension)	3640	Quality	BP control at the time of discharge and 6-month follow-up in patients hospitalized for stroke	Mixed/ Unclear	1
Sabounchi, 2012: Impact of race on colorectal cancer ²¹⁶	Cancer (colorectal)	300	Quality	Access to care	Mixed/ Unclear	-1
			Health Outcome	Mortality	No	-1
Sajatovic, 2007: Treatment adherence with lithium and anticonvulsant medications among patients with bipolar disorder ²¹⁷	Mental health (bipolar)	44637	Quality	Medication adherence	Yes	1
Sambamoorthi, 2010: Depression treatment patterns among women Veterans with cardiovascular conditions or diabetes ²¹⁸	Women's health (cardiovascular health or diabetes)	7354	Utilization	Depression services (antidepressants, psychotherapy)	Mixed/ Unclear	0
Sambamoorthi, 2012: Decomposing gender differences in low-density lipoprotein cholesterol among Veterans with or at risk for cardiovascular illness ²¹⁹	Cardiovascular (lipid management)	527568	Quality	LDL-C greater than or equal to 130	Mixed/ Unclear	3
Samuel, 2014: Racial disparities in cancer care in the Veterans Affairs health care system and the role of site of care ²²⁰	Cancer	76707	Quality	Early-stage diagnosis, receipt of surgery	Yes	2
			Health Outcome	Survival	Mixed/ Unclear	2
Sandulache, 2013: Impact of race/ethnicity on	Cancer (laryngeal)	205	Quality	Patient and tumor characteristics,	No	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
laryngeal cancer in patients treated at a Veterans Affairs Medical Center ²²¹				compliance with National Comprehensive Cancer Network guidelines		
			Health Outcome	Survival outcomes	No	0
Sarrazin, 2009: Racial differences in mortality among Veterans hospitalized for exacerbation of chronic obstructive pulmonary disease ²²²	Chronic obstructive pulmonary disease	50979	Health Outcome	Mortality	No	2
Schreiber, 2014: Impact of race in a predominantly African-American population of patients with low/intermediate risk prostate cancer undergoing radical prostatectomy within an equal access care institution ²²³	Cancer (prostate)	222	Quality	Biochemical failure (prostate-specific antigen >0.2 ng/mL followed by repeat measure higher than 0.2 ng/mL or initiation of salvage treatment), distant control	Mixed/Unclear	0
			Health Outcome	Survival	No	0
Schwartz, 2016: Racial disparity in adherence to positive airway pressure among US Veterans ²²⁴	Obstructive sleep apnea	2172	Quality	Continuous positive airway pressure compliance	Yes	0
Seal, 2007: Bringing the war back home: Mental health disorders among 103 788 US Veterans returning from Iraq and Afghanistan seen at Department of Veterans Affairs Facilities ²²⁵	Mental health	103788	Health Outcome	PTSD or other mental health diagnoses	No	3
Seal, 2011: Substance use disorders in Iraq and Afghanistan Veterans in VA healthcare, 2001-2010: Implications for screening, diagnosis and treatment ²²⁶	Mental health (substance use disorder)	456502	Health Outcome	Presence or absence of substance use disorders (alcohol or drug use disorder)	Mixed/Unclear	3
Shaw, 2014: Posttraumatic stress disorder and risk of spontaneous preterm birth ²²⁷	Women's health (preterm birth), mental health (PTSD)	16334	Health Outcome	Spontaneous preterm birth	Yes	2
Shimada, 2008: Advances in patient safety: racial disparities in Patient Safety Indicator (PSI) rates in the Veterans Health Administration ²²⁸	Inpatient care	1032103	Quality	Patient safety indicators	Mixed/Unclear	2
Shimada, 2008: Racial disparities in patient safety indicator (PSI) rates in the Veterans Health Administration ²²⁹	Surgery (postoperative and surgical complications)	1032103	Health Outcome	Death in low mortality Diagnosis-Related Groups	Mixed/Unclear	3
Spoont, 2009: Race and ethnicity as factors in	Mental health	20284	Utilization	Mental health care receipt (medication	No	2

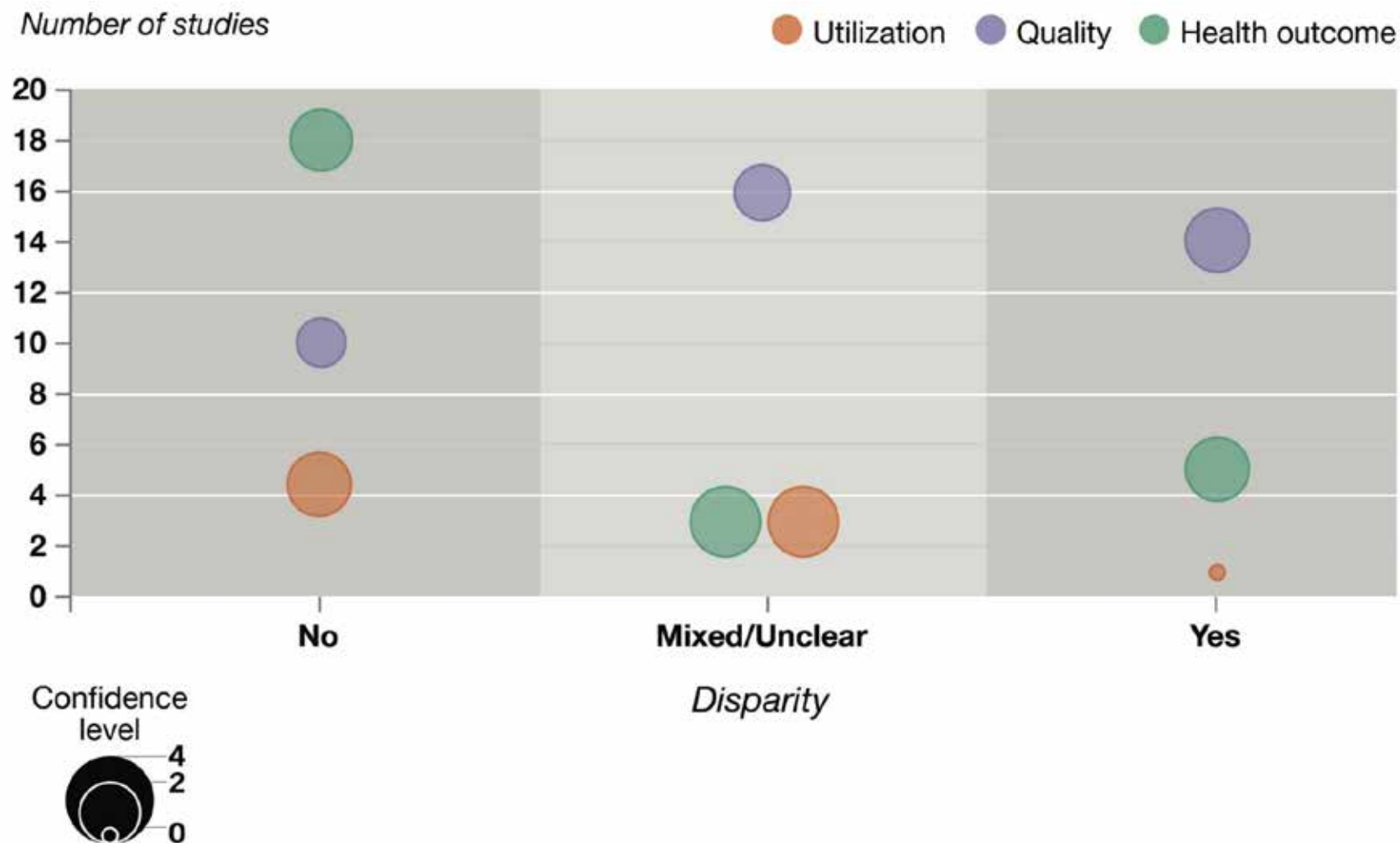
<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
mental health service use among Veterans with PTSD ²³⁰	(PTSD)			prescription, counseling)		
Spoont, 2015: Are there racial/ethnic disparities in VA PTSD treatment retention? ²³¹	Mental health (PTSD)	6788	Quality	PTSD treatment retention	Mixed/Unclear	2
Taber, 2016: Overall graft loss versus death-censored graft loss: unmasking the magnitude of racial disparities in outcomes among US kidney transplant recipients ²³²	Renal	4918	Health Outcome	Overall graft loss, death and death-censored graft loss	Mixed/Unclear	1
Tiwari, 2008: Guideline-consistent antidepressant treatment patterns among Veterans with diabetes and major depressive disorder ²³³	Mental health (depression), diabetes	3953	Quality	Proportion who have guideline-consistent antidepressant treatment	Yes	1
Trivedi, 2011: Despite improved quality of care in the Veterans Affairs health system, racial disparity persists for important clinical outcomes ²³⁴	Preventive and ambulatory care	1126254	Quality	Quality of care measures: diabetes (control of hemoglobin A1c, control of LDL-C), cardiovascular disease (control of LDL-C), hypertension control	Mixed/Unclear	3
Tsai, 2014: The effects of race and other socioeconomic factors on health service use among American military Veterans ²³⁵	Preventive and ambulatory care	19270	Utilization	Health service use	Mixed/Unclear	2
Tseng, 2006: Diabetes care among Veteran women with disability ²³⁶	Diabetes	2344	Quality	Hemoglobin A1c and LDL-C screening and control	Mixed/Unclear	1
Tseng, 2007: The association between mental health functioning and nontraumatic lower extremity amputations in Veterans with diabetes ²³⁷	Diabetes	114890	Health Outcome	Major and minor non-traumatic lower extremity amputations	Mixed/Unclear	3
Tseng, 2011: Trends in initial lower extremity amputation rates among Veterans Health Administration Health Care System users from 2000 to 2004 ²³⁸	Diabetes	405580 to 739377	Health Outcome	Lower extremity amputation	No	3
Twombly, 2010: Diabetes care in black and white Veterans in the southeastern U.S. ²³⁹	Diabetes	4080	Utilization	Number of outpatient visits	No	1
			Quality	Hemoglobin A1c level, number of random plasma glucose measurements, and number of hemoglobin A1c measurements	Mixed/Unclear	1
Vimalananda, 2013: Cardiovascular disease risk factors among women Veterans at VA medical facilities ²⁴⁰	Cardiovascular disease	2515015	Quality	Hypertension, hyperlipidemia, obesity	Mixed/Unclear	2
			Health Outcome	Diabetes prevalence	Yes	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Volpp, 2007: Is thirty-day hospital mortality really lower for black Veterans compared with white Veterans? ²⁴¹	Pneumonia, congestive heart failure, gastrointestinal bleeding, hip fracture, stroke, or acute myocardial infarction	406550	Health Outcome	30-day mortality after hospitalization	Mixed/Unclear	3
Washington, 2009: Women Veterans ambulatory care use project, phase II ²⁴²	Women's health	2174	Utilization	Utilization of VHA mental health care	Yes	0
Washington, 2011: VA facility determinants of racial-ethnic variations in quality of care ²⁴³	Preventive and ambulatory care	NR - likely large	Quality	Control of blood pressure, LDL-cholesterol, and diabetes, colorectal cancer screening, receipt of immunizations	Yes	2
Wendel, 2006: Racial and ethnic disparities in the control of cardiovascular disease risk factors in Southwest American Veterans with type 2 diabetes: the Diabetes Outcomes in Veterans Study ²⁴⁴	Diabetes, cardiovascular disease risk	338	Quality	Glycemic control, insulin treatment intensity, lipid levels, and blood pressure control	Mixed/Unclear	1
Whittle, 2006: Racial differences in prevalence of coronary obstructions among men with positive nuclear imaging studies ²⁴⁵	Cardiovascular disease	1025	Health Outcome	Significant coronary obstruction	No	2
Whittle, 2011: Better hypertension and lipid care in racially diverse, Veterans at risk ²⁴⁶	Cardiovascular (acute coronary syndrome)	36000	Health Outcome	Mortality	Yes	2
Williams, 2013: Influence of comorbidity on racial differences in receipt of surgery among US Veterans with early-stage non-small-cell lung cancer ²⁴⁷	Cancer (lung)	1314	Quality	Access to care (non-small-cell lung cancer surgery)	Yes	1
Yang, 2006: Long-term morbidity and mortality among a sample of cocaine-dependent black and white Veterans ²⁴⁸	Mental health (substance use disorder, cocaine dependence)	294	Health Outcome	Mortality, utilization of medical, mental health, drug, and alcohol services	No	1
Zeber, 2007: Self-reported access to general medical and psychiatric care among Veterans with bipolar disorder ²⁴⁹	Mental health (bipolar)	435	Utilization	Patient perception of access to health and mental health	No	0
Zeber, 2009: Perceived access to general medical and psychiatric care among Veterans	Preventive and ambulatory care	435	Utilization	Obtaining necessary care	Mixed/Unclear	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
with bipolar disorder ²⁵⁰						
Zeber, 2011: Medication adherence, ethnicity, and the influence of multiple psychosocial and financial barriers ²⁵¹	Mental health	435	Quality	Medication adherence	Mixed/ Unclear	0
Zevallos, 2016: Impact of race on oropharyngeal squamous cell carcinoma presentation and outcomes among Veterans ²⁵²	Cancer (oropharyngeal squamous cell carcinoma)	158	Health Outcome	Survival	No	0
Zickmund, 2015: Racial and ethnic disparities in satisfaction with VA care ²⁵³	Utilization (satisfaction)	1219	Quality	Patient satisfaction (access)	No	1
Zivin, 2007: Suicide mortality among individuals receiving treatment for depression in the Veterans Affairs health system: Associations with patient and treatment setting characteristics ²⁵⁴	Mental health (depression)	807694	Health Outcome	Suicide mortality	No	3
Zullig, 2013: An examination of racial differences in process and outcome of colorectal cancer care quality among users of the Veterans Affairs Health Care System ²⁵⁵	Cancer (colorectal)	2022	Quality	Time from surgery to initiation of adjuvant chemotherapy, surgery to surveillance colonoscopy, and surgery to death	Mixed/ Unclear	1
			Health Outcome	Time from surgery to death	No	1
Zullig, 2013: Examining potential colorectal cancer care disparities in the Veterans Affairs health care system ²⁵⁶	Cancer (colorectal)	2022	Quality	Guideline-concordant care	No	1
Zullig, 2013: The association of race with timeliness of care and survival among Veterans Affairs health care system patients with late-stage non-small cell lung cancer ²⁵⁷	Cancer (non-small cell lung carcinoma)	2200	Quality	Time to receiving recommended care (treatment initiation and palliative care)	No	1
			Health Outcome	Survival	No	1

APPENDIX F. HEALTH DISPARITIES BY RACE/ETHNICITY – HISPANIC/LATINO

Evidence Map. Health Disparities in Veterans by Race/Ethnicity – Hispanic/Latino



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Table. Health Disparities in Veterans by Race/Ethnicity – Hispanic/Latino

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Axon, 2011: Racial and ethnic differences in longitudinal blood pressure control in Veterans with type 2 diabetes mellitus ⁷⁵	Diabetes	5319	Quality	Proportion of patients with controlled blood pressure	Yes	0
Backus, 2014: Impact of race/ethnicity and gender on HCV screening and prevalence among US Veterans in Department of Veterans Affairs care ⁷⁷	HCV	3907136	Quality	HCV screening rates	No	2
			Health Outcomes	HCV prevalence	Yes	2
Banerjea, 2007: Chronic illness with complexities: Mental illness and substance use among Veteran clinic users with diabetes ⁷⁸	Diabetes, co-occurring substance use and mental health disorders in patients with diabetes	485893	Health Outcomes	Mental health status, substance use disorder, combined mental health and substance use disorder, access to care, and diabetes-related health complications	Mixed/Unclear	3
Banerjea, 2009: Mental illness and substance use disorders among women Veterans with diabetes ⁷⁹	Mental health (Substance Use Disorder), diabetes	14984	Health Outcomes	Serious mental illness and/or substance use disorder diagnoses	No	2
Bierman, 2007: Sex differences in inappropriate prescribing among elderly Veterans ⁸²	Geriatrics, Prescribing	965756	Quality	Zhan criteria for inappropriate prescribing for older adults	Yes	3
Boehmer, 2016: Dental care in an equal access system valuing equity: are there racial disparities? ⁸³	Dental	71315	Quality	Receipt of root canal vs extraction	Mixed/Unclear	1
Borrero, 2012: Contraceptive care in the VA health care system ⁸⁴	Women's health (contraceptive care)	103950	Quality	Receipt and type of contraception	Mixed/Unclear	3
Borrero, 2013: Adherence to hormonal contraception among women Veterans: differences by race/ethnicity and contraceptive supply ⁸⁵	Women's health (hormonal contraceptives)	6946	Health Outcomes	Adherence to hormonal contraceptive medication (time between refills, total months of contraceptive coverage, whether the woman had contraceptive coverage during the last week of FY 2008)	Yes	1
Braun, 2008: Racial and ethnic differences in the treatment of seriously ill patients: a comparison of African-American, Caucasian and Hispanic Veterans ⁸⁶	Inpatient/acute care, elderly	166059	Quality	Use of life-sustaining treatment (Resuscitation, Mechanical Ventilation, Intensive Care Unit, Enteral Nutrition, Transfusion)	Mixed/Unclear	3
Butt, 2006: Rates and predictors of hepatitis C virus treatment in HCV-HIV-coinfected subjects ⁹³	HCV, HIV	6502	Quality	Prescribed treatment for HCV	Yes	1
C'De Baca, 2014: Ethnic differences in personality disorder patterns among women Veterans	Mental health (Personality	260	Health Outcomes	Personality disorder diagnosis	No	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
diagnosed with PTSD ⁹⁵	Disorders)					
Cone, 2011: Demographic determinants of response to statin medications ¹⁰¹	Cardiovascular (coronary artery disease)	5191	Quality	Achieving goal of LDL-C <100	No	0
Copeland, 2011: Ethnicity and race variations in receipt of surgery among Veterans with and without depression ¹⁰³	Surgery	309068	Quality	Surgery	Mixed/Unclear	3
Copeland, 2014: Prevalence of suicidality among Hispanic and African American Veterans following surgery ¹⁰⁴	Mental health (SBI), surgery (organ, bone or joint, cancers, vascular, and amputations)	89995	Health Outcomes	Diagnosis of suicidal behavior or ideation	No	2
Daskivich, 2015: Racial parity in tumor burden, treatment choice and survival outcomes in men with prostate cancer in the VA healthcare system ¹⁰⁷	Cancer (prostate)	1258	Quality	Tumor risk, Gleason score, clinical stage, aggressive treatment for low-, intermediate-, and high-risk disease	Mixed/Unclear	1
			Health Outcomes	Cancer-related mortality, all-cause mortality	No	1
Dismuke, 2016: Racial/ethnic disparities in VA services utilization as a partial pathway to mortality differentials among Veterans diagnosed with TBI ¹⁰⁹	TBI	14960	Utilization	Total visits	Mixed/Unclear	2
			Health Outcomes	Mortality	No	2
Dobscha, 2009: Associations between race and ethnicity and treatment for chronic pain in the VA ¹¹⁰	Pain (chronic)	9121 women 246,401 men	Utilization	Question on receipt of treatment for chronic pain in past year, question on effectiveness of chronic pain care	Mixed/Unclear	3
Duffy, 2012: Risk of smoking and receipt of cessation services among Veterans with mental disorders ¹¹¹	Smoking cessation	224193	Quality	Physician advised quitting, physician recommended medication, physician discussed quitting methods	Yes	3
Egede, 2011: Longitudinal ethnic differences in multiple cardiovascular risk factor control in a cohort of US adults with diabetes ¹¹³	Cardiovascular disease, Diabetes	11203	Quality	CV risk factor control (glycemic, BP, LDL-C)	Yes	1
Egede, 2011: Regional, geographic, and ethnic differences in medication adherence among adults with type 2 diabetes ¹¹⁴	Diabetes	690968	Quality	Medication adherence (MPR-med possession ratio)	Yes	3
Egede, 2011: Regional, geographic, and racial/ethnic variation in glycemic control in a national sample of Veterans with diabetes ¹¹⁵	Diabetes	690698	Quality	Hemoglobin A1c level, poor control of hemoglobin A1c (<80%)	Yes	3
Egede, 2012: Racial/ethnic disparities in mortality	TBI	14690	Health	Mortality	Yes	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
risk among US Veterans with traumatic brain injury ¹¹⁶			Outcomes			
Egede, 2013: Differential impact of longitudinal medication non-adherence on mortality by race/ethnicity among Veterans with diabetes ¹¹⁷	Diabetes	629563	Health Outcomes	Medication nonadherence-associated mortality	Yes	3
El-Serag, 2014: Racial differences in the progression to cirrhosis and hepatocellular carcinoma in HCV-infected Veterans ¹²¹	HCV, cancer (liver)	149407	Health Outcomes	Risk of cirrhosis or hepatocellular cancer	Yes	3
Fischer, 2007: Lack of ethnic differences in end-of-life care in the Veterans Health Administration ¹²²	End-of-life care (palliative care)	217	Quality	Receipt of palliative care measures (advanced directive discussions, treatment of pain if present, symptom-directed plan, DNR orders)	No	0
Fischer, 2008: Longitudinal patterns of health system retention among Veterans with schizophrenia or bipolar disorder ¹²³	Mental health (serious mental illness)	164150	Utilization	Retention in VA care	No	3
			Health Outcomes	5-year survival	No	3
Garrido, 2014: Benzodiazepine and sedative-hypnotic use among older seriously ill Veterans: choosing wisely? ¹²⁸	Geriatrics, Prescribing	222	Quality	Potentially inappropriate use of benzodiazepines or other sedative-hypnotics (BSHs)	Yes	0
Gerber, 2015: Hormone therapy use in women Veterans accessing Veterans Health Administration care: a national cross-sectional study ¹³⁰	Women's health (hormone therapy)	157195	Quality	Rx of HT (hormone therapy)	No	3
Halanych, 2006: Racial/ethnic differences in diabetes care for older Veterans: accounting for dual health system use changes conclusions ¹⁴⁰	Diabetes, geriatrics	5931	Quality	Hemoglobin A1c, LDL-C screenings, eye exam	Mixed/Unclear	1
Haskell, 2008: Determinants of hormone therapy discontinuation among female Veterans nationally ¹⁴¹	Women's health (hormone therapy)	36222	Quality	Hormone therapy discontinuation	No	2
Haskell, 2009: Pain among Veterans of Operations Enduring Freedom and Iraqi Freedom: Do women and men differ? ¹⁴²	Pain	153212	Health Outcomes	Pain: reported any pain, reported moderate-severe pain, reported persistent pain	No	3
Hausmann, 2013: Understanding racial and ethnic differences in patient experiences with outpatient health care in Veterans Affairs Medical Centers ¹⁴⁶	Preventive and ambulatory care	211459	Quality	Getting needed care, getting care quickly, how well doctors and nurses communicate, rating of personal doctor/nurse/specialist, overall healthcare rating, use of shared decision-making, pharmacy services	Mixed/Unclear	3
Hausmann, 2014: Patterns of sex and racial/ethnic differences in patient health care experiences in US Veterans Affairs hospitals ¹⁴⁷	General health	50471	Quality	Patient reports of positive and negative healthcare experiences at VA facilities	Mixed/Unclear	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Higgins, 2014: Persistent pain and comorbidity among Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn Veterans ¹⁴⁹	Pain (chronic)	5242	Health Outcomes	Persistent pain (either self-rated scale, ICD-9 pain diagnosis, pain clinic visit, or opioid Rx)	No	1
Hope, 2009: New-onset geriatric epilepsy care: race, setting of diagnosis, and choice of antiepileptic drug ¹⁵⁰	Epilepsy	9682	Quality	Suboptimal antiepileptic drug (AED) prescribing	No	1
Hunt, 2013: Impact of diabetes control on mortality by race in a national cohort of Veterans ¹⁵⁵	Diabetes	892223	Health Outcomes	Mortality	Mixed/Unclear	4
Ibrahim, 2008: Race, ethnicity and length of hospital stay after knee or hip arthroplasty ¹⁵⁶	Pain (chronic)	18,263	Utilization	Length of hospital stay	No	2
Irmiter, 2007: Reinstitutionalization following psychiatric discharge among VA patients with serious mental illness: a national longitudinal study ¹⁵⁸	Mental health (serious mental illness)	35527	Health Outcomes	Time to reinstitutionalization/rehospitalization	No	1
Jackson, 2008: Racial/ethnic and educational-level differences in diabetes care experiences in primary care ²⁵⁸	Diabetes	189	Quality	Patient perceptions of alignment with chronic care model (Patient Assessment of Chronic Illness Care)	No	1
Jia, 2010: Racial and ethnic disparities in post-stroke depression detection ¹⁶⁰	Cardiovascular (Stroke)	5825	Health Outcomes	Diagnosis of post-stroke depression	No	1
Kales, 2010: Who receives outpatient monitoring during high-risk depression treatment periods? ¹⁶²	Mental health (Depression)	494673	Utilization	Number of outpatient visits following mental health hospitalization or outpatient initiation of antidepressant medication	No	3
Kalkonde, 2009: Ethnic disparities in the treatment of dementia in Veterans ¹⁶³	Dementia	410	Quality	Imaging, neuropsychological testing, and depression screening	Mixed/Unclear	0
			Health Outcomes	Dementia diagnosis	No	0
Kimerling, 2011: Military sexual trauma and patient perceptions of Veteran Health Administration health care quality ¹⁷⁰	Mental health (sexual trauma)	164632	Quality	Patient satisfaction with VHA outpatient care	Yes	3
Koo, 2015: Race-ethnicity and gender differences in VA health care service utilization among US Veterans of recent conflicts ¹⁷²	Utilization	309050	Utilization	Healthcare utilization	Mixed/Unclear	3
Luca, 2016: Mental health care utilization: how race, ethnicity and Veteran status are associated with seeking help ¹⁸²	Mental health	1124	Utilization	Receipt of mental health treatment	No	1
Luncheon, 2012: Health-related quality of life among US Veterans and civilians by race and	Quality of life, health-related	110000	Health Outcomes	Physically unhealthy days, mentally unhealthy days, recent activity limitation days	No	3

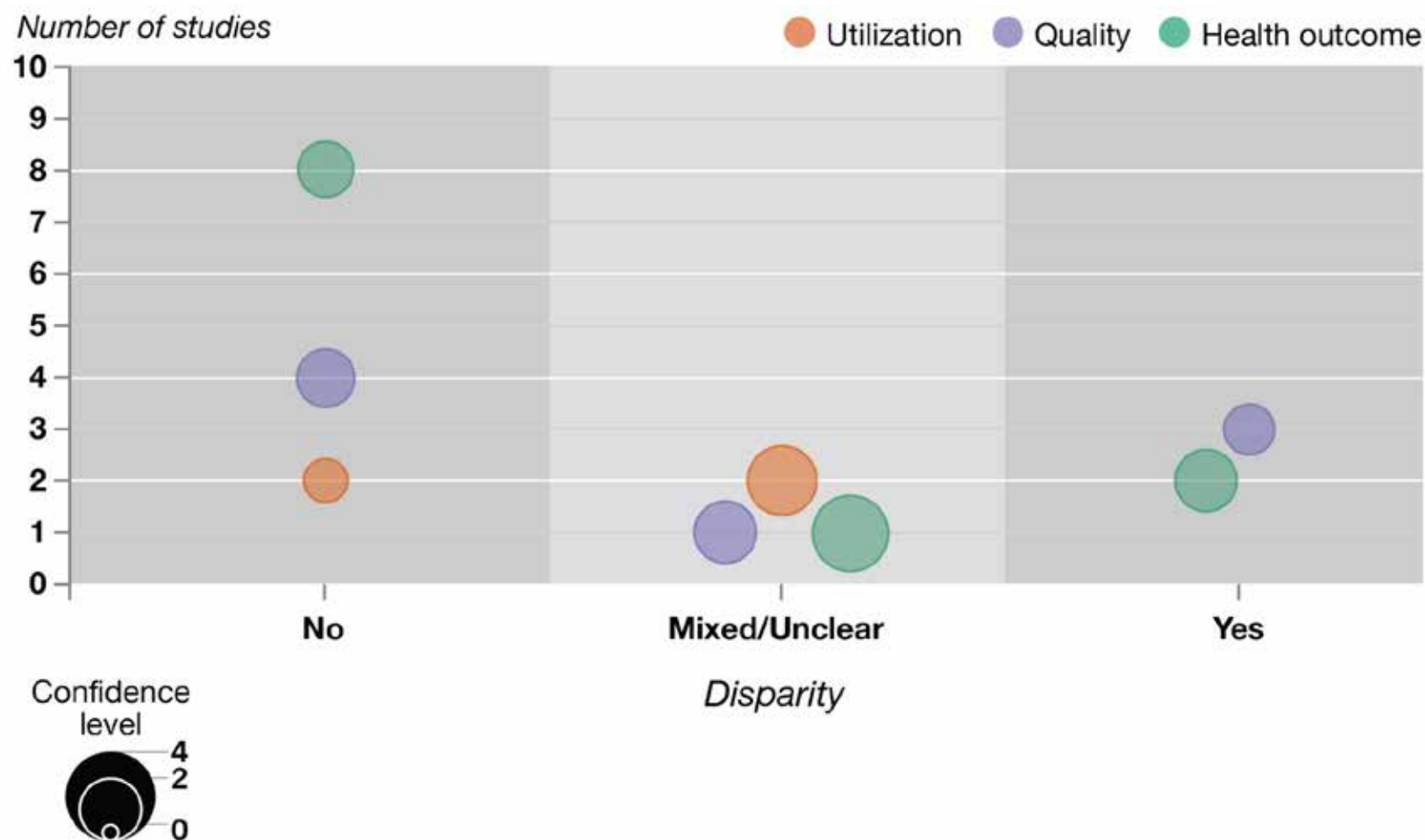
<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
ethnicity ¹⁸³						
Lynch, 2015: Geographic and racial/ethnic variations in patterns of multimorbidity burden in patients with type 2 diabetes ¹⁸⁵	Diabetes	892223	Health Outcomes	Multimorbidity	No	3
Mackenzie, 2010: Impact of rural residence on survival of male Veterans affairs patients after age 65 ¹⁸⁶	Mortality (65+)	372463	Health Outcomes	Mortality	No	3
Mattocks, 2015: Infertility care among OEF/OIF/OND women Veterans in the Department of Veterans Affairs ¹⁸⁷	Women's health (Reproductive health)	1323	Quality	Received an infertility assessment	No	0
Phillips, 2015: Racial/ethnic disparities in monitoring metabolic parameters for patients with schizophrenia receiving antipsychotic medications ²⁰⁰	Mental health (serious mental illness)	30258	Quality	Monitoring of metabolic dysregulation	Mixed/Unclear	1
Poon, 2009: Racial/ethnic disparities in medication use among Veterans with hypertension and dementia: a national cohort study ²⁰⁴	Dementia, Cardiovascular (hypertension)	56561	Quality	Prevalence of each medication class and medication possession ratio (MPR)-medication adherence	Yes	2
Pugh, 2006: Assessing potentially inappropriate prescribing in the elderly Veterans Affairs population using the HEDIS 2006 quality measure ²⁰⁵	Geriatrics, Prescribing	1096361	Quality	Potentially inappropriate prescribing based on HEDIS criteria	Yes	3
Pugh, 2011: Trends in use of high-risk medications for older Veterans: 2004 to 2006 ²⁰⁷	Geriatrics, Prescribing	1567467	Quality	Use of high risk medications for the elderly (HRME)	Yes	3
Quinones, 2014: Racial and ethnic differences in receipt of antidepressants and psychotherapy by Veterans with chronic depression ²⁰⁸	Mental health (Depression)	62095	Quality	Adequate depression care	Mixed/Unclear	2
Rose, 2013: Racial/ethnic differences in cardiovascular risk factors among women Veterans ²¹³	Cardiovascular	3611	Health Outcomes	Cardiovascular disease risk factors	Mixed/Unclear	1
Sajatovic, 2007: Treatment adherence with lithium and anticonvulsant medications among patients with bipolar disorder ²¹⁷	Mental health (Bipolar)	44637	Quality	Adherence	Yes	1
Sambamoorthi, 2012: Decomposing gender differences in low-density lipoprotein cholesterol among Veterans with or at risk for cardiovascular illness ²¹⁹	Cardiovascular (lipid management)	527568	Quality	LDL-C greater than or equal to 130	No	3
Seal, 2011: Substance use disorders in Iraq and	Mental health	456502	Health	Presence or absence of substance use disorders	No	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Afghanistan Veterans in VA healthcare, 2001-2010: Implications for screening, diagnosis and treatment ²²⁶	(substance use disorder)		Outcomes	(alcohol or drug use disorder)		
Shimada, 2008: Advances in patient safety: racial disparities in Patient Safety Indicator (PSI) rates in the Veterans Health Administration ²²⁸	Inpatient care	1032103	Quality	Multiple patient safety indicators	Mixed/Unclear	2
Shimada, 2008: Racial disparities in patient safety indicator (PSI) rates in the Veterans Health Administration ²²⁹	Surgery (postoperative and surgical complications)	1032103	Health Outcomes	Death in low-mortality Diagnosis-Related Groups (DRG)	No	3
Spoont, 2009: Race and ethnicity as factors in mental health service use among Veterans with PTSD ²³⁰	Mental health (PTSD)	20284	Utilization	Mental health care receipt (psychotropic prescription, AD prescription, counseling)	No	2
Spoont, 2015: Are there racial/ethnic disparities in VA PTSD treatment retention? ²³¹	Mental health (PTSD)	6788	Quality	PTSD treatment retention	Mixed/Unclear	2
Tiwari, 2008: Guideline-consistent antidepressant treatment patterns among Veterans with diabetes and major depressive disorder ²³³	Mental health (Depression), diabetes	3953	Quality	Proportion who have guideline-consistent antidepressant treatment	No	1
Tseng, 2006: Diabetes care among Veteran women with disability ²³⁶	Diabetes	2344	Quality	Hemoglobin A1c and LDL-C screening and control	Mixed/Unclear	1
Tseng, 2011: Trends in initial lower extremity amputation rates among Veterans Health Administration health care System users from 2000 to 2004 ²³⁸	Diabetes	405,580 - 739,377	Health Outcomes	Lower extremity amputation	No	3
Washington, 2009: Women Veterans ambulatory care use project, phase II ²⁴²	Women's health	2174	Utilization	Utilization of VA mental health care	Yes	0
Washington, 2011: VA facility determinants of racial-ethnic variations in quality of care ²⁴³	Preventive and ambulatory care	NR - likely large	Quality	Colorectal cancer screening, receipt of immunizations, control of blood pressure, LDL-cholesterol, and diabetes	Yes	5
Wendel, 2006: Racial and ethnic disparities in the control of cardiovascular disease risk factors in Southwest American Veterans with type 2 diabetes: the Diabetes Outcomes in Veterans Study ²⁴⁴	Cardiovascular, Diabetes	338	Quality	Glycemic control, insulin treatment intensity, lipid levels, and blood pressure control	Mixed/Unclear	1
Zickmund, 2015: Racial and ethnic disparities in satisfaction with VA care ²⁵³	Utilization (satisfaction)	1219	Quality	Patient satisfaction (access, cost, pharmacy)	Mixed/Unclear	1
Zivin, 2007: Suicide mortality among individuals receiving treatment for depression in the Veterans	Mental health (depression)	807694	Health Outcomes	Suicide mortality	No	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Affairs health system: Associations with patient and treatment setting characteristics ²⁵⁴						

APPENDIX G. HEALTH DISPARITIES BY RACE/ETHNICITY – AMERICAN INDIAN/ALASKA NATIVE

Evidence Map. Health Disparities in Veterans by Race/Ethnicity – American Indian/Alaska Native



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

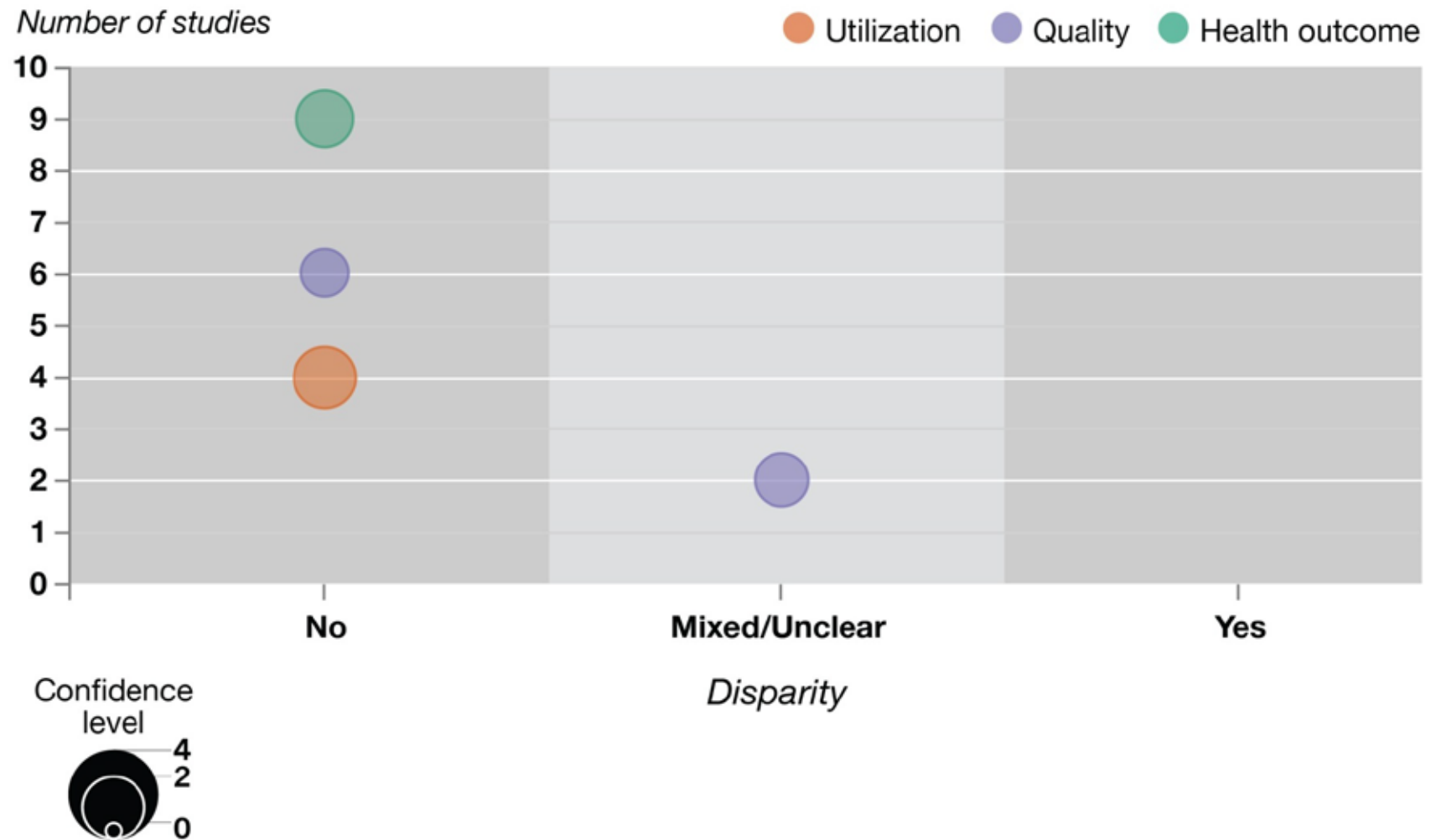
Table. Health Disparities in Veterans by Race/Ethnicity – American Indian/Alaska Native

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Alvord, 2009: Surgical outcomes in American Indian Veterans: a closer look ²⁵⁹	Surgery/Postoperative complications	4419	Health Outcome	Post-operative complications, mortality	No	1
Backus, 2014: Impact of race/ethnicity and gender on HCV screening and prevalence among US Veterans in Department of Veterans Affairs care ⁷⁷	HCV	823383	Quality	Proportion screened for HCV	No	2
			Health Outcome	HCV infection prevalence	Yes	2
Cone, 2011: Demographic determinants of response to statin medications ¹⁰¹	Cardiovascular (coronary artery disease)	5191	Quality	Achieving goal of LDL-C <100	Yes	0
Fischer, 2008: Longitudinal patterns of health system retention among Veterans with schizophrenia or bipolar disorder ¹²³	Mental health (serious mental illness)	164150	Health Outcome	5-year survival	No	2
Ganti, 2014: Association between race and survival of patients with non-small-cell lung cancer in the United States Veteran Affairs population ¹²⁷	Cancer (non-small cell lung carcinoma)	82414	Health Outcome	Mortality	No	1
Irmiter, 2007: Reinstitutionalization following psychiatric discharge among VA patients with serious mental illness: a national longitudinal study ¹⁵⁸	Mental health (serious mental illness)	35527	Health Outcome	Time to reinstitutionalization/rehospitalization	No	1
Johnson, 2010: Healthcare disparities for American Indian Veterans in the United States: a population-based study ²⁶⁰	General health	34504	Quality	Delaying care, restricted access to care due to financial concerns	Yes	2
Kaufman, 2013: Rural native Veterans in the Veterans Health Administration: characteristics and service utilization patterns ²⁶¹	General health	287675	Quality	Number of diagnoses	Yes	2
			Health Outcome	Service connection disability	No	2
Kazerooni, 2014: Predictors of adherence to hormonal contraceptives in a female Veteran population ¹⁶⁵	Women's health (hormonal contraceptives)	805	Health Outcome	Adherence to hormonal contraceptive medication (medication possession ratio >.9)	No	0
Koo, 2015: Race-ethnicity and gender differences in VA health care service utilization among US Veterans of recent conflicts ¹⁷²	Utilization	309050	Utilization	Healthcare utilization	Mixed/ Unclear	3
Landrum, 2012: Race and income association	Cardiovascular (heart	149	Utilization	Heart failure-related outcomes (30-	No	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
with health service utilization for Veterans with heart failure ¹⁷⁹	failure)			day, 90-day, 1-year and total readmissions, ED visits, and total bed days of care)		
Luncheon, 2012: Health-related quality of life among US Veterans and civilians by race and ethnicity ¹⁸³	Quality of life, health-related	110000	Health Outcome	Physically unhealthy days, mentally unhealthy days, recent activity limitation days	Mixed/Unclear	3
Mackenzie, 2010: Impact of rural residence on survival of male Veterans affairs patients after age 65 ¹⁸⁶	Mortality (65+)	372463	Health Outcome	Mortality	No	3
Quinones, 2014: Racial and ethnic differences in receipt of antidepressants and psychotherapy by Veterans with chronic depression ²⁰⁸	Mental health (Depression)	62095	Quality	Adequate depression care	Mixed/Unclear	2
Sajatovic, 2007: Treatment adherence with lithium and anticonvulsant medications among patients with bipolar disorder ²¹⁷	Mental health (Bipolar)	44637	Quality	Adherence	No	1
Shaw, 2014: Posttraumatic stress disorder and risk of spontaneous preterm birth ²²⁷	Mental health (PTSD), Childbirth	16334	Health Outcome	Spontaneous preterm birth	Yes	2
Shimada, 2008: Advances in patient safety: racial disparities in Patient Safety Indicator (PSI) rates in the Veterans Health Administration ²²⁸	Inpatient care	1032103	Quality	Patient safety indicators	No	2
Shimada, 2008: Racial disparities in patient safety indicator (PSI) rates in the Veterans Health Administration ²²⁹	Surgery (postoperative and surgical complications)	1032103	Health Outcome	Death in low-mortality Diagnosis-Related Groups (DRG)	No	3
Spoont, 2009: Race and ethnicity as factors in mental health service use among Veterans with PTSD ²³⁰	Mental health (PTSD)	20284	Utilization	Mental health care receipt (psychotropic prescription, AD prescription, counseling)	Mixed/Unclear	2
Spoont, 2015: Are there racial/ethnic disparities in VA PTSD treatment retention? ²³¹	Mental health (PTSD)	6788	Quality	PTSD treatment retention	No	2
Tsai, 2014: The effects of race and other socioeconomic factors on health service use among American military Veterans ²³⁵	Utilization	19270	Utilization	Health service use	No	2

APPENDIX H. HEALTH DISPARITIES BY RACE/ETHNICITY – ASIAN/PACIFIC ISLANDER

Evidence Map. Health Disparities in Veterans by Race/Ethnicity – Asian/Pacific Islander



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

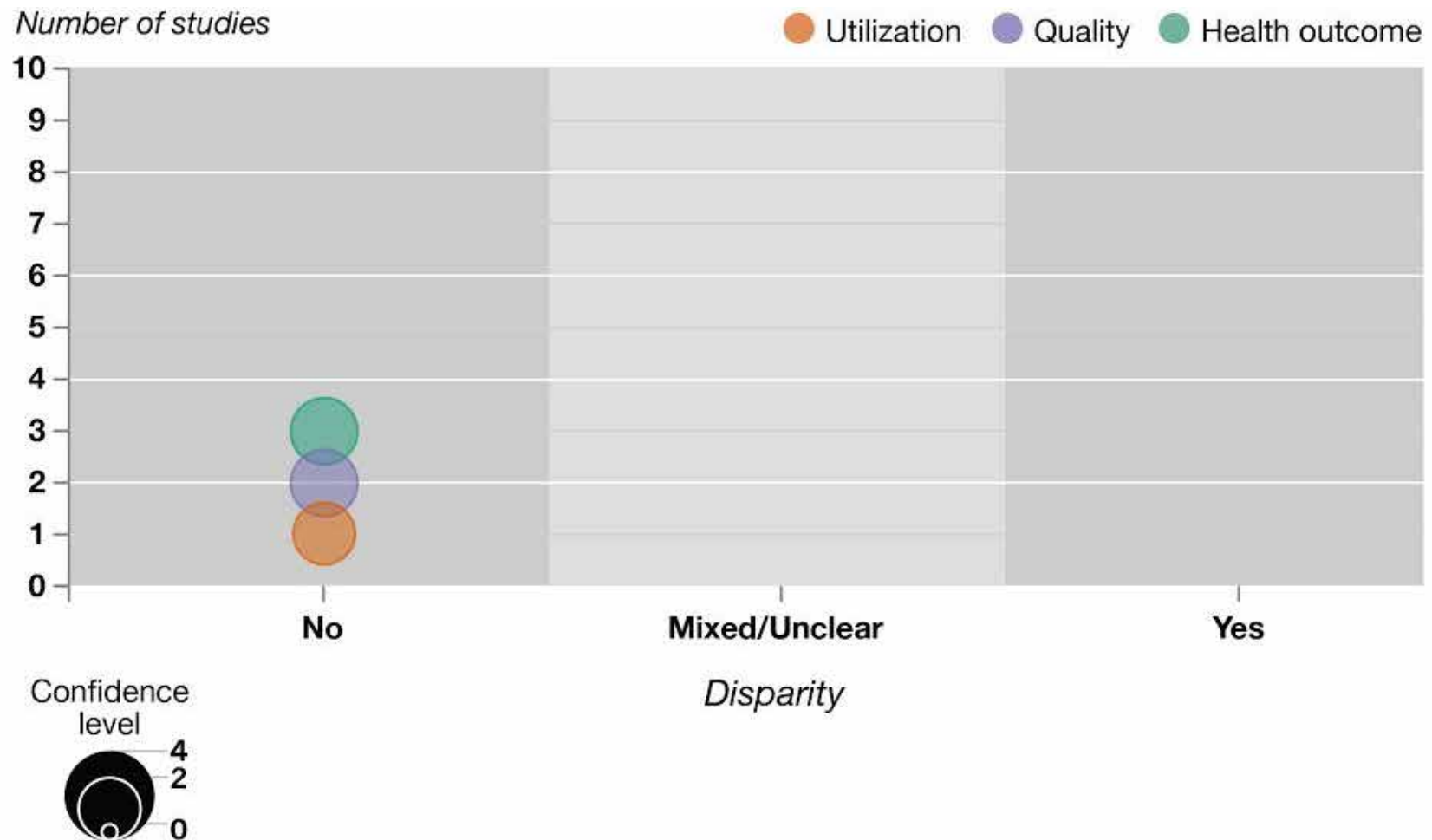
Table. Health Disparities in Veterans by Race/Ethnicity – Asian/Pacific Islander

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Backus, 2014: Impact of race/ethnicity and gender on HCV screening and prevalence among US Veterans in Department of Veterans Affairs care ⁷⁷	HCV	3638179	Quality	HCV screening rates	No	2
			Health Outcome	HCV prevalence	No	2
Boehmer, 2016: Dental care in an equal access system valuing equity: Are there racial disparities? ⁸³	Dental	71315	Quality	Receipt of root canal vs extraction	No	1
Cone, 2011: <u>Demographic determinants of response to statin medications</u> ¹⁰¹	Cardiovascular (coronary artery disease)	5191	Quality	Achieving goal of LDL-C <100	No	0
Fischer, 2008: Longitudinal patterns of health system retention among Veterans with schizophrenia or bipolar disorder ¹²³	Mental health (serious mental illness)	164150	Health Outcome	5-year survival	No	2
Ganti, 2014: Association between race and survival of patients with non-small-cell lung cancer in the United States Veteran Affairs population ¹²⁷	Cancer	82414	Health Outcome	Mortality	No	1
Irmiter, 2007: Reinstitutionalization following psychiatric discharge among VA patients with serious mental illness: a national longitudinal study ¹⁵⁸	Mental health (serious mental illness)	35527	Health Outcome	Time to reinstitutionalization/rehospitalization	No	1
Kazerooni, 2014: Predictors of adherence to hormonal contraceptives in a female Veteran population ¹⁶⁵	Women's health (hormonal contraceptives)	805	Health Outcome	Adherence to hormonal contraceptive medication (medication possession ratio >.9)	No	0
Koo, 2015: Race-ethnicity and gender differences in VA health care service utilization among US Veterans of recent conflicts ¹⁷²	Preventive and ambulatory care	309050	Utilization	Healthcare utilization	No	3
Mackenzie, 2010: Impact of rural residence on survival of male Veterans affairs patients after age 65 ¹⁸⁶	Mortality (65+)	372463	Health Outcome	Mortality	No	3
Quinones, 2014: Racial and ethnic differences in receipt of antidepressants and psychotherapy by Veterans with chronic depression ²⁰⁸	Mental health (depression)	62095	Quality	Adequate depression care	Mixed/Unclear	2
Sajatovic, 2007: Treatment adherence with lithium and anticonvulsant medications	Mental health (bipolar)	44637	Quality	Adherence	Mixed/Unclear	1

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
among patients with bipolar disorder ²¹⁷						
Shaw, 2014: Posttraumatic stress disorder and risk of spontaneous preterm birth ²²⁷	Women's health (preterm birth), Mental health (PTSD)	16334	Health Outcome	Spontaneous preterm birth	No	2
Shimada, 2008: Advances in patient safety: racial disparities in Patient Safety Indicator (PSI) rates in the Veterans Health Administration ²²⁸	Inpatient care	1032103	Quality	Patient safety indicators	No	2
Shimada, 2008: Racial disparities in patient safety indicator (PSI) rates in the Veterans Health Administration ²²⁹	Surgery (postoperative and surgical complications)	1032103	Health Outcome	Death in low-mortality Diagnosis-Related Groups (DRG)	No	3
Spoont, 2009: Race and ethnicity as factors in mental health service use among Veterans with PTSD ²³⁰	Mental health (PTSD)	20284	Utilization	Mental health care receipt (psychotropic prescription, AD prescription, counseling)	No	2
Spoont, 2015: Are there racial/ethnic disparities in VA PTSD treatment retention? ²³¹	Mental health (PTSD)	6788	Quality	PTSD treatment retention	No	2
Tsai, 2014: Asian American and Pacific Islander military Veterans in the United States: health service use and perceived barriers to mental health services ²⁶²	Mental health (perceived barriers)	8315	Utilization	Inpatient or outpatient mental health services use	No	1
			Quality	SF-12 mental health scores	No	0
			Health Outcome	Reported need for mental health or medical services	No	1
Tsai, 2014: The effects of race and other socioeconomic factors on health service use among American military Veterans ²³⁵	Preventive and ambulatory care	19270	Utilization	Health service use	No	2

APPENDIX I. HEALTH DISPARITIES BY RACE/ETHNICITY – NATIVE HAWAIIAN/PACIFIC ISLANDER

Evidence Map. Health Disparities in Veterans by Race/Ethnicity – Native Hawaiian/Pacific Islander



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Table. Health Disparities in Veterans by Race/Ethnicity – Native Hawaiian/Pacific Islander

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Backus, 2014: Impact of race/ethnicity and gender on HCV screening and prevalence among US Veterans in Department of Veterans Affairs care ⁷⁷	HCV	3630420	Quality	HCV screening rates	No	2
			Health Outcomes	HCV prevalence	No	2
Mackenzie, 2010: Impact of rural residence on survival of male Veterans affairs patients after age 65 ¹⁸⁶	Mortality (65+)	372463	Health Outcomes	Mortality	No	3
Shaw, 2014: Posttraumatic stress disorder and risk of spontaneous preterm birth ²²⁷	Women's health (preterm birth), Mental health (PTSD)	16334	Health Outcomes	Spontaneous preterm birth	No	2
Spoont, 2009: Race and ethnicity as factors in mental health service use among Veterans with PTSD ²³⁰	Mental health (PTSD)	20284	Utilization	Mental health care receipt (psychotropic prescription, AD prescription, counseling)	No	2
Spoont, 2015: Are there racial/ethnic disparities in VA PTSD treatment retention? ²³¹	Mental health (PTSD)	6788	Quality	PTSD treatment retention	No	2

APPENDIX J. HEALTH DISPARITIES AMONG WOMEN

Table. Health Disparities Among Female Veterans

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Aliaga, 2007: Mental health encounters and diagnoses following deployment to Iraq and/or Afghanistan, US Armed Forces, 2001–2006 ²⁶³	Mental health	865664	Health Outcome	One or more mental disorder diagnosis	Yes	2
Alston, 2014: Assistive technology and Veterans with severe disabilities: examining the relationships among race, personal factors, medical support, income support, and use ⁷²	Disability	16313	Quality	Use of assistive technology by disabled Veterans	No	2
Backus, 2014: Impact of race/ethnicity and gender on HCV screening and prevalence among US Veterans in Department of Veterans Affairs care ⁷⁷	HCV	5500392	Quality	Proportion screened for HCV	No	2
			Health Outcome	HCV infection prevalence	No	2
Banerjea, 2007: Chronic illness with complexities: mental illness and substance use among Veteran clinic users with diabetes ⁷⁸	Diabetes, co-occurring substance use and mental health disorders in patients with diabetes	485893	Health Outcome	Mental health status, substance use disorder, combined mental health and substance use disorder, access to care, and diabetes-related health complications	Mixed/Unclear	3
Bean-Mayberry, 2009: Does sex influence immunization status for influenza and pneumonia in older Veterans ⁸¹	Preventive care (immunization status)	48424	Quality	Receipt of influenza immunization in the prior influenza season and receipt of pneumonia immunization ever	Yes	2
Bernardy, 2013: Gender differences in prescribing among Veterans diagnosed with posttraumatic stress disorder ²⁶⁴	Mental health (PTSD)	495309	Quality	Atypical antipsychotics, benzodiazepine, and SSRI/SNRI prescribing	Mixed/Unclear	3
Bierman, 2007: Sex differences in inappropriate prescribing among elderly Veterans ⁸²	Geriatrics, Prescribing	965756	Quality	Zhan criteria for inappropriate prescribing for older adults.	Yes	3
Blackstock, 2013: Sex disparities in overall burden of disease among HIV-infected individuals in the Veterans Affairs healthcare system ²⁶⁵	HIV	8300	Quality	Overall burden of disease was measured using the VACS Index, an index that incorporates HIV (<i>eg</i> , CD4 cell count) and non-HIV biomarkers (<i>eg</i> , hemoglobin) and is highly predictive of all-cause mortality.	Yes	1
Boehmer, 2016: Dental care in an equal access system valuing equity: are there racial disparities? ⁸³	Dental	71315	Quality	Receipt of root canal vs extraction	No	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Borrero, 2006: Brief report: Gender and total knee/hip arthroplasty utilization rate in the VA system ²⁶⁶	Pain (total knee/hip arthroplasty)	329461	Quality	Undergoing knee or hip TJA within 2 years	No	3
Burnett-Zeigler, 2011: Perceptions of quality of health care among Veterans with psychiatric disorders ²⁶⁷	Mental health (multiple)	55578	Quality	Perception of quality of care	No	1
Butt, 2006: Rates and predictors of hepatitis C virus treatment in HCV-HIV-coinfected subjects ⁹³	HCV, HIV	6502	Quality	Prescribed treatment for HCV	No	1
Carlson, 2013: Headache diagnoses among Iraq and Afghanistan war Veterans enrolled in VA: a gender comparison ²⁶⁸	Pain (Headache)	470215	Health Outcome	Prevalence and type of headache diagnosis	Mixed/Unclear	3
Chatterjee, 2009: Gender differences in Veterans health administration mental health service use: Effects of age and psychiatric diagnosis ²⁶⁹	Mental health (multiple)	782789	Utilization	Mental health utilization (any mental health service within the VHA and any specialty mental health services in the VHA)	Mixed/Unclear	3
Cohen, 2010: Mental health diagnoses and utilization of VA non-mental health medical services among returning Iraq and Afghanistan Veterans ²⁷⁰	Mental health, utilization	249440	Utilization	Outpatient non-mental health services, primary care, medical subspecialty, ancillary services, laboratory tests/diagnostic procedures, emergency services, and hospitalizations	Mixed/Unclear	3
Cone, 2011: Demographic determinants of response to statin medications ¹⁰¹	Cardiovascular (coronary artery disease)	5191	Quality	Achieving goal of LDL-C <100	Yes	0
Copeland, 2008: Treatment adherence and illness insight in Veterans with bipolar disorder ¹⁰²	Mental health (Bipolar)	435	Quality	Medication adherence (Morisky scale, no missed doses)	Yes	0
Copeland, 2014: Prevalence of suicidality among Hispanic and African American Veterans following surgery ¹⁰⁴	Mental health, surgery (organ, bone or joint, cancers, vascular, and amputations)	89995	Health Outcome	Diagnosis of suicidal behavior or ideation	No	2
Curran, 2009: Individual and program predictors of attrition from VA substance use treatment ¹⁰⁵	Mental health (substance use disorder)	8064	Quality	Rates of attrition	Yes	1
Currie, 2008: An investigation of the quantity and type of female Veterans' responses to hepatitis C treatment screening and acceptance ²⁷¹	HCV	4201	Quality	HCV treatment screening	No	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Curry, 2014: Lifetime major depression and comorbid disorders among current-era women Veterans ²⁷²	Mental health (Depression)	1700	Health Outcome	Lifetime major depressive disorder (MDD), rates of comorbid disorders	Mixed/Unclear	0
Davis, 2014: Utilization of VA mental health and primary care services among Iraq and Afghanistan Veterans with depression: the influence of gender and ethnicity status ²⁷³	Mental health (Depression)	1556	Utilization	Use of VA mental health and primary care services, prescription of antidepressants	Mixed/Unclear	1
Desai, 2006: Case-finding for depression among medical outpatients in the Veterans Health Administration ²⁷⁴	Mental health (Depression)	21489	Utilization	Depression screening, screening positive, follow-up evaluation, and subsequent diagnosis.	No	2
Doran, 2013: What drives frequent emergency department use in an integrated health system? National data from the Veterans Health Administration ²⁷⁵	Utilization (ED)	5531379	Utilization	VHA ED utilization	No	3
Duffy, 2012: Risk of smoking and receipt of cessation services among Veterans with mental disorders ¹¹¹	Smoking cessation	224193	Quality	Physician advised quitting, physician recommended medication, physician discussed quitting methods	No	3
Duggal, 2010: Comparison of outpatient health care utilization among returning women and men Veterans from Afghanistan and Iraq ²⁷⁶	Utilization (outpatient)	1620	Utilization	Outpatient utilization (basic, specialty, ancillary)	No	1
Egede, 2010: Longitudinal differences in glycemic control by race/ethnicity among Veterans with type 2 diabetes ¹¹²	Diabetes	8813	Quality	Mean change in A1c; odds of poor control (A1c >8%)	No	0
Egede, 2011: Longitudinal ethnic differences in multiple cardiovascular risk factor control in a cohort of US adults with diabetes ¹¹³	Cardiovascular disease, Diabetes	11203	Quality	CV risk factor control (glycemic, BP, LDL-C)	No	1
Egede, 2013: Differential impact of longitudinal medication non-adherence on mortality by race/ethnicity among Veterans with diabetes ¹¹⁷	Diabetes	629563	Health Outcome	Medication non-adherence associated mortality	No	3
Eisen, 2012: Mental and physical health status and alcohol and drug use following return from deployment to Iraq or Afghanistan ²⁷⁷	Physical and mental health status	596	Health Outcome	Mental health functioning, physical health functioning, alcohol use, drug use	No	0
Elhai, 2008: Outpatient medical and mental healthcare utilization models among military Veterans: results from the 2001 National Survey of Veterans ³³	Utilization (outpatient medical and mental health)	20048	Utilization	Number of outpatient healthcare visits (VA and non-VA) and receipt of mental health services	Yes	2
Ellis, 2013: Factors associated with delays in seeking treatment for stroke care in Veterans ¹²⁰	Cardiovascular (Stroke)	100	Utilization	Delay in seeking care for treatment for stroke care	No	1

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
El-Serag, 2014: Racial differences in the progression to cirrhosis and hepatocellular carcinoma in HCV-infected Veterans ¹²¹	HCV, cancer (liver)	149407	Health Outcome	Risk of cirrhosis or hepatocellular cancer	No	3
Ersek, 2013: A nationwide study comparing end-of-life care for men and women Veterans ²⁷⁸	End-of-life care	36618	Quality	Receipt of optimal EOL care (frequency of discussion of treatment goals with a family member, receipt of palliative consult, bereavement contact, and chaplain contact with a family member), family member ratings of care	No	2
Farmer, 2011: Gender differences in smoking and smoking cessation treatment: an examination of the organizational features related to care ²⁷⁹	Smoking cessation	15033	Quality	Patient-reported receipt of smoking cessation treatments	No	2
Fasoli, 2010: Predisposing characteristics, enabling resources and need as predictors of utilization and clinical outcomes for Veterans receiving mental health services ²⁸⁰	Mental health (multiple)	421	Utilization	Mental health utilization (outpatient, inpatient, residential)	Mixed/Unclear	2
			Health Outcome	GAF, self-reported mental health (BASIS-24)	No	2
Fischer, 2008: Longitudinal patterns of health system retention among Veterans with schizophrenia or bipolar disorder ¹²³	Mental health (serious mental illness)	164150	Utilization	Retention in VA care	No	3
			Health Outcome	5-year survival	No	3
Fontana, 2010: Female Veterans of Iraq and Afghanistan seeking care from VA specialized PTSD programs: Comparison with male Veterans and female war zone Veterans of previous eras ²⁸¹	Mental health (PTSD)	11256	Quality	Psychiatric disability and medical disability	Mixed/Unclear	2
			Health Outcome	Diagnosis of PTSD, alcohol abuse/depression, drug abuse/depression, anxiety disorder, mood disorder, bipolar disorder, schizophrenia, medical problem; service connection for PTSD, other psychiatric disorder, or medical disorder	Mixed/Unclear	2
Frayne, 2006: Health status among 28,000 women Veterans. The VA Women's Health Program Evaluation Project ²⁸²	Mental health	679859	Health Outcome	Physical health survey	No	3
Frayne, 2007: Gender and use of care: planning for tomorrow's Veterans Health Administration ²⁸³	Women's health, utilization	4122381	Utilization	Inpatient and outpatient utilization	Mixed/Unclear	3
Freedy, 2010: Gender differences in traumatic event exposure and mental health among Veteran primary care patients ²⁸⁴	Mental health	865	Health Outcome	Mental health diagnoses	Mixed/Unclear	0
Garfield, 2011: Factors associated with receipt of adequate antidepressant pharmacotherapy by	Mental health (Depression)	26770	Quality	Receipt of some antidepressant therapy, adequate acute-phase pharmacotherapy, and adequate	No	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
VA patients with recurrent depression ²⁸⁵				continuation-phase pharmacotherapy		
Gellad, 2011: Longitudinal adherence to fecal occult blood testing impacts colorectal cancer screening quality ²⁸⁶	Cancer (colorectal)	1112645	Quality	Colorectal cancer screening	No	2
Goldstein, 2014: Heart matters: Gender and racial differences cardiovascular disease risk factor control among Veterans ¹³²	Cardiovascular disease	24965	Quality	Measures of blood pressure, LDL-C values, hemoglobin A1c levels	Mixed/Unclear	2
Griffin, 2009: Are gender differences in colorectal cancer screening rates due to differences in self-reporting? ²⁸⁷	Cancer (colorectal)	345	Quality	Colorectal cancer screening	No	0
Grubaugh, 2009: Equity in Veterans Affairs disability claims adjudication in a national sample of Veterans ¹³⁹	Disability	20048	Quality	Disability benefits	Mixed/Unclear	2
Harris, 2010: Associations between AUDIT-C and mortality vary by age and sex ²⁸⁸	Mental health (serious mental illness)	225092	Health Outcome	2-year mortality risk	Yes	3
Haskell, 2009: Pain among Veterans of Operations Enduring Freedom and Iraqi Freedom: Do women and men differ? ¹⁴²	Pain	153212	Health Outcome	Pain: reported any pain, reported moderate-severe pain, reported persistent pain	Mixed/Unclear	3
Haskell, 2010: Gender differences in rates of depression, PTSD, pain, obesity, and military sexual trauma among Connecticut War Veterans of Iraq and Afghanistan ²⁸⁹	Mental health (Depression, PTSD), pain	1229	Health Outcome	Mental health diagnosis	Mixed/Unclear	1
Haskell, 2011: The burden of illness in the first year home: Do male and female VA users differ in health conditions and healthcare utilization ²⁹⁰	General health	163812	Utilization	Utilization	Mixed/Unclear	2
Haskell, 2012: Prevalence of painful musculoskeletal conditions in female and male Veterans in 7 years after return from deployment in Operation Enduring Freedom/Operation Iraqi Freedom ⁷	Pain (back problems, musculoskeletal conditions and joint disorders)	450329	Health Outcome	Prevalence of back problems, musculoskeletal conditions, and joint disorders	Yes	3
Haskell, 2014: Sex differences in patient and provider response to elevated low-density lipoprotein cholesterol ²⁹¹	Cardiovascular (lipid management)	41763	Quality	Ordering or adjusting of medication with elevated LDL	Yes	2
Hausmann, 2014: Patterns of sex and racial/ethnic differences in patient health care experiences in US Veterans Affairs hospitals ¹⁴⁷	General health	50471	Quality	Patient reports of positive and negative healthcare experiences at VA facilities	Mixed/Unclear	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Hawkins, 2010: Recognition and management of alcohol misuse in OEF/OIF and other Veterans in the VA: a cross-sectional study ²⁹²	Mental health (substance use disorder)	12092	Health Outcome	Alcohol misuse screening	No	2
Hawkins, 2012: Prevalence, predictors, and service utilization of patients with recurrent use of Veterans Affairs substance use disorder specialty care ²⁹³	Mental health (substance use disorder)	1640	Utilization	Utilization of substance use disorder specialty services following an index encounter	No	0
Heidenreich, 2009: Disparities in VA heart failure care ¹⁴⁸	Cardiovascular (heart failure)	NR - likely large	Quality	Guideline concordant heart failure care	Yes	2
Higgins, 2014: Persistent pain and comorbidity among Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn Veterans ¹⁴⁹	Pain (chronic)	5242	Health Outcome	Persistent pain (either self-rated scale, ICD-9 pain diagnosis, pain clinic visit, or opioid prescription)	Yes	1
Hoffmire, 2015: Changes in suicide mortality for Veterans and non-Veterans by gender and history of VHA service use, 2000-2010 ²⁹⁴	Mental health	173969	Health Outcome	Suicide rates (Standardized Mortality Ratio)	Yes	3
Hundt, 2014: Predisposing, enabling, and need factors as predictors of low and high psychotherapy utilization in Veterans ²⁹⁵	Mental health, Utilization	130331	Utilization	Psychotherapy utilization	Mixed/Unclear	3
Ilgen, 2009: Exploratory data mining analysis identifying subgroups of patients with depression who are at high risk for suicide ¹⁵⁷	Mental health (Depression)	887869	Health Outcome	Suicide	No	2
Ilgen, 2010: Psychiatric diagnoses and risk of suicide in Veterans ²⁹⁶	Mental health (multiple)	3291891	Health Outcome	Suicide	No	3
Irmiter, 2007: Reinstitutionalization following psychiatric discharge among VA patients with serious mental illness: a national longitudinal study ¹⁵⁸	Mental health (serious mental illness)	35527	Health Outcome	Time to reinstitutionalization/rehospitalization	No	1
Iverson, 2011: Psychiatric diagnoses and neurobehavioral symptom severity among OEF/OIF VA patients with deployment-related traumatic brain injury: a gender comparison ²⁹⁷	Mental health (multiple), TBI	12605	Health Outcome	Mental health diagnoses	Mixed/Unclear	2
Kales, 2010: Who receives outpatient monitoring during high-risk depression treatment periods? ¹⁶²	Mental health (Depression)	494673	Utilization	Number of outpatient visits following mental health hospitalization or outpatient initiation of antidepressant medication	No	3
Kaur, 2007: Gender differences in health care utilization among Veterans with chronic pain ²⁹⁸	Pain (chronic)	1218	Utilization	Number of clinic visits	Mixed/Unclear	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Kilbourne, 2006: Quality of care for substance use disorders in patients with serious mental illness ¹⁶⁷	Mental health (substance use disorder)	8083	Quality	Identification of substance use disorders, initiation of treatment, engagement in treatment	Mixed/Unclear	1
Kilbourne, 2008: Guideline-concordant hepatitis C virus testing and notification among patients with and without mental disorders ¹⁶⁸	HCV	19397	Quality	Receipt of HCV testing, notified ≤60 days	Mixed/Unclear	2
			Health Outcome	HCV positive	No	2
Kimerling, 2011: Military sexual trauma and patient perceptions of Veteran Health Administration health care quality ¹⁷⁰	Mental health (sexual trauma)	164632	Quality	Patient satisfaction with VHA outpatient care	Mixed/Unclear	2
Leslie, 2011: VA health care utilization and costs among male and female Veterans in the year after service in Afghanistan and Iraq ²⁹⁹	Utilization	406463	Utilization	Utilization, service-connected disability	Mixed/Unclear	3
Lund, 2013: Patient and Facility Characteristics Associated with Benzodiazepine Prescribing for Veterans with PTSD ³⁰⁰	Mental health (PTSD)	495309	Quality	Benzodiazepine prescription	Yes	3
Lynch, 2015: Geographic and racial/ethnic variations in patterns of multimorbidity burden in patients with type 2 diabetes ¹⁸⁵	Diabetes	892223	Health Outcome	Multimorbidity	Mixed/Unclear	3
Maguen, 2010: Gender differences in mental health diagnoses among Iraq and Afghanistan Veterans enrolled in Veterans affairs health care ³⁰¹	Mental health (multiple)	329049	Health Outcome	Mental health diagnoses (depression, PTSD, substance use, adjustment disorder, anxiety, alcohol use disorder, eating disorders)	Mixed/Unclear	2
Montgomery, 2014: Services utilization among recently homeless Veterans: a gender-based comparison ³⁰²	Utilization	584	Utilization	Utilization: inpatient, outpatient, ED	Mixed/Unclear	1
Phillips, 2015: Racial/ethnic disparities in monitoring metabolic parameters for patients with schizophrenia receiving antipsychotic medications ²⁰⁰	Mental health (serious mental illness)	30258	Quality	Monitoring of metabolic dysregulation	No	1
Pugh, 2006: Assessing potentially inappropriate prescribing in the elderly Veterans Affairs population using the HEDIS 2006 quality measure ²⁰⁵	Geriatrics, Prescribing	1096361	Quality	Potentially inappropriate prescribing based on HEDIS criteria	Yes	3
Pugh, 2008: Potentially inappropriate prescribing for the elderly: effects of geriatric care at the patient and health care system level ²⁰⁶	Geriatrics, Prescribing	850154	Quality	Potentially inappropriate prescribing in the elderly	Yes	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Pugh, 2011: Trends in use of high-risk medications for older Veterans: 2004 to 2006 ²⁰⁷	Geriatrics, Prescribing	1567467	Quality	Use of high-risk medications for the elderly (HRME)	Yes	3
Rogers, 2014: Healthcare utilization following mild traumatic brain injury in female Veterans ²¹²	TBI	12144	Utilization	Utilization	Mixed/Unclear	2
Runnals, 2013: Self-reported pain complaints among Afghanistan/Iraq era men and women Veterans with comorbid posttraumatic stress disorder and major depressive disorder ³⁰³	Pain, Mental health (PTSD, MDD)	1614	Health Outcome	Pain: back, muscle, and headaches	Yes	0
Sajatovic, 2006: Self-reported medication treatment adherence among Veterans with bipolar disorder ³⁰⁴	Mental health (Bipolar)	184	Quality	Self-report of medication adherence	No	1
Sajatovic, 2007: Treatment adherence with lithium and anticonvulsant medications among patients with bipolar disorder ²¹⁷	Mental health (Bipolar)	44637	Quality	Adherence	No	1
Sambamoorthi, 2012: Decomposing gender differences in low-density lipoprotein cholesterol among Veterans with or at risk for cardiovascular illness ²¹⁹	Cardiovascular (lipid management)	527568	Quality	LDL-C greater than or equal to 130	Yes	3
Sayer, 2014: Gender differences in VA disability status for PTSD over time ³⁰⁵	Mental health (PTSD)	2998	Quality	Gain or loss of PTSD disability status over a 10-year period	No	1
Schwartz, 2015: Gender differences in antipsychotics prescribed to Veterans with serious mental illness ³⁰⁶	Mental health (serious mental illness)	4510	Quality	Likelihood of incident prescription of APMs with low versus medium/high metabolic risk, adjusting for fiscal year of prescribing and selected Veteran demographic, mental health and physical health characteristics	No	1
Seal, 2011: Substance use disorders in Iraq and Afghanistan Veterans in VA healthcare, 2001-2010: Implications for screening, diagnosis and treatment ²²⁶	Mental health (substance use disorder)	456502	Health Outcome	Presence or absence of substance use disorders (alcohol or drug use disorder)	No	3
Seng, 2013: Prescription headache medication in OEF/OIF Veterans: results from the Women Veterans Cohort Study ³⁰⁷	Pain (Headache)	551	Quality	Taking prescription medication for headache	Mixed/Unclear	0
Seyfried, 2011: Predictors of suicide in patients with dementia ³⁰⁸	Dementia	294952	Health Outcome	Suicide	No	3
Singh, 2007: Effect of health-related quality of life on women and men's Veterans Affairs (VA) health care utilization and mortality ³⁰⁹	Utilization (inpatient, outpatient)	36500	Utilization	Inpatient and outpatient utilization	No	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Spoont, 2015: Are there racial/ethnic disparities in VA PTSD treatment retention? ²³¹	Mental health (PTSD)	6788	Quality	PTSD treatment retention	No	1
Street, 2013: Gender differences among Veterans deployed in support of the wars in Afghanistan and Iraq ³¹⁰	Mental health (multiple)	2344	Health Outcome	Mental health conditions	Mixed/Unclear	1
Taber, 2016: Overall graft loss versus death-censored graft loss: unmasking the magnitude of racial disparities in outcomes among US kidney transplant recipients ²³²	Renal	4918	Health Outcome	Overall graft loss, death and death-censored graft loss	No	1
Teh, 2008: Gender differences in health-related quality of life for Veterans with serious mental illness ³¹¹	Mental health (serious mental illness)	18017	Health Outcome	Health-related quality of life – measured via SF-36 (mental health status, physical health status, activities of daily living), global health status question, question on ADL limitations, health interfered with social activities, and extent of bodily pain	Mixed/Unclear	2
Tiwari, 2008: Guideline-consistent antidepressant treatment patterns among Veterans with diabetes and major depressive disorder ²³³	Mental health (Depression), Diabetes	3953	Quality	Proportion who have guideline-consistent antidepressant treatment	No	1
Tsai, 2014: National comparison of literally homeless male and female VA service users: entry characteristics, clinical needs, and service patterns ³¹²	Chronic Medical conditions and mental health	119947	Health Outcome	Rating of physical health, chronic medical conditions	Mixed/Unclear	3
Tseng, 2006: Are there gender differences in diabetes care among elderly Medicare enrolled Veterans? ³¹³	Diabetes	235147	Quality	Hemoglobin A1c, LDL-C values, and eye exams; intermediate outcomes were hemoglobin A1c and LDL-C values below recommended thresholds	Mixed/Unclear	3
Tseng, 2006: Diabetes care among Veteran women with disability ²³⁶	Diabetes	76874	Quality	Hemoglobin A1c and LDL-C screening and control	Mixed/Unclear	2
Tseng, 2007: The association between mental health functioning and nontraumatic lower extremity amputations in Veterans with diabetes ²³⁷	Diabetes	114890	Health Outcome	Major and minor non-traumatic lower extremity amputations	No	3
Vimalananda, 2011: Gender disparities in lipid-lowering therapy among Veterans with diabetes ³¹⁴	Diabetes	111906	Quality	Lipid Lowering Therapy	Yes	3
Vimalananda, 2013: Accounting for clinical action reduces estimates of gender disparities in lipid management for diabetic Veterans ³¹⁵	Diabetes	668209	Quality	Quality outcomes: low density lipoprotein (LDL-C) levels and clinical action for lipid management	Yes	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Vimalananda, 2013: Cardiovascular disease risk factors among women Veterans at VA medical facilities ²⁴⁰	Cardiovascular disease	2527496	Quality	Hypertension, hyperlipidemia, obesity	No	2
			Health Outcome	Diabetes diagnosis	No	2
Virani, 2011: Frequency and correlates of treatment intensification for elevated cholesterol levels in patients with cardiovascular disease ³¹⁶	Cardiovascular disease	22888	Quality	Intensification of lipid lowering	Yes	2
Virani, 2015: Gender disparities in evidence-based statin therapy in patients with cardiovascular disease ³¹⁷	Cardiovascular (Ischemic heart disease)	972532	Quality	Any statin prescription, high-intensity statin prescription	Yes	2
Vogt, 2011: Gender differences in combat-related stressors and their association with postdeployment mental health in a nationally representative sample of US OEF/OIF Veterans ³¹⁸	Mental health (multiple)	592	Health Outcome	Mental health (PTSD symptomatology, depression, mental health functioning, substance abuse)	No	0
Weimer, 2013: Sex differences in the medical care of VA patients with chronic non-cancer pain ³¹⁹	Pain (chronic pain)	17583	Utilization	ED visits for pain-related complaint, primary care utilization	Mixed/Unclear	2
			Quality	Prescribed chronic opioid therapy, prescribed benzodiazepine therapy, receiving physical therapy, receiving urine drug testing	Mixed/Unclear	2
			Health Outcome	Diagnosis of 2 or more pain conditions	Yes	2
Westermeyer, 2009: A comparison of substance use disorder severity and course in American Indian male and female Veterans ³²⁰	Mental health	362	Utilization	Mental healthcare utilization	Mixed/Unclear	1
			Health Outcome	Mental health diagnoses	No	1
Wheeler, 2009: Women Veterans and outcomes after acute myocardial infarction ³²¹	Cardiovascular disease	13495	Quality	HF outcomes	No	2
			Health Outcome	HF outcomes	No	2
Whitehead, 2014: Improving trends in gender disparities in the Department of Veterans Affairs: 2008–2013 ⁸	Women's health	Ranges by outcome: 1820 to 107,659	Quality	Gender differences by year in % screened for depression, PTSD, cholesterol management for patients with DM and IHD	Mixed/Unclear	2
Women Veterans Health Strategic Health Care Group, 2012: Gender Differences in Performance Measures, VHA 2008-2011 ¹¹	Preventive and ambulatory care	NR, but national VA data	Quality	Clinical quality performance measures	Mixed/Unclear	2
Wright, 2006: Patient satisfaction of female and	General health	74662	Quality	Self-rated quality of care	Mixed/	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
male users of Veterans Health Administration services ³²²					Unclear	
Wright, 2012: Comparing the Care of Men and Women Veterans in the Department of Veterans Affairs ³²³	General health	238272	Quality	Key patient-centered care measures, satisfaction with and perception of care	No	3
Zeber, 2007: Self-reported access to general medical and psychiatric care among Veterans with bipolar disorder ²⁴⁹	Mental health (Bipolar)	435	Utilization	Patient perception of access to health and mental health	No	0
Zinzow, 2008: Sexual assault, mental health, and service use among male and female Veterans seen in Veterans Affairs primary care clinics: a multi-site study ³²⁴	Mental health, Utilization	816	Utilization	Overall utilization	No	0

APPENDIX K. HEALTH DISPARITIES IN VETERANS WITH A MENTAL HEALTH CONDITION

Table. Health Disparities in Veterans with a Mental Health Condition

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Ahmadi, 2011: Post-traumatic stress disorder, coronary atherosclerosis, and mortality ³²⁵	Cardiovascular disease	637	Quality	Coronary calcium levels	Yes	1
			Health Outcome	Cardiovascular mortality	Yes	1
Banerjea, 2007: Chronic illness with complexities: Mental illness and substance use among Veteran clinic users with diabetes ⁷⁸	Diabetes, co-occurring substance use and mental health disorders in patients with diabetes	485893	Health Outcome	Mental health status, substance use disorder, combined mental health and substance use disorder, access to care, and diabetes-related health complications	Yes	3
Boehmer, 2016: Dental care in an equal access system valuing equity: Are there racial disparities? ⁸³	Dental	71315	Quality	Receipt of root canal vs extraction	Mixed/Unclear	0
Borrero, 2013: Adherence to hormonal contraception among women Veterans: differences by race/ethnicity and contraceptive supply ⁸⁵	Women's health (hormonal contraceptives)	6946	Health Outcome	Adherence to hormonal contraceptive medication (time between refills, total months of contraceptive coverage, whether the woman had contraceptive coverage during the last week of FY 2008)	Yes	1
Burnett-Zeigler, 2011: Perceptions of quality of health care among Veterans with psychiatric disorders ²⁶⁷	Mental health, Quality of Care	55578	Quality	Perception of quality of care	Mixed/Unclear	1
Butt, 2006: Rates and predictors of hepatitis C virus treatment in HCV-HIV-coinfected subjects ⁹³	HCV, HIV	6502	Quality	Prescribed treatment for HCV	Yes	1
Chan, 2009: Health care utilization and its costs for depressed Veterans with and without comorbid PTSD symptoms ³²⁶	Mental health (Depression)	606	Utilization	Utilization (outpatient, general medical, mental health, inpatient, antidepressant use)	Mixed/Unclear	1
Cohen, 2010: Maintenance of risk factor control in diabetic patients with and without mental health conditions after discharge from a cardiovascular risk reduction clinic ³²⁶	Diabetes	231	Quality	Hemoglobin A1c level, blood pressure	No	0
Cohen, 2010: Mental health diagnoses and utilization of VA non-mental health medical services among returning Iraq and	Mental health, Utilization	249440	Utilization	Outpatient non-mental health services, primary care, medical subspecialty, ancillary services, laboratory tests/diagnostic procedures, emergency	No	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Afghanistan Veterans ²⁷⁰				services, and hospitalizations		
Copeland, 2011: Ethnicity and race variations in receipt of surgery among Veterans with and without depression ¹⁰³	Surgery, Mental health (Depression)	309068	Quality	Coronary artery bypass graft (CABG), vascular, hip/knee, or digestive system surgeries	Yes	2
Copeland, 2015: Serious mental illnesses associated with receipt of surgery in retrospective analysis of patients in the Veterans Health Administration ³²⁷	Mental health (serious mental illness)	321131	Quality	Qualifying inpatient operations were invasive procedures requiring either preoperative or immediate (same-day) postoperative hospitalization with at least one overnight. For patients with multiple qualifying operations, the first surgery during the study period FY2006-FY2009 was used.	No	3
Curran, 2009: Individual and program predictors of attrition from VA substance use treatment ¹⁰⁵	Mental health (substance use disorder)	8064	Quality	Rates of attrition	Mixed/Unclear	1
Damon, 2015: Access to PTSD care among Veterans with and without substance use diagnoses ³²⁹	Mental health (PTSD and substance use disorders)	424211	Utilization	Utilization of specialty mental health services	Yes	3
			Quality	Attended recommended number of psychotherapy sessions	Yes	3
Desai, 2006: Case-finding for depression among medical outpatients in the Veterans Health Administration ²⁷⁴	Mental health (Depression)	21489	Quality	Depression screening	Yes	2
Dobie, 2006: Posttraumatic stress disorder screening status is associated with increased VA medical and surgical utilization in women ³²⁸	Mental health (PTSD)	2578	Utilization	Primary care, subspecialty clinics, ancillary care, surgical procedures, ED visits	Mixed/Unclear	2
			Quality	Outpatient diagnostic tests	Yes	2
Doran, 2013: What drives frequent emergency department use in an integrated health system? National data from the Veterans Health Administration ²⁷⁵	Utilization (ED)	5531379	Utilization	VHA ED utilization	Yes	3
Duffy, 2012: Risk of smoking and receipt of cessation services among Veterans with mental disorders ¹¹¹	Smoking cessation	224193	Quality	Physician advised quitting, physician recommended medication, physician discussed quitting methods	Mixed/Unclear	3
Egede, 2010: Longitudinal differences in glycemic control by race/ethnicity among Veterans with type 2 diabetes ¹¹²	Diabetes	8813	Quality	Mean change in A1c; odds of poor control (A1c >8%)	Yes	0
Egede, 2011: Longitudinal ethnic differences in multiple cardiovascular risk factor control	Cardiovascular disease, Diabetes	11203	Quality	Cardiovascular risk factor control (glycemic, BP, LDL-C)	No	1

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
in a cohort of US adults with diabetes ¹¹³						
Egede, 2013: Differential impact of longitudinal medication non-adherence on mortality by race/ethnicity among Veterans with diabetes ¹¹⁷	Diabetes	629563	Health Outcome	Medication non-adherence associated mortality	Mixed/Unclear	3
Elhai, 2008: Outpatient medical and mental healthcare utilization models among military Veterans: results from the 2001 National Survey of Veterans ³³	Utilization (outpatient medical and mental health)	20048	Utilization	Number of outpatient healthcare visits (VA and non-VA) and receipt of mental health services	Yes	2
Fasoli, 2010: Predisposing characteristics, enabling resources and need as predictors of utilization and clinical outcomes for Veterans receiving mental health services ²⁸⁰	Mental health (multiple)	421	Utilization	Mental health utilization (outpatient, inpatient, residential)	Mixed/Unclear	2
			Health Outcome	GAF, self-reported mental health (BASIS-24)	No	2
Frayne, 2010: Mental illness-related disparities in length of stay: algorithm choice influences results ³²⁹	Mental health, Utilization	92255	Utilization	Average length of stay	Yes	1
Frayne, 2011: Medical care needs of returning Veterans with PTSD: their other burden ³³⁰	Mental health (PTSD)	90558	Health Outcome	Mean number of medical conditions (comorbidities)	Yes	2
Ganzini, 2010: End-of-life care for Veterans with schizophrenia and cancer ³³¹	End-of-life care	256	Quality	Quality of end-of-life care in Veterans with cancer	No	0
Garfield, 2011: Factors associated with receipt of adequate antidepressant pharmacotherapy by VA patients with recurrent depression ²⁸⁵	Mental health (Depression)	26770	Quality	Receipt of <i>some</i> antidepressant therapy, adequate acute-phase pharmacotherapy, and adequate continuation-phase pharmacotherapy	Mixed/Unclear	1
Gerber, 2015: Hormone therapy use in women Veterans accessing Veterans Health Administration care: a national cross-sectional study ¹³⁰	Women's health (hormone therapy)	157195	Quality	Prescription of hormone therapy	Yes	3
Greenawalt, 2013: Posttraumatic stress disorder and odds of major invasive procedures among U.S. Veterans Affairs patients ³³²	Mental health (PTSD)	501489	Quality	Odds of invasive hip/knee, digestive system, coronary artery bypass graft (CABG)/percutaneous coronary intervention, and vascular procedures	Yes	3
Hawkins, 2012: Prevalence, predictors, and service utilization of patients with recurrent use of Veterans Affairs substance use disorder specialty care ²⁹³	Mental health (substance use disorder)	1640	Utilization	Utilization of substance use disorder specialty services following an index encounter	Mixed/Unclear	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Heidenreich, 2009: Disparities in VA heart failure care ¹⁴⁸	Cardiovascular (heart failure)	NR - likely large	Health Outcome	Mortality, rehospitalization	Yes	2
			Quality	Guideline concordant heart failure care	No	2
Higgins, 2014: Persistent pain and comorbidity among Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn Veterans ¹⁴⁹	Pain (chronic)	5242	Health Outcome	Persistent pain (either self-rated scale, ICD-9 pain diagnosis, pain clinic visit, or opioid prescription)	Yes	1
Himelhoch, 2007: Understanding associations between serious mental illness and HIV among patients in the VA health system ³³⁵	HIV	279590	Health Outcome	HIV diagnosis	No	3
Hunter, 2015: Health care utilization patterns among high-cost VA patients with mental health conditions ³³⁶	Mental health	261515	Utilization	Inpatient (number, LOS [behavioral, residential-domiciliary, medical-surgical, long-term care]), and outpatient (mental health, ED, primary care, specialty) utilization	Mixed/Unclear	3
Ilgen, 2009: Exploratory data mining analysis identifying subgroups of patients with depression who are at high risk for suicide ¹⁵⁷	Mental health (Depression)	887869	Health Outcome	Suicide	Yes	2
Ilgen, 2010: Psychiatric diagnoses and risk of suicide in Veterans ²⁹⁶	Mental health (multiple)	3291891	Health Outcome	Suicide	Mixed/Unclear	3
Irmiter, 2007: Reinstitutionalization following psychiatric discharge among VA patients with serious mental illness: a national longitudinal study ¹⁵⁸	Mental health (serious mental illness)	35527	Health Outcome	Time to reinstitutionalization/rehospitalization	Yes	1
Kaplowitz, 2006: Health care utilization and receipt of cholesterol testing by Veterans with and those without mental illness ³³³	Cardiovascular (lipid management)	64490	Quality	Cholesterol screening	Yes	2
Kazerooni, 2014: Predictors of adherence to hormonal contraceptives in a female Veteran population ¹⁶⁵	Women's health (hormonal contraceptives)	805	Health Outcome	Adherence to hormonal contraceptive medication (medication possession ratio >.9)	No	0
Kilbourne, 2006: Access to and satisfaction with care comparing patients with and without serious mental illness ³³⁴	Mental health (serious mental illness)	7187	Quality	Self-report ratings on access to and satisfaction with care questions from the LHSV	Yes	1
Kilbourne, 2006: Quality of care for substance use disorders in patients with serious mental illness ¹⁶⁷	Mental health (substance use disorder)	8083	Quality	Identification of substance use disorders, initiation of treatment, engagement in treatment	Mixed/Unclear	1
Kilbourne, 2008: Guideline-concordant	HCV	19397	Quality	Receipt of HCV testing, notified ≤60 days	Mixed/	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
hepatitis C virus testing and notification among patients with and without mental disorders ¹⁶⁸			Health Outcome	HCV positive	Unclear	2
Kilbourne, 2008: Quality of care for cardiovascular disease-related conditions in patients with and without mental disorders ¹⁶⁹	Cardiovascular (hyperlipidemia screening)	46430	Quality	Hyperlipidemia screening, receipt of a foot exam, eye exam, renal test, and hemoglobin A1c >9	Mixed/Unclear	2
Kilbourne, 2009: Are VA patients with serious mental illness dying younger? ³³⁵	Mental health (serious mental illness)	5000888	Health Outcome	Mortality (all-cause and heart disease-specific), years of potential life lost (YPLLs)	Mixed/Unclear	3
Kilbourne, 2009: Excess heart-disease-related mortality in a national study of patients with mental disorders: identifying modifiable risk factors ³³⁶	Cardiovascular	147193	Health Outcome	Heart disease mortality	Mixed/Unclear	3
Kodl, 2010: Mental health, frequency of healthcare visits, and colorectal cancer screening ³³⁷	Cancer (colorectal)	885	Quality	Colorectal cancer screening	Yes	0
Krein, 2006: Diabetes treatment among VA patients with comorbid serious mental illness ³³⁸	Diabetes	36546	Utilization	Inpatient, outpatient utilization	No	1
			Quality	HbA1c screening, high-risk HbA1c, LDL-C screening, high risk LDL-C, cholesterol screening	No	1
Lehavot, 2013: Barriers to care for women Veterans with posttraumatic stress disorder and depressive symptoms ³³⁹	Mental health	3593	Quality	Reported unmet healthcare needs	Yes	0
Lehavot, 2015: Posttraumatic stress disorder symptom severity and socioeconomic factors associated with Veterans Health Administration use among women Veterans ³⁴⁴	Mental health, General VA use	617	Utilization	Utilization of VA healthcare within past year	Mixed/Unclear	0
Lund, 2013: Patient and Facility Characteristics Associated with Benzodiazepine Prescribing for Veterans with PTSD ³⁰⁰	Mental health (PTSD)	495309	Quality	Benzodiazepine prescription	Yes	3
Lynch, 2014: Impact of medical and psychiatric multi-morbidity on mortality in diabetes: emerging evidence ³⁴⁰	Diabetes	625903	Health Outcome	Mortality	Yes	2
Maguen, 2013: The relationship between body mass index and mental health among Iraq and Afghanistan Veterans ³⁴¹	Mental health, BMI	496722	Quality	BMI	Yes	3

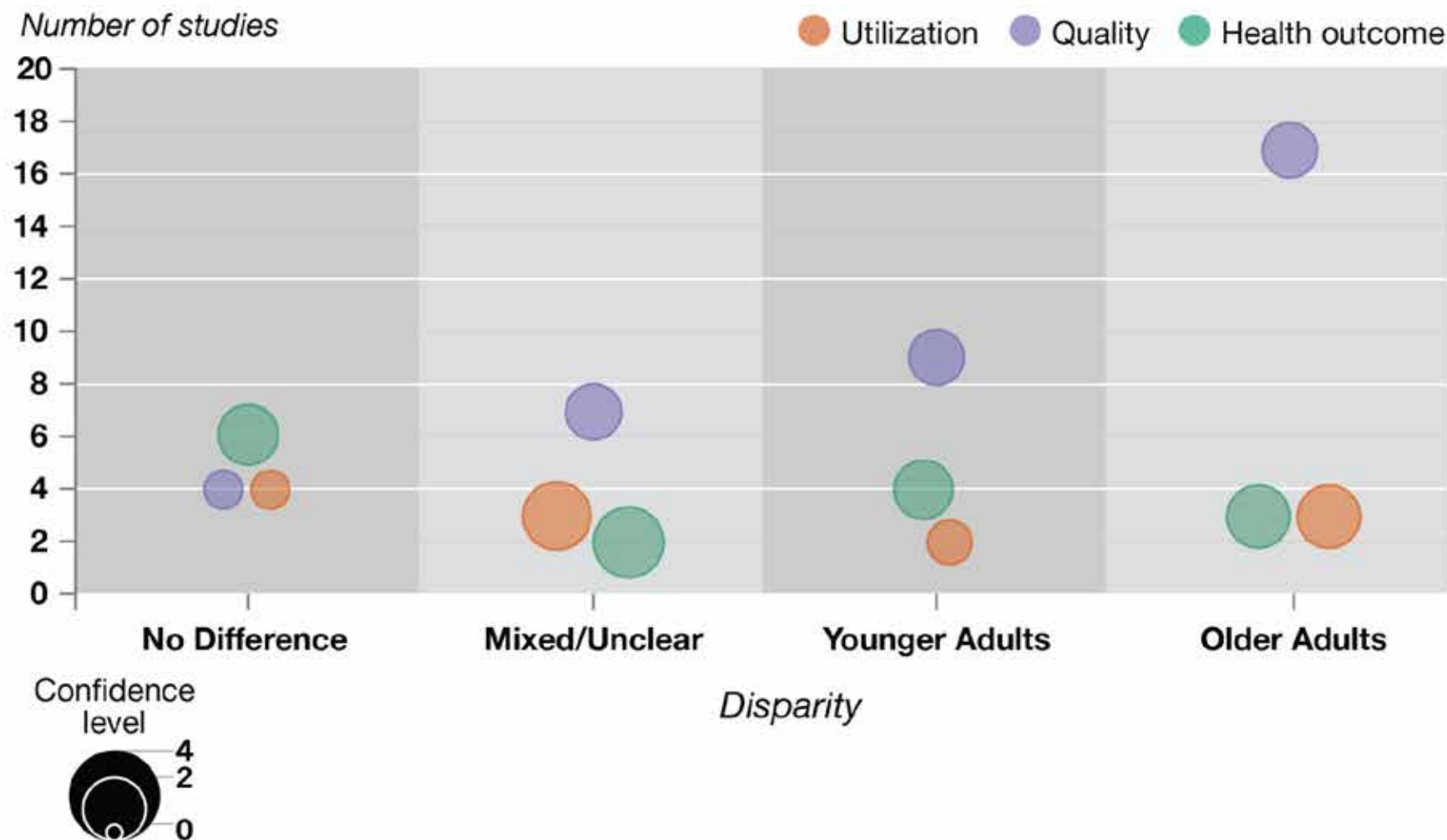
<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Mattocks, 2015: Infertility care among OEF/OIF/OND women Veterans in the Department of Veterans Affairs ¹⁸⁷	Women's health (Reproductive health)	1323	Quality	Received an infertility assessment	No	0
Morden, 2010: Quality of care for cardiometabolic disease: associations with mental disorder and rurality ³⁴²	Cardiovascular (hypertension)	23780	Quality	Blood pressure control, poor blood pressure, Foot exam, retinal exam, renal testing, hemoglobin A1c >9, LDL-C <100, blood pressure control	Mixed/Unclear	2
Morden, 2012: Eight-year trends of cardiometabolic morbidity and mortality in patients with schizophrenia ³⁴³	Mental health (schizophrenia), Cardiometabolic illness	130724	Quality	Hypertension, BMI >30kg/m2, dyslipidemia	Mixed/Unclear	2
			Health Outcome	Diabetes, coronary artery disease, mortality	Mixed/Unclear	2
Nelson, 2011: Adherence to antihyperlipidemic medication and lipid control in diabetic Veterans Affairs patients with psychotic disorders ³⁴⁴	Diabetes	124	Quality	Adherence, lipid control	Mixed/Unclear	-1
Nelson, 2011: Medication adherence and glycemic control in patients with psychotic disorders in the Veterans Affairs healthcare system ³⁴⁵	Mental health (serious mental illness)	124	Quality	Medication adherence, glycemic control	No	-1
Partin, 2010: The interrelationships between and contributions of background, cognitive, and environmental factors to colorectal cancer screening adherence ³⁵¹	Cancer (colorectal)	2416	Quality	Colorectal cancer screening adherence	No	1
Phillips, 2015: Racial/ethnic disparities in monitoring metabolic parameters for patients with schizophrenia receiving antipsychotic medications ²⁰⁰	Mental health (serious mental illness)	30258	Quality	Monitoring of metabolic dysregulation	Mixed/Unclear	1
Plomondon, 2007: Severe mental illness and mortality of hospitalized ACS patients in the VHA ³⁵²	Cardiovascular (Acute Coronary Syndrome)	14194	Health Outcome	1-year all-cause mortality, combined 1-year all-cause mortality/re-hospitalization	No	2
Pugh, 2008: Potentially inappropriate prescribing for the elderly: effects of geriatric care at the patient and health care system level ²⁰⁶	Geriatrics, prescribing	850154	Quality	Potentially inappropriate prescribing in the elderly	Yes	3
Runnals, 2013: Self-reported pain complaints among Afghanistan/Iraq era men and women Veterans with comorbid posttraumatic stress disorder and major depressive disorder ³⁰³	Pain, Mental health (PTSD, MDD)	1614	Health Outcome	Pain: back, muscle, and headaches	Yes	0
Ryan, 2015: Predicting utilization of	Mental health,	133	Utilization	VHA service utilization	Mixed/	1

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
healthcare services in the Veterans Health Administration by returning women Veterans: The role of trauma exposure and symptoms of posttraumatic stress ³⁵³	Utilization				Unclear	
Sajatovic, 2006: Self-reported medication treatment adherence among Veterans with bipolar disorder ³⁰⁴	Mental health (bipolar)	184	Quality	Self-report of medication adherence	No	0
Sambamoorthi, 2012: Decomposing gender differences in low-density lipoprotein cholesterol among Veterans with or at risk for cardiovascular illness ²¹⁹	Cardiovascular (lipid management)	527568	Quality	LDL-C greater than or equal to 130	Mixed/ Unclear	3
Seal, 2011: Substance use disorders in Iraq and Afghanistan Veterans in VA healthcare, 2001-2010: Implications for screening, diagnosis and treatment ²²⁶	Mental health (substance use disorder)	456502	Health Outcome	Presence or absence of substance use disorders (alcohol or drug use disorder)	Yes	3
Seyfried, 2011: Predictors of suicide in patients with dementia ³⁰⁸	Dementia	294952	Health Outcome	Suicide	Mixed/ Unclear	3
Shaw, 2014: Posttraumatic stress disorder and risk of spontaneous preterm birth ²²⁷	Women's health (PTSD, preterm birth)	16334	Health Outcome	Spontaneous preterm birth	Yes	1
Sullivan, 2015: Influence of schizophrenia diagnosis on providers' practice decisions ³⁴⁶	Mental health (schizophrenia)	275	Quality	Likelihood of referral to weight reduction, pain management, sleep study	Mixed/ Unclear	1
Taveira, 2008: Efficacy of a pharmacist-led cardiovascular risk reduction clinic for diabetic patients with and without mental health conditions ³⁴⁷	Cardiovascular	297	Quality	Total cholesterol, LDL-C, hemoglobin A1c, SBP,	Mixed/ Unclear	-1
Trief, 2006: Post-traumatic stress disorder and diabetes: co-morbidity and outcomes in a male Veterans sample ³⁴⁸	Diabetes	14438	Quality	Hemoglobin A1c level, cholesterol, weight, BMI	Mixed/ Unclear	2
			Health Outcome	Depression, substance use disorder diagnoses	Yes	2
Tseng, 2007: The association between mental health functioning and nontraumatic lower extremity amputations in Veterans with diabetes ²³⁷	Diabetes	114890	Health Outcome	Major and minor non-traumatic lower extremity amputations	Mixed/ Unclear	3
Weitlauf, 2013: Receipt of cervical cancer screening in female Veterans: impact of posttraumatic stress disorder and depression ³⁴⁹	Cancer (cervical)	34123	Quality	Cervical cancer screening	Mixed/ Unclear	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Yee, 2011: Mental illness: is there an association with cancer screening among women Veterans? ³⁵⁰	Cancer (breast)	606	Quality	Breast cancer screening, colon cancer screening (fecal occult blood test in 3 years, flexible sigmoidoscopy in 5 years, or colonoscopy in 10 years), cervical cancer screening (pap smear 1-3 years)	Mixed/ Unclear	0
Zivin, 2007: Suicide mortality among individuals receiving treatment for depression in the Veterans Affairs health system: Associations with patient and treatment setting characteristics ²⁵⁴	Mental health (Depression)	807694	Health Outcome	Suicide mortality	Mixed/ Unclear	3

APPENDIX L. HEALTH DISPARITIES ACCORDING TO AGE

Evidence Map. Health Disparities in Veterans According to Age



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Table. Health Disparities in Veterans According to Age

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Aliaga, 2007: Mental health encounters and diagnoses following deployment to Iraq and/or Afghanistan, US Armed Forces, 2001–2006 ²⁶³	Mental health diagnoses	865674	Health Outcome	PTSD diagnosis	Younger Adults	2
Banerjea, 2007: Chronic illness with complexities: Mental illness and substance use among Veteran clinic users with diabetes ⁷⁸	Diabetes, co-occurring substance use and mental health disorders in patients with diabetes	485893	Health Outcome	Mental health status, substance use disorder, combined mental health and substance use disorder, access to care, and diabetes-related health complications	Older Adults	3
Banerjea, 2009: Mental illness and substance use disorders among women Veterans with diabetes ⁷⁹	Mental health in women with diabetes	16368	Health Outcome	Serious mental illness and/or substance use disorder diagnoses	Younger Adults	2
Bierman, 2007: Sex differences in inappropriate prescribing among elderly Veterans ⁸²	Geriatrics, Prescribing	965756	Quality	Zhan criteria for inappropriate prescribing for older adults	Older Adults	2
Boehmer, 2016: Dental care in an equal access system valuing equity: Are there racial disparities? ⁸³	Dental	71315	Quality	Receipt of root canal vs extraction	Older Adults	0
Buchanan, 2014: The quality of care provided to patients with varices in the department of Veterans Affairs ⁸⁸	Varices-related care	550	Quality	Rate of meeting specified quality indicators for varices-related care	Older Adults	1
Burnett-Zeigler, 2011: Perceptions of quality of health care among Veterans with psychiatric disorders ²⁶⁷	Mental health, Quality of Care	55578	Quality	Perception of quality of care	Younger Adults	1
Butt, 2006: Rates and predictors of hepatitis C virus treatment in HCV-HIV-coinfected subjects ⁹³	HCV, HIV	6502	Quality	Prescribed treatment for HCV	Older Adults	1
Cecere, 2012: Adherence to long-acting inhaled therapies among patients with chronic obstructive pulmonary disease (COPD) ⁹⁶	Chronic obstructive pulmonary disease	376	Quality	Medication adherence	Younger Adults	2
Chumbler, 2012: Does inpatient quality of care differ by age among US Veterans with ischemic stroke? ³⁵¹	Cardiovascular (Stroke)	3939	Quality	Quality indicators: dysphagia screening, NIHSS completed, thrombolysis given, antithrombotic therapy, HD2, DVT prophylaxis, early ambulation, fall risk assessment, pressure ulcer risk assessment, rehabilitation consultation/FIM, antithrombotic	Mixed/ Unclear	1

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
				therapy, discharge, atrial fibrillation management, smoking cessation counseling, stroke education		
Chumbler, 2013: Postdischarge quality of care: do age disparities exist among Department of Veterans Affairs ischemic stroke patients? ³⁵²	Cardiovascular (Stroke)	3196	Quality	Post-stroke care quality indicators	None Found	1
Cone, 2011: Demographic determinants of response to statin medications ¹⁰¹	Cardiovascular (coronary artery disease)	5191	Quality	Achieving goal of LDL-C <100	Mixed/Unclear	0
Copeland, 2008: Treatment adherence and illness insight in Veterans with bipolar disorder ¹⁰²	Mental health	435	Quality	Medication adherence (Morisky scale, no missed doses)	Younger Adults	0
Curran, 2009: Individual and program predictors of attrition from VA substance use treatment ¹⁰⁵	Mental health (substance use disorder)	8064	Quality	Rates of attrition	Older Adults	1
Desai, 2006: Case-finding for depression among medical outpatients in the Veterans Health Administration ²⁷⁴	Mental health (Depression)	21489	Quality	Depression screening, screening positive, follow-up evaluation, and subsequent diagnosis	Younger Adults	2
			Health Outcome	Screening positive	Younger Adults	2
DiNapoli, 2015: Age as a predictive factor of mental health service use among adults with depression and/or anxiety disorder receiving care through the Veterans Health Administration ³⁵³	Mental health	583692	Utilization	Mental health service utilization	Older Adults	3
Doran, 2013: What drives frequent emergency department use in an integrated health system? National data from the Veterans Health Administration ²⁷⁵	Utilization (ED)	5531379	Utilization	VHA ED utilization	None Found	3
Duffy, 2012: Risk of smoking and receipt of cessation services among Veterans with mental disorders ¹¹¹	Smoking cessation	224193	Quality	Physician advised quitting, physician recommended medication, physician discussed quitting methods	Older Adults	3
Egede, 2010: Longitudinal differences in glycemic control by race/ethnicity among Veterans with type 2 diabetes ¹¹²	Diabetes	8813	Quality	Mean change in A1c, odds of poor control (A1c >8%)	Mixed/Unclear	0
Egede, 2011: Longitudinal ethnic differences in multiple cardiovascular risk factor control in a	Cardiovascular disease, Diabetes	11203	Quality	CV risk factor control (glycemic, BP, LDL-C)	None Found	1

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
cohort of US adults with diabetes ¹¹³						
Elhai, 2008: Outpatient medical and mental healthcare utilization models among military Veterans: results from the 2001 National Survey of Veterans ³³	Utilization (outpatient medical and mental health)	20048	Utilization	Number of outpatient healthcare visits (VA and non-VA) and receipt of mental health services	Mixed/Unclear	2
Fasoli, 2010: Predisposing characteristics, enabling resources and need as predictors of utilization and clinical outcomes for Veterans receiving mental health services ²⁸⁰	Mental health (multiple)	421	Utilization	Mental health utilization (outpatient, inpatient, residential)	Mixed/Unclear	2
			Health Outcome	GAF, self-reported mental health (BASIS-24)	Mixed/Unclear	2
Frueh, 2007: Age differences in posttraumatic stress disorder, psychiatric disorders, and healthcare service use among Veterans in Veterans Affairs primary care clinics ³⁵⁴	Mental health (PTSD)	745	Health Outcome	PTSD diagnosis (CAPS), PTSD severity	Younger Adults	1
Gerber, 2015: Hormone therapy use in women Veterans accessing Veterans Health Administration care: a national cross-sectional study ¹³⁰	Women's health (hormone therapy)	157195	Quality	Prescription of hormone therapy	Mixed/Unclear	3
Gordon, 2014: Examining patients' trust in physicians and the VA healthcare system in a prospective cohort followed for six-months after an exacerbation of heart failure ¹³⁴	Cardiovascular (heart failure)	159	Quality	Trust in VHA	Older Adults	2
Grubaugh, 2009: Equity in Veterans Affairs disability claims adjudication in a national sample of Veterans ¹³⁹	Disability	20048	Quality	Disability benefits	Older Adults	2
Harris, 2010: Associations between AUDIT-C and mortality vary by age and sex ²⁸⁸	Mental health (serious mental illness)	225092	Health Outcome	2-year mortality risk	Mixed/Unclear	3
Haskell, 2008: Determinants of hormone therapy discontinuation among female Veterans nationally ¹⁴¹	Women's health (hormone therapy)	36222	Quality	Hormone therapy discontinuation	Younger Adults	2
Hawkins, 2012: Prevalence, predictors, and service utilization of patients with recurrent use of Veterans Affairs substance use disorder specialty care ²⁹³	Mental health (substance use disorder)	1640	Utilization	Utilization of substance use disorder specialty services following an index encounter	None Found	0
Heidenreich, 2009: Disparities in VA heart failure care ¹⁴⁸	Cardiovascular (heart failure)	NR - likely large	Quality	Guideline-concordant heart failure care	Older Adults	2
Ho, 2006: The association between processes,	Cardiovascular health	14114	Quality	Concordance with LDL-C and	Older	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
structures and outcomes of secondary prevention care among VA ischemic heart disease patients ³⁵⁵				blood pressure guidelines	Adults	
Hou, 2012: Myelosuppression monitoring after immunomodulator initiation in Veterans with inflammatory bowel disease: a national practice audit ¹⁵²	Gastroenterology (IBD)	6045	Quality	WBC monitoring	Older Adults	1
Hundt, 2014: Predisposing, enabling, and need factors as predictors of low and high psychotherapy utilization in Veterans ²⁹⁵	Mental health, Utilization	130331	Utilization	Psychotherapy utilization	Mixed/Unclear	3
Irmter, 2007: Reinstitutionalization following psychiatric discharge among VA patients with serious mental illness: a national longitudinal study ¹⁵⁸	Mental health (serious mental illness)	35527	Health Outcome	Time to reinstitutionalization/rehospitalization	None Found	1
Kales, 2010: Who receives outpatient monitoring during high-risk depression treatment periods? ¹⁶²	Mental health (Depression)	494673	Utilization	Number of outpatient visits following mental health hospitalization or outpatient initiation of antidepressant medication	Older Adults	3
Kilbourne, 2006: Quality of care for substance use disorders in patients with serious mental illness ¹⁶⁷	Mental health (substance use disorder)	8083	Quality	Identification of substance use disorders, initiation of treatment, engagement in treatment	Mixed/Unclear	1
Kilbourne, 2008: Guideline-concordant hepatitis C virus testing and notification among patients with and without mental disorders ¹⁶⁸	HCV	19397	Quality	Receipt of HCV testing, notified ≤60 days	Younger Adults	2
			Health Outcome	HCV positive	Older Adults	2
Kimerling, 2011: Military sexual trauma and patient perceptions of Veteran Health Administration health care quality ¹⁷⁰	Mental health (military sexual trauma)	164632	Quality	Patient satisfaction with VHA outpatient care	Younger Adults	2
Landrum, 2012: Reasons for underuse of recommended therapies for colorectal and lung cancer in the Veterans Health Administration ¹⁸⁰	Cancer	584	Quality	Access, recommendation and receipt of recommended cancer therapy	Older Adults	1
Lehavot, 2015: Posttraumatic stress disorder symptom severity and socioeconomic factors associated with Veterans Health Administration use among women Veterans ³⁵⁶	Mental health	617	Utilization	Utilization of VA healthcare within past year for patients with PTSD	None Found	0
Mattocks, 2015: Infertility care among OEF/OIF/OND women Veterans in the	Women's health (Reproductive health)	1323	Quality	Received an infertility assessment	None Found	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Department of Veterans Affairs ¹⁸⁷						
Mohamed, 2008: Pharmacotherapy for older Veterans diagnosed with posttraumatic stress disorder in Veterans Administration ³⁵⁷	Mental health (PTSD)	244947	Quality	Receipt of psychotropic medication	Mixed/ Unclear	3
Partin, 2010: The interrelationships between and contributions of background, cognitive, and environmental factors to colorectal cancer screening adherence ³⁵⁸	Cancer (colorectal)	2416	Quality	Colorectal cancer screening adherence	Younger Adults	1
Plomondon, 2007: Severe mental illness and mortality of hospitalized ACS patients in the VHA ³⁵⁹	Cardiovascular (Acute Coronary Syndrome)	14194	Health Outcome	1-year all-cause mortality, combined 1-year all-cause mortality/re-hospitalization	None Found	2
Pogach, 2013: Interplay of chronic illness, race, age and sex in glycemic control ³⁶⁰	Diabetes	79249	Quality	Glycemic control	Younger Adults	2
Pugh, 2006: Assessing potentially inappropriate prescribing in the elderly Veterans Affairs population using the HEDIS 2006 quality measure ²⁰⁵	Geriatrics, prescribing	1096361	Quality	Potentially inappropriate prescribing based on HEDIS criteria	Older Adults	3
Rawaf, 2007: Exploring racial and sociodemographic trends in physician behavior, physician trust and their association with blood pressure control ²⁰⁹	Cardiovascular disease	793	Quality	Blood pressure control	Older Adults	1
Rogers, 2014: Healthcare utilization following mild traumatic brain injury in female Veterans ²¹²	Preventive and ambulatory care	12144	Utilization	Healthcare utilization, outpatient	Younger Adults	2
Runnals, 2013: Self-reported pain complaints among Afghanistan/Iraq era men and women Veterans with comorbid posttraumatic stress disorder and major depressive disorder ³⁰³	Pain, Mental health (PTSD, MDD)	1614	Health Outcome	Pain: back, muscle, and headaches	None Found	0
Sambamoorthi, 2010: Depression treatment patterns among women Veterans with cardiovascular conditions or diabetes ²¹⁸	Women's health (women Veterans with cardiovascular conditions or diabetes)	8147	Utilization	Services: antidepressants, psychotherapy	Older Adults	0
Sambamoorthi, 2012: Decomposing gender differences in low-density lipoprotein cholesterol among Veterans with or at risk for cardiovascular illness ²¹⁹	Cardiovascular (lipid management)	527568	Quality	LDL-C greater than or equal to 130	Mixed/ Unclear	3
Seal, 2011: Substance use disorders in Iraq and Afghanistan Veterans in VA healthcare, 2001-	Mental health (substance use disorder)	456502	Health Outcome	Presence or absence of substance use disorders (alcohol or drug use	None Found	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
2010: Implications for screening, diagnosis and treatment ²²⁶				disorder)		
Shaw, 2014: Posttraumatic stress disorder and risk of spontaneous preterm birth ²²⁷	Women's health (preterm birth), mental health (PTSD)	16334	Health Outcome	Spontaneous preterm birth	None Found	2
Spoont, 2015: Are there racial/ethnic disparities in VA PTSD treatment retention? ²³¹	Mental health (PTSD)	6788	Quality	PTSD treatment retention	Older Adults	2
Tseng, 2007: The association between mental health functioning and nontraumatic lower extremity amputations in Veterans with diabetes ²³⁷	Diabetes	114890	Health Outcome	Major and minor non-traumatic lower extremity amputations	None Found	3
van Ryn, 2014: Patient-reported quality of supportive care among patients with colorectal cancer in the Veterans Affairs Health Care System ³⁶¹	Cancer (colorectal)	1109	Quality	Receipt of help for: bowel problems, pain, fatigue, depression, and other physical symptoms	Older Adults	1
Washington, 2011: Access to care for women Veterans: delayed healthcare and unmet need ³⁶²	Access	3608	Utilization	Delays in obtaining needed healthcare and instances of going without needed care in the prior 12 months.	Younger Adults	0
Zeber, 2007: Self-reported access to general medical and psychiatric care among Veterans with bipolar disorder ²⁴⁹	Mental health (Bipolar)	435	Utilization	Patient perception of access to health and mental health	None Found	0
Zullig, 2013: Examining potential colorectal cancer care disparities in the Veterans Affairs health care system ²⁵⁶	Cancer (colorectal)	2022	Quality	Guideline-concordant care	Older Adults	1
Zullig, 2013: The association of race with timeliness of care and survival among Veterans Affairs health care system patients with late-stage non-small cell lung cancer ²⁵⁷	Cancer (non-small cell lung carcinoma)	2200	Quality	Guideline-concordant care	None Found	1
			Health Outcome	Survival	Older Adults	1

APPENDIX M. HEALTH DISPARITIES ACCORDING TO RURAL RESIDENCE OR DISTANCE FROM VA MEDICAL CENTER

Evidence Map. Health Disparities in Veterans According to Rural Residence or Distance from VA Medical Center



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Table. Health Disparities in Veterans According to Rural Residence or Distance from VA Medical Center

<i>Author, Year: Title</i>	<i>Population</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Abrams, 2010: Mortality and revascularization following admission for acute myocardial infarction: implication for rural Veterans ³⁶³	Rural residence	Cardiovascular (Acute MI)	15608	Health Outcome	30-day mortality	No	2
Bailey, 2012: The impact of living in rural and urban areas: vitamin D and medical costs in Veterans ³⁶⁴	Rural residence	Vitamin D levels	9396	Utilization	Utilization and medical costs	Mixed/Unclear	1
				Quality	Vitamin D levels	Yes	1
Banerjea, 2009: Mental illness and substance use disorders among women Veterans with diabetes ⁷⁹	Rural residence	Diabetes, Mental health	16023	Health Outcome	Serious mental illness and/or substance use disorder diagnoses	No	2
Bouldin, 2015: Chronic lower limb wound outcomes among rural and urban Veterans ³⁶⁵	Rural residence	Wound care (Chronic lower limb wounds)	320	Utilization	Healthcare utilization for chronic lower limb wounds	Mixed/Unclear	1
				Health Outcome	Amputations; mortality	Mixed/Unclear	1
Brooks, 2014: Rural women Veterans demographic report: defining VA users' health and health care access in rural areas ³⁶⁶	Rural residence	Women's health (Veterans seeking outpatient visits for primary care, mental health care, and women's specific services)	327785	Utilization	Mental health, outpatient, and women's health utilization	Yes	3
				Health Outcome	Medical or mental health diagnosis	No	2
Carey, 2008: Use of VA and Medicare services by dually eligible Veterans with psychiatric problems ³⁶⁷	Distance from VAMC	Mental health (Dual Diagnosis)	264619	Utilization	Total expenditures: acute and non-acute inpatient and outpatient utilization (VA and Medicare) and pharmacy utilization (VA only)	Yes	3
Cully, 2010: Use of psychotherapy by rural and urban Veterans ³⁶⁸	Rural residence	Mental health care	214791	Utilization	Psychotherapy initiation, delay from diagnosis, and dose (number of sessions)	Yes	3
Doran, 2013: What drives frequent emergency department use in an integrated health system? National data from the Veterans Health Administration ²⁷⁵	Rural residence	Utilization (ED)	5531379	Utilization	VHA ED utilization	Mixed/Unclear	3
Duffy, 2012: Risk of smoking and receipt of cessation services among	Rural residence	Smoking cessation	224193	Quality	Physician advised quitting, physician recommended	Mixed/Unclear	3

<i>Author, Year: Title</i>	<i>Population</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Veterans with mental disorders ¹¹¹					medication, physician discussed quitting methods		
Egede, 2011: Regional, geographic, and ethnic differences in medication adherence among adults with type 2 diabetes ¹¹⁴	Rural residence	Diabetes	690968	Quality	Medication adherence (MPR-med possession ratio)	No	3
Egede, 2011: Regional, geographic, and racial/ethnic variation in glycemic control in a national sample of Veterans with diabetes ¹¹⁵	Rural residence	Diabetes	690698	Quality	Hemoglobin A1c level, poor control of hemoglobin A1c level (<80%)	No	3
Egede, 2013: Differential impact of longitudinal medication non-adherence on mortality by race/ethnicity among Veterans with diabetes ¹¹⁷	Rural residence	Diabetes	629563	Health Outcome	Medication non-adherence associated mortality	Mixed/Unclear	3
Elhai, 2008: Outpatient medical and mental healthcare utilization models among military Veterans: results from the 2001 National Survey of Veterans ³³	Rural residence	Utilization (outpatient medical and mental health)	20048	Utilization	Number of outpatient healthcare visits (VA and non-VA) and receipt of mental health services	Mixed/Unclear	2
Finegan, 2010: Trends and geographic variation of potentially avoidable hospitalizations in the Veterans Health-Care System ³⁶⁹	Rural residence	Access (ambulatory care-sensitive condition hospitalizations)	NR (100,000+)	Utilization	Ambulatory care-sensitive condition (ACSC) hospitalizations	Yes	3
	Distance from VAMC	Access (ambulatory care-sensitive condition hospitalizations)	NR (100,000+)	Utilization	Ambulatory care-sensitive condition (ACSC) hospitalizations	Yes	3
Friedman, 2015: Travel time and attrition from VHA care among women Veterans: how far is too far? ³⁷⁰	Distance from VAMC	Women's health	266301	Quality	An "attriter" did not return for VHA care during the 2nd through 3rd years after her first 2009 visit (T0). Drive time (log minutes) was between the patient's residence and her regular source of VHA care. "New" patients had no VHA visits within 3 years before T0.	Yes	3
Goldberg, 2014: Association of distance from a transplant center with access to waitlist placement, receipt	Distance from VAMC	Transplantation (liver)	50637	Quality	Waitlisted for liver transplantation	Yes	2
				Health	Receiving a liver transplant,	Yes	2

<i>Author, Year: Title</i>	<i>Population</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
of liver transplantation, and survival among US Veterans ³⁷¹				Outcome	mortality		
Grubaugh, 2009: Equity in Veterans Affairs disability claims adjudication in a national sample of Veterans ¹³⁹	Rural residence	Disability	20048	Quality	Disability benefits	No	2
Ho, 2006: The association between processes, structures and outcomes of secondary prevention care among VA ischemic heart disease patients ³⁵⁵	Distance from VAMC	Cardiovascular health	14114	Quality	Concordance with LDL-C and blood pressure guidelines	No	2
Hudson, 2014: Effect of rural residence on use of VHA mental health care among OEF/OIF Veterans ³⁷²	Rural residence	Mental health	4782	Utilization	Utilization of mental health treatments	Yes	1
				Health Outcome	PTSD diagnosis	Yes	1
Hundt, 2014: Predisposing, enabling, and need factors as predictors of low and high psychotherapy utilization in Veterans ²⁹⁵	Distance from VAMC	Mental health, Utilization	130331	Utilization	Psychotherapy utilization	Yes	3
Lund, 2013: Patient and Facility Characteristics Associated with Benzodiazepine Prescribing for Veterans with PTSD ³⁰⁰	Rural residence	Mental health (PTSD)	495309	Quality	Benzodiazepine prescription	Yes	3
Lund, 2013: Regional differences in prescribing quality among elder Veterans and the impact of rural residence ³⁷³	Rural residence	Geriatrics, Prescribing	1549824	Quality	Inappropriate prescribing	Mixed/Unclear	3
Lynch, 2011: Disparities in diabetes self-management and quality of care in rural versus urban Veterans ³⁷⁴	Rural residence	Diabetes	10472	Quality	Diabetes self-management behaviors (lifestyle and self-monitoring) and quality of care indicators (provider visits, laboratory monitoring and preventive measures)	No	2
Maciejewski, 2007: Utilization and expenditures of Veterans obtaining primary care in community clinics and VA medical centers: an observational cohort study ³⁷⁵	Distance from VAMC	Utilization (Primary care)	61144	Utilization	Primary care utilization	Mixed/Unclear	2
Mackenzie, 2010: Impact of rural residence on survival of male	Rural residence	Mortality (65+)	372463	Health Outcome	Mortality	Mixed/Unclear	3

<i>Author, Year: Title</i>	<i>Population</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Veterans affairs patients after age 65 ¹⁸⁶							
McCarthy, 2007: Veterans Affairs Health System and mental health treatment retention among patients with serious mental illness: evaluating accessibility and availability barriers ³⁷⁶	Distance from VAMC	Mental health (serious mental illness)	156631	Utilization	VA service utilization, mental health utilization	Yes	3
McCarthy, 2012: Suicide among patients in the Veterans Affairs health system: rural-urban differences in rates, risks, and methods ³⁷⁷	Distance from VAMC	Mental health (Suicidality)	11139863	Health Outcome	Suicide	Mixed/Unclear	3
Mohamed, 2009: VA intensive mental health case management in urban and rural areas: Veteran characteristics and service delivery ³⁷⁸	Rural residence	Mental health (severe and persistent)	5221	Health Outcome	GAF, QOL, activities of daily living, symptom severity	No	0
Morden, 2010: Quality of care for cardiometabolic disease: associations with mental disorder and rurality ³⁴²	Rural residence	Cardiovascular (hypertension)	23780	Quality	Blood pressure control, poor blood pressure	No	2
Nash, 2011: Trauma and substance use disorders in rural and urban Veterans ³⁷⁹	Rural residence	Mental health (PTSD)	60	Health Outcome	PTSD symptoms	No	0
Ohl, 2010: Rural residence is associated with delayed care entry and increased mortality among Veterans with human immunodeficiency virus infection ³⁸⁰	Rural residence	HIV	8489	Utilization	Initiated treatment	No	1
				Health Outcome	Hepatitis C, mortality	Mixed/Unclear	1
Ohl, 2013: Rural residence and adoption of a novel HIV therapy in a national, equal-access healthcare system ³⁸¹	Rural residence	HIV	1222	Quality	Initiation of new HIV therapy (raltegravir) for eligible patients	Yes	1
Ohl, 2014: Geographic access and use of infectious diseases specialty and general primary care services by Veterans with HIV infection: Implications for telehealth and shared care programs ³⁸²	Rural residence	HIV	23639	Utilization	Utilization of infectious disease clinics (HIV patients)	No	2
	Distance from care	HIV	23639	Utilization	Utilization of infectious disease clinics (HIV patients)	Yes	2
Patterson, 2014: Rural access to	Rural	Clinical pharmacy	3040635	Utilization	Utilization of clinical pharmacy	No	3

<i>Author, Year: Title</i>	<i>Population</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
clinical pharmacy services ³⁸³	residence	services			services		
Pfeiffer, 2011: Impact of distance and facility of initial diagnosis on depression treatment ³⁸⁴	Distance from VAMC	Mental health (Depression)	132329	Utilization	Psychotherapy and pharmaceutical treatment of depression	Yes	3
Phipps, 2014: Rural-urban differences in inpatient quality of care in US Veterans with ischemic stroke ³⁸⁵	Rural residence	Cardiovascular (Stroke)	3889	Quality	Ischemic stroke treatment	Mixed/Unclear	1
Pugh, 2008: Potentially inappropriate prescribing for the elderly: effects of geriatric care at the patient and health care system level ²⁰⁶	Rural residence	Geriatrics, Prescribing	850154	Quality	Potentially inappropriate prescribing in the elderly	No	3
Ripley, 2015: How does geographic access affect in-hospital mortality for Veterans with acute ischemic stroke? ³⁸⁶	Distance from VAMC	Cardiovascular (Stroke)	10430	Health Outcome	In-hospital mortality	Yes	3
Rongey, 2013: Impact of rural residence and health system structure on quality of liver care ³⁸⁷	Rural residence	HCV	151965	Utilization	Utilization of HCV specialty care	Yes	3
				Quality	HCV quality indicators	Mixed/Unclear	3
Sambamoorthi, 2012: Decomposing gender differences in low-density lipoprotein cholesterol among Veterans with or at risk for cardiovascular illness ²¹⁹	Rural residence	Cardiovascular (lipid management)	527568	Quality	LDL-C greater than or equal to 130	Mixed/Unclear	3
Sarangarm, 2010: Post-endovascular aneurysm repair patient outcomes and follow-up are not adversely impacted by long travel distance to tertiary vascular surgery centers ³⁸⁸	Distance from VAMC	Surgery follow-up	126	Utilization	Post-surgery follow-up	No	0
				Health Outcome	Post-surgery outcomes	No	0
Skolarus, 2013: Quality of prostate cancer care among rural men in the Veterans Health Administration ³⁸⁹	Rural residence	Cancer (prostate)	11333	Utilization	Utilization of facilities with comprehensive cancer resources	Yes	1
				Quality	Prostate cancer care	No	1
Thorpe, 2010: Rural-urban differences in preventable hospitalizations among community-dwelling Veterans with dementia ³⁹⁰	Rural residence	Dementia	1186	Utilization	ACSH (ambulatory care-sensitive hospitalizations)	Yes	1

<i>Author, Year: Title</i>	<i>Population</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Turner, 2013: Access to multiple sclerosis specialty care ³⁹¹	Rural residence	Pain (Multiple sclerosis)	14723	Utilization	Specialty care visit, receipt of medical services	Yes	2
	Distance from VAMC	Pain (Multiple sclerosis)	14723	Utilization	Specialty care visit, receipt of medical services	Yes	2
Wallace, 2006: Rural and Urban Disparities in Health-Related Quality of Life among Veterans with Psychiatric Disorders ³⁹²	Rural residence	Physical and mental health status	748216	Health Outcome	Health-related QOL scores (physical and mental) health component summaries	Yes	3
Wallace, 2010: A cross-sectional, multi-year examination of rural and urban Veterans Administration users: 2002-2006 ³⁹³	Rural residence	Physical and mental health status	Between 263,000-420,000/year	Health Outcome	Physical health status, mental health status	Mixed/Unclear	3
Wallace, 2010: A longitudinal analysis of rural and urban Veterans' health-related quality of life ³⁹⁴	Rural residence	Quality of life, health-related	163709	Health Outcome	Health-related QOL scores (physical and mental) health component summaries	Mixed/Unclear	3
Washington, 2009: Women Veterans ambulatory care use project, phase II ²⁴²	Distance from VAMC	Women's health	2174	Utilization	Utilization of VA women's health services	Yes	1
Weeks, 2006: Rural-urban disparities in health-related quality of life within disease categories of Veterans ³⁹⁵	Rural residence	Quality of life, health-related	570512	Health Outcome	Health-related QOL scores (physical and mental) health component summaries	Yes	3
West, 2008: Rural Veterans and access to high-quality care for high-risk surgeries ³⁹⁶	Rural residence	Surgery (Open heart)	NR (24K+)	Utilization	Open heart surgery at higher- or lower-performing (mortality) hospital	Mixed/Unclear	2
Whealin, 2014: Deployment-related sequelae and treatment utilization in rural and urban war Veterans in Hawaii ³⁹⁷	Rural residence	Mental health	233	Utilization	Utilization of mental health services	No	0
				Health Outcome	Deployment-related health issues	Yes	0

Note: Some studies examined outcomes by both a measure of rurality and by distance from a VA medical center.

APPENDIX N. HEALTH DISPARITIES ACCORDING TO SOCIOECONOMIC STATUS

Evidence Map. Health Disparities in Veterans According to Socioeconomic Status



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Table. Health Disparities in Veterans According to Socioeconomic Status

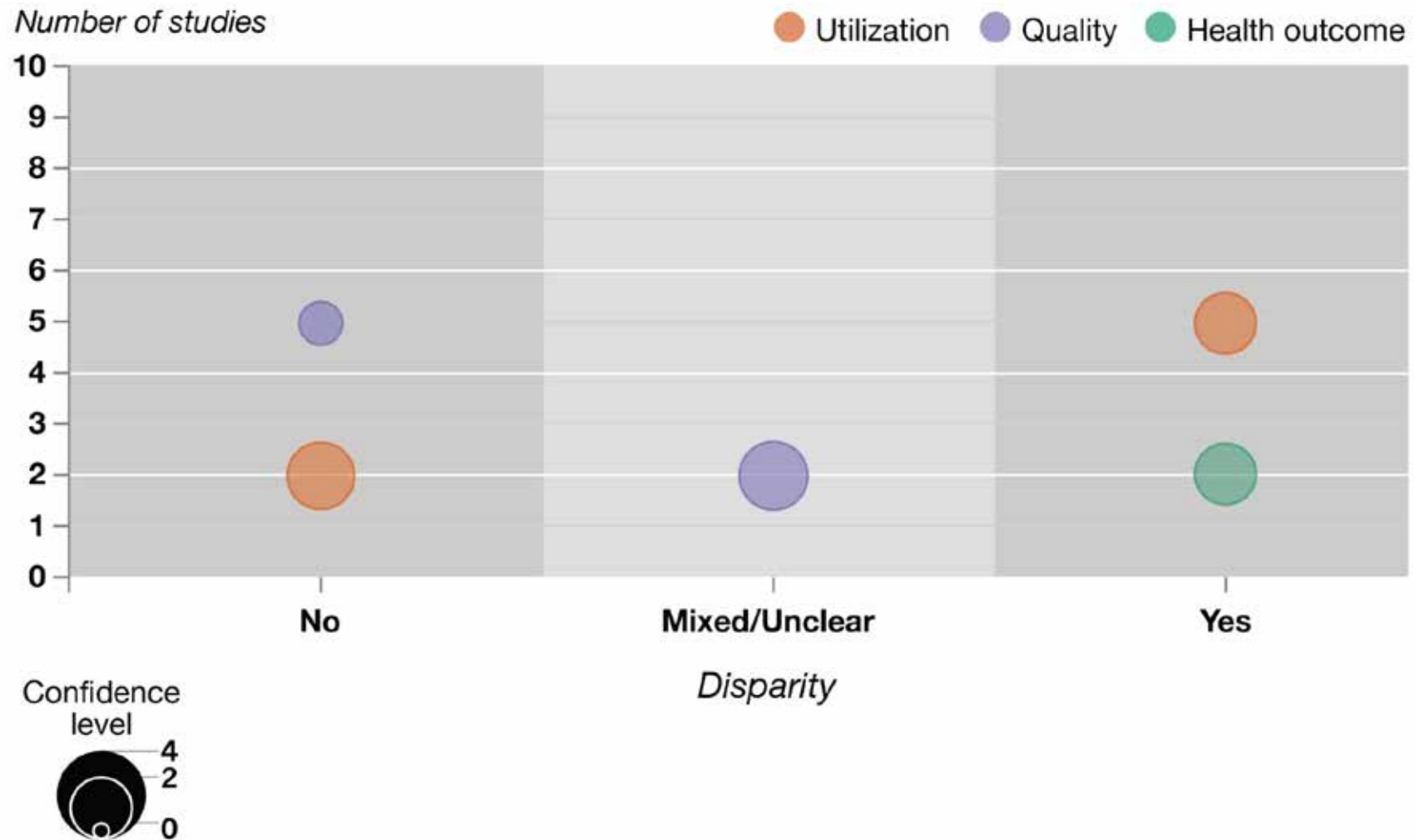
<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Arozullah, 2007: The impact of health literacy on racial differences in cancer stage at presentation ³⁹⁸	Cancer	296	Health Outcome	Advanced stage cancer at presentation	Yes	1
Bean-Mayberry, 2009: Does sex influence immunization status for influenza and pneumonia in older Veterans ⁸¹	Preventive care (immunization status), older adults	48424	Quality	Receipt of influenza immunization in the prior influenza season and receipt of pneumonia immunization ever	Mixed/Unclear	2
Borrero, 2012: Contraceptive care in the VA health care system ⁸⁴	Women's health (contraceptive care)	103950	Quality	Receipt and type of contraception	No	3
Burnett-Zeigler, 2011: Perceptions of quality of health care among Veterans with psychiatric disorders ²⁶⁷	Mental health	55578	Quality	Perception of quality of care	Mixed/Unclear	1
Cecere, 2012: Adherence to long-acting inhaled therapies among patients with chronic obstructive pulmonary disease (COPD) ⁹⁶	Chronic obstructive pulmonary disease	376	Quality	Medication adherence	Mixed/Unclear	2
Elhai, 2008: Outpatient medical and mental healthcare utilization models among military Veterans: results from the 2001 National Survey of Veterans ³³	Utilization (outpatient medical and mental health)	20048	Utilization	Number of outpatient healthcare visits (VA and non-VA) and receipt of mental health services	Mixed/unclear	2
Finegan, 2010: Trends and geographic variation of potentially avoidable hospitalizations in the Veterans Health-Care System ³⁶⁹	Access (ambulatory care-sensitive condition hospitalizations)	NR (100,000+)	Utilization	Ambulatory care-sensitive condition (ACSC) hospitalizations	Yes	3
Gabrielian, 2014: VA health service utilization for homeless and low-income Veterans: a spotlight on the VA Supportive Housing (VASH) program in greater Los Angeles ³⁹⁹	Utilization	62459	Utilization	Differences in service utilization (primary care, hospital, mental health, specialty)	Yes	1
Gordon, 2014: Examining patients' trust in physicians and the VA healthcare system in a prospective cohort followed for six-months after an exacerbation of heart failure ¹³⁴	Cardiovascular (heart failure)	159	Quality	Trust in physician, trust in VHA	Yes	2
Haskell, 2009: Pain among Veterans of Operations Enduring Freedom and Iraqi Freedom: Do women and men differ? ¹⁴²	Pain	153212	Health Outcome	Pain: reported any pain, reported moderate-severe pain, reported persistent pain	No	3
Higgins, 2014: Persistent pain and comorbidity among Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn Veterans ¹⁴⁹	Pain (chronic)	5242	Health Outcome	Persistent pain (either self-rated scale, ICD-9 pain diagnosis, pain clinic visit, or opioid prescription)	No	1
Jackson, 2008: Racial/ethnic and educational-level	Diabetes	189	Quality	Patient with diabetes perceptions of	No	0

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
differences in diabetes care experiences in primary care ²⁵⁸				alignment with chronic care model (Patient Assessment of Chronic Illness Care)		
Kazerooni, 2014: Predictors of adherence to hormonal contraceptives in a female Veteran population ¹⁶⁵	Women's health (hormonal contraceptives)	805	Health Outcome	Adherence to hormonal contraceptive medication (medication possession ratio >.9)	Yes	0
Kilbourne, 2006: Quality of care for substance use disorders in patients with serious mental illness ¹⁶⁷	Mental health (serious mental illness)	8083	Quality	Identification of substance use disorders, initiation of treatment, engagement in treatment	Mixed/Unclear	1
Kimerling, 2011: Military sexual trauma and patient perceptions of Veteran Health Administration health care quality ¹⁷⁰	Mental health (sexual trauma)	164632	Quality	Patient satisfaction with VHA outpatient care	Mixed/Unclear	2
Knight, 2007: Education predicts quality of life among men with prostate cancer cared for in the Department of Veterans Affairs: a longitudinal quality of life analysis from CaPSURE ⁴⁰⁰	Cancer (prostate)	248	Health Outcome	Self-reported health-related QOL, SF-36, UCLA Prostate Cancer Index (PCI) at baseline and posttreatment (6 or 12 months)	Yes	1
Lehavot, 2015: Posttraumatic stress disorder symptom severity and socioeconomic factors associated with Veterans Health Administration use among women Veterans ³⁵⁶	Mental health, Utilization	617	Utilization	Utilization of VA healthcare within past year	Yes	0
Mackenzie, 2010: Impact of rural residence on survival of male Veterans affairs patients after age 65 ¹⁸⁶	Mortality (65+)	372463	Health Outcome	Mortality	Yes	3
Mattocks, 2015: Infertility care among OEF/OIF/OND women Veterans in the Department of Veterans Affairs ¹⁸⁷	Women's health (Reproductive health)	1323	Quality	Received an infertility assessment	No	0
Mehta, 2010: Racial disparities in prescriptions for cardioprotective drugs and cardiac outcomes in Veterans Affairs Hospitals ¹⁹⁰	Cardiovascular disease	474565	Quality	Prescriptions for cardioprotective drugs (aspirin, beta-blocker, statin, angiotensin-converting enzyme inhibitor)	Mixed/Unclear	3
			Health Outcome	Angina and AMI	Yes	3
Moore, 2015: Racial, income, and marital status disparities in hospital readmissions within a Veterans-integrated health care network ¹⁹⁴	Inpatient/acute care	8718	Utilization	Number of hospital readmissions	No	1
Nelson, 2011: Neighborhood environment and health status and mortality among Veterans ⁴⁰¹	Physical and mental health status	15889	Health Outcome	Physical and mental health status, mortality	Yes	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Partin, 2010: The interrelationships between and contributions of background, cognitive, and environmental factors to colorectal cancer screening adherence ³⁵⁸	Cancer (colorectal)	2416	Quality	Colorectal cancer screening adherence	No	1
Rawaf, 2007: Exploring racial and sociodemographic trends in physician behavior, physician trust and their association with blood pressure control ²⁰⁹	Cardiovascular disease	793	Quality	Blood pressure control	No	2
Sajatovic, 2006: Self-reported medication treatment adherence among Veterans with bipolar disorder ³⁰⁴	Mental health (bipolar)	184	Quality	Self-report of medication adherence	No	0
Spoont, 2015: Are there racial/ethnic disparities in VA PTSD treatment retention? ²³¹	Mental health (PTSD)	6788	Quality	PTSD treatment retention	No	2
Taber, 2016: Overall graft loss versus death-censored graft loss: unmasking the magnitude of racial disparities in outcomes among US kidney transplant recipients ²³²	Renal	4918	Health Outcome	Overall graft loss, death, and death-censored graft loss	No	1
Tsai, 2014: The effects of race and other socioeconomic factors on health service use among American military Veterans ²³⁵	Utilization	19270	Utilization	Health service use	No	2
Tseng, 2007: The association between mental health functioning and nontraumatic lower extremity amputations in Veterans with diabetes ²³⁷	Diabetes	114890	Health Outcome	Major and minor non-traumatic lower extremity amputations	Mixed/Unclear	3
Washington, 2011: Access to care for women Veterans: delayed healthcare and unmet need ³⁶²	Access	3608	Utilization	Delays in obtaining needed healthcare and instances of going without needed care in the prior 12 months	Mixed/Unclear	0
Widome, 2015: Socioeconomic disparities in sleep duration among Veterans of the US wars in Iraq and Afghanistan ⁴⁰²	Sleep	867	Quality	Sleep duration	Yes	0

APPENDIX O. HEALTH DISPARITIES IN VETERANS WITH DISABILITIES

Evidence Map. Health Disparities in Veterans with Disabilities



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

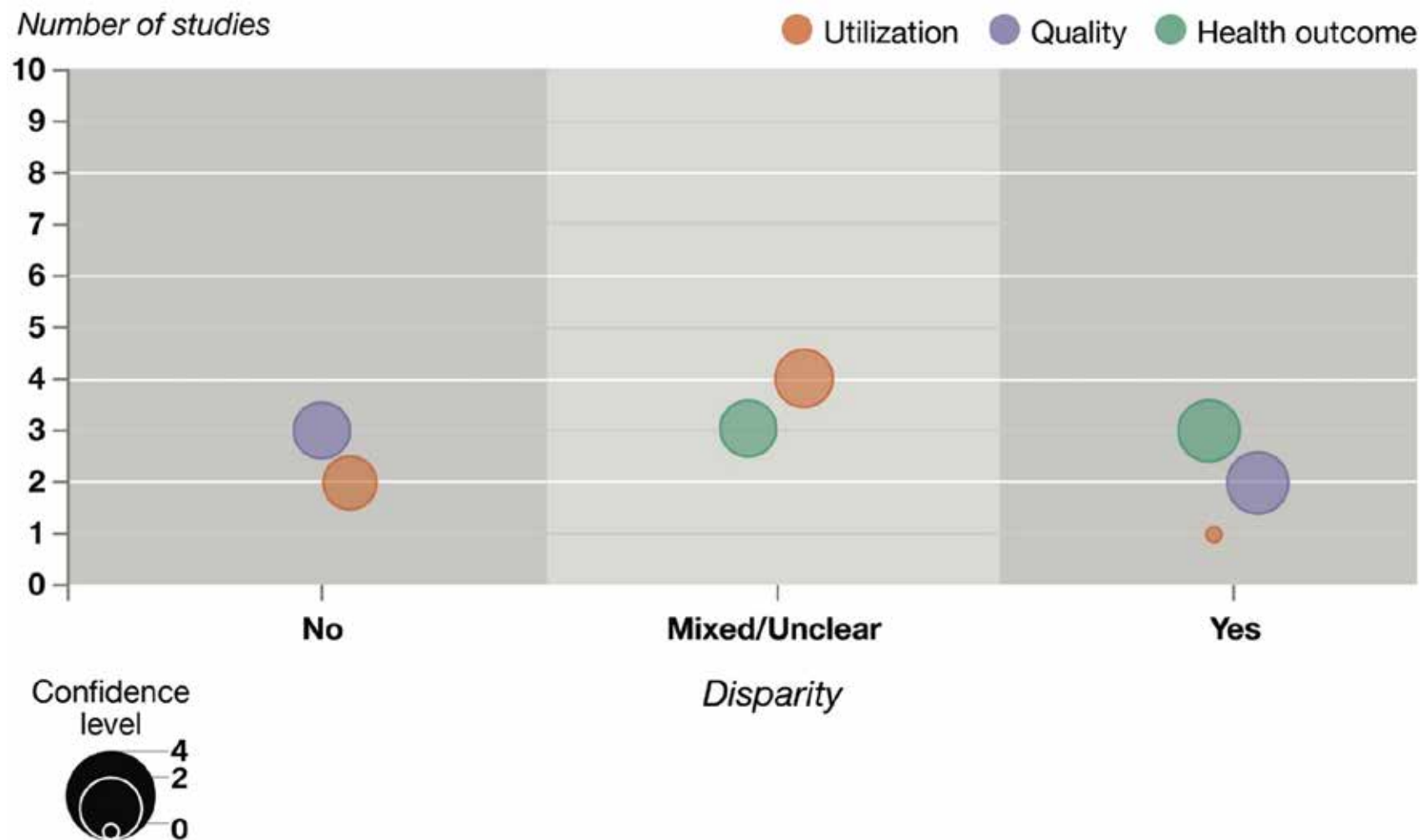
Table. Health Disparities in Veterans with Disabilities

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Burnett-Zeigler, 2011: Perceptions of quality of health care among Veterans with psychiatric disorders ²⁶⁷	Mental health, Quality of Care	55578	Quality	Perception of quality of care	No	1
Carey, 2008: Use of VA and Medicare services by dually eligible Veterans with psychiatric problems ³⁶⁷	Mental health (Dual Diagnosis)	264619	Utilization	Total expenditures: acute and non-acute inpatient and outpatient utilization (VA and Medicare) and pharmacy utilization (VA only)	Yes	3
Doran, 2013: What drives frequent emergency department use in an integrated health system? National data from the Veterans Health Administration ²⁷⁵	Utilization (ED)	5531379	Utilization	VHA ED utilization	No	3
Duffy, 2012: Risk of smoking and receipt of cessation services among Veterans with mental disorders ¹¹¹	Smoking cessation	224193	Quality	Physician advised quitting, physician recommended medication, physician discussed quitting methods	Mixed/ Unclear	3
Duggal, 2010: Comparison of outpatient health care utilization among returning women and men Veterans from Afghanistan and Iraq ²⁷⁶	Utilization (outpatient)	1620	Utilization	Outpatient utilization (basic, specialty, ancillary)	No	1
Elhai, 2008: Outpatient medical and mental healthcare utilization models among military Veterans: results from the 2001 National Survey of Veterans ³³	Utilization (outpatient medical and mental health)	20048	Utilization	Number of outpatient healthcare visits (VA and non-VA) and receipt of mental health services	Yes	2
Finegan, 2010: Trends and geographic variation of potentially avoidable hospitalizations in the Veterans Health-Care System ³⁶⁹	Access (ambulatory care-sensitive condition hospitalizations)	NR (100,000+)	Utilization	Ambulatory care-sensitive condition (ACSC) hospitalizations	Yes	3
Ho, 2006: The association between processes, structures and outcomes of secondary prevention care among VA ischemic heart disease patients ³⁵⁵	Cardiovascular health	14114	Quality	Concordance with LDL-C and blood pressure guidelines	No	2
Hundt, 2014: Predisposing, enabling, and need factors as predictors of low and high psychotherapy utilization in Veterans ²⁹⁵	Mental health, Utilization	130331	Utilization	Psychotherapy utilization	Yes	3
Irmiter, 2007: Reinstitutionalization following psychiatric discharge among VA patients with serious mental illness: a national longitudinal study ¹⁵⁸	Mental health (serious mental illness)	35527	Health Outcome	Time to reinstitutionalization/rehospitalization	Yes	1
Littman, 2012: Preventive services in Veterans in	Preventive	72855	Quality	Influenza, pneumococcal vaccinations;	Mixed/	2

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
relation to disability ⁴⁰³	care/screening			fecal occult blood test; lower gastrointestinal endoscopy; cholesterol screening; weight management counseling; HIV test; mammography; pap smear	Unclear	
Lynch, 2015: Geographic and racial/ethnic variations in patterns of multimorbidity burden in patients with type 2 diabetes ¹⁸⁵	Diabetes	892223	Health Outcome	Multimorbidity	Yes	3
Mattocks, 2015: Infertility care among OEF/OIF/OND women Veterans in the Department of Veterans Affairs ¹⁸⁷	Women's health (reproductive health)	1323	Quality	Received an infertility assessment	No	0
Sambamoorthi, 2012: Decomposing gender differences in low-density lipoprotein cholesterol among Veterans with or at risk for cardiovascular illness ²¹⁹	Cardiovascular (lipid management)	527568	Quality	LDL-C greater than or equal to 130	No	3
Tseng, 2006: Diabetes care among Veteran women with disability ²³⁶	Diabetes	5110	Quality	Hemoglobin A1c level and LDL-C screening	No	1
Washington, 2009: Women Veterans ambulatory care use project, phase II ²⁴²	Women's health	2174	Utilization	Utilization of VA women's health services	Yes	1

APPENDIX P. HEALTH DISPARITIES BY ERA OF MILITARY SERVICE

Evidence Map. Health Disparities in Veterans by Era of Military Service



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

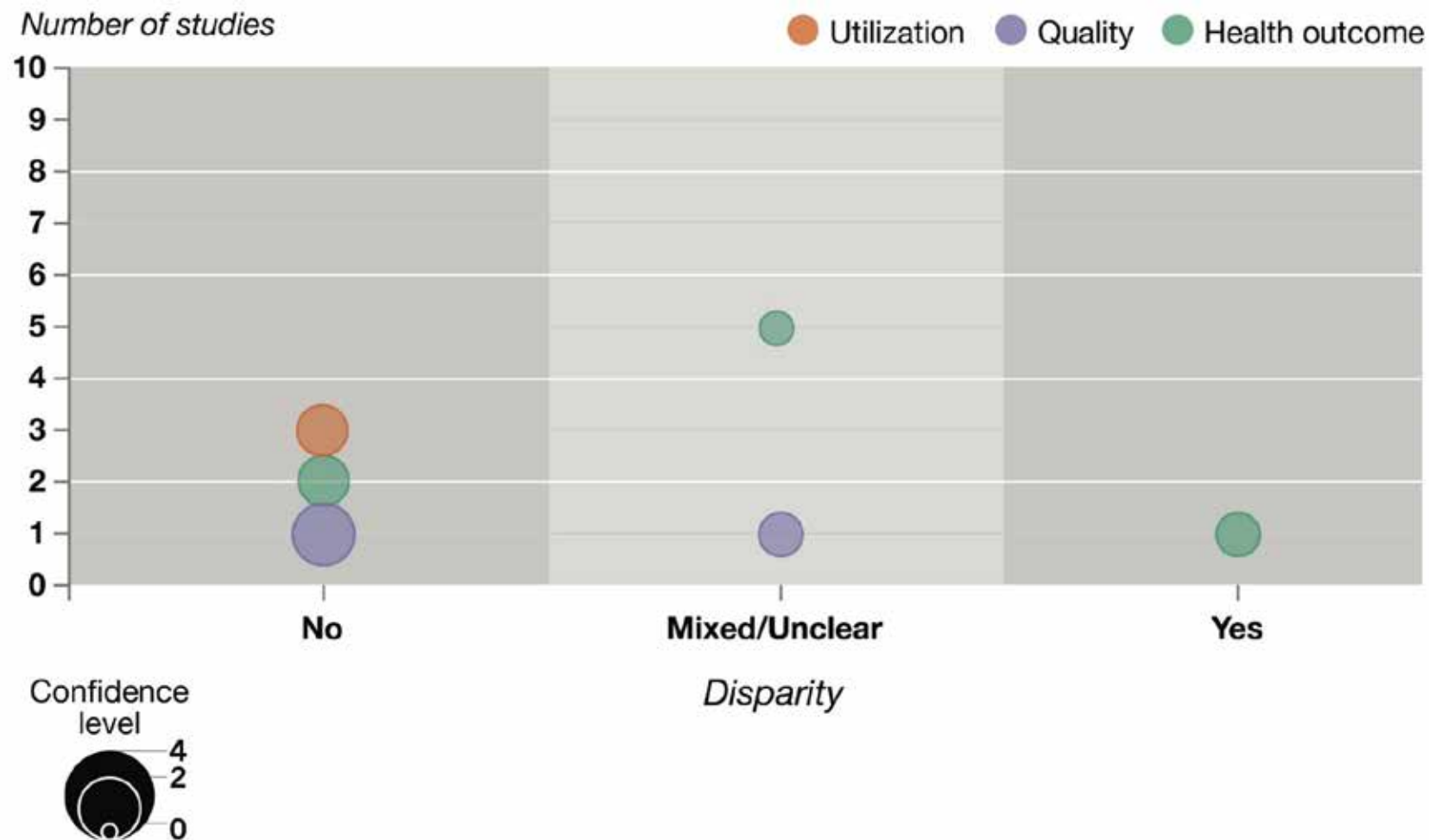
Table. Health Disparities in Veterans by Era of Military Service

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Belsher, 2012: Compensation and treatment: disability benefits and outcomes of U.S. Veterans receiving residential PTSD treatment ⁴⁰⁴	Mental health (PTSD)	786	Utilization	Residential length of stay for PTSD	Yes	0
			Health Outcome	PTSD and depression symptoms	Yes	0
Berke, 2010: Comparison of satisfaction with current prosthetic care in Veterans and servicemembers from Vietnam and OIF/OEF conflicts with major traumatic limb loss ⁴⁰⁵	Prosthetic care	581	Quality	Patient satisfaction with care and current prosthesis	No	0
Doran, 2013: What drives frequent emergency department use in an integrated health system? National data from the Veterans Health Administration ²⁷⁵	Utilization (ED)	5531379	Utilization	VHA ED utilization	No	3
El-Serag, 2014: Racial differences in the progression to cirrhosis and hepatocellular carcinoma in HCV-infected Veterans ¹²¹	HCV, cancer (liver)	149407	Health Outcome	Risk of cirrhosis or hepatocellular cancer	Yes	3
Fontana, 2010: Female Veterans of Iraq and Afghanistan seeking care from VA specialized PTSD programs: Comparison with male Veterans and female war zone Veterans of previous eras ²⁸¹	Mental health (PTSD)	1738	Health Outcome	Diagnosis of PTSD, alcohol abuse/depression, drug abuse/depression, anxiety disorder, mood disorder, bipolar disorder, schizophrenia, medical problem; service connection for PTSD, other psychiatric disorder, or medical disorder; psychiatric disability and medical disability	Mixed/Unclear	1
Hawkins, 2010: Recognition and management of alcohol misuse in OEF/OIF and other Veterans in the VA: a cross-sectional study ²⁹²	Mental health (substance use disorder)	12092	Quality	Treatment for alcohol misuse	No	2
			Health Outcome	Prevalence of alcohol misuse	Mixed/Unclear	2
Hawkins, 2012: Prevalence, predictors, and service utilization of patients with recurrent use of Veterans Affairs substance use disorder specialty care ²⁹³	Mental health (substance use disorder)	1640	Utilization	Utilization of substance use disorder specialty services following an index encounter	No	0
Hermes, 2012: Recent trends in the treatment of posttraumatic stress disorder and other mental disorders in the VHA ⁴⁰⁶	Mental health (PTSD)	1100564	Utilization	Utilization (mental health visits)	Mixed/Unclear	2
Jain, 2012: Do Veterans with posttraumatic stress disorder receive first-line pharmacotherapy? Results from the Longitudinal Veterans Health Survey ⁴⁰⁷	Mental health (PTSD)	972	Quality	Initiating and receiving a therapeutic trial of an SSRI/SNRI	Yes	1
Lund, 2013: Patient and Facility Characteristics	Mental health	495309	Quality	Benzodiazepine prescription	Yes	3

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Associated with Benzodiazepine Prescribing for Veterans with PTSD ³⁰⁰	(PTSD)					
Mohanty, 2015: Chronic Multisymptom Illness among Female Veterans Deployed to Iraq and Afghanistan ⁴⁰⁸	Chronic disease	78435	Quality	Diagnosis of a chronic multisymptom illness	Yes	3
Paddock, 2013: The quality of mental health care for Veterans of Operation Enduring Freedom/Operation Iraqi Freedom ⁴⁰⁹	Mental health (substance use disorder)	836699	Utilization	Utilization performance indicators	Mixed/Unclear	3
			Quality	Processes of care	No	3
Tsai, 2014: The effects of race and other socioeconomic factors on health service use among American military Veterans ²³⁵	Utilization	19270	Utilization	Utilization (outpatient, mental health)	Mixed/Unclear	2
Washington, 2013: Women Veterans' healthcare delivery preferences and use by military service era: findings from the National Survey of Women Veterans ⁴¹⁰	Women's health, Utilization	3607	Utilization	Utilization: any, VA, women's health, primary care, mental health, specialty care, regular source of care	Mixed/Unclear	0
Washington, 2016: Military generation and its relationship to mortality in women Veterans in the Women's Health Initiative ⁴¹¹	Mortality	3719	Health Outcome	All-cause mortality (baseline-2010, max of 17 years)	Mixed/Unclear	2

APPENDIX Q. HEALTH DISPARITIES AMONG LGBT VETERANS

Evidence Map. Health Disparities Among LGBT Veterans



Abbreviations: LGBT = lesbian, gay, bisexual, and transgender.

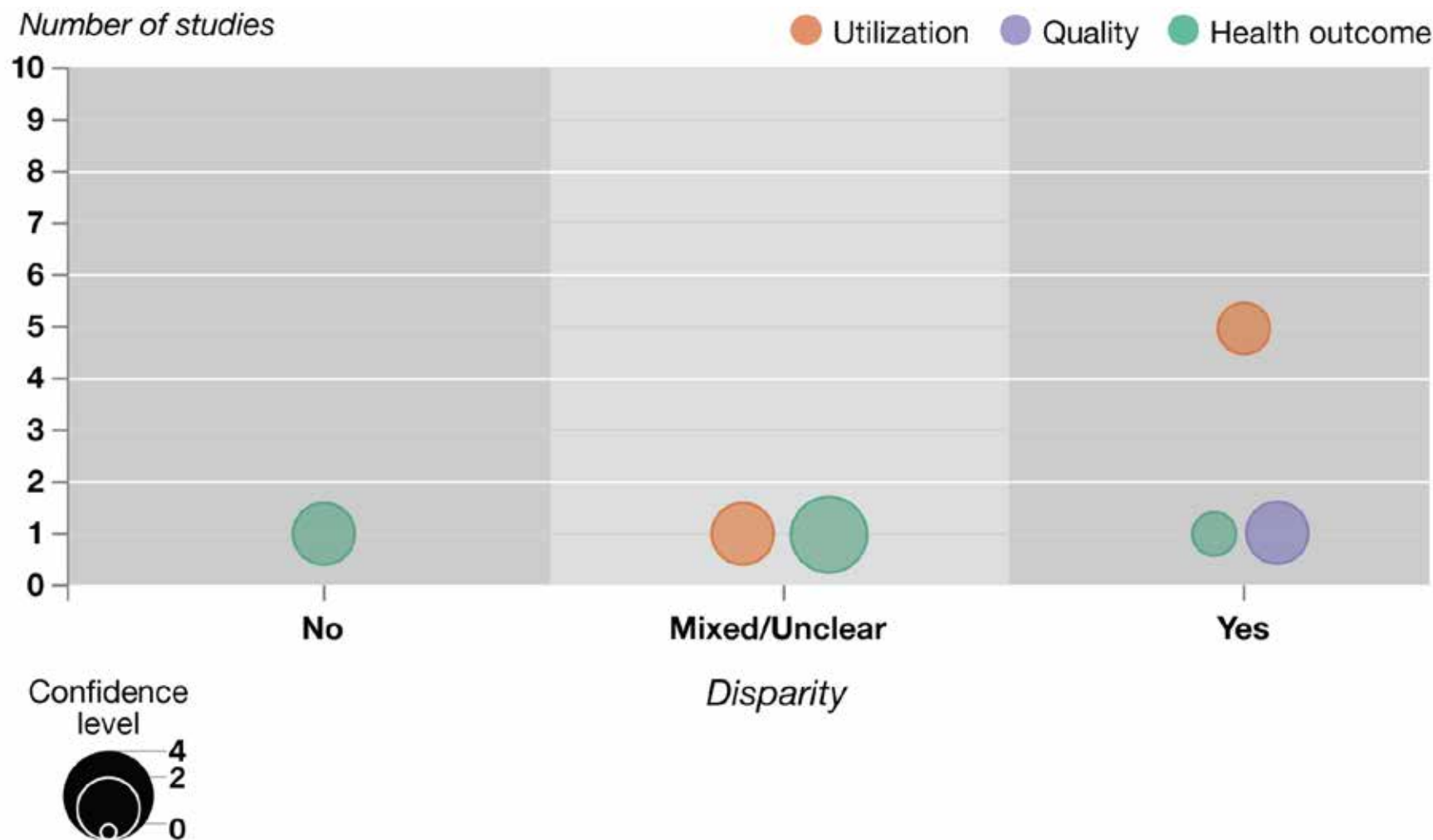
Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Table. Health Disparities Among LGBT Veterans

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Alessi, 2013: PTSD and sexual orientation: an examination of criterion A1 and non-criterion A1 events ⁴¹²	Mental health (PTSD)	38	Health Outcome	Lifetime prevalence of PTSD (DSM IV-TR criterion)	No	0
Blosnich, 2013: Health care utilization and health indicators among a national sample of U.S. Veterans in same-sex partnerships ⁴¹³	General health	13927	Utilization	VHA utilization	No	2
			Health Outcome	Health status	No	2
Blosnich, 2013: Health disparities among sexual minority women Veterans ⁴¹⁴	General health	1908	Quality	Overweight, obesity, activity limitations, poor sleep	Mixed/Unclear	1
			Health Outcome	Frequent mental distress, low satisfaction with life, >14 days poor physical health, disability requiring assistive device	Mixed/Unclear	1
Blosnich, 2013: Physical health indicators among lesbian, gay, and bisexual US Veterans ²⁶	General health	11665	Utilization	Access	No	2
			Quality	Flu shot in past 12 months, HIV test	No	2
			Health Outcome	Health-related QOL	No	2
Blosnich, 2014: Suicidality among Veterans: implications of sexual minority status ⁴¹⁵	Mental health (Suicidality)	444	Health Outcome	Suicidal ideation and attempts	Mixed/Unclear	1
Brown, 2015: Mental health and medical health disparities in 5135 transgender Veterans receiving healthcare in the Veterans Health Administration: a case-control study ²⁵	Mental health	20540	Health Outcome	Mental and physical health diagnoses	Mixed/Unclear	2
Lehavot, 2014: Examining sexual orientation disparities in alcohol misuse among women Veterans ⁴¹⁶	Mental health (substance use disorder)	699	Health Outcome	Alcohol misuse, PTSD, depressive symptoms	Yes	1
Lehavot, 2014: Trauma, posttraumatic stress disorder, and depression among sexual minority and heterosexual women Veterans ⁴¹⁷	Mental health (PTSD and Depression)	706	Health Outcome	PTSD, depression diagnoses	Mixed/Unclear	-1
Mattocks, 2013: Sexual victimization, health status, and VA healthcare utilization among lesbian and bisexual OEF/OIF Veterans ⁴¹⁸	Mental health, Utilization	335	Utilization	Utilization (medical, mental health)	No	0
			Health Outcome	Diagnosed mental health condition, patient ratings of mental health status	Mixed/Unclear	0

APPENDIX R. HEALTH DISPARITIES AMONG HOMELESS VETERANS

Evidence Map. Health Disparities Among Homeless Veterans



Legend: The bubble plot shows the number of studies identified (y-axis) that provided evidence of no disparity, mixed or unclear findings, or a disparity (x-axis) for each outcome category (utilization, quality, patient health outcomes). Quality of care studies included processes of care, intermediate outcomes, and patient evaluations of care. Bubble size represents the mean confidence score, with a range of -1 to 4.

Table. Health Disparities Among Homeless Veterans

<i>Author, Year: Title</i>	<i>Clinical area</i>	<i>Total N</i>	<i>Category</i>	<i>Outcomes</i>	<i>Disparity</i>	<i>Confidence</i>
Doran, 2013: What drives frequent emergency department use in an integrated health system? National data from the Veterans Health Administration ²⁷⁵	Utilization (ED)	5531379	Utilization	VHA ED utilization	Yes	3
Fasoli, 2010: Predisposing characteristics, enabling resources and need as predictors of utilization and clinical outcomes for Veterans receiving mental health services ²⁸⁰	Mental health (multiple)	421	Utilization	Mental health utilization (outpatient, inpatient, residential)	Mixed/Unclear	2
			Health Outcome	GAF, self-reported mental health (BASIS-24)	No	2
Gabrielian, 2014: VA health service utilization for homeless and low-income Veterans: a spotlight on the VA Supportive Housing (VASH) program in greater Los Angeles ³⁹⁹	Utilization	62459	Utilization	Differences in service utilization (primary care, hospital, mental health, specialty)	Yes	1
Irmiter, 2007: Reinstitutionalization following psychiatric discharge among VA patients with serious mental illness: a national longitudinal study ¹⁵⁸	Mental health (serious mental illness)	35527	Health Outcome	Time to reinstitutionalization/rehospitalization	Yes	1
O'Toole, 2013: New to care: demands on a health system when homeless Veterans are enrolled in a medical home model ⁴¹⁹	Utilization	233	Utilization	Utilization: primary care, mental health, specialty care, ED	Yes	0
Tsai, 2013: When health insurance is not a factor: national comparison of homeless and nonhomeless US Veterans who use Veterans Affairs Emergency Departments ⁴²⁰	Utilization, mental and physical health	930712	Utilization	ED utilization	Yes	3
			Quality	Psychotropic medication	Yes	2
			Health Outcome	Physical conditions and mental health	Mixed/Unclear	3
Zeber, 2007: Self-reported access to general medical and psychiatric care among Veterans with bipolar disorder ²⁴⁹	Mental health (Bipolar)	435	Utilization	Patient perception of access to health and mental health	Yes	0

APPENDIX S. INTERVENTIONS DESIGNED TO REDUCE DISPARITIES (KEY QUESTION 2)

Table. Studies Examining Interventions Designed to Reduce Health Disparities in Veteran Populations

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Carmody, 2013: Telephone-delivered cognitive-behavioral therapy for pain management among older military Veterans: a randomized trial ³⁹	Age – Older Adults; Trial	Pain	98	Technology: Compared Telephone-CBT with telephone-delivered pain education (T-EDU)	Intermediate or Health Outcome	Physical health, depressive symptoms, pain behavior, pain intensity, helpfulness of intervention	Y
Egede, 2015: Psychotherapy for depression in older Veterans via telemedicine: A randomised, open-label, non-inferiority trial ³⁸	Age – Older Adults; Trial	Mental health (Depression)	204	Technology: Compared the delivery of behavioral activation for depression by in home video conferencing to standard in person.	Intermediate or Health Outcome	Geriatric Depression Scale (GDS), BDI, SCID	Y
O'Toole, 2011: Building care systems to improve access for high-risk and vulnerable Veteran populations ⁴²¹	Age – Older Adults; Observational	General health (utilization)	167	System-level: Examined Population-based Patient Centered Medical Home: (1) patient-driven, focused on the patient rather than the disease; (2) team-based; (3) efficient; (4) comprehensive, whole-person oriented care; (5) continuous, with a long-term longitudinal relationship between patient and care team; (6) communication between the Veteran patient and team that is honest, respectful, reliable and culturally sensitive; and (7) coordination across all elements of the healthcare system. Population-specific tailored approach focused on having a fixed site and time of care, eliminating the need for appointments or time-scheduled care episodes.	Utilization	Utilization	Mixed/ Unclear
Zillich, 2008: Quality improvement toward decreasing high-risk medications for older Veteran outpatients ⁴²²	Age - Older Adults; Observational	Prescribing (high risk)	2753	System-level: Examined a multimethod warning system to discourage providers from prescribing high risk medications	Quality	The absence of prescriptions for high risk meds	Y

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Ottomanelli, 2013: A prospective examination of the impact of a supported employment program and employment on health-related quality of life, handicap, and disability among Veterans with SCI ⁶³	Disability; Trial	Spinal Cord Injuries	157	Patient-focused: Compared sites offering SE (integrated vocational and medical rehabilitation treatment, rapid engagement in job finding, competitive employment, inclusion regardless of severity or type of disability, ongoing job support, and focus on participant preferences) to sites offering TAU	Intermediate or Health Outcome	Health-related QOL, functional independence, handicap	Mixed/ Unclear
Belote, 2012: Patient satisfaction as a function of in-house versus contract staffing models in Veterans Affairs community-based outpatient clinics ⁴²³	Distance; Observational	General healthcare	543 CBOCs	System-level: Compared VA staffed to contract staffed CBOCs	Patient Evaluation	Patient perceptions of access, continuity of care, courtesy, education and information, emotional support, overall coordination, visit coordination, and patient preferences	Mixed/ Unclear
Desko, 2014: Evaluation of a clinical video telehealth pain management clinic ⁵⁰	Distance; Observational	Pain	39	Technology: Evaluated a clinical video telehealth pain management clinic.	Utilization	No show rate	Y
Fortney, 2007: A randomized trial of telemedicine-based collaborative care for depression ⁶⁹	Distance; Trial	Mental health (Depression)	395	Multicomponent – System-level, Technology: Compared telemedicine based collaborative care (including CBOCs based in person PCPs and an offsite telepsychiatrists, depression RN care manager, and clinical pharmacists) to usual care.	Intermediate or Health Outcome	Treatment response and remission	Y
					Patient Evaluation	Patient satisfaction	Y
					Quality	Antidepressant prescribing and adherence	Y
Knapp, 2011: Interactive internet-based clinical education: an efficient and cost-savings approach to point-of-care test training ⁴⁸	Distance; Observational	HIV (testing)	36	Technology: Online in-service teaching clinicians/technicians how to use HIV rapid test	Utilization	Amount of HIV testing 6 months before and 6 months after training	Y
Maciejewski, 2007: Utilization and expenditures of Veterans obtaining primary care in community clinics and VA medical centers: an observational cohort study ³⁷⁵	Distance; Observational	General health (utilization)	61,144	System-level: Compared outpatient and in-patient utilization of Veterans using CBOCs vs VAMCs	Utilization	Primary care utilization	Mixed/ Unclear

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Malhotra, 2014: Comparison of colorectal cancer screening in Veterans based on the location of primary care clinic ⁴²⁴	Distance; Observational	Colorectal cancer	2,837,770	System-level: Compared CBOCs to VAMCs	Quality	Type of colorectal cancer screening received	Unclear
McKellar, 2012: One-year outcomes of telephone case monitoring for patients with substance use disorder ⁴⁴	Distance; Trial	Mental health (Substance use)	667	Technology: Compared telephone case monitoring (TCM) to patients assigned to face-to-face continuing care as usual (CCAU).	Intermediate or Health Outcome	Days abstinent, psychiatric symptoms, quality of life	Y
					Patient Evaluation	Patient satisfaction	Y
Mohr, 2011: Telephone-administered cognitive behavioral therapy for Veterans served by community-based outpatient clinics ³⁵	Distance; Trial	Mental Health (Depression)	85	Technology: Compared telephone-CBT to TAU at CBOCs	Intermediate or Health Outcome	Depression severity	N
Nelson, 2012: The effect of increased travel reimbursement rates on health care utilization in the VA ⁴²⁵	Distance; Observational	General health (utilization)	192,559	System-level: Compared pre-travel reimbursement rate increase to post increase	Utilization	Types of healthcare utilization: (1) outpatient, (2) inpatient, and (3) pharmacy services	Y
Nelson, 2014: Utilization of travel reimbursement in the Veterans Health Administration ⁴²⁶	Distance; Observational	General health (utilization)	214,376	System-level: Compared pre-travel reimbursement rate increase to 2 later increases	Utilization	Utilization of reimbursement	Mixed/Unclear
Singh, 2015: Implementation and outcomes of a pharmacist-managed clinical video telehealth anticoagulation clinic ⁴⁵	Distance; Observational	Anticoagulation	38	Technology: Examined a pharmacist managed clinical video telehealth anticoagulation clinic	Intermediate or Health Outcome	International Normalized Ratio (INR), time in therapeutic range (TTR)	Y
					Patient Evaluation	Patient satisfaction	Y
Wakefield, 2014: Feasibility and effectiveness of remote, telephone-based delivery of cardiac rehabilitation ⁴⁶	Distance; Trial	CV disease	55	Technology: Compared home/telephone cardiac rehabilitation to face-to-face	Intermediate or Health Outcome	Ejection fraction, blood pressure, pulse, and lipids; weight, body mass index, medication adherence, depressive symptoms; quality of life, adverse events	Y
					Utilization	CR program completion, hospitalizations and urgent care visits	Y

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Brief, 2013: Web intervention for OEF/OIF Veterans with problem drinking and PTSD symptoms: a randomized clinical trial ⁴³	Era of Service; Trial	Mental health (Substance use, PTSD)	600	Technology: Compared online self-management intervention (VetChange) to a delayed intervention group	Intermediate or Health Outcome	Quantity & frequency of drinking (Quick Drink Screen), alcohol-related problems (Short Inventory of Problems), PTSD symptoms (PTSD-Checklist 5)	Y
Seal, 2011: Reducing barriers to mental health and social services for Iraq and Afghanistan Veterans: Outcomes of an integrated primary care clinic ⁴²⁷	Era of Service; Observational	Mental health	526	System-level: Compared integrated (primary, mental health, social services) to usual care. Integrated care (intervention): PCPs in the IC clinic conduct an health history & physical focused on deployment- and post-deployment-related medical and psychosocial problems. Following the PCP visit, patients in the IC clinic meet with a mental health provider, the "Post-Deployment Stress Specialist," and social worker, the "Combat Case Manager" who all deliver specialized services. Usual care (control): Pts receive standard health history & physical. Unless a patient screens positive for PTSD or depression or makes a specific request, patients in the UC clinic are not routinely evaluated by a psychologist or social worker on the same day as their first primary care visit.	Utilization	Same-day or within 30-day initial mental health evaluation, initial social services evaluation within 30 days, number of "follow-up" specialty mental health visit(s) within 1 year	Y
Stecker, 2014: RCT of a brief phone-based CBT intervention to improve PTSD treatment utilization by returning service members ⁴²	Era of Service; Trial	Mental Health (PTSD)	300	Technology: Compared brief phone based CBT to control.	Intermediate or Health Outcome	Perceptions about services, depression, and PTSD severity	Y
					Utilization	Treatment engagement, initiation after study and number of sessions at 1, 3, 6 months	Y
McGuire, 2009: Access to primary care for homeless Veterans with serious	Homeless/ SES; Observational	General Health	260	System-level: Compared the Mental Health Outpatient Treatment Center (MHOTC) to usual care. The MHOTC integrates	Intermediate or Health Outcome	Health status	N

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
mental illness or substance abuse: a follow-up evaluation of co-located primary care and homeless social services ⁴²⁸				homeless, primary care, and mental health services in the same building. Homeless Veterans were evaluated in a screening clinic and quickly referred to all needed services within the MHOTC building. The goal of the MHOTC was to have the initial primary care appointment occur the same day that the homeless Veteran came to the screening clinic (<i>ie</i> , the first day of arrival at the screening clinic). Case managers from the Homeless Program provided short-term case management upon entry to the MHOTC.	Utilization	Primary care enrollment	Y
McInnes, 2014: Retaining homeless Veterans in outpatient care: a pilot study of mobile phone text message appointment reminders ⁴¹	Homeless/SES; Observational	Utilization	21	Technology: Examined text message appointment reminders 5 and 2 days before scheduled appointments	Utilization	Cancelled appointments, no-shows, ED use, hospitalizations	Y
O'Toole, 2011: Building care systems to improve access for high-risk and vulnerable Veteran populations ⁴²¹	Homeless/SES; Observational	General health (utilization)	71	System-level: Examined Population-based Patient Centered Medical Home: (1) patient-driven, focused on the patient rather than the disease; (2) team-based; (3) efficient; (4) comprehensive, whole-person oriented care; (5) continuous, with a long-term longitudinal relationship between patient and care team; (6) communication between the Veteran patient and team that is honest, respectful, reliable, and culturally sensitive; and (7) coordination across all elements of the healthcare system. Population-specific tailored approach focused on having a fixed site and time of care, eliminating the need for appointments or time-scheduled care episodes.	Utilization	Utilization	Mixed/Unclear
Chrystal, 2015: Experience of primary care among homeless individuals with mental health conditions ⁴²⁹	Homeless; Observational	Primary care	366	System-level: Homeless-specific service tailoring of clinic site	Patient Evaluation	Primary care experience	Y

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Gabrielian, 2014: VA health service utilization for homeless and low-income Veterans: a spotlight on the VA Supportive Housing (VASH) program in greater Los Angeles ³⁹⁹	Homeless; Observational	General health (utilization)	62,459	System-level: Compared HUD-VASH participants to homeless Veterans. HUD-VASH is a Housing First program that offers vouchers and supportive services to mobilize homeless Veterans into community rental units.	Utilization	Utilization: outpatient, inpatient, ED, mental health, preventable hospitalizations	Y
Kertesz, 2013: Comparing homeless persons' care experiences in tailored versus nontailored primary care programs ⁴³⁰	Homeless; Observational	Primary care	601	System-level: Compared homeless-tailored to non-homeless tailored primary care	Patient Evaluation	Experience of care in clinics tailored towards homeless patients vs clinics not tailored.	Y
O'Connell, 2009: Direct placement versus multistage models of supported housing in a population of Veterans who are homeless ⁴³¹	Homeless; Observational	Mental health (general, substance use)	322	System-level: 2 models of supported housing combined with ready access to rent subsidies: Direct placement housing vs multistage housing	Intermediate or Health Outcome	Psychiatric symptoms, alcohol and drug use, social support, and quality of life	N
					Utilization	Service utilization & cost	Y
O'Connell, 2012: Differential impact of supported housing on selected subgroups of homeless Veterans with substance abuse histories ³⁶	Homeless; Trial	Mental Health	259	System-level: Compared U.S. Department of Housing and Urban Development–Veterans Affairs Supported Housing (HUD-VASH) to intensive case management (ICM) or usual care.	Intermediate or Health Outcome	Health-related QOL, drug and alcohol use, psychotic symptom severity,	Mixed/Unclear
O'Toole, 2010: Applying the chronic care model to homeless Veterans of a population approach to primary care on utilization and clinical outcomes ⁴³²	Homeless; Observational	Primary care	177	System-level: Compared homeless-oriented primary care clinics to general internal medicine clinics	Intermediate or Health Outcome	Blood pressure, HbA1c LDL for hyperlipidemia	Y
					Utilization	Primary care visits, ED, hospitalizations	Y
O'Toole, 2015: Tailoring outreach efforts to increase primary care use among homeless Veterans: results of a randomized controlled trial ⁵⁶	Homeless; Trial	General health (utilization)	185	Patient-focused: Four arms – compared a personal health assessment (PHA) and brief (MI) intervention (BI) to a clinic orientation to PHA/BI + clinic orientation to usual care	Utilization	Primary care, mental health, specialty care visits	Y
Smelson, 2013: A wraparound treatment engagement intervention	Homeless; Trial	Mental health (substance use)	333	Multicomponent – System-level, Patient-focused: Compared Maintaining Independence and Sobriety through	Intermediate or Health Outcome	Behavioral health outcomes, substance use	Mixed/Unclear

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
for homeless Veterans with co-occurring disorders ⁶⁸				Systems Integration, Outreach, and Networking (MISSION) to usual care. MISSION is a low-intensity wrap-around intervention that engages homeless Veterans with co-occurring disorders in care. MISSION consisted of 4 components: 1) integrated mental health & SUDs treatment, 2) case management, 3) peer support, and 4) vocational support.	Utilization	Treatment engagement, rehospitalization	Y
Winn, 2013: Housing assistance and case management: improving access to substance use disorder treatment for homeless Veterans ⁵⁹	Homeless; Observational	Mental health (Substance use)	211	Patient-focused: Compared Transitional Supportive Housing and Case Management (TSH-CM) to early-recovery therapy group (ERG). TSH-CM is an intervention for Veterans on the waiting list for intensive outpatient addiction treatment. A case manager met with homeless Veterans, created integrated diagnostic summaries, and connected Veterans to local community partners for housing. ERG provided group support while waitlisted and a nurse practitioner to provide medication management services.	Utilization	Percentage of Veterans admitted to treatment	Y
Kilbourne, 2011: Does colocated care improve access to cardiometabolic screening for patients with serious mental illness? ⁴³³	Mental Health; Observational	Primary care	40,600	System-level: Compared colocated (mental health/general health) to non-colocated clinics	Quality	Receipt of screening for cardiometabolic factors (lipids, glucose, BMI, blood pressure)	Y
Kilbourne, 2011: Quality of general medical care among patients with serious mental illness: does colocation of services matter? ⁴³⁴	Mental Health; Observational	Primary care	7514	System-level: Compared colocated (mental health/general health) to non-colocated clinics	Quality	Completion of preventive care, adequacy of hypertension/lipid/diabetes care; EPRP quality indicators for common processes of care	Mixed/Unclear

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Kilbourne, 2013: Randomized controlled trial to assess reduction of cardiovascular disease risk in patients with bipolar disorder: the Self-Management Addressing Heart Risk Trial (SMAHRT) ⁶¹	Mental Health; Trial	Cardiovascular disease	118	Patient-focused: Compared Life Goals Collaborative Care (LGCC; based on the Chronic Care Model but places an emphasis on self-management through targeted health behavior change strategies to address the psychosocial origins of CVD risk factors) to enhanced usual care	Intermediate or Health Outcome	Primary = systolic and diastolic blood pressure, non-fasting total cholesterol, and physical health-related quality of life. Secondary = non-fasting high-density lipoprotein levels (HDLs), and direct low-density lipoprotein levels (LDLs), weight, including body mass index (BMI), waist circumference, Framingham risk score, mental health-related quality of life based on the SF-12, functioning, and psychiatric symptoms.	Y
McFall, 2010: Integrating tobacco cessation into mental health care for posttraumatic stress disorder: a randomized controlled trial ³⁷	Mental Health; Trial	Smoking	943	System-level: Compared smoking cessation integrated into mental health vs referral to a smoking cessation clinic. Control: Smoking cessation clinic, which was a referral to specialized cessation clinics at each site and represented the usual standard of care within the VA.	Intermediate or Health Outcome	Smoking cessation: 12-month bioverified prolonged abstinence (primary outcome) and 7- and 30-day point prevalence abstinence assessed at 3-month intervals Other outcomes: PTSD severity (CAPS, PTSD checklist), depression (PHQ-9)	Y
McKellar, 2012: One-year outcomes of telephone case monitoring for patients with substance use disorder ⁴⁴	Mental Health; Trial	Mental health (Substance use)	667	Technology: Compared telephone case monitoring (TCM) to patients assigned to face-to-face continuing care as usual (CCAU)	Intermediate or Health Outcome	Days abstinent, psychiatric symptoms, quality of life	Y
					Patient Evaluation	Patient satisfaction	Y

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
O'Toole, 2011: Building care systems to improve access for high-risk and vulnerable Veteran populations ⁴²¹	Mental Health; Observational	General health (utilization)	74	System-level: Examined Population-based Patient Centered Medical Home: (1) patient-driven, focused on the patient rather than the disease; (2) team-based; (3) efficient; (4) comprehensive, whole-person oriented care; (5) continuous, with a long-term longitudinal relationship between patient and care team; (6) communication between the Veteran patient and team that is honest, respectful, reliable, and culturally sensitive; and (7) coordination across all elements of the healthcare system. Population-specific tailored approach focused on having a fixed site and time of care, eliminating the need for appointments or time-scheduled care episodes.	Utilization	Utilization	Mixed/Unclear
Pirraglia, 2011: Colocated general medical care and preventable hospital admissions for Veterans with serious mental illness ⁴³⁵	Mental Health; Observational	Primary care	92,268	System-level: Compared colocated (mental health/general health) to non-colocated clinics	Utilization	Hospitalizations for ambulatory care-sensitive conditions	Y
Pomerantz, 2008: Improving efficiency and access to mental health care: combining integrated care and advanced access ⁴³⁶	Mental Health; Observational	Mental health (utilization)	987	System-level: Redesigned system to better integrate mental health into primary care (ie, Primary Mental Health Clinic (PMHC)). The PMHC is based on the following principles: 1) Clinic Mental health providers should be part of the primary care team to assure easy access to assessment and treatment. 2) Care should be flexible to meet the needs of providers and patients. 3) Access to care should be immediate, with no scheduled appointments. 4) Most patients should be able to receive all the mental health care they need without referral into more comprehensive care.	Patient Evaluation	Patient satisfaction	Y
					Utilization	Wait time, patients coming to first appointment, referrals to specialty care, loss of productivity (cancellations and no-shows), number of patients seen	Y
Szymanski, 2013: Integrated care: treatment initiation following positive depression screens ⁴³⁷	Mental Health; Observational	Mental Health (Depression)	36,263	System-level: Compared receiving integrated primary care-mental health services on the same day as a depression diagnosis was associated with initiation of depression treatment as compared to receiving just primary care services alone	Utilization	Initiation of depression treatment	Y

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Turchik, 2014: Preferences for gender-targeted health information: a study of male Veterans who have experienced military sexual trauma ³⁴	Mental Health; Trial	Mental Health (Military Sexual Trauma)	173	Patient-focused: Compared gender-neutral or gender-targeted psychoeducational information on MST, or information on an unrelated topic (influenza vaccination), in the mail	Utilization	Mental health utilization	N
Allen, 2011: Tailoring coping skills training for African Americans with osteoarthritis ⁶⁶	Race (AA/Black); Observational	Osteoarthritis	30	Multicomponent – Patient-focused, Technology: Examined Coping Skills Training: one in-person session and 9 weekly telephone calls. Intervention sessions involved teaching coping skills (eg, cognitive restructuring, relaxation, imagery, and activity pacing) and providing guidance for home practice and use of coping skills during daily life situations	Intermediate or Health Outcome	Pain and functioning (assessed using Arthritis Impact Measurement Scales-2, Arthritis Self-Efficacy Scale, and Coping Strategies Questionnaire)	Y
Houston, 2016: Using stories to address disparities in hypertension ⁶⁰	Race (AA/Black); Trial	Cardiovascular	618	Patient-focused: 2-arm, randomized control trial to improve HTN control, comparing the "Stories" DVD with a control didactic, non-narrative educational DVD	Intermediate or Health Outcome	SBP, BP difference	Y
Ibrahim, 2013: Willingness and access to joint replacement among African American patients with knee osteoarthritis: a randomized, controlled intervention ⁶⁴	Race (AA/Black); Trial	Orthopedic	639	Patient-focused: Compared 1) a decision aid, 2) motivational interviewing, and 3) a decision aid + motivational interviewing to 4) attention control	Patient Factors	Changes in patient willingness; knowledge and expectations of TKR, discussions of knee pain with PCP, referral to an orthopedic clinic, or saw an orthopedic surgeon.	Y
					Quality	Referral to an orthopedic clinic, or saw an orthopedic surgeon	Y
					Utilization	Attend an orthopedic surgery consult	Y
Kressin, 2016: A brief, multifaceted, generic intervention to improve blood pressure control and reduce disparities had little effect ⁶⁷	Race (AA/Black); Observational	Cardiovascular	8,866	Multicomponent – System-level, Provider-focused: Compared 1) EMR reminder to 2) EMR reminder plus provider training on patient centered related to medication adherence and hypertension care to 3) usual care	Intermediate or Health Outcome	Blood pressure	Mixed
					Quality	Medication adherence, patient provider interaction	Mixed

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Long, 2012: Peer mentoring and financial incentives to improve glucose control in African American Veterans: a randomized trial ⁶²	Race (AA/Black); Trial	Diabetes	117	Patient-focused: Compared 1) peer mentoring, 2) a financial incentive to 3) usual care for HbA1c control	Intermediate or Health Outcome	HbA1c	Y
Petersen, 2016: Impact of a pay-for-performance program on care for black patients with hypertension: important answers in the era of the Affordable Care Act ⁵²	Race (AA/Black); Trial	Cardiovascular	67	Provider-focused: Compared 3 types of financial incentives (1) physician-level (individual) incentives; (2) practice-level incentives; (3) physician- and practice-level (combined) incentives to (4) no incentives (control)	Intermediate or Health Outcome	The proportion of patients who achieved blood pressure control or received an appropriate response to uncontrolled blood pressure	Y
Weng, 2007: Development of a decision aid to address racial disparities in utilization of knee replacement surgery ⁶⁵	Race (AA/Black); Observational	Osteoarthritis	64	Patient-focused: Evaluated an educational videotape and tailored TKR decision aid designed to reduce disparities in TKR knowledge and expectations	Patient Factors	Change in expectations about postoperative TKR pain and change in expectations about postoperative TKR physical function, decision readiness, willingness to consider TKR	Y
Shore, 2008: Acceptability of telepsychiatry in American Indians ⁴⁰	Race (AI/AN); Trial	Mental health	53	Technology: Compared the administration of the SCID in person to interactive video conferencing	Patient Evaluation	Patient satisfaction	Y
Davis, 2014: Teleneurology: successful delivery of chronic neurologic care to 354 patients living remotely in a rural state ⁵¹	Rural; Observational	Neurology	354	Technology: Neuro telemedicine visits at CBOCs vs in-clinic visits at urban centers for rural Veterans	Intermediate or Health Outcome	Number of neuro-condition-related ER visits	Y
					Utilization	No show rate	Y
Fortney, 2015: Telemedicine-based collaborative care for posttraumatic stress disorder: a randomized clinical trial ⁴³⁸	Rural; Trial	Mental health (PTSD)	265	Technology: Compared telemedicine PTSD cognitive processing therapy (i.e., telephone, interactive video, and shared electronic medical records) to usual care.	Intermediate or Health Outcome	PTSD severity, depression severity, health-related QOL	Y
					Quality	Medication adherence	Y
Hilgeman, 2014: Alabama Veterans Rural Health Initiative: a pilot study of enhanced community outreach in rural areas ⁵⁸	Rural; Trial	General health (utilization)	203	Patient-focused: Compared enhanced enrollment and engagement outreach (EEE = motivational interview, education, and patient navigation) to administrative outreach (AO = VHA enrollment document package without education, patient navigation, or motivational interview)	Utilization	VA appointment dates	Y

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Mahaney-Price, 2014: Enabling advance directive completion by rural Alabama Veterans: a pilot study ⁵⁷	Rural; Trial	General health (end of life)	50	Patient-focused: Compared Nurse-Supported Advance Care Planning Intervention (a manualized education, support, and guidance session provided by a RN that included information about risks, benefits, and alternatives of specific choices) to usual care (informational session with a social worker).	Patient factors	Veterans' satisfaction with the intervention	Y
					Quality	Advance Directive completion rates	Y
McFarland, 2012: Implementation of an education and skills programme in a teledermatology project for rural Veterans ⁵⁵	Rural; Observational	Dermatology	94	Multicomponent - Provider-focused, Technology: Examined a teledermatology project providing co-managed care and a continuing education programme to improve access to dermatology care for rural Veterans. After 2 years of educational programmes, more primary care providers were competent to perform basic dermatology procedures and diagnose uncomplicated conditions.	Utilization	Patient referrals for dermatology care	Y
Mohamed, 2013: Adaptation of intensive mental health intensive case management to rural communities in the Veterans Health Administration ⁴³⁹	Rural; Observational	Mental health (general)	3,420	System-level: Compared Rural Access Networks for Growth Enhancement (RANGE) to Mental Health Intensive Case Management (MHICM)	Intermediate or Health Outcome	MH outcomes (SI etc.)	Mixed
					Patient Evaluation	Overall satisfaction	Y
					Utilization	Service delivery/quality: face-to-face treatment intensity; receiving rehabilitation services; crisis intervention; substance abuse treatment	Y
Morland, 2010: Telemedicine for anger management therapy in a rural population of combat Veterans with posttraumatic stress disorder: a randomized noninferiority trial ⁴⁴⁰	Rural; Trial	Mental health (PTSD)	125	Technology: Compared group CBT-based anger management therapy delivered in person or via video conferencing	Intermediate or Health Outcome	PTSD symptoms (anger)	Y
					Quality	Processes, alliance	Y
Morland, 2014: Cognitive processing therapy for posttraumatic stress disorder delivered to rural Veterans via telemental	Rural; Trial	Mental Health (PTSD)	125	Technology: Compared cognitive processing therapy-cognitive only version (CPT-C) delivered via videoteleconferencing (VTC) to in person CPT-C	Intermediate or Health Outcome	PTSD symptoms	Y
					Patient Evaluation	Patient satisfaction	Y

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
health: a randomized noninferiority clinical trial ⁴⁴¹					Patient factors	Therapeutic alliance, treatment expectancies	Y
					Quality	Treatment compliance	Y
Nelson, 2012: The effect of increased travel reimbursement rates on health care utilization in the VA ⁴²⁵	Rural; Observational	General health (utilization)	192,559	System-level: Compared pre-travel reimbursement rate increase to post increase	utilization	Types of healthcare utilization: (1) outpatient, (2) inpatient, and (3) pharmacy services	Y
Nelson, 2014: Utilization of travel reimbursement in the Veterans Health Administration ⁴²⁶	Rural; Observational	General health (utilization)	214,376	System-level: Compared pre-travel reimbursement rate increase to 2 later increases	Utilization	Utilization of reimbursement	Mixed/Unclear
Ohl, 2013: Mixed-methods evaluation of a telehealth collaborative care program for persons with HIV infection in a rural setting ⁴⁷	Rural; Observational	HIV (management)	25	Technology: Evaluated a telehealth collaborative care (TCC) program for persons with HIV in a rural areas	Quality	Veterans Affairs (VA) healthcare system performance measures for care for HIV infection and common comorbidities, patient travel time to obtain care, and patient satisfaction.	Y
Tan, 2013: Improving access to care for women Veterans suffering from chronic pain and depression associated with trauma ⁴⁹	Rural; Observational	Comorbid chronic pain & depression/PTSD	34	Technology: Examined combined biofeedback training and education/support group therapy delivered via videoteleconferencing.	Intermediate or Health Outcome	Symptoms of pain, depression, PTSD, sleep disturbance as well as acceptability of treatment	Y
Turner, 2012: A pilot trial of neuropsychological evaluations conducted via telemedicine in the Veterans Health Administration ⁴⁴²	Rural; Trial	Neuropsychology	15	Technology: Compared telemedicine to in-person neuropsychological evaluations	Quality	Patient preferences, diagnoses, follow-up	Y
Bastian, 2014: Association between women Veterans' experiences with VA outpatient health care and designation as a women's health provider in primary care clinics ⁴⁴³	Women; Observational	Primary care	3,147	System-level: Compared designated women's health providers (DWHP) to non-DWHPs	Patient Evaluation	Patient experience	Y

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Fox, 2016: Effectiveness of an evidence-based quality improvement approach to cultural competence training: the Veterans Affairs' "Caring for Women Veterans" program ⁵⁴	Women; Trial	General healthcare	84	Provider-focused: Compared a local adapted evidence-based quality improvement (EBQI) version of the Caring for Women Veterans provider training to the standard implementation (SI) arm	Quality	Gender sensitivity & knowledge scales	Y
Gray, 2015: Gynecologists in the VA: do they enhance availability of sex-specific services and policies in the emergency department? ⁴⁴⁴	Women; Observational	Women's Health	120	System-level: Compared EDs with $\geq .5$ to $< .5$ gynecologist FTE	Utilization	Availability of sex-specific ED services, availability of gynecology services (on-site ED gynecology consultations and gynecologist follow-up within VA), sex specific pharmaceutical interventions [emergency contraception and rho (D) immunoglobulin], sex-specific radiology services (pelvic ultrasound by a licensed technician or radiologist), and the presence of transfer policies for obstetric and gynecologic emergencies.	Y
O'Toole, 2011: Building care systems to improve access for high-risk and vulnerable Veteran populations ⁴²¹	Women; Observational	General health (utilization)	145	System-level: Examined Population-based Patient Centered Medical Home: (1) patient-driven, focused on the patient rather than the disease; (2) team-based; (3) efficient; (4) comprehensive, whole-person oriented care; (5) continuous, with a long-term longitudinal relationship between patient and care team; (6) communication between the Veteran patient and team that is honest, respectful, reliable and culturally sensitive; and (7) coordination across all elements of the healthcare system. Population-specific tailored approach focused on having a fixed site and time of care, eliminating the need for appointments or time-scheduled care episodes.	Utilization	Utilization	Y

Author, Year: Title	Disparity Population; Study Design	Clinical Area	Total N	Type of Intervention: Description of Intervention/Comparator	Outcome Category	Outcomes	Were findings equivalent or positive?
Sambamoorthi, 2010: Organization of care and diagnosed depression among women Veterans ⁴⁴⁵	Women; Observational	Mental health (Depression)	27,972	System-level: Integrated mental health in women's primary care clinics	Intermediate or Health Outcome	Diagnosed depression	Y
Vogt, 2008: Toward gender-aware health care: evaluation of an intervention to enhance care for female patients in the VA setting ⁵³	Women; Trial	General healthcare	158	Provider-focused: Compared a 30-minute computerized educational program targeting deficits in the gender awareness domains of gender-role ideology, sensitivity, and knowledge to a program on managing stress in the workplace (control).	Quality	Gender-awareness inventory-VA which included gender-role ideology, sensitivity, and knowledge domains.	Mixed
Washington, 2011: Tailoring VA primary care to women Veterans: association with patient-rated quality and satisfaction ⁴⁴⁶	Women; Observational	Primary care	1,749	System-level: Compared VAMCs and CBOCs where there are designated primary care providers for women and/or comprehensive women's health centers (adopter sites) to sites with primary care providers for women or comprehensive women's health centers.	Patient Evaluation	Gender-related satisfaction, gender appropriateness, perceptions of VA provider skills, quality of care	Mixed

APPENDIX T. STUDIES CLASSIFYING RACIAL/ETHNIC MINORITIES AS NON-WHITE

1. Bullock KC, Edwards KL, Greene RS, Shah SR, Blaszczyk AT. Race as a factor for intensification of diabetes medications. *Diabetes Educ.* 2013;39(3):335-343.
2. Burnett-Zeigler I, Zivin K, Ilgen MA, Islam K, Bohnert ASB. Perceptions of quality of health care among Veterans with psychiatric disorders. *Psychiatr Serv.* 2011;62(9):1054-1059.
3. Cheng EM, Siderowf AD, Swartztrauber K, et al Disparities of care in Veterans with Parkinson's disease. *Parkinsonism Relat Disord.* 2008;14(1):8-14.
4. Davis TD, Deen TL, Fortney JC, Sullivan G, Hudson TJ. Utilization of VA mental health and primary care services among Iraq and Afghanistan Veterans with depression: the influence of gender and ethnicity status. *Mil Med.* 2014;179(5):515-520.
5. Duggal M, Goulet JL, Womack J, et al Comparison of outpatient health care utilization among returning women and men Veterans from Afghanistan and Iraq. *BMC Health Serv Res.* 2010;10:175.
6. Fasoli DR, Glickman ME, Eisen SV. Predisposing characteristics, enabling resources and need as predictors of utilization and clinical outcomes for Veterans receiving mental health services. *Med Care.* 2010;48(4):288-295.
7. Partin MR, Noorbaloochi S, Grill J, et al The interrelationships between and contributions of background, cognitive, and environmental factors to colorectal cancer screening adherence. *Cancer Causes Control.* 2010;21(9):1357-1368.
8. Runnals JJ, Van Voorhees E, Robbins AT, et al Self-reported pain complaints among Afghanistan/Iraq era men and women Veterans with comorbid posttraumatic stress disorder and major depressive disorder. *Pain Med.* 2013;14(10):1529-1533.
9. Seyfried LS, Kales HC, Ignacio RV, Conwell Y, Valenstein M. Predictors of suicide in patients with dementia. *Alzheimers Dement.* 2011;7(6):567-573.
10. van Ryn M, Phelan SM, Arora NK, et al Patient-reported quality of supportive care among patients with colorectal cancer in the Veterans Affairs Health Care System. *J Clin Oncol.* 2014;32(8):809-815.
11. Washington DL, Bean-Mayberry B, Riopelle D, Yano EM. Access to care for women Veterans: delayed healthcare and unmet need. *J Gen Intern Med.* 2011;26(Suppl 2):655-661.