Evidence Synthesis Program

VA versus Non-VA Quality of Care: A Living Systematic Review

Updated October 2024

U.S. Department of Veterans Affairs
Veterans Health Administration
Health Systems Research

Recommended citation: Shekelle P, Miake-Lye I, Begashaw M, et al. VA versus Non-VA Quality of Care: A Living Systematic Review. Washington, DC: Evidence Synthesis Program, Health Systems Research, Office of Research and Development, Department of Veterans Affairs. VA ESP Project #05-226; 2024.

AUTHORS

Author roles, affiliations, and contributions (using the CRediT taxonomy) are listed below.

Author	Role and Affiliation	Report Contribution
Paul Shekelle, MD, PhD, MPH*	Co-Director, VA Greater Los Angeles Evidence Synthesis Program (ESP) Center Los Angeles, CA	Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing
Isomi Miake-Lye, PhD, MPH*	Co-Director, VA Greater Los Angeles Evidence Synthesis Program (ESP) Center Los Angeles, CA	Conceptualization, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing
Meron Begashaw, MPH*	Project Coordinator, VA Greater Los Angeles ESP Center Los Angeles, CA	Data curation, Project administration, Software, Validation, Visualization, Writing – original draft, Writing – review & editing
Melinda Maggard-Gibbons, MD	Staff Surgeon, VA Greater Los Angeles Assistant Professor, Surgery UCLA School of Medicine Los Angeles, CA	Conceptualization, Formal analysis, Investigation, Methodology, Supervision, Validation, Writing – original draft, Writing – review & editing
Mariah Blegen, MD	Research Fellow, VA Greater Los Angeles Fellow, National Clinician Scholars Program, UCLA Los Angeles, CA	Conceptualization, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing
Eric Apaydin, PhD, MPP, MS	Core Investigator, Center for the Study of Healthcare Innovation, Implementation and Policy, VA Greater Los Angeles Los Angeles, CA	Conceptualization, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing
Neil Paige, MD, MSHS	Staff Physician, VA Greater Los Angeles Los Angeles, CA	Conceptualization, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing
Jamie Ko, MPH	Research Associate on Surgical Team, VA Greater Los Angeles ESP Center Resident in Department of Surgery, David Geffen School of Medicine at UCLA Los Angeles, CA	Conceptualization, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing
Jesus Ulloa, MD, MBA, MSHPM	Staff Physician, Vascular Surgery, VA Greater Los Angeles Assistant Clinical Professor, Health Sciences, David Geffen School of Medicine, UCLA Los Angeles, CA	Conceptualization, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing

Author	Role and Affiliation	Report Contribution
Garrett Salzman, MD, MS	Resident in Department of Surgery, David Geffen School of Medicine at UCLA Los Angeles, CA	Conceptualization, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing
Mark D. Girgis, MD	Staff Surgeon, VA Greater Los Angeles Assistant Professor of Surgery, UCLA Los Angeles, CA	Conceptualization, Investigation, Methodology, Supervision, Validation
Emily Lawson, MSLIS, AHIP*	Research and Consulting Librarian, RAND Corporation Santa Monica, CA	Data curation

Notes. *Authors who contributed to the current October 2024 update.

PREFACE

The VA Evidence Synthesis Program (ESP) was established in 2007 to conduct timely, rigorous, and independent systematic reviews to support VA clinicians, program leadership, and policymakers improve the health of Veterans. ESP reviews have been used to develop evidence-informed clinical policies, practice guidelines, and performance measures; to guide implementation of programs and services that improve Veterans' health and wellbeing; and to set the direction of research to close important evidence gaps. Four ESP Centers are located across the US. Centers are led by recognized experts in evidence synthesis, often with roles as practicing VA clinicians. The Coordinating Center, located in Portland, Oregon, manages program operations, ensures methodological consistency and quality of products, engages with stakeholders, and addresses urgent evidence synthesis needs.

Nominations of review topics are solicited several times each year and submitted via the ESP website. Topics are selected based on the availability of relevant evidence and the likelihood that a review on the topic would be feasible and have broad utility across the VA system. If selected, topics are refined with input from Operational Partners (below), ESP staff, and additional subject matter experts. Draft ESP reviews undergo external peer review to ensure they are methodologically sound, unbiased, and include all important evidence on the topic. Peer reviewers must disclose any relevant financial or non-financial conflicts of interest. In seeking broad expertise and perspectives during review development, conflicting viewpoints are common and often result in productive scientific discourse that improves the relevance and rigor of the review. The ESP works to balance divergent views and to manage or mitigate potential conflicts of interest.

ACKNOWLEDGMENTS

The authors are grateful to the following individuals for their contributions to this project:

Operational Partners

Operational partners are system-level stakeholders who help ensure relevance of the review topic to the VA, contribute to the development of and approve final project scope and timeframe for completion, provide feedback on the draft report, and provide consultation on strategies for dissemination of the report to the field and relevant groups.

Amy Kilbourne, PhD, MPH
Director of VA Health Systems Research
Veterans Health Administration (VHA)

Gerard Cox, MD, MHA
Assistant Under Secretary for Health for Quality and Patient Safety
VHA

Kristin Cunningham, PMP
Executive Officer to the Deputy Under Secretary for Health for Community Care
VHA

Julianne Flynn, MD
Acting Deputy to the Assistant Under Secretary for Health for Office of Community Care Performing the Delegable Duties to the Assistant Under Secretary for Health Office of Community Care
VHA
Chief of Staff
VA South Texas Health Care

Executive Summary

KEY FINDINGS

- This report updates an earlier review of evidence on the quality of VA care compared with non-VA care available through October 2024. Six additional studies published through October 2024 were included in this update, bringing the total number of relevant studies published since 2015 to 69 (24 of surgical care, 50 of non-surgical care, and 5 of both).
- Most available studies have found that the quality and safety of VA care is as good as, or better than, care in the community.
- Fewer studies have examined access to care, patient experience, and efficiency/cost of care. Findings from available studies are mixed but tend to favor VA care.

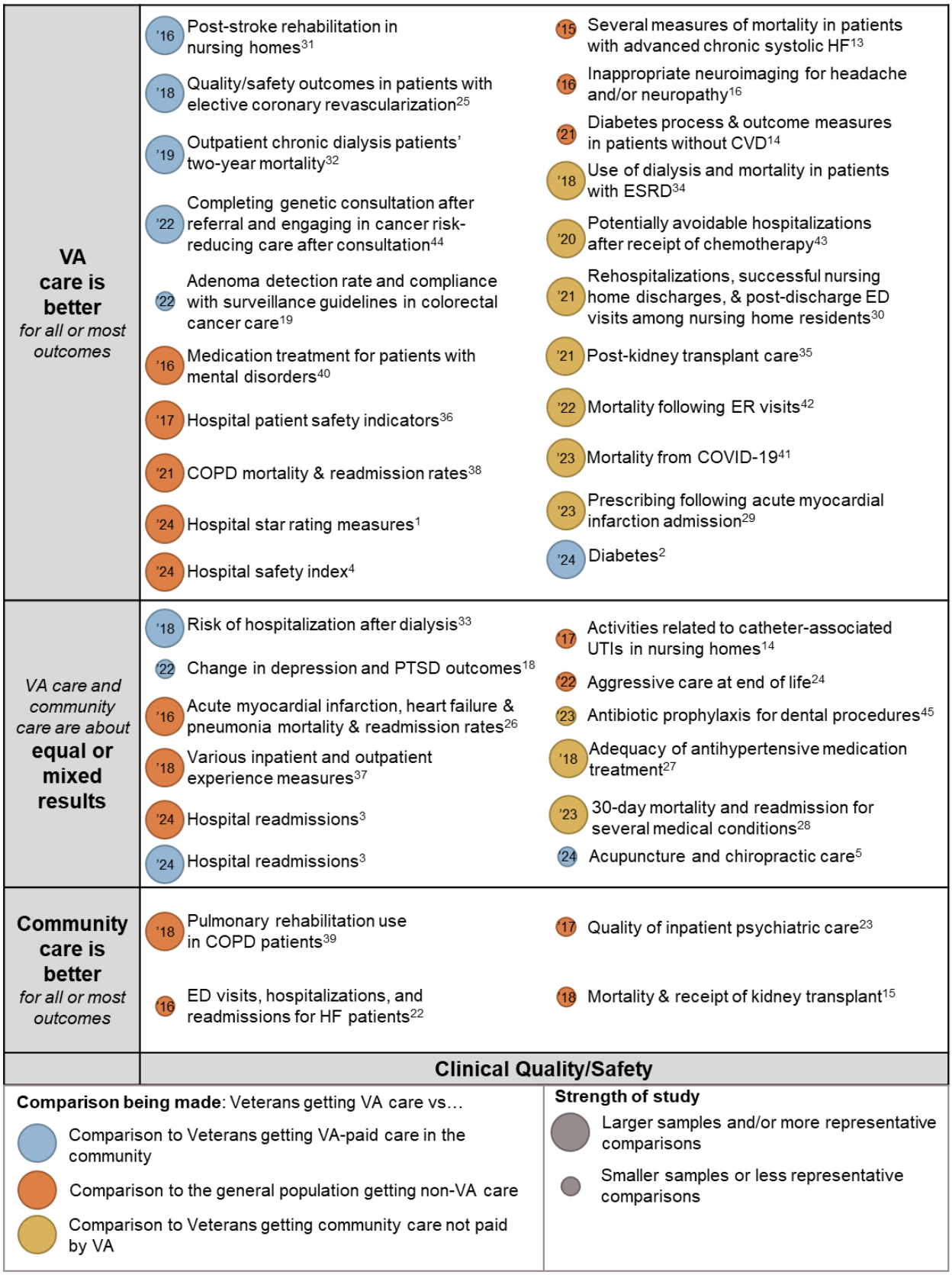
The Department of Veterans Affairs (VA) Veterans Health Administration (VHA) is the nation's largest integrated health care system. Comparing the quality of VA-delivered health care to care delivered in non-VA settings is one way of ensuring VA maintains its commitment to providing high-quality care to Veterans. To support this aim, the VA's Evidence Synthesis Program (ESP) maintains a living systematic review of studies comparing the quality of VA and non-VA health care, which is frequently updated with the most recently available evidence.

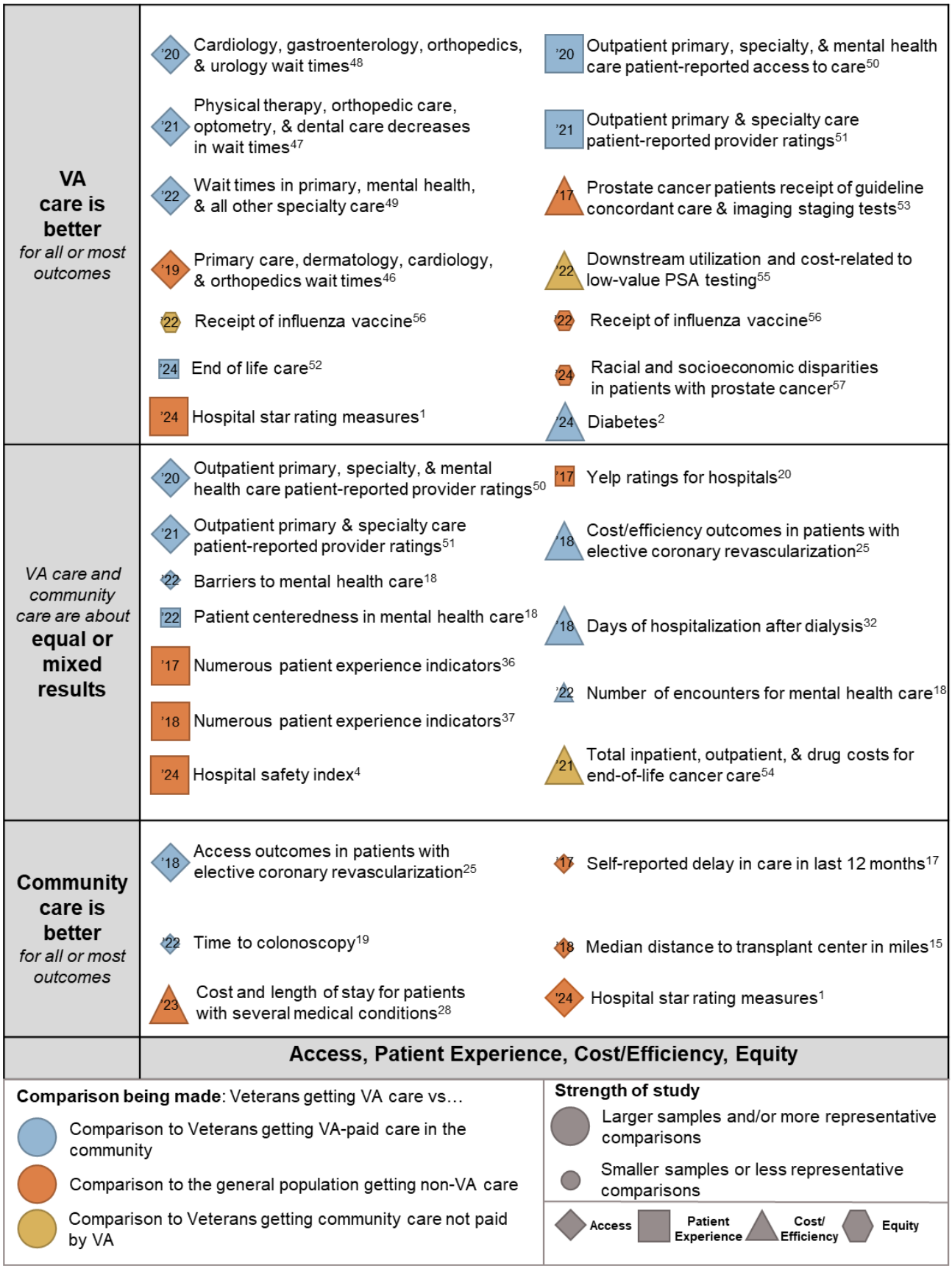
CURRENT REVIEW

To identify relevant studies, a research librarian conducted broad searches using terms relating to *Veterans health* and *community health services* or *private sector* in PubMed, APA PsycINFO, and Web of Science databases (1/1/2015–11/14/2024). Studies were included at either the abstract or the full-text level if they were original research studies of any design and made comparisons about the quality of care provided in VA Medical Centers and outpatient clinics compared with care provided in other health systems, *ie*, the general population. We included outcomes in any Institute of Medicine health care domain (clinical quality, safety, efficiency/cost, access, patient experience, or equity). Data were collected by 2 reviewers working independently, with any disagreements resolved by consensus.

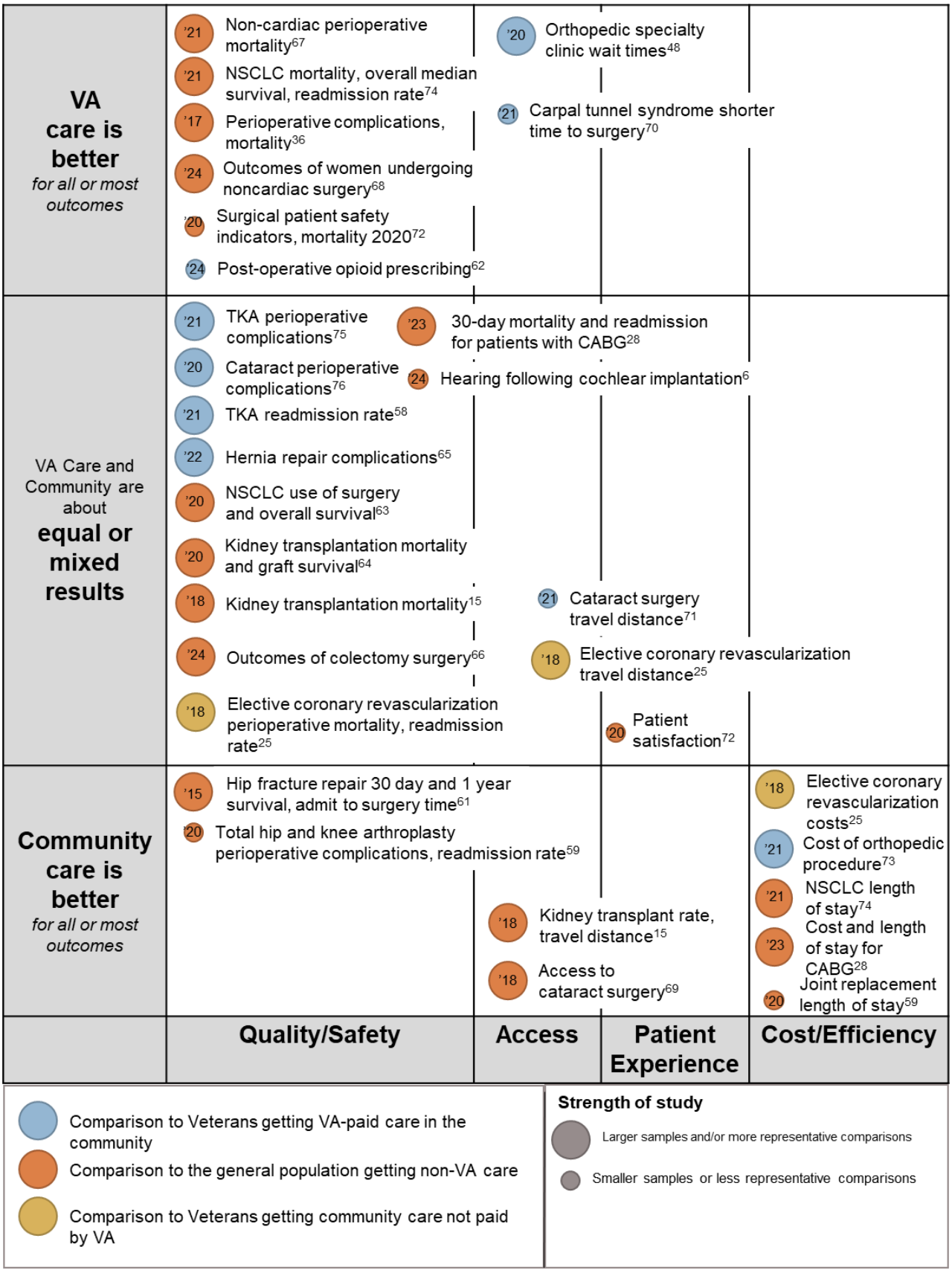
From 2,911 titles, we identified 50 studies of non-surgical care meeting inclusion criteria. From 2,984 titles, we identified 24 studies of surgical care meeting inclusion criteria. Five studies contributed data to both. Characteristics and findings of included studies are summarized in the figures below. In each plot, the domains of care are listed on the horizontal axis (quality/safety, access, patient experience, cost/efficiency, equity), the results of the study are listed on the vertical axis (VA care is better than community care, VA care and community care are about equal, or results are mixed, and community care is better than VA care), and then each study is entered as a shape, with larger shapes being studies of better quality and representativeness than studies depicted by smaller shapes. The color of the shape indicates the type of comparison: blue for studies comparing Veterans getting care from VA to Veterans getting VA-paid care in the community; orange for studies comparing Veterans getting care from VA and non-Veterans, or a general population, getting care in the community; and yellow for studies comparing Veterans getting care from VA to Veterans getting community care not paid by VA. Next to each shape is a brief thumbnail of what the study was about, and inside the shape is the year of publication (’18 = 2018, ’19 = 2019, *etc*).

ES Figure 1. Evidence Map of Studies on the Quality of Non-Surgical Care




VA care is better for all or most outcomes
'20 Cardiology, gastroenterology, orthopedics, & urology wait times[48]
'21 Physical therapy, orthopedic care, optometry, & dental care decreases in wait times[47]
'22 Wait times in primary, mental health, & all other specialty care[49]
'19 Primary care, dermatology, cardiology, & orthopedics wait times[46]
'22 Receipt of influenza vaccine[56]
'24 End of life care[52]
'24 Hospital star rating measures[1]
'20 Outpatient primary, specialty, & mental health care patient-reported access to care[50]
'21 Outpatient primary & specialty care patient-reported provider ratings[51]
'17 Prostate cancer patients receipt of guideline concordant care & imaging staging tests[53]
'22 Downstream utilization and cost-related to low-value PSA testing[55]
'22 Receipt of influenza vaccine[56]
'24 Racial and socioeconomic disparities in patients with prostate cancer[57]
'24 Diabetes[2]
VA care and community care are about equal or mixed results
'20 Outpatient primary, specialty, & mental health care patient-reported provider ratings[50]
'21 Outpatient primary & specialty care patient-reported provider ratings[51]
'22 Barriers to mental health care[18]
'22 Patient centeredness in mental health care[18]
'17 Numerous patient experience indicators[36]
'18 Numerous patient experience indicators[37]
'24 Hospital safety index[4]
'17 Yelp ratings for hospitals[20]
'18 Cost/efficiency outcomes in patients with elective coronary revascularization[25]
'18 Days of hospitalization after dialysis[32]
'22 Number of encounters for mental health care[18]
'21 Total inpatient, outpatient, & drug costs for end-of-life cancer care[54]
Community care is better for all or most outcomes
'18 Access outcomes in patients with elective coronary revascularization[25]
'22 Time to colonoscopy[19]
'23 Cost and length of stay for patients with several medical conditions[28]
'17 Self-reported delay in care in last 12 months[17]
'18 Median distance to transplant center in miles[15]
'24 Hospital star rating measures[1]
Access, Patient Experience, Cost/Efficiency, Equity
Comparison being made: Veterans getting VA care vs…
Comparison to Veterans getting VA-paid care in the community
Comparison to the general population getting non-VA care
Comparison to Veterans getting community care not paid by VA
Strength of study
Larger samples and/or more representative comparisons
Smaller samples or less representative comparisons
Access
Patient Experience
Cost/ Efficiency
Equity

ES Figure 2. Evidence Map of Studies on the Quality of Surgical Care



The large majority of studies assessed quality and safety, followed by comparisons of access to care. Few studies assessed patient experience or cost/efficiency. We found 1 study comparing VA to non-VA care on equity. Most studies found that the quality and safety of VA care is as good as, or better than, care in the community. This was the case for both surgical care and non-surgical care, and for community care of Veterans and community care of non-Veterans. For the domains of access and of cost/efficiency, findings were more mixed and about the same number of studies found that VA care is better, VA and community care are about the same, or that community care is better. The few studies of patient experience found that VA care and community care were about the same, or VA care was better. We did not identify any study the found that patient experience was better in community care. With only 1 exception in both the surgical and the non-surgical studies, VA-delivered care was as good as or better than Veterans received from VA-paid community care. We did not identify any studies comparing care for some conditions for which the MISSION act has resulted in increased community care, such as Physical Medicine and Rehabilitation.

NEW EVIDENCE SINCE OCTOBER 2024

This report updates an earlier review, which included evidence available through May 2024. Six additional studies published through October 2024 were included in this update. One of the studies was specific to surgical care, and the other 5 studies were about care in general or non-surgical care.

The first of the new studies compared the Centers for Medicare & Medicaid Services (CMS) Overall Hospital Quality Star Rating for 2023 between 136 VA hospitals and 4,518 non-VA hospitals, and then also performed a second analysis between 112 VA hospitals and 112 non-VA hospitals matched for geographic location, and measure reporting profile.[1] The Overall Star Rating includes measures of death from a number of medical conditions (acute myocardial infarction, heart failure, pneumonia, *etc*) 30-day readmission rates for a number of conditions, measures of hospital-acquired infections, complications from hip and knee replacement surgery, a composite of patient safety measures, 8 measures from the Hospital Consumer Assessment of Healthcare Providers and Systems patient survey, and then a number of measures labeled as Timely and Effective Care, which includes health care provider vaccination status, time spent in the emergency department (ED) and disposition, prompt evaluation of patients with stroke symptoms, screening colonoscopy follow-up intervals, and appropriate care for severe sepsis. VA hospitals were more likely than non-VA hospitals to receive 4- and 5-star ratings and less likely to receive 2- and 3-star ratings. The matched analysis showed similar results.

In the second study, investigators used Corporate Data Warehouse (CDW) data to compare diabetes care among 652,648 patients receiving primary care in VA and 3,650 patients receiving VA-paid primary care in the community in 2020–2022. Analyses were adjusted for a number of covariates, including age, gender, Charlson score, and baseline hemoglobin A1c value.[2] Veterans receiving primary care at VA were more likely to have received recommended care such as a Hemoglobin A1c test, an eye exam, and a microalbumin urine test. Veterans receiving primary care at VA were also more likely to have received an influenza vaccine, to have fewer primary care visits. and to have a slightly lower probability of any hospitalization. There was no difference between groups in the rates of ambulatory care sensitive condition hospitalizations.

The third study used CDW information to assess changes in Veteran hospitalization and readmissions/ED visits during the time of the MISSION Act implementation.[3] Between 2016 and 2021 and encompassing 1,735,917 total patients, investigators found that VA-paid community care

hospitalizations increased while VA hospitalizations decreased (as did Veterans' hospitalizations in non-VA hospitals paid for by Medicare.) Compared to Veterans who were cared for at VA hospitals, early in the study period Veterans cared for as part of community care had a 47% increased risk of 7-day readmission and a 20% increased risk of 30-day readmission; this persisted at a similar rate to end of the study period (37% increased risk of 7-day and 19% increased risk of 30-day readmission). Conversely, ED visits were initially higher for community care-treated Veterans but then decreased such that by the end of the study there were fewer ED visits in community care patients compared to VA-treated patients.

The fourth study compared patient experience and patient safety indicators across a nationwide sample of 133 VA hospitals and 1116 academic non-VA hospitals.[4] The investigators used 2018 data from the CDW, the Hospital Consumer Assessment of Healthcare Providers and Systems, and the Strategic Analytics for Improvement and Learning. Compared to non-VA hospitals, VA hospitals had slightly but statistically significantly better overall hospital ratings (88.3 vs 87.7, $p = 0.04$) and lower (better) patient safety scores (0.88 vs 1.03, $p = 0.0002$).

The fifth study was a survey of Veterans receiving acupuncture or chiropractic care from VA providers or VA-paid care in the community.[5] Among 201 patients receiving acupuncture (109 VA, 92 community care) and 178 patients receiving chiropractic care (110 VA, 68 community care), there were no statistically significant differences in patient self-report of pain and function at 6 months.

The 1 new study about surgical care concerned cochlear implantation.[6] Investigators identified 83 Veterans who received a cochlear implant at a single VA center between 2008 and 2019 and matched these to 83 patients contained in a national multicenter database of patient demographics and outcomes following cochlear implantation. Patients were matched on sex, age, and baseline level of hearing function using the consonant-nucleus-consonant score. After implantation, both groups had improvements in hearing, and there were no statistically significant differences between groups in measures of hearing at 3, 6, and 12 months.

CONCLUSIONS

In general, most published studies of comparisons of quality of care show that Veterans getting care from VA get the same or better quality care than Veterans getting community care or the general public getting non-VA care. The most recently available evidence, published between May 2024 and October 2024, continues to support this conclusion.

Main Report

Evidence Synthesis Program

TABLE OF CONTENTS

ABBREVIATIONS TABLE

Abbreviation	Definition
AHRQ	Agency for Healthcare Research and Quality
AMI	Acute myocardial infarction
BEST	Beta-blocker Evaluation of Survival Trial
CABG	Coronary artery bypass graft
CAUTI	Catheter-associated urinary tract infection
CC	Community care
CDW	Corporate Data Warehouse
CKD	Chronic kidney disease
CLC	Community living center
CMS	Centers for Medicare & Medicaid Services
CNH	Community nursing home
COPD	Chronic obstructive pulmonary disease
CVD	Cardiovascular disease
ED	Emergency department
EOL	End of life
ER	Emergency room
ESRD	End-stage renal disease
FY	Fiscal year
HCAHPS	Hospital Consumer Assessment of Healthcare Providers and Systems
HF	Heart failure
MISSION	Maintaining Internal Systems and Strengthening Integrated Outside Networks
NCDB	National Cancer Database
NH	Nursing home
NSCLC	Non-small cell lung cancer
NSQIP	National Surgical Quality Improvement Program
PCI	Percutaneous coronary intervention
PCP	Primary care provider
PE	Pulmonary embolism
SEER	Surveillance, Epidemiology and End Results
SHEP	Survey of Healthcare Experience of Patients
THA	Total hip arthroplasty
TKA	Total knee arthroplasty
VA	United States Department of Veterans Affairs
VASQIP	Veterans Affairs Surgical Quality Improvement Program
VCP	Veterans Choice Program
VISN	Veterans Integrated Service Network
VTE	Venous thromboembolism

BACKGROUND

The Department of Veterans Affairs (VA) is the nation's largest integrated health care system, providing care for millions of US military Veterans. Providing high quality care is a commitment VA makes to Veterans. Comparisons of VA-delivered care to care delivered in non-VA settings are central to assessing the quality of VA care. Prior reviews comparing outcomes between VA and non-VA care included data through 2014, and found that VA care performed similarly to or better than non-VA care in most, but not all, aspects of quality.[7-9]

Since that time, concerns about access to care led to the Veteran Access, Choice, and Accountability ("Choice") Act of 2014, which allowed Veterans to seek medical care in the community if the VA was unable to schedule a visit within 30 days or if the Veteran lived greater than 40 miles from their closest VA. This program also required independent performance assessments of VA's health care services related to access and available expertise.[10] Choice Act funding ended in 2017 and was followed by the VA Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act of 2018 that further addressed concerns regarding Veteran access to care by expanding eligibility for VA-reimbursed community care (CC) options.[11]

These acts greatly expanded the potential for care delivered to Veterans and paid for by VA to be from community providers, raising additional questions about comparisons of quality of care. To address these gaps, the VA Office of the Assistant Under Secretary for Health for Quality and Patient Safety requested a systematic review of evidence comparing quality and safety, access, patient experience, and cost between VA and non-VA care settings.

METHODS

REGISTRATION AND REVIEW

A preregistered protocol for this review can be found on the PROSPERO international prospective register of systematic reviews (CRD42022314154). A draft of the original version of this report was reviewed by external peer reviewers; their comments and author responses are located in the Appendix.

KEY QUESTIONS AND ELIGIBILITY CRITERIA

The aim of this review was to compare and contrast studies published from 2015 to the present that assess VA and non-VA quality of care for non-surgical and surgical conditions. Eligible studies were required to assess outcomes in any Institute of Medicine health care domain (clinical quality, safety, efficiency, access, patient experience, or equity[12]) among Veterans receiving care in VA, and to compare outcomes in this population to those of 1) Veterans receiving care in the community (either VA-paid or not VA-paid) or 2) members of the general population receiving care in the community. Health care costs and length of stay were considered efficiency outcomes for the purposes of this review. Studies were permitted to use any research design but must have been conducted in the United States (*ie*, compared VA care to another US health care provider/setting).

SEARCHING AND SCREENING

To identify relevant articles, a research librarian conducted broad searches using terms relating to *Veterans health* and *community health services* or *private sector* in the PubMed, APA PsycINFO, and Web of Science databases (1/1/2015–11/14/2024). Compete search strategies are provided in the Appendix. The start date was chosen to match the end date of the most recent review by O'Hanlon.[8] Additional citations were identified from hand-searching reference lists and consultation with content experts. We limited the search to published and indexed articles involving human subjects available in the English language.

Two sets of team members (1 team specializing in surgical titles and the other specializing in non-surgical titles) working independently screened the titles of retrieved citations for relevance. For titles deemed relevant by at least 1 person, abstracts were then screened independently in duplicate by team members. All disagreements were reconciled through group discussion. Full-text review was conducted in duplicate by independent team members with any disagreements resolved through discussion.

DATA ABSTRACTION AND RISK OF BIAS ASSESSMENT

At the abstract stage, information on the medical or surgical condition, type of outcome reported, populations under comparison, and years of data were collected. Articles meeting inclusion criteria underwent a second screening and additional information was abstracted: whether study years were contemporaneous, sampling approach, geographic representativeness, similarity of outcomes between the comparison groups, sample size, years of data collected, control variables, outcomes, findings, and statistical methods. All data abstraction and internal validity ratings were first completed by 1 reviewer and then checked by another; disagreements were resolved by consensus or discussion with an additional reviewer.

The risk of bias for studies eligible for this review centers around the representativeness of the samples being assessed and whether the measures of performance are valid and applied equally across both groups. For this review we adapted the 6 items originally used in the 2010 review to the following:

1) Whether the time frames for the measurement are contemporaneous for both groups;
2) Whether the samples are national or representative for both groups;
3) Whether the quality measures used to assess care in both groups are identical or nearly identical;
4) Whether the analysis had enough sample size and appropriate statistical methods to test the hypothesis.

Studies could fully meet a criterion, partially meet a criterion, or fail a criterion. Studies fully meeting all of these criteria were considered to be "good" quality and given greater weight than studies not meeting all of the criteria, which were considered to be "fair" quality. Studies failing 1 or more criteria were not included in the analysis. See Appendix for complete risk of bias ratings.

SYNTHESIS

We narratively synthesized available evidence because studies differed too substantially in comparison groups, outcome domains, and/or procedure types or health conditions to allow for meta-analysis. Studies were first classified by the domain(s) of reported outcomes (quality and safety, access, patient experience, efficiency/cost, and equity). Within domains, studies were grouped by surgical discipline or by clinical condition (cardiovascular, mental health, *etc*). If multiple cost outcomes were reported, total cost was abstracted. Studies were grouped into 2 categories based on their quality assessment: those that had no obvious flaws limiting their internal validity (risk of bias) or external validity (generalizability), and those that had some flaws limiting internal or external validity. Studies with serious internal validity flaws were not included in the synthesis (see Appendix).

RESULTS

LITERATURE FLOW DIAGRAMS

The literature flow diagram summarizes the results of the study selection process. A full list of excluded studies is provided in the Appendix. As the surgical literature was considered separate from the non-surgical literature, we have 2 flowcharts.

Figure 1A: Literature Flowchart for Non-Surgical Care

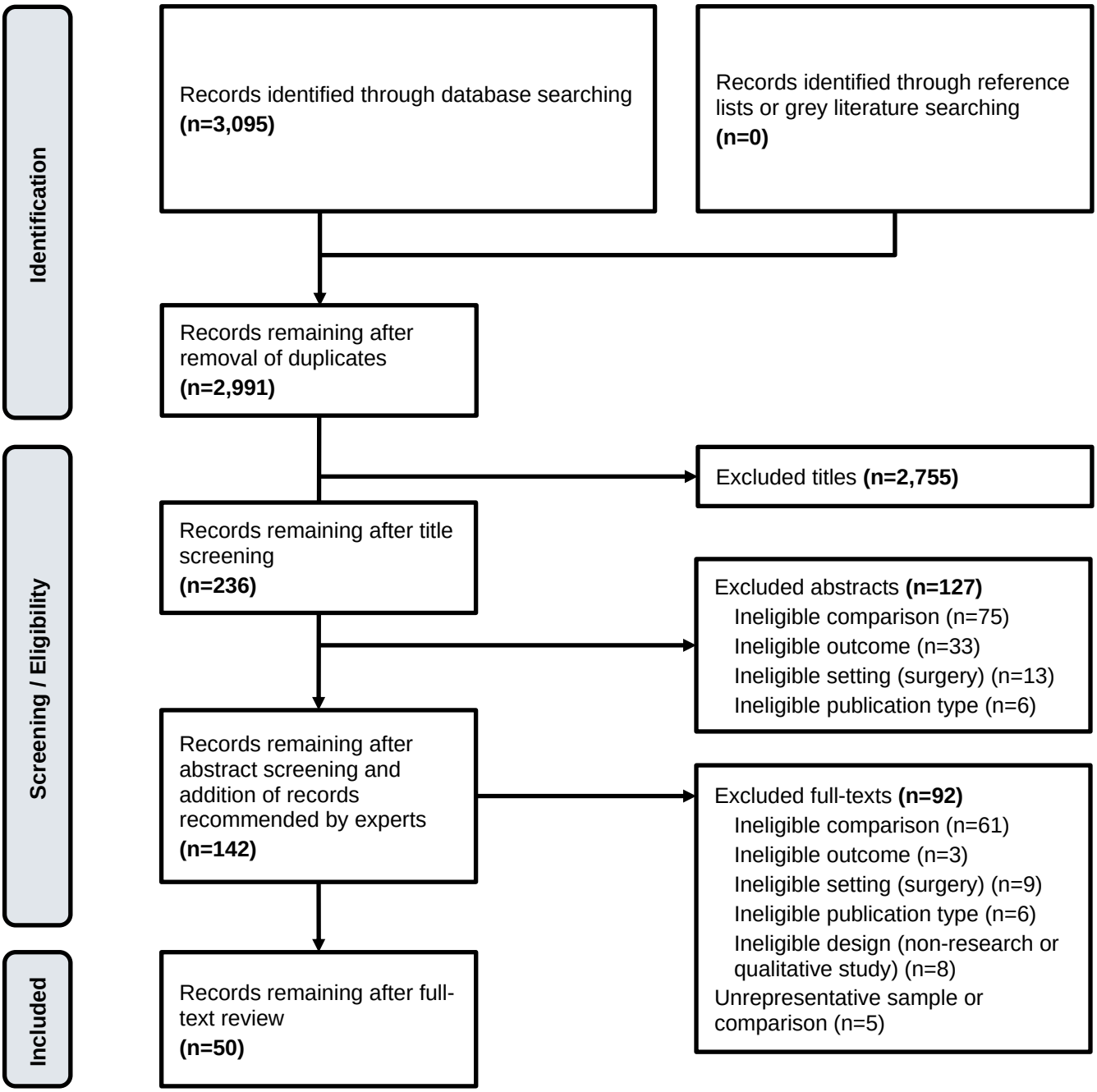
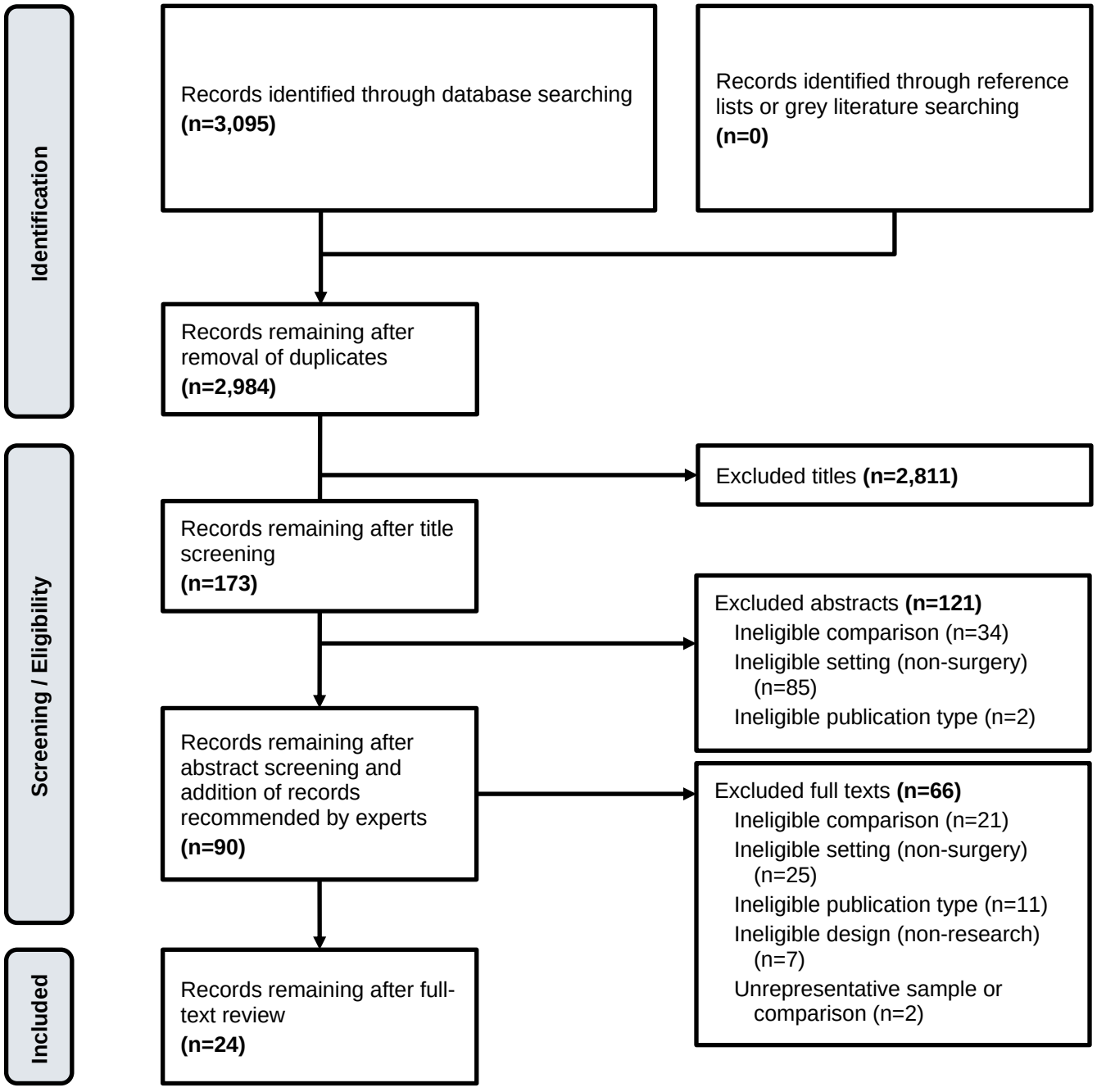


Figure 1B: Literature Flowchart for Surgical Care



OVERVIEW OF INCLUDED STUDIES

The non-surgical literature search identified 2,991 potentially relevant citations after deduplication, 236 of which were included at the abstract screening level. From these, a total of 127 abstracts were excluded for the following reasons: ineligible comparison (*N* = 75), ineligible outcome (*N* = 33), ineligible setting (surgery) (*N* = 13), and ineligible publication type (*N* = 6). With an additional 33 recommended by operational partners, this left 142 publications for full-text review, of which 92 publications were excluded for the following reasons: ineligible comparison (*N* = 61), ineligible outcome (*N* = 3), ineligible setting (surgery) (*N* = 9), ineligible publication type (*N* = 6), ineligible design (non-research or qualitative study) (*N* = 8), and unrepresentative sample or comparison (*N* = 5). A total of 50 publications were identified at full-text review as meeting initial inclusion criteria.

The surgical literature search identified 2,984 potentially relevant citations after deduplication, 173 of which were included at the abstract screening level. From these, a total of 121 abstracts were excluded for the following reasons: ineligible comparison (*N* = 34), ineligible setting (non-surgery) (*N* = 85), and ineligible publication type (*N* = 2). With an additional 38 recommended by operational partners, this left 90 publications for full-text review, of which 66 publications were excluded for the following reasons: ineligible comparison (*N* = 21), ineligible setting (non-surgery) (*N* = 25), ineligible publication type (*N* = 11), ineligible design (non-research) (*N* = 7), and unrepresentative sample or comparison (*N* = 2). A total of 24 publications were identified at full-text review as meeting initial inclusion criteria.

Characteristics of included studies are summarized in the Appendix.

QUALITY OF NON-SURGICAL CARE

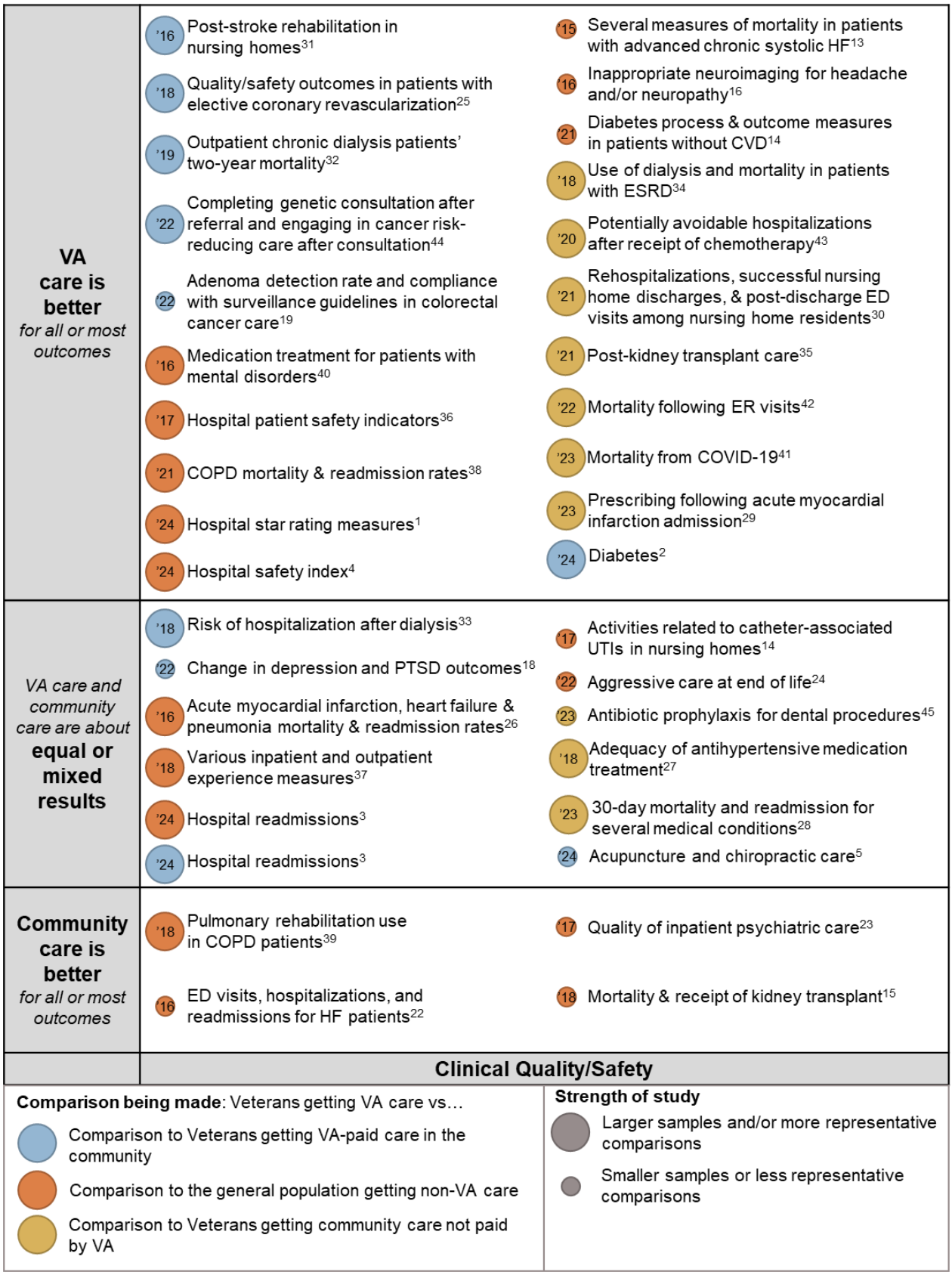
After dual review of identified publications, 50 publications met inclusion criteria (see Figure 1A). Key findings from each study were organized into 5 quality domains and are presented in the following order: (1) quality and safety, (2) access, (3) patient experience, (4) cost and efficiency, and (5) equity. Most studies reported outcomes in only 1 quality domain; studies that reported findings in multiple domains will appear in multiple sections below. Within domain, studies are organized by their clinical condition.

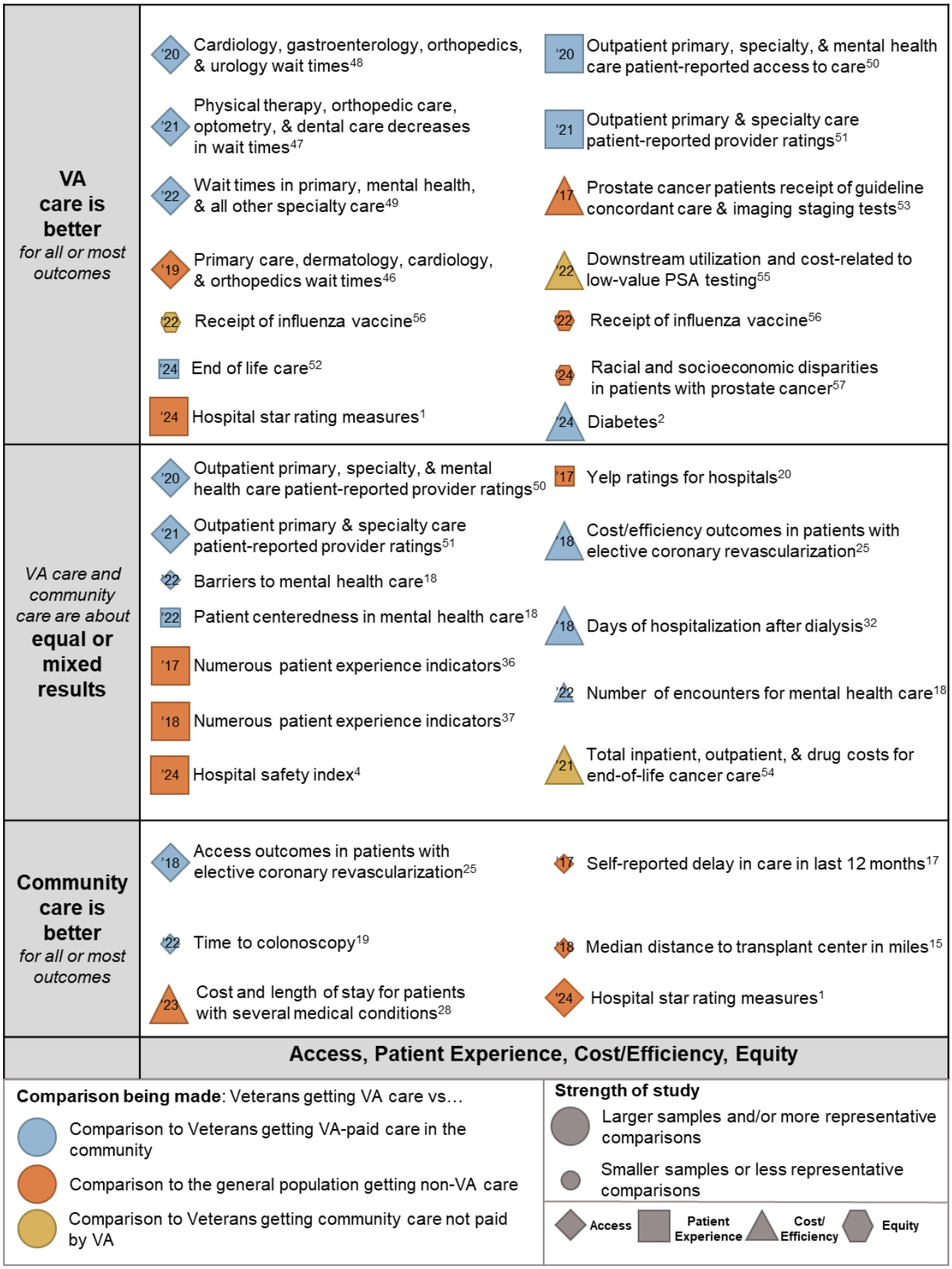
Risk of Bias/Quality

Thirty two of the included studies met all our risk of bias criteria. These studies were given more weight in our narrative synthesis than studies that did not meet 1 or more criteria. Of the studies not meeting all our criteria, 2 of these studies analyzed preexisting samples from clinical trials.[13,14] Three studies had very unbalanced samples; either VA or non-VA groups were much smaller than the others.[15-17] Three studies had balanced but small samples, and one of these only analyzed data from 1 site and did not adjust for patient characteristics in their models, while another study relied on patient self-report via survey for clinical outcomes.[5,18,19] Heidenreich and colleagues only analyzed the Yelp ratings of 39 VA hospitals (out of a possible 131) and their university affiliates due to the lack of reviews of the remaining facilities.[20] Mody et al only had data on VA and non-VA nursing homes from approximately half of all states.[21] Another study only analyzed VA and non-VA facilities in the state of South Carolina.[22] Shields and colleagues were not able to adjust for patient characteristics in their analysis of quality of inpatient psychiatric care, so different patient populations between VA and non-VA facilities may have biased their results.[23] Presley and colleagues also did not adjust for patient characteristics in their analysis of aggressive end-of-life care for non-small cell lung cancer, and the composition of their multi-component outcome was unclear.[24] We included all of these studies but gave them less weight when reaching our conclusions. Complete risk of bias ratings are provided in the Appendix.

Our overall results for nonsurgical care are presented in the bubble plot/evidence map in Figure 2. Studies are listed by domains of care of the outcomes they report by shape: circles for clinical quality/safety, diamonds for access, squares for patient experience, triangles for cost/efficiency, and octagon for equity. Studies are also listed on the vertical axis by their qualitative results (VA care is better than community care, VA care and community care are about equal or results are mixed, and community care is better than VA care), and then each study is entered as a shape, with larger shapes being studies of better quality and representativeness than studies depicted by smaller shapes. The color of the shape indicates the type of comparison: blue for studies comparing Veterans getting care from VA to Veterans getting VA-paid care in the community; orange for studies comparing Veterans getting care from VA and non-Veterans, or a general population, getting care in the community; and yellow for studies comparing Veterans getting care from VA to Veterans getting community care not paid by VA. Next to each shape is a brief thumbnail of what the study was about, and inside the shape is the year of publication (’18 = 2018, ’19 = 2019, *etc*).

Figure 2. Evidence Map of Studies on the Quality of Non-Surgical Care




VA care is better for all or most outcomes
'20 Cardiology, gastroenterology, orthopedics, & urology wait times[48]
'21 Physical therapy, orthopedic care, optometry, & dental care decreases in wait times[47]
'22 Wait times in primary, mental health, & all other specialty care[49]
'19 Primary care, dermatology, cardiology, & orthopedics wait times[46]
'22 Receipt of influenza vaccine[56]
'24 End of life care[52]
'24 Hospital star rating measures[1]
'20 Outpatient primary, specialty, & mental health care patient-reported access to care[50]
'21 Outpatient primary & specialty care patient-reported provider ratings[51]
'17 Prostate cancer patients receipt of guideline concordant care & imaging staging tests[53]
'22 Downstream utilization and cost-related to low-value PSA testing[55]
'22 Receipt of influenza vaccine[56]
'24 Racial and socioeconomic disparities in patients with prostate cancer[57]
'24 Diabetes[2]
VA care and community care are about equal or mixed results
'20 Outpatient primary, specialty, & mental health care patient-reported provider ratings[50]
'21 Outpatient primary & specialty care patient-reported provider ratings[51]
'22 Barriers to mental health care[18]
'22 Patient centeredness in mental health care[18]
'17 Numerous patient experience indicators[36]
'18 Numerous patient experience indicators[37]
'24 Hospital safety index[4]
'17 Yelp ratings for hospitals[20]
'18 Cost/efficiency outcomes in patients with elective coronary revascularization[25]
'18 Days of hospitalization after dialysis[32]
'22 Number of encounters for mental health care[18]
'21 Total inpatient, outpatient, & drug costs for end-of-life cancer care[54]
Community care is better for all or most outcomes
'18 Access outcomes in patients with elective coronary revascularization[25]
'22 Time to colonoscopy[19]
'23 Cost and length of stay for patients with several medical conditions[28]
'17 Self-reported delay in care in last 12 months[17]
'18 Median distance to transplant center in miles[15]
'24 Hospital star rating measures[1]
Access, Patient Experience, Cost/Efficiency, Equity
Comparison being made: Veterans getting VA care vs…
Comparison to Veterans getting VA-paid care in the community
Comparison to the general population getting non-VA care
Comparison to Veterans getting community care not paid by VA
Strength of study
Larger samples and/or more representative comparisons
Smaller samples or less representative comparisons
Access
Patient Experience
Cost/ Efficiency
Equity

Quality and Safety

Cardiovascular Disease Outcomes

We identified 7 studies that compared cardiovascular outcomes. The first study[25] compared the quality of cardiovascular revascularization procedures between VA and VA-paid community care (CC) hospitals between 2008–2011. Adjusted 30-day mortality after percutaneous coronary intervention (PCI) was lower in VA (0.65%) compared to community care (1.54%, $p < 0.001$). There was no difference in 30-day adjusted readmission rates.

In the second study,[26] the authors compared patient outcomes between 2010–2013 for admissions to VA hospitals versus non-VA hospitals for acute myocardial infarction (AMI), heart failure (HF), and pneumonia. In a national sample, 30-day risk adjusted mortality was lower in VA for Veterans with AMI (13.5%) compared to patients in the community (13.7%, $p < 0.02$). This was also true for HF outcomes (11.4% vs 11.9%, $p = 0.008$). Mortality rates were higher in the VA for pneumonia (12.6% vs 12.2%, $p = 0.045$). VA had slightly higher readmission rates for all 3 conditions. When VA hospitals were compared to community hospitals in their same metropolitan statistical area, VA hospitals had again lower 30-day mortality rates for AMI and HF; mortality rates for pneumonia were not significantly different. Overall, the differences between the VA hospitals and non-VA hospitals were small.

In the third study,[27] the authors examined a national cohort of Veterans with dementia to determine the effect of dual use of VA and Medicare on their supply of antihypertensive medication. When compared to dual users, VA-only users had lower adjusted odds ratios for undersupply, oversupply, and oversupply and undersupply for at least 1 class. When compared to VA-only patients, Medicare-only patients had a higher adjusted odds ratio for undersupply (1.13, 95% CI [1.03, 1.25]), but lower adjusted odds ratio for oversupply (0.39, 95% CI [0.32, 0.47]) or oversupply and undersupply of 1 class (0.48, 95% CI [0.40, 0.57]).

In the fourth study,[13] the authors from the Insights from the Beta-blocker Evaluation of Survival Trial (BEST) evaluated outcomes of patients with heart failure and reduced ejection fraction receiving care at VA versus non-VA hospitals. The BEST trial took place from 1995–1999. The authors concluded that patients with heart failure and reduced ejection fraction receiving care in the VA were older and sicker, yet their risk of mortality and hospitalization was similar to the younger and healthier patients receiving care at non-VA hospitals.

In the fifth study,[22] the authors examined the use of dual systems of care from 2007–2011 on rates of hospitalization and readmission in Veterans with HF. They found that dual use was associated with higher rates of emergency department (ED) visits, hospitalizations, and 30-day readmissions for patients with HF diagnosis at admission when compared to VA-only users and non-VA-only users. This persisted for patients with HF admitted for any diagnosis. When compared to VA-only users, non-VA-only patients had lower rates of ED visits (0.62, 95% CI [0.60, 0.64]), hospitalizations (0.98, 95% CI [0.95, 1.02]), and 30-day hospital readmissions (0.87, 95% CI [0.83, 0.90]). While this study was able to adjust for the presence or absence of more than a dozen comorbidities and service-connected status, it was not able to adjust for severity of heart failure.

In the sixth study, Yoon and colleagues used data from VA and from 11 states with all-payer discharge data about non-VA care to compare mortality following Veterans being hospitalized for acute myocardial infarction, CABG (discussed in surgery, below), gastrointestinal hemorrhage, heart failure,

pneumonia, and stroke at VA or non-VA hospitals.[28] In models adjusted for numerous clinical factors, Veteran patients treated in VA hospitals had lower 30-day mortality for stroke and for heart failure, although the latter was only seen in patients 65 years of age and over. There were no statistically significant differences in mortality outcomes for patients discharged for the other conditions.

The last study compared "medication safety events" after acute myocardial infarction among Veterans treated at VA or non-VA hospitals.[29] Medication safety events were defined as "omissions in outpatient medications with compelling indications for secondary prevention after myocardial infarction" and included drugs like statins and beta-blockers. Using merged VA and Medicare data, the authors identified 118,456 Veterans hospitalized for acute myocardial infarction between 2013-2018 who survived to discharge. About 14% of patients received care from VA hospitals. The adjusted odds of omissions in any drug class were 3 times higher among patients treated at non-VA hospitals as compare with patients treated at VA hospitals (example: beta-blocker omission in 47.4% of non-VHA hospital admissions, versus 23.7% of VHA hospital admissions).

Nursing Home Care Outcomes

We identified three studies that compared a national sample of quality and safety outcomes in VA Community Living Centers (CLC) versus nursing homes (NH) in the private sector from 2015–2016. In the first study,[30] the authors compared risk-adjusted claims-based measures including unplanned rehospitalization and emergency department visits within 30 days of admission and successful discharge within 100 days of nursing home admission. Risk-adjusted emergency department visits and successful discharges were statistically significantly better in VA than the private sector (8.27 vs 11.85, $p < 0.001$), and (67.74 vs 57.04, $p < 0.001$). Adjusted rehospitalizations were slightly worse in the VA versus the private sector (22.5% vs 21.1%, $p < 0.001$). When aggregated, the authors noted that combined rehospitalization rates and emergency room visits were lower in the VA CLC group (30.8%) compared to the community (33.0%).

In the second study,[31] the authors compared post-stroke rehabilitation therapy and restorative nursing among Veterans residing in VA Community Living Centers (CLC) versus those Veterans in VA-paid community nursing homes from 2006–2009. In a national sample, Veterans at CLCs were significantly more likely to receive rehabilitation therapy and restorative nursing care. This study adjusted for sociodemographic characteristics, baseline depression, activities of daily living, cognition, and comorbidities. In the third study,[21] the authors compared programs to prevent catheter-associated urinary tract infection (CAUTI) in VA versus non-VA nursing homes. In a national representative sample of nursing homes participating in an AHRQ-funded safety program, the VA reported more hours/week devoted to infection prevention-related activities (31 vs 12 hours, $p < 0.001$), and a higher percentage of tracking CAUTI rates (94% vs 66%, $p = 0.014$). In contrast, fewer VA nursing homes reported having polices for appropriate catheter use (64% vs 81%, $p = 0.04$) and catheter insertion (83% vs 94%, $p = 0.004$).

Dialysis and End-Stage Renal Disease Outcomes

We identified 5 studies that compared mortality outcomes for Veterans receiving care for end-stage renal disease (ESRD) or for dialysis through the VA versus outside the VA. In the first study,[32] the authors examined 2-year mortality among 27,241 Veterans who initiated chronic dialysis in 2008–2011 at the VA, at a dialysis center being paid by the VA, at a private sector clinic under Medicare, or in dual settings. Adjusted 2-year mortality was lowest (28.9%) in dual care and in the VA (32.4%) versus Medicare (36.7%) or VA-purchased care (36.0%). This study adjusted for sociodemographic

characteristics, as well as pre-dialysis clinical status and care, type of vascular access, cause of ESRD, comorbidities, and prior utilization.

A similar cohort of 27,301 Veterans in the second study[33] compared rates of utilization of dialysis in VA settings and VA-paid purchased care settings. The authors noted that sites of utilization were similar to the above study. Furthermore, they noted in their main outcome that risk of hospitalization was similar across all settings ($p < 0.0001$, but authors noted that the differences found were so small as to not be clinically meaningful).

The third study[34] evaluated pre-ESRD care from 2008–2011 in Veterans receiving care in the VA or through Medicare. Two-year mortality was lower for Veterans who received pre-ESRD care in the VA (44%) than in those who received their care using Medicare (53%). Likewise, patients who received that pre-ESRD nephrology care with the VA (53%) were less likely to transition to dialysis than if they had their care under Medicare (82%).

Furthermore, we found 1 study[15] that studied rates of kidney transplantation among Veterans with VA as the primary insurance versus patients with Medicare or other private insurance. Although the VA was the payor in only 1.2% of the 302,457 patients analyzed who underwent kidney transplant, the authors noted that the VA had a lower hazard ratio for transplant (lower rate of transplant) when compared to privately insured (0.72, 95% CI [0.68, 0.76]) or Medicare-insured patients (0.85, 95% CI [0.81, 0.90]). There was no difference found between VA and Medicaid patients.

In a related study,[35] authors examined mortality among Veterans who received VA-paid and Medicare-paid post-kidney transplant care. After 5 years, mortality was 11% among the 792 Veterans who received post-transplant care in VA, but 20% among the 2092 Veterans who received care paid by Medicare. After adjusting for covariates, the hazard ratio of 5-year mortality was over twice as high among Veterans receiving post-transplant care paid by Medicare compared to those receiving care in VA (2.2, 95% CI [1.5, 3.1]).

Hospital Patient Safety Indicators and Outpatient Quality of Care

We identified 4 studies that compared a number of quality indicators between Veterans getting VA care and non-Veterans getting non-VA care.[1,4,36,37] All 4 studies assessed national samples for both VA and non-VA care, including more than 100 VA facilities and hundreds or thousands of non-VA facilities. Three of the studies compared hospital patient safety indicators, such as 30-day risk-standardized mortality rate for 2 conditions, iatrogenic pneumothorax and post-operative wound dehiscence. One study also assessed outpatient quality using measures from the Healthcare Effectiveness Data and Information Set, such as process and intermediate outcome measures for patients with diabetes, screening and prevention, and control of blood pressure and lipids.[37] One study compared Centers for Medicare & Medicaid Star Ratings for VA and non-VA hospitals.[1] All 4 studies were in general agreement: quality of care in VA was better than non-VA care for most measures. In 1 study, however, VA had higher 30-day risk-standardized readmission rates than non-VA care,[37] and in another study patients treated in VA hospitals were more likely to have readmissions than patients treated in non-VA hospitals.[1]

Chronic Obstructive Pulmonary Disease (COPD) Outcomes

We identified 2 studies that compared outcomes for patients with COPD using a national sample of VA hospitals versus non-VA hospitals. In 1 study[38] that evaluated readmission rates and mortality post

hospitalization after a COPD exacerbation from 2015 to 2018, 30-day readmissions rates were significantly lower in VA (15.3 days) versus non-VA hospitals (19.5 days, $p < 0.001$). Thirty-day mortality rates were also significantly lower in VA (6%) versus non-VA hospitals (8.5%, $p < 0.02$). These differences persisted no matter the type of non-VA hospital including teaching hospitals, non-teaching hospitals, and safety net hospitals. The study itself was not limited to Veteran patients, as it compared Veteran patients in VA to CMS-derived risk adjustment models in non-VA hospitals.

In the second study,[39] the authors compared the rates of participation in pulmonary rehabilitation by Veterans and Medicare beneficiaries after they were hospitalized for COPD. Pulmonary rehabilitation can improve symptom burden and morbidity associated with COPD. In the study, utilization by Medicare beneficiaries was low, approximately 2% of discharges. In the VA it was slightly lower, at 1.5% of hospital discharges.

Mental Health Conditions

We identified 3 studies that assessed quality and safety outcomes for persons with mental health conditions[23,40]. Both studies compared Veterans getting care within VA to non-Veterans getting care in non-VA settings. Both were national studies. One study[40] assessed the quality of medication treatment, which was probably mostly outpatient care, using 7 measures such as "proportion of schizophrenia patients who filled prescriptions for a 12-week supply of an antipsychotic medication in the 12 weeks following the start of a new treatment episode." This study stratified patients by their mental health condition, namely bipolar disorder, major depressive disorder, posttraumatic stress disorder, schizophrenia, and substance use disorder. This study found much better quality in VA-treated patients than in non-VA-treated patients. The second study assessed only inpatient psychiatric care, using 7 of the Joint Commission's Hospital-based Inpatient Psychiatric Services measures, which are used both for accreditation and in a pay-for-reporting initiative.[23] Included measures were "Admission screening for violence risk, substance use, psychological trauma and patient strengths completed" and "hours of physical restraint used," *etc*. This study found worse quality in VA hospitals as compared to non-VA hospitals. This study was not able to stratify or adjust for potential differences in case mix between different hospitals; for example, the potential use of physical restraints might differ between patients admitted for major depressive disorder as compared to patients admitted for schizophrenia. The last study found lower depression symptoms and equivalent posttraumatic stress disorder symptoms among Veterans receiving in-person, VA-paid community care compared to those who received VA tele-mental health care.[18]

Cancer Outcomes

Two studies[19,24] of cancer care also met our inclusion criteria. In the first study[19] of colorectal cancer care, the adenoma detection rate (OR = 0.39, 95% CI [0.25, 0.63]) and compliance with surveillance guidelines (OR = 0.21, 95% CI [0.09, 0.45]) was worse in non-VA compared to VA. In the second study[24] of non-small cell lung cancer, aggressive care at end of life in some measures declined more significantly in VA ($p < 0.001$) compared to non-VA from 2006 to 2012. For other measures, there was no difference between systems.

COVID-19 Outcomes

One study assessed mortality among Veterans admitted to community hospitals and Veterans admitted to VA hospitals during the COVID-19 pandemic.[41] VHA and Medicare data were merged for the period 3/2020 – 12/31/2021, and included 64,856 Veterans (nearly entirely men) who had 127,156

hospitalizations. VHA enrollees admitted to community hospitals were more likely to be older, White, and less likely to live in urban areas than VHA enrollees admitted to VA hospitals, and to have somewhat more comorbidities such as heart failure, stroke, and kidney disease. In both unadjusted and adjusted analyses, Veterans admitted to community hospitals had higher mortality – 27.1% versus 17.7% in the unadjusted analysis, and risk-adjusted odds ratio of 1.37 (95% CI [1.21, 1.55]). Readmission within 30 days was lower in community hospitals (12.6% vs 14.0%).

Miscellaneous Conditions

We identified 9 studies that reported quality and safety outcomes in miscellaneous conditions. Five studies compared care of Veterans getting VA care with Veterans getting non-VA (community) care,[2,5,42-44] and 3 studies compared Veterans getting VA care with non-Veterans getting non-VA care.[14,16] One study compared Veterans getting VA care both to non-Veterans getting non-VA care and to Veterans getting VA-paid care in the community.[3] Five of the studies were national in scope, whereas 3 studies were narrower, in 1 case comparing Veterans and non-Veterans with diabetes who enrolled in a large comparative effectiveness trial, providing answers to a survey about clinical outcome after receiving acupuncture or chiropractic care, and in the other comparing a large number of VA cases with a very much smaller number of Medicare cases.

In the first study, more than 500,000 Veterans making more than 1 million ED visits between 2001 and 2018 and being transported by ambulance were classified as to whether they got ED care at a VA facility (*N* = 231,611) or a non-VA facility (*N* = 1,238,546). After adjusting for a number of patient, clinical, and ED transport characteristics, the 30-day mortality rate was less for patients seen in VA hospitals than for patients seen at non-VA hospitals (9.15 vs 11.67 deaths per 100 patients). For patients who had received prior care at the index hospital, the mortality advantage for ED care at a VA hospital was even greater.

In the second study, investigators used Centers for Medicare & Medicaid Services measures for avoidable hospitalizations following chemotherapy to assess the care of 27,443 Veterans dually enrolled in Medicare and VA, of whom 9,522 received their chemotherapy in VA. Veterans receiving care through Medicare were more likely than Veterans receiving chemotherapy through VA to have an avoidable hospitalization, with an odds ratio of 1.58 (95% CI [1.41, 1.78]). The most common reasons for hospitalization were pneumonia, sepsis, and anemia.

In the third study, Veterans completed genetic consultations they were referred for less often in VA-paid community care (OR = 0.43, 95% CI [0.28, 0.65]), compared to VA care)[44]. Patients who had VA-paid community care genetic consultations were also less likely to receive follow-up cancer surveillance and risk-reducing procedures (OR = 0.64, 95% CI [0.52, 0.78]) than patients in VA care.

The fourth study compared the use of guideline-concordant antibiotic prophylaxis prior to dental procedures in patients with prosthetic joints or cardiac conditions being treated at VA or non-VA dental settings.[45] VA administrative data was used for the VA sample (*N* = 18,292) and Marketscan data were used for the non-VA sample (*N* = 42,832). Guideline-concordant antibiotic prophylaxis was low across all groups, being 32.7% of visits, with slightly higher use of guideline concordant care in VA-treated patients as compared to non-VA treated patients (adjusted prevalence ratio of 1.21, 95% CI [1.16, 1.25]). The results varied by the reason for antibiotic prophylaxis, with lower rates in VA care for patients without a prosthetic joint and higher rates in VA care for patients with a prosthetic joint, compared to non-VHA care.

The fifth study used data from the Corporate Data Warehouse (CDW) and from CMS to identify more than 1.7 million Veterans with at least 1 hospitalization and at least 2 VA primary care visits between 2016-2021.[3] After controlling for numerous covariates, regression models showed that during this time period, which includes when the MISSION Act went into effect, VA-paid community care hospitalizations increased while hospitalizations at VA facilities and non-VA facilities decreased. Hospitalization at a community care facility was associated with a 47% greater risk of 7-day readmission and a 20% increased risk of 30-day readmission compared to hospitalization at a VA facility, while by the end of the time period 30-day ED visits were less in community care (5.5% lower).

The sixth study compared quality, costs and outcomes of Veterans with diabetes receiving care at VA or at VA-paid community care clinics.[2] Data came from the CDW and patients were required to have had at least 2 primary care visits in a 12-month period during fiscal years 2021–2022. The investigators identified 652,648 patients in VA care and 3,650 patients in community care. Patients receiving VA care were more likely to have received diabetes-related tests such as hemoglobin A1c, a urine microalbumin test, and an eye exam than were patients receiving community care. There were no differences between patients in ambulatory care sensitive hospital admissions, but there was a slight statistically significant increased odds of any acute care hospitalization for Veterans receiving community care.

The last 3 studies looked at, respectively, measures of control of diabetes among enrollees in a large national comparative effectiveness study, the self-report of clinical outcomes by several hundred patients who received VA-delivered or community care-delivered acupuncture or chiropractic care,[5] and linked data from VA, the Health and Retirement Survey, and Medicare to assess possibly inappropriate neuroimaging studies in patients presenting with headache or neuropathy. The first and last studies reported better care quality in VA care than in non-VA care. The middle study reported no differences in outcomes.

Access

Eleven studies reported outcomes related to access. Five of these studies described wait times, 4 listed different patient-reported access outcomes, 1 reported median distance to a transplant center, and 1 noted self-reported delays in care. Seven of these studies were of good quality that met all 4 risk of bias criteria, while 3 were of fair quality and did not meet 1 or more criteria to a minor degree.

Wait Times

Five studies evaluated wait times in various primary and specialty care settings. Wait times were shorter in VA care in the 4 good quality studies and longer in VA care in the sole fair quality study.[19]

The first study evaluated differences in wait times to the next appointment for outpatient primary care, dermatology, cardiology, and orthopedics visits at VA medical centers and in the private sector in 15 major metropolitan areas from 2014–2017.[46] VA data were pulled from VA medical center scheduling systems, and private sector data were obtained via the secret shopper method. Consultant Merritt Hawkins had their research associates call 10–20 randomly selected physician offices in each metropolitan area in each of the above specialties and schedule new appointments. VA wait times decreased from a mean of 22.5 days (SD 7.3 days) in 2014 to 17.6 days (SD 4.9 days; $p = 0.046$) in 2017. Private sector wait times did not significantly change over the same time period. By specialty, wait times did not change in VA or the private sector for primary care, dermatology, or cardiology. In

orthopedics, VA wait times declined from 23.9 to 18.5 days ($p = 0.05$). Private sector orthopedic wait times did not change.

In the second study, Gurewich and colleagues examined differences in wait times in rural and urban Veterans for outpatient physical therapy, cardiology, optometry, orthopedics, and dental care between VA and VA-paid community care (CC) between fiscal year (FY) 2015 and 2018.[47] Using data from the VA Corporate Data Warehouse, these authors found that both rural and urban Veterans saw declines in wait times for VA and VA-paid CC care across all 5 services during this time period, with some small exceptions. Wait times did not change for urban Veterans seeking VA-paid CC physical therapy, rural and urban Veterans seeking VA-paid CC cardiology care, and rural and urban Veterans seeking VA-paid CC dental care. VA wait times declined more significantly for all services ($p < 0.001$) other than cardiology. In FY18, VA-paid CC wait times were 2–3 days longer than VA wait times, for all services except for orthopedics, where they were 4–5 days longer.

In the third study, authors used VA administrative data to examine differences in VA and Veterans Choice Program (VCP; a version of VA-paid community care) wait times in outpatient cardiology, gastroenterology, orthopedics, and urology between 2018 and 2019.[48] Average VA wait times were lower than VA-paid VCP wait times for cardiology (33.0 [SD 8.7] days vs 38.0 [SD 9.2] days), gastroenterology (53.9 [SD 15.9] vs 60.3 ([SD 16.0] days), orthopedics (36.2 [SD 9.3] vs 43.6 [SD 12.9] days), urology (36.1 [SD 9.5] vs 50.5 [SD 14.5] days), and overall (41.1 [SD 15.9] vs 49.0 [SD 15.5] days).

In the fourth study,[49] Feyman and colleagues examined VA Corporate Data Warehouse data to analyze differences in VA and VA-paid community care wait times in primary, mental health, and all other specialty care. They found that mean wait times were lower for VA versus VA-paid community care in unadjusted analyses for primary care (29 [SD 5.5] days vs 38.9 [SD 8.2] days), mental health care (33.6 [SD 4.6] days vs 43.9 [SD 9.0] days), and all other specialty care (35.4 [SD 2.7] days vs 41.9 [SD 5.9] days). In Veterans Integrated Service Network (VISN)-level adjusted analyses, VA wait times were shorter in 15 of 18 VISNs for primary care, in 16 of 18 VISNs for mental health care, and in 17 of 18 VISNs for all other specialty care.

In the last study,[19] time to colonoscopy was significantly longer in VA (83.8 days, 95% CI [45.2, 122.4]) compared to VA-paid community care (58.4 days, 95% CI [24.7, 92.1]; $p < 0.0001$).

Patient-Reported Access Outcomes

Patient-reported access to care was mixed in 4 studies. Three studies were of good quality, and 1 was of fair quality.[18]

Vanneman and co-authors used VA's 2016-17 Survey of Healthcare Experience of Patients (SHEP) to analyze differences in patient-reported access outcomes between VA and VA-paid CC patients receiving outpatient primary, specialty, and mental health care.[50] In the second quarter of 2016, patients rated access to care as better in VA-paid CC, as evaluated by multivariate models adjusting for patient and facility characteristics. These evaluations of access in that quarter did not differ between VA and VA-paid CC for primary or mental health care. Access scores for specialty care increased by about 2% for both VA and VA-paid CC by the end of the study period in the fourth quarter of 2017. Scores for primary and mental health care did not change.

In another analysis of SHEP data, Davila and colleagues analyzed differences in patient-reported access among urban and rural Veterans receiving VA and VA-paid CC primary and specialty care from FY16–FY19.[51] Compared with VA-paid CC primary care, rural Veterans reported greater satisfaction with access to VA primary care in FY16 (adjusted standardized mean difference [aSMD] = 0.17) and FY19 (aSMD = 0.21). Rural Veterans reported similar satisfaction with access to VA and VA-paid-CC specialty care. The study did not provide adjusted effect sizes for urban Veteran comparisons, but average access satisfaction scores were higher in both years for urban VA primary care compared with VA-paid CC primary care (FY16: 3.18 vs 2.91; FY19: 3.27 vs 3.12). Average scores were lower in both years for access to urban VA compared with VA-paid CC specialty care (FY16: 3.09 vs 3.17; FY19: 3.17 vs 3.28). Despite these differences, all average scores correspond to satisfaction scale ratings of "usually" to "always." In a study previously included in quality, above, Bagshaw and colleagues compared CMS Star Rating scores for VA and no-VA hospitals.[1] In the domain of timely and effective care, VA hospitals scored worse (mean standardized group score of -0.44 compared with 0.01) than non-VA hospitals.

In the last analysis, VA patients reported more access-related barriers to mental health care compared to patients receiving VA-paid community care ($p < 0.001$).[18]

Other Access Outcomes

A good quality study using VA health care record and cost data, VA-paid CC claims, and mapping software analyzed Veteran patient travel distance to and cost of percutaneous coronary intervention (PCI) and coronary artery bypass graft (CABG).[25] Authors found that VA patients traveled farther than VA-paid CC patients for both PCI (90.8 miles vs 60.1 miles; $p < 0.001$) and CABG (123.2 miles vs 81.5 miles; $p = 0.02$). Patients also incurred higher travel costs in VA versus VA-paid CC for both PCI ($238 vs $198; $p = 0.004$) and CABG ($958 vs $630; $p < 0.001$).

In 2 final fair quality studies, VA patients lived farther away from kidney transplant centers than patients using Medicare or private insurance,[15] and were more likely to report delays in seeking care than patients using Medicare, Medicaid, or commercial insurance.[17]

Patient Experience

Nine studies reported patient experience outcomes. Two studies described ratings of providers, 3 studies reported various patient experience measures, 1 compared VA's SHEP ratings with similar patient experience ratings from non-VA hospitals, 1 compared CMS Star Ratings for patient experience, 1 study used SAIL and HCAPHPS scores, and another reported Yelp ratings of hospitals. VA care was better in 3 studies and equal or mixed compared to non-VA care in 4 studies. Four of these studies were good quality and 3 were fair quality.

Provider Ratings

The Vanneman study described above also used 2016-17 SHEP data to report differences in provider ratings between patients receiving VA and VA-paid CC.[50] Provider ratings were higher in VA in the second quarter of 2016 for primary, specialty, and mental health care. VA and VA-paid CC ratings did not significantly change by the fourth quarter of 2017.

In the previously described Davila study, authors examined SHEP data to distinguish differences in provider ratings between rural Veterans receiving primary and specialty VA and VA-paid CC care during FY16 and FY19.[51] Ratings for providers were higher for rural Veterans receiving primary and

specialty care in VA compared to VA-paid CC in FY16 and FY19. Rural Veterans reported higher provider ratings for primary care (FY16 aSMD = 0.35; FY19 aSMD = 0.19) and specialty care (FY16 aSMD = 0.16; FY19 aSMD = 0.12) in VA compared to CC. Authors also provided data on provider ratings for urban Veterans but did not report adjusted effect sizes for VA and VA-paid CC comparisons. Average provider ratings (0-10, with 10 being the best) were higher for urban Veterans receiving VA care compared to those receiving VA-paid CC care for both primary (FY16: 8.83 vs 7.28; FY19: 8.92 vs 8.30) and specialty (FY16: 8.69 vs 8.46; FY19: 8.88 vs 8.70) care.

In a study based on responses by family members to the VA Bereaved Family Survey, Wachterman and colleagues compared data on Veterans receiving end-of-life (EOL) care in VA CLCs or in VA-contracted community nursing homes (CNH).[52] On all 15 items in the survey, family members of Veterans receiving EOL care in CLCs rated the care as superior to families of Veterans treated in CNHs (such as "staff always took time to listen," "staff were always kind, caring and respectful," staff always provided enough emotional support," *etc*). The findings, however, are limited by the low response rates (overall = 35%) to the survey.

SHEP Outcomes

In a third study, authors analyzed 2014 VA SHEP and private sector Hospital Consumer Assessment of Healthcare Providers and Systems Hospital Survey (HCAHPS) data to examine differences in patient experience between VA and non-VA inpatient care.[37] Each VA hospital was matched to 3 private sector non-VA hospitals using propensity score matching by bed size, geography, teaching hospital status, and urbanicity. Non-VA hospitals had higher ratings overall for hospital quietness, pain management, responsiveness of hospital staff, and communication with doctors or nurses. VA hospitals had higher ratings for communication about medicine, hospital cleanliness, and care transitions. Scores were very close for discharge information.

Patient Experience Outcomes

The fourth study,[36] previously described in the Quality and Safety section above, assessed national samples from VA and non-VA hospitals for patient-reported patient experience outcomes. About half of the 10 domains of patient experience had small but statistically significant better ratings for non-VA care, whereas there was no statistical difference in ratings for the other half of the domains.

In the fifth study, patient centeredness was not different ($p = 0.243$) between VA tele-mental health care and VA-paid, in-person mental health care in the community.[18]

Hospital Ratings

In a sixth study, authors analyzed differences in Yelp ratings between VA hospitals and their local university affiliates.[20] After adjusting for bed size, teaching hospital and graduate medical education status, and The Joint Commission certification, VA and non-VA Yelp ratings did not differ.

The previously discussed study by Bagshaw and colleagues compared Medicare Star Ratings between VA and non-VA hospitals. VA hospitals tended to score better than non-VA hospitals in the domain of patient experience (mean standardized group score 0.64 vs -0.02).[1]

Lastly, Eid and colleagues used patient experience data from SAIL and from HCAHPS to compare a nationwide sample of 133 VA hospitals and 1116 non-VA hospitals.[4] In the overall hospital ratings, VA had a very slight but statistically significant better score (88.3 vs 87.7, $p = 0.04$).

Cost/Efficiency

We identified 7 studies reporting on efficiency or cost outcomes: 1 study was about patients with cardiac disease,[25] 1 study was about imaging in patients with prostate cancer,[53] 1 study was about end-of-life care,[54] 1 study was about hospitalization after dialysis,[33] 1 study was about low-value PSA testing,[55] 1 study was about hospitalizations for 6 common conditions,[28] and 1 study was about telemental health care.[18] Six studies were good quality studies, and the seventh was fair quality.[18]

Cardiac Disease

One study assessed many outcomes among nearly 20,000 Veterans less than age 65 who had elective coronary revascularization, either bypass surgery (N = 5,818) or a percutaneous coronary intervention (N = 13,273) at either a VA hospital or a community hospital with care paid for by VA.[25] About 80% of patients received care at VA. Quality and access outcomes from this study are already reported in the appropriate sections of this report. Costs for VA care came from the VA Managerial Cost Accounting System, while costs for community care are what VA paid for the care. Costs were lower in VA than what VA paid for community care for patients receiving percutaneous coronary interventions ($15,683 vs $22,025) but higher in VA than what VA paid for community care for patients receiving bypass surgery ($63,144 vs $55,526).

Prostate Cancer Imaging

One study assessed agreement between guideline-suggested imaging in patients with prostate cancer among nearly 100,000 Veterans with prostate cancer.[53] Patients were classified as receiving VA-only care (28% of the total), Medicare-only care (57%), or as dual users (14%). The comparison made was the rate of prostate cancer imaging in low-risk and high-risk patients, by the system of care. Comparing just the Medicare-only to the VA-only patients, low-risk prostate cancer patients in VA were less likely to receive guideline-discordant imaging (relative risk = 0.79, 95% CI [0.67, 0.92]), whereas VA patients with high-risk prostate cancer were no less likely to have imaging in VA compared to Medicare-only patients.

End-of-Life Care

One study assessed costs of care for 36,401 patients dying of cancer between 2010 and 2014 who were dually enrolled in Medicare and VA.[54] In adjusted models, total costs of care were similar between patients who were Medicare reliant and those who were VA reliant.

Dialysis

In the fourth study, days of hospitalization after dialysis were similar in VA and non-VA settings.[33]

PSA Testing

In the fifth study, low-value PSA testing was associated with 9.9 fewer downstream services per 100 Veterans (95% CI [9.7, 10.1]) and $11.9 less spending per Veteran (95% CI [$7.6, $16.2]) in VA compared to non-VA care.[55]

Common Hospital Conditions

Yoon and colleagues[28] (described above in clinical quality) used VA data and data from 11 states with all-payer hospital discharge data for non-VA care to compare costs and length of stay for Veteran

patients discharged with 5 common conditions: acute myocardial infarction, gastrointestinal hemorrhage, heart failure, pneumonia, and stroke (as well as CABG, discussed under surgery). Length of stay and costs were consistently higher for patients treated in VA as compared to non-VA hospitals.

Equity

We identified 2 studies assessing the equity of VA-delivered care compared to non-VA-delivered care.[56,57] The study used the 2019-2020 National Health Interview Survey to assess the self-report of having received the influenza vaccine in the prior 12 months. Among 2,277 Veterans with VA coverage and 46,456 non-Veteran adults, statistically significant differences in the self-reported receipt of vaccine between the racial groups classified as White, Black, and Hispanic were seen for non-VA care but were small and statistically non-significant in VA-delivered care. The gap between Hispanic and White vaccination rates was statistically larger among non-Veterans compared to Veterans receiving VA care. Middle-income patients were less likely than high-income patients to be vaccinated among non-Veterans and Veterans in non-VA care. Low-income patients were less likely to be vaccinated across all categories. The gap in vaccination rates between low- and middle-income and high-income non-Veterans was larger than among Veterans in VA care.

A second study, which did not directly measure care but did assess long-term outcomes, used VA and California cancer registry data to assess 10-year survival, rate of metastatic disease, and prostate-cancer-specific mortality in patients who received care at the Greater Los Angeles VA Healthcare System or in non-VA community care in California.[57] Outcomes in the community care cohort were worse for Black patients on all 3 dimensions, whereas within VA there were no statistically significant disparities in outcomes between Black and other racial/ethnic groups. The authors speculate that the differences in disparities between the 2 systems of care may be more than just clinical quality, and could possibly also reflect better access and short-term interventions aimed at social determinants of health.

Tele-Mental Health Care

In the last study, the numbers of encounters did not significantly differ ($p = 0.276$) between patients receiving VA tele-mental health care or VA-paid, in-person mental health care in the community.[18]

QUALITY OF SURGICAL CARE

After dual review of identified publications, 24 met inclusion criteria (see Figure 1B), using national data with heterogenous designs and statistical methods to adjust for group differences with varying rigor (see Appendix). The majority of studies analyzed surgery- or patient-level outcomes on specific conditions or operations (22 of 24), while 2 studies reported hospital-level outcomes. The evidence reported orthopedic procedures (7 articles), cataract surgery (3 articles), pulmonary resections (2 articles), kidney transplant (2 articles), and CABG (2 articles). In addition, 2 studies analyzed all non-cardiac surgeries, 1 study assessed hernia repair, 1 study assessed colectomy, and another study evaluated access in urologic and orthopedic outpatient clinics.

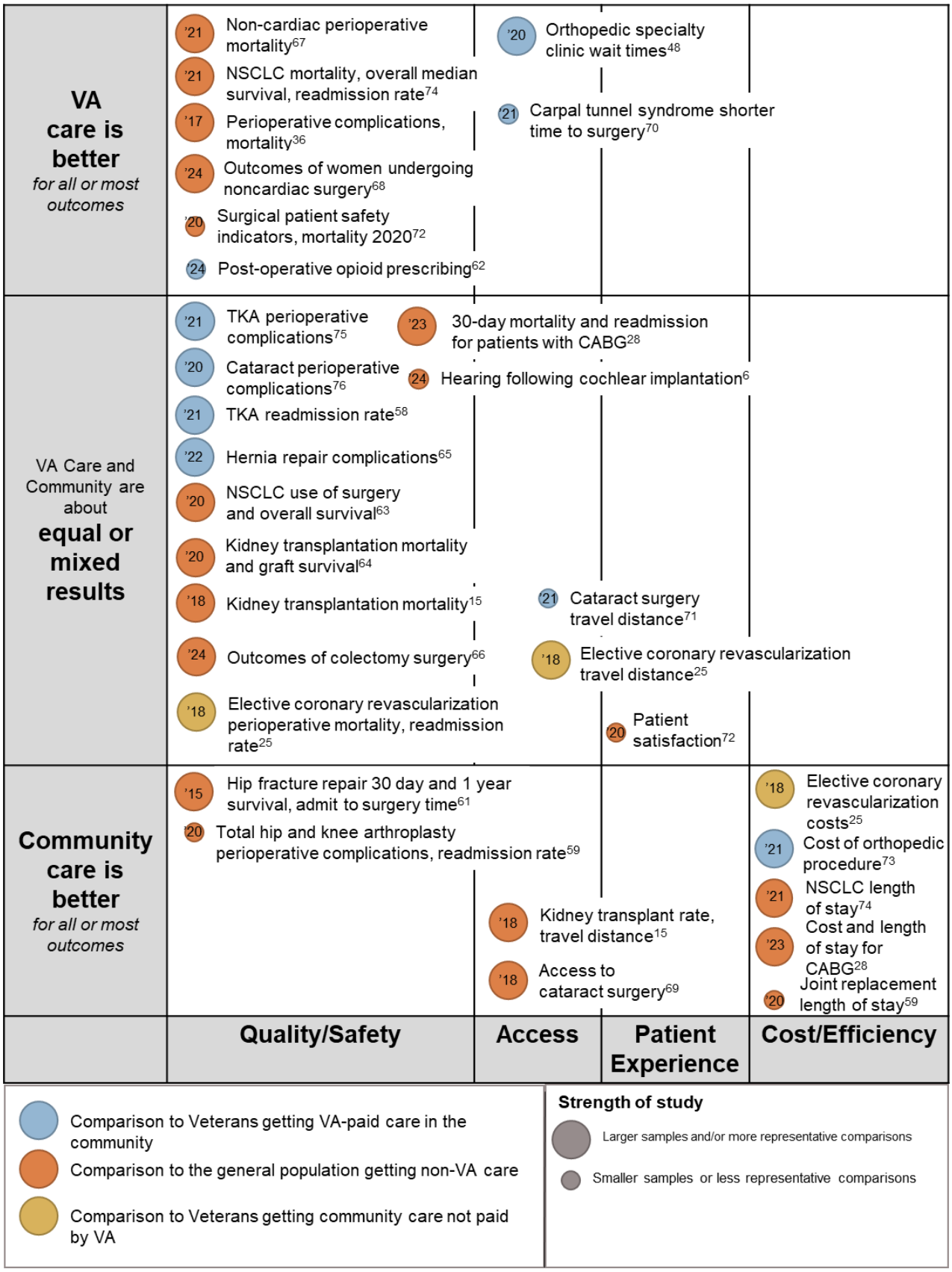
Key findings from each study were organized into 4 quality domains and are presented in the following order: (1) quality and safety, (2) access, (3) patient experience, and (4) cost and efficiency. Most studies (13 of 19) reported outcomes in only 1 quality domain, while 4 studies covered 2 domains and 1 study reported 3 domains. The 5 studies that reported findings in multiple domains will appear in multiple sections below.

Risk of Bias/Quality

Among the 24included studies meeting all our risk of bias criteria, 4 were deemed fair quality studies, marginally meeting the criteria. Complete risk of bias ratings are provided in the Appendix.

Our overall results for surgical care are presented in the bubble plot/evidence map in Figure 3. The plot is organized in the same fashion as the non-surgical plot as follows: the domains of care are listed on the horizontal axis (quality/safety, access, patient experience, cost/efficiency), the results of the study are listed on the vertical axis (VA care is better than community care, VA care and community care are about equal, or results are mixed, and community care is better than VA care), and then each study is entered as a shape, with larger shapes being studies of better quality and representativeness than studies depicted by smaller shapes. The color of the shape indicates the type of comparison: blue for studies comparing Veterans getting care from VA to Veterans getting VA-paid care in the community; orange for studies comparing Veterans getting care from VA and non-Veterans, or a general population, getting care in the community; and yellow for studies comparing Veterans getting care from VA to Veterans getting community care not paid by VA. Next to each shape is a brief thumbnail of what the study was about, and inside the shape is the year of publication (’18 = 2018, ’19 = 2019, *etc*).

Figure 3: Evidence Map of Studies on the Quality of Surgical Care



Quality and Safety

Eighteen studies reported quality and safety outcomes covering a broad range of procedures and will be discussed individually by surgical specialties including orthopedic (5 studies), lung resection (2), kidney transplant (2), CABG (2), hernia repair (1), cataract surgery (1), non-cardiac surgeries (2), and colectomy (1); 2 additional studies reported hospital-level patient safety indicators.

Orthopedic

Three studies reported outcomes for Veterans undergoing elective joint replacement (hip (THA) and knee (TKA)) and 1 for hip fracture repair, all meeting risk of bias criteria. While non-VA care was superior after hip fracture repair, outcomes for joint replacements were either equivalent between sites of care or reported some outcomes where VA care was better and others where CC/non-VA care was better (*ie*, mixed).

Harris et al reported that 24,407 VA Corporate Data Warehouse (CDW) patients had about half of the odds of developing any complication (such as joint or wound infection, myocardial infarction, and pulmonary embolism) compared to 18,964 Veterans who underwent TKAs in VA-paid CC identified through Medicare claims over 2017–2019 (adjusted OR of any complication = 0.45, 95% CI [0.38, 0.54]). However, in their local facility-level comparison, the adjusted odds of complications were higher in 5 of 130 VA facilities compared to their CC site (approximate ORs = 1.8–2.6, 95% CIs [1.1, 4.6]).

The second study of joint replacement outcomes from 2016–2019 by Rosen et al reported considerably lower readmissions nationally among 25,384 Veterans compared to 19,990 Veterans in VA-paid CC using combined VA CDW and Medicare (adjusted OR for all-cause readmissions = 0.35, 95% CI [0.30, 0.40]).[58] This trend varied at 3 individual CC sites that had lower readmissions compared to their corresponding VA (approximate ORs = 2.3–3.1, 95% CIs [1.0, 7.9]).

The third study of joint replacements found that VA care (*N* = 10,460) had substantially higher adjusted odds of complications (2.58, 95% CI [2.31, 2.89]) and readmissions (4.94, 95% CI [4.51, 5.41]) after elective primary TKA and THA at 30 days compared to 58,820 National Surgical Quality Improvement Program (NSQIP) database patients in 2014.[59] While the study by Harris and colleagues compared VA care to care delivered in the community via CHOICE, this study compared VA care to care in hospitals participating in NSQIP, which is a voluntary program consisting mostly of academic medical center hospitals, which differ from other hospitals on a number of characteristics.[60] Also, the methods for controlling for differences in patient characteristics and hospital setting were different between the 2 studies.

A study of timeliness of surgery and survival found that after hip fracture in patients 65 and older, the VA-NSQIP patients (*N* = 947) waited an average of 4 days more for surgery (mean admission date to date of surgery in VA = 5.64 [SD 43.25] and Medicare: 1.78 [SD 2.35]) compared to a propensity matched cohort of Medicare patients (*N* = 947) between 2003–2005. The Medicare cohort also had 70% higher odds of 30-day survival on average.[61]

A fifth study about joint replacement surgery compared the post-operative prescription of opioids. Between 2018 and 2021, there were 239 Veterans who received VA-paid care in the community and 323 Veterans who got surgery at the Salt Lake VAMC.[62] The median number of opioids prescribed at

discharge was 10 less at the VAMC (30.0, IQR = 10.0-47.5) compared to VA-paid community care (40.0, IQR = 30.0-60.0, $p < 0.01$).

Lung Resection

Two studies discussed quality and safety outcomes for Veterans undergoing pulmonary resection and/or non-small cell lung cancer (NSCLC) treatment. Both reported a measure of overall survival with VA based care experiencing superior or equal outcomes.

Heiden and colleagues found that Veterans in the VA CDW database had a small but significantly lower 30-day mortality rate (VA: 1.9% vs NCDB: 2.8%, $p < 0.001$) that persisted at 90 days compared to a matched non-Veteran population in the National Cancer Database (NCDB) between 2006–2016. Veterans in the VA also had longer adjusted median overall survival by about 6 months (71.4 vs 65.2 months, $p < 0.001$); they found no difference in unadjusted readmissions.

In a second study designed to assess racial disparities in management and outcomes of stage I NSCLC between Black and White patients, Williams et al compared 7,895 Veterans in VA CDW data with 8,744 non-Veterans in the SEER-Medicare database from 2001–2009.[63] They found that Black patients were 27% and 43% less likely to receive surgery in VA and non-VA cohorts, respectively. When they adjusted for treatment received and other patient-level covariates, there was no disparity in 5-year overall survival between Black and White patients in either setting.

Kidney Transplant

Two studies of kidney transplant quality and safety outcomes used data from the Scientific Registry of Transplant Recipients database; both studies met all our risk of bias criteria.

Augustine et al analyzed transplant rates, mortality, and delisting in 2,905 VA patients across 4 VA transplant centers with 3,751 privately insured and 3,109 Medicare patients from 2004 to 2016.[15] Compared to privately insured patients, VA patients had a lower adjusted hazard ratio (aHR) for deceased and living donor transplants combined (aHR = 0.72, 95% CI [0.65, 0.79]), slightly higher hazard ratio for delisting (aHR = 1.23, 95% CI [1.003, 1.50]), but no difference in adjusted mortality rates. Compared to Medicare patients, VA patients had a lower hazard ratio for mortality (aHR = 0.81, 95% CI [0.68, 0.96]) and were less likely to be removed from the waitlist (aHR = 0.82, 95% CI [0.68, 0.99]).

Kesseli et al found significantly lower observed versus expected (O:E) 30-day kidney transplant mortality rate in the 7 VA centers (N = 1,508) versus 286 non-VA centers (N = 117,680) (O:E VA = 0.27, 95% CI [0.05, 0.65]; O:E VA vs non-VA = 1.00, 95% CI [0.95, 1.06], $p = 0.03$).[64] Three-year mortality and graft survival, however, were not different between the VA and matched non-VA centers.

CABG

Barnett et al studied elective coronary revascularization in Veterans under 65 years old for 4,866 patients in VA hospitals and 952 Veterans in VA-paid CC sites using VA claims data.[25] Mortality and readmissions at 30 days after CABG were not different between VA care and CC. A second study by Yoon and colleagues compared CABG at VA and non-VA settings in 11 states; 30-day operative mortality was not significantly different, and 30-day all-cause readmission rates favored VA.[28]

Hernia Repair

Mull et al assessed nationwide the outcome of postoperative complications for patients getting hernia repair in VA and Veterans getting hernia repair in the community in 2018–2019.[65] Among 7,991 procedures nationwide, just under 10% were done in the community (772). Unadjusted comparisons showed postoperative complications were higher for community care patients than patients operated on at VA (6.6% vs 4.0%), but this difference was no longer present after adjusting for patient comorbidities, complexity of the hernia repair, and the historical pattern of community care referrals.

Colectomy

Simmonds et al used data from VASQIP and NSQIP to compare the outcomes of colectomy surgery.[66] After excluding emergency cases, there were 235,097 cases in NSQIP and 11,115 cases in VASQIP. In the non-emergency cases, there was no statistically significant difference in adjusted 30-day mortality (1.2% vs 1.4%, $p = 0.145$) but overall morbidity favored care at VA (17.7% vs 22%, $p < 0.001$). In unadjusted results, some outcomes favored VA (organ space infection, post-operative pneumonia, DVT, UTI) while others favored non-VA care (return to OR, wound dehiscence, prolonged use of ventilator, cardiac arrest, post-operative sepsis). Stratified analysis showed greater variability in outcomes after open surgery between VA and non-VA care compared to laparoscopic cases.

Non-Cardiac Surgery

George and colleagues[67] compared mortality after noncardiac surgery between VA NSQIP (N = 3,174,274) and NSQIP (N = 736,477).11 The authors found that VA care was associated with lower risk of overall postoperative death (adjusted relative risk 0.59, 95% CI [0.47, 0.75]; $p < 0.001$) and lower risk of postoperative death after a complication (adjusted relative risk 0.55, 95% CI [0.44, 0.68]). More recently, these authors updated this analysis to focus only on women Veterans, and observed similar results: adjusted relative risk of 30-day mortality was lower in VA (0.41, 95% CI [0.23, 0.76]; $p < 0.001$) and adjusted relative risk for failure to rescue was also lower in VA (0.41, 95% CI [0.18, 0.92]; $p < 0.001$).[68]

Cataract Surgery

One study reported similar adjusted 90-day complications for Veterans undergoing cataract surgery in the VA (N = 44,546) compared to Veterans obtaining VA-paid community care (N = 17,203) in Fiscal Year 2015 following complex and routine cataract surgeries (OR = 0.92, 95% CI [0.77, 1.10]).

Cochlear Implant Surgery

Tripathi and colleagues compared outcome of cochlear implant surgery between 83 Veterans receiving care at a single VA facility with 83 non-Veterans receiving care at non-VA hospitals.[6] The outcomes were several measures of hearing, the Consonant-Nucleus-Consonant Score, and the Arizona Biomedical Institute recognition score. At multiple time points, there were no statistically significant difference in scores between groups.

Patient Safety Indicators

Two studies used Hospital Compare data to evaluate VA hospital patient safety indicators (PSIs) with those reported by non-VA hospitals. Only Blay et al met all our criteria for risk of bias given its larger sample size.[36] They found lower postoperative inpatient deaths from a treatable complication in the 129 VA hospitals compared to 4010 non-VA hospitals between 2012–2015 (VA: 105.8 deaths per

1000 discharges, 95% CI [96.7, 114.92]; non-VA: 136.34 deaths per 1000 discharges, 95% CI [135.42, 137.26]) and found a slightly lower postoperative VTE rate by about 1 per 1000 discharges, but no difference in wound dehiscence rates.

The second study by Eid et al[41] reported lower postoperative inpatient deaths from treatable complications in the VA hospitals (*N* = 34) compared to non-VA hospitals (*N* = 319), similar to Blay et al. There was no difference in VTE rates but lower wound dehiscence rates among VA hospitals.

Access

We identified 6 articles reporting health care access. Three studies describe time to care (2 on time to surgery, 1 wait time to specialty appointment) and 3 studies measured geographic access in terms of distance to the provider; all met risk of bias criteria.

Time to Care

Wu and colleagues measured the proportion of 1,917,254 Veterans and 1,156,211 Medicare patients with documented cataract diagnoses who received cataract surgery within 1 and 5 years after diagnosis from 2002–2012.[69] About one-third fewer Veterans underwent surgery for cataracts within 1 year (VA: 6.3% vs non-VA: 18.5%; adjusted OR for receiving surgery = 3.39, 95% CI [3.36, 3.41]) and 5 years (VA: 12.6%, non-VA: 35.9%; adjusted OR = 3.89, 95% CI [3.87, 3.91]) compared to Medicare patients. This study did not assess the reasons why patients did not undergo cataract surgery.

Griffith et al compared wait times to specialty appointments among Veterans at VA versus Veterans in VA-paid CC using VA administrative data from 2013–2019 (orthopedic patients, VA: 506,945 and non-VA: 139,827; urology patients, VA: 353,019 and non-VA: 37,089).[48] Mean wait times declined over the study period, and on average were 6 days shorter in VA sites for orthopedics (VA: 36.2 days [SD 9.3] vs CC: 43.6 days [SD 12.9]) and 14 days shorter in VA sites for urology (VA: 36.1 days [SD 9.5] vs CC: 50.5 days [SD 14.5]).

The third study evaluated time from carpal tunnel referral to time of surgery. Due to a heterogenous comparison group that may overlap with the VA group, this study was deemed fair quality.[70] Veterans treated only within the VA had shorter median time from primary care provider (PCP) referral to carpal tunnel release by about 200 days compared to the group with mixed VA plus VA-paid community care.

Geographic Access

Three national studies found travel distance to be longer for VA care; all of these studies met the risk of bias criteria.

Augustine et al (discussed above in Quality and Safety) reported median distance to the 4 matched kidney transplant centers from Veteran residences.[15] Transplants at a VA required nearly 8-fold greater travel distance at 347.0 miles (interquartile range [IQR] 196.9–701.8) versus 42.5 miles (IQR 12.9–101.1) for privately insured patients and 55.6 miles (IQR 16.4–102.6) for Medicare patients. Similarly, the study of elective CABG operations by Barnett et al (see above) found that net travel distance was 73.3 miles less for VA-paid CC Veterans compared to Veterans undergoing surgery at the VA hospital.[25]

In a study using 2015 CDW data, Pettey and colleagues calculated median travel distances nationally for Veterans undergoing cataract surgery to be 31.2 miles for VA versus 19.7 miles for VA-paid CC.[71]

Patient Experience

One study describing patient experience was fair quality. Eid et al used Hospital Consumer Assessment of Healthcare Providers patient satisfaction scores in 2018 in 3 regions and found no differences in overall hospital rating, but the VA performed slightly worse when patients were asked if they would recommend the hospital compared to non-Veteran patients at non-VA hospitals.[72]

Cost/Efficiency

Three studies reported cost outcomes for knee replacements (TKA), cataract surgery, and elective CABG. Three studies reported efficiency measures as length of stay. All study designs were previously described in results about other outcomes above.

Costs

A study by Wagner et al compared VA hospital versus CC TKAs and cataract surgeries using VA CDW data from 2017–2018.[73] The mean total unadjusted inpatient cost of TKAs was substantially higher in VA care (6,179 VA patients: $28,969 [SD $10778] vs 6,337 VA-paid CC patients: $13,339 [SD $23,698]), and the pattern persisted after controlling for location of service and patient factors. Findings were the same for outpatient cataract surgeries, with the adjusted model demonstrating that, compared to VA-paid CC, VA hospital cataract procedures cost $2,680 more (standard error 15.8).

Barnett and colleagues (described above) found a lower mean adjusted total cost of elective CABG in Veterans receiving VA-paid CC by $8,525, which included index procedure, readmission, and extra travel costs compared to VA care (VA: $65,264 [SD $47,978] for VA vs CC: $56,749 [SD $77,283] for CC, $p < 0.01$).[25]

The study by Yoon comparing CABG between VA and non-VA care in 11 states found higher costs in VA; for Veteran patients age 65 or over this difference was a mean of $76,200 in VA compared with $53,100 in non-VA care.[28]

Length of Stay

Veterans at VA hospitals experienced longer lengths of stays compared to non-Veterans in 4 studies. For example, mean length of stay after lung resection was about 1 day shorter among non-Veterans (VA: 8.12 days [SD 6.59]; non-VA: 7.08 days [SD 7.54], $p > 0.001$).[74] Following elective THA, a higher proportion of patients had a length of stay 4 days or greater in the VA sample (47% vs 17%, $p < 0.001$).[59] For CABG, the study by Yoon and colleagues found a mean length of stay for Veteran patients 65 and older of 11.7 days in VA compared with 9.6 days in non-VA settings.[28]

DISCUSSION

Our systematic review identified 50 studies of non-surgical care and 24 studies of surgical care comparing quality, safety, access, patient experience, or efficiency/cost between VA-delivered care and non-VA-delivered care. The large majority of studies assessed quality and safety, followed by comparisons of access to care. Few studies assessed patient experience or cost/efficiency. We found no studies comparing VA to non-VA care on equity. We found 2 studies comparing VA to non-VA care on equity.

In the domain of quality and safety, the great majority of studies found that VA care is as good as, or better than, care in the community. This was the case for both surgical care and non-surgical care, and for community care of Veterans and community care of non-Veterans. For the domains of access and of cost/efficiency, the studies were more evenly distributed between the categories of VA care is better, VA and community care are about the same, and community care is better. The few studies of patient experience found that VA care and community care were about the same or VA care was better. We did not identify any study the found that patient experience was better in community care.

The studies best able to address implications of the CHOICE and MISSION acts were designed to capture data of Veterans receiving VA-paid community care. In these comparisons, quality and safety was generally better in VA-delivered care for studies of nonsurgical care and of about equal or mixed results for studies of surgical care. Differences between sites of care were more mixed for the other domains: access, patient experience, and cost.

Key among the quality and safety outcomes is mortality. Among studies of surgical care, the overall trend of the broader domain held. One study of Veterans in community care had equivalent mortality after CABG, and 5 other studies comparing mortality to non-Veterans were distributed between lower mortality in the VA (after lung resection, non-cardiac surgery, and surgical inpatient deaths) or a mixture of VA better and no difference (2 studies of kidney transplant); there were no cases of lower mortality in community care among the high-quality studies.

The few exceptions to these general findings deserve noting. For surgical care, there was a consistent finding that VA length of stay was longer than in non-VA care. In 4 studies of procedures, the investigators found that in some cases VA-purchased care was less expensive than the estimate of costs for VA to deliver the procedure. In several studies of both non-surgical care and surgical care, there was a greater travel distance to receive care from VA than from the community, although the importance of these differences may vary for different Veteran stakeholders. Lastly, even in studies that found, on average, that VA care was better than community care, there was some regional variation such that in a few geographic areas VA care had worse outcomes than community care or that a few measures of quality were better in the community than at VA.

These results notwithstanding, the overarching conclusion from the published studies since 2015 reinforces the conclusions of the 2 prior reviews of studies comparing VA care to non-VA care: on average, VA care performs better than or similar to non-VA care in the domain of quality and safety. While this relationship persists nationally, studies comparing local VA facilities to their community counterpart may reveal areas of local deviance from national trends. Identifying where there are such differences in care will be critical to ongoing comparisons in the future. In addition, these findings highlight focused areas for potential VA performance improvement, such as hip fracture repair.

This review expands those earlier conclusions to include the outcome domains of access, patient experience, and efficiency/cost. For these domains, we found more studies in this review (studies published since 2015) than in the prior review that covered 2005–2015. Thus, we believe we can draw some early conclusions about comparisons between VA and non-VA care: while not as striking as in the quality/safety domain, studies tended to find that VA care was about the same or better than non-VA care, with the exceptions of travel distance and length of stay.

How might these data be used? First, comparisons are useful in identifying possible quality issues where VA performance should be improved. Looking at specific outcomes is important. Second, comparisons of VA versus community care paid for by VA are critical to shaping decisions about the expansion of the program and determining whether sending Veterans out for care in an effort to improve timeliness or convenience comes at a cost in terms of clinical outcomes. Third, some comparisons are useful for judging the potential advantages of the VA's national system of integrated care versus care delivery in less organized settings, such as delivery of preventive care and control of chronic disease.

Limitations

In addition to the usual limitation of any systematic review, namely the quantity and quality of the original studies, we add the possibility of publication bias or subconscious investigator bias, in that most of the published studies are by VA authors. We scrutinized each study for objective evidence of bias and diminished the degree to which studies with such bias contributed to our overall conclusions. Nevertheless, we cannot assess the degree to which unmeasurable bias or the decision to undertake a comparative study and what topics to focus on are influenced by VA investigators. This may be something that can only be resolved with difficulty and waiting until other health systems adopt the same kind of learning health system culture that VA has, which results in self-inspection of quality of care compared to other health care systems.

Beyond this, the most important limitation to any of these comparisons is the possibility of confounding by choice of care delivery site—in other words, the comparability of the patients getting VA care to the patients getting care outside VA, whether they be Veterans getting community care or non-Veterans getting community care. Studies attempted to control for this by using multivariable methods to adjust for baseline differences between groups, but these methods are limited by the availability of baseline variables and the degree to which those variables are captured. Thus, 1 study of outcomes of heart failure care was able to adjust for the presence or absence of a large number of comorbidities, but not able to adjust for baseline differences in the severity of heart failure. Providers in fee-for-service health care have a financial incentive to code for comorbidities that VA providers do not have; thus, there may be differential capture of this between patients in VA and outside VA care. Likewise, most studies were not able to adjust for differences in the social determinants of health, which may affect everything from length of stay to readmission to outcomes of chronic illness. VA patients are known to bear a heavier burden of social determinants of health than patients outside VA care. To the extent these burdens are uncaptured and unadjusted for, this discrepancy places VA care at a disadvantage compared to patients outside VA care for such outcomes. The bias introduced by this heavier burden makes the findings that VA care was equivalent to or better than non-VA care even more exceptional.

An additional limitation in drawing overall conclusions is the relative value placed on different outcomes. For example, the small but statistically significant benefit of VA care in terms of mortality

seen in several studies would seem to be more "important" than the small but statistically significant benefit seen for community care in post-discharge receipt of pulmonary rehabilitation for patients with COPD—in other words, one study does not balance out the other. Similarly, the degree to which travel distance is an outcome of importance to Veterans is unknown; it was included as an outcome in this review since travel distance was a criterion of eligibility for care under the CHOICE act. But we did not attempt to classify the outcomes as "important" or "less important," since at the edges this would invariably require subjective decisions by the research team—for example, which is more important, a shorter wait time for a urology appointment or a longer length of stay after joint replacement surgery?—and the value of these outcomes maybe different to different stakeholders. Thus, we presented the outcomes without attempting to classify them by degree of importance.

An additional limitation in arriving at overarching conclusions is that the conditions and procedures for which such comparisons have been published are only a small fraction of the care Veterans receive; their results cannot be generalized to all kinds of care.

FUTURE RESEARCH

Despite several dozen publications comparing VA care with non-VA care, there are a number of clinical areas where there are large amounts of care delivered in the community through the MISSION act, such as physical medicine and rehabilitation, yet no studies comparing quality of care. In addition, studies that report lower cost for purchased community care for some procedures (joint replacement, CABG) than the estimates of cost for VA to deliver that care need to have more sophisticated analyses that model what would happen if VA increases the purchase of community care. It would greatly facilitate comparisons of VA care to non-VA care if non-VA care had the same degree of comprehensive performance data that are publicly available. Lastly, we expect that comparing VA care with non-VA care is a moving target, unlike, for example, the value of beta blockers after myocardial infarction, and thus this topic needs regular updating of published studies to keep this review up to date. This is now the third update since completion of the original review.

CONCLUSIONS

In general, most published studies of comparisons of quality of care show that Veterans getting care from VA get the same or better quality care than Veterans getting community care or the general public getting non-VA care.

REFERENCES

1. Bagshaw K, Gettel CJ, Qin L, et al. Inclusion of Veterans Health Administration hospitals in Centers for Medicare & Medicaid Services Overall Hospital Quality Star Ratings. *J Hosp Med*. Oct 21 2024;doi:10.1002/jhm.13523
2. Yoon J, Chow A, Jiang H, Wong E, Chang ET. Comparing Quality, Costs, and Outcomes of VA and Community Primary Care for Patients with Diabetes. *J Gen Intern Med*. Aug 5 2024;doi:10.1007/s11606-024-08968-4
3. Axon RN, Ward R, Mohamed A, et al. Trends in Veteran hospitalizations and associated readmissions and emergency department visits during the MISSION Act era. *Health Serv Res*. Oct 2024;59(5):e14332. doi:10.1111/1475-6773.14332
4. Eid MA, Lands H, Soybel D, Wong SL. Factors Contributing to Patient Satisfaction Among VA Medical Center and Non-VA Medical Center Hospitals. *J Surg Res*. Aug 2024;300:199-204. doi:10.1016/j.jss.2024.03.014
5. O'Hanlon CE, Zeliadt SB, DeFaccio R, Gaj L, Bokhour BG, Taylor SL. Patient-reported pain and physical health for acupuncture and chiropractic care delivered by Veterans Affairs versus community providers. *PLoS One*. 2024;19(5):e0303651. doi:10.1371/journal.pone.0303651
6. Tripathi SH, Adams SM, Wong EM, et al. Comparison of Outcomes After Cochlear Implantation in a Veteran Versus Nonveteran Population. *Otol Neurotol Open*. Sep 2024;4(3):e058. doi:10.1097/ono.0000000000000058
7. Matula SR, Trivedi AN, Miake-Lye I, Glassman PA, Shekelle P, Asch S. Comparisons of quality of surgical care between the US Department of Veterans Affairs and the private sector. *J Am Coll Surg*. Dec 2010;211(6):823-32. doi:10.1016/j.jamcollsurg.2010.09.001
8. O'Hanlon C, Huang C, Sloss E, et al. Comparing VA and Non-VA Quality of Care: A Systematic Review. *J Gen Intern Med*. Jan 2017;32(1):105-121. doi:10.1007/s11606-016-3775-2
9. Baker A. *Crossing the Quality Chasm: A New Health System for the 21st Century*. vol 323(7322). BMJ; 2001.
10. Veterans Access, Choice, and Accountability Act of 2014, (2014).
11. VA MISSON Act of 2018, (2018).
12. Medicine Io. Crossing the Quality Chasm: A New Health System for the 21st Century. Institute of Medicine; 2001.
13. Jones LG, Sin MK, Hage FG, et al. 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). *Circ Heart Fail*. Jan 2015;8(1):17-24. doi:10.1161/circheartfailure.114.001300
14. Florez HJ, Ghosh A, Pop-Busui R, et al. Differences in complications, cardiovascular risk factor, and diabetes management among participants enrolled at veterans affairs (VA) and non-VA medical centers in the glycemia reduction approaches in diabetes: A comparative effectiveness study (GRADE). *Diabetes Res Clin Pract*. Dec 28 2021;184:109188. doi:10.1016/j.diabres.2021.109188
15. Augustine JJ, Arrigain S, Balabhadrapatruni K, Desai N, Schold JD. Significantly Lower Rates of Kidney Transplantation among Candidates Listed with the Veterans Administration: A National and Local Comparison. *J Am Soc Nephrol*. Oct 2018;29(10):2574-2582. doi:10.1681/asn.2017111204

16. Burke JF, Kerr EA, McCammon RJ, Holleman R, Langa KM, Callaghan BC. Neuroimaging overuse is more common in Medicare compared with the VA. *Neurology*. Aug 23 2016;87(8):792-8. doi:10.1212/wnl.0000000000002963
17. Lee D, Begley CE. Delays in Seeking Health Care: Comparison of Veterans and the General Population. *J Public Health Manag Pract*. Mar/Apr 2017;23(2):160-168. doi:10.1097/phh.0000000000000420
18. Fortney JC, Carey EP, Rajan S, Rise PJ, Gunzburger EC, Felker BL. A comparison of patient-reported mental health outcomes for the Department of Veterans Affairs' regional telehealth and Community Care Programs. *Health Serv Res*. Aug 2022;57(4):755-763. doi:10.1111/1475-6773.13993
19. Petros V, Tsambikos E, Madhoun M, Tierney WM. Impact of Community Referral on Colonoscopy Quality Metrics in a Veterans Affairs Medical Center. *Clin Transl Gastroenterol*. Jan 1 2022;13(3):e00460. doi:10.14309/ctg.0000000000000460
20. Heidenreich PA, Zapata A, Shieh L, Oliva N, Sahay A. Patient ratings of Veterans Affairs and affiliated hospitals. *Am J Manag Care*. Jun 2017;23(6):382-384.
21. Mody L, Greene MT, Saint S, et al. Comparing Catheter-Associated Urinary Tract Infection Prevention Programs Between Veterans Affairs Nursing Homes and Non-Veterans Affairs Nursing Homes. *Infect Control Hosp Epidemiol*. Mar 2017;38(3):287-293. doi:10.1017/ice.2016.279
22. Axon RN, Gebregziabher M, Everett CJ, Heidenreich P, Hunt KJ. Dual health care system use is associated with higher rates of hospitalization and hospital readmission among veterans with heart failure. *Am Heart J*. Apr 2016;174:157-63. doi:10.1016/j.ahj.2015.09.023
23. Shields MC, Rosenthal MB. Quality of Inpatient Psychiatric Care at VA, Other Government, Nonprofit, and For-Profit Hospitals: A Comparison. *Psychiatr Serv*. Mar 1 2017;68(3):225-230. doi:10.1176/appi.ps.201600074
24. Presley CJ, Kaur K, Han L, et al. Aggressive End-of-Life Care in the Veterans Health Administration versus Fee-for-Service Medicare among Patients with Advanced Lung Cancer. *J Palliat Med*. Jun 2022;25(6):932-939. doi:10.1089/jpm.2021.0436
25. Barnett PG, Hong JS, Carey E, Grunwald GK, Joynt Maddox K, Maddox TM. Comparison of Accessibility, Cost, and Quality of Elective Coronary Revascularization Between Veterans Affairs and Community Care Hospitals. *JAMA Cardiol*. Feb 1 2018;3(2):133-141. doi:10.1001/jamacardio.2017.4843
26. Nuti SV, Qin L, Rumsfeld JS, et al. Association of Admission to Veterans Affairs Hospitals vs Non-Veterans Affairs Hospitals With Mortality and Readmission Rates Among Older Men Hospitalized With Acute Myocardial Infarction, Heart Failure, or Pneumonia. *JAMA*. Feb 9 2016;315(6):582-92. doi:10.1001/jama.2016.0278
27. Thorpe CT, Gellad WF, Mor MK, et al. Effect of Dual Use of Veterans Affairs and Medicare Part D Drug Benefits on Antihypertensive Medication Supply in a National Cohort of Veterans with Dementia. *Health Serv Res*. Dec 2018;53 Suppl 3(Suppl Suppl 3):5375-5401. doi:10.1111/1475-6773.13055
28. Yoon J, Phibbs CS, Ong MK, et al. Outcomes of Veterans Treated in Veterans Affairs Hospitals vs Non-Veterans Affairs Hospitals. *JAMA Netw Open*. Dec 1 2023;6(12):e2345898. doi:10.1001/jamanetworkopen.2023.45898
29. Weeda ER, Ward R, Gebregziabher M, Axon RN, Taber DJ. Medication Safety Events After Acute Myocardial Infarction Among Veterans Treated at VA Versus Non-VA Hospitals. *Med Care*. Oct 4 2023;doi:10.1097/mlr.0000000000001935

30. Intrator O, O'Hanlon CE, Makineni R, Scott WJ, Saliba D. Comparing Post-Acute Populations and Care in Veterans Affairs and Community Nursing Homes. *J Am Med Dir Assoc*. Dec 2021;22(12):2425-2431.e7. doi:10.1016/j.jamda.2021.10.007
31. Jia H, Pei Q, Sullivan CT, et al. Poststroke Rehabilitation and Restorative Care Utilization: A Comparison Between VA Community Living Centers and VA-contracted Community Nursing Homes. *Med Care*. Mar 2016;54(3):235-42. doi:10.1097/mlr.0000000000000494
32. Wang V, Coffman CJ, Stechuchak KM, et al. Survival among Veterans Obtaining Dialysis in VA and Non-VA Settings. *J Am Soc Nephrol*. Jan 2019;30(1):159-168. doi:10.1681/asn.2018050521
33. Wang V, Coffman CJ, Stechuchak KM, et al. Comparative Assessment of Utilization and Hospital Outcomes of Veterans Receiving VA and Non-VA Outpatient Dialysis. *Health Serv Res*. Dec 2018;53 Suppl 3(Suppl Suppl 3):5309-5330. doi:10.1111/1475-6773.13022
34. Kurella Tamura M, Thomas IC, Montez-Rath ME, et al. Dialysis Initiation and Mortality Among Older Veterans With Kidney Failure Treated in Medicare vs the Department of Veterans Affairs. *JAMA Intern Med*. May 1 2018;178(5):657-664. doi:10.1001/jamainternmed.2018.0411
35. Cashion W, Gellad WF, Sileanu FE, et al. Source of Post-Transplant Care and Mortality among Kidney Transplant Recipients Dually Enrolled in VA and Medicare. *Clin J Am Soc Nephrol*. Mar 8 2021;16(3):437-445. doi:10.2215/CJN.10020620
36. Blay E, Jr., DeLancey JO, Hewitt DB, Chung JW, Bilimoria KY. Initial Public Reporting of Quality at Veterans Affairs vs Non-Veterans Affairs Hospitals. *JAMA Intern Med*. Jun 1 2017;177(6):882-885. doi:10.1001/jamainternmed.2017.0605
37. Anhang Price R, Sloss EM, Cefalu M, Farmer CM, Hussey PS. Comparing Quality of Care in Veterans Affairs and Non-Veterans Affairs Settings. *J Gen Intern Med*. Oct 2018;33(10):1631-1638. doi:10.1007/s11606-018-4433-7
38. LaBedz SL, Krishnan JA, Chung YC, et al. Chronic Obstructive Pulmonary Disease Outcomes at Veterans Affairs Versus Non-Veterans Affairs Hospitals. *Chronic Obstr Pulm Dis*. Jul 28 2021;8(3):306-313. doi:10.15326/jcopdf.2021.0201
39. Vercammen-Grandjean C, Schopfer DW, Zhang N, Whooley MA. Participation in Pulmonary Rehabilitation by Veterans Health Administration and Medicare Beneficiaries After Hospitalization for Chronic Obstructive Pulmonary Disease. *J Cardiopulm Rehabil Prev*. Nov 2018;38(6):406-410. doi:10.1097/hcr.0000000000000357
40. Watkins KE, Smith B, Akincigil A, et al. The Quality of Medication Treatment for Mental Disorders in the Department of Veterans Affairs and in Private-Sector Plans. *Psychiatr Serv*. Apr 1 2016;67(4):391-6. doi:10.1176/appi.ps.201400537
41. Ohl ME, Richardson Miell K, Beck BF, et al. Mortality Among US Veterans Admitted to Community vs Veterans Health Administration Hospitals for COVID-19. *JAMA Netw Open*. May 1 2023;6(5):e2315902. doi:10.1001/jamanetworkopen.2023.15902
42. Chan DC, Danesh K, Costantini S, Card D, Taylor L, Studdert DM. Mortality among US veterans after emergency visits to Veterans Affairs and other hospitals: retrospective cohort study. *BMJ*. Feb 16 2022;376:e068099. doi:10.1136/bmj-2021-068099
43. Gidwani-Marszowski R, Faricy-Anderson K, Asch SM, Illarmo S, Ananth L, Patel MI. Potentially avoidable hospitalizations after chemotherapy: Differences across medicare and the Veterans Health Administration. *Cancer*. Jul 15 2020;126(14):3297-3302. doi:10.1002/cncr.32896
44. Scheuner MT, Huynh AK, Chanfreau-Coffinier C, et al. Demographic Differences Among US Department of Veterans Affairs Patients Referred for Genetic Consultation to a Centralized VA

Telehealth Program, VA Medical Centers, or the Community. *JAMA Netw Open*. Apr 1 2022;5(4):e226687. doi:10.1001/jamanetworkopen.2022.6687
45. Ramanathan S, Evans CT, Hershow RC, et al. Comparison of guideline concordant antibiotic prophylaxis in Veterans Affairs and non-Veterans Affairs dental settings among those with cardiac conditions or prosthetic joints. *BMC Infect Dis*. Jun 23 2023;23(1):427. doi:10.1186/s12879-023-08400-y
46. Penn M, Bhatnagar S, Kuy S, et al. Comparison of Wait Times for New Patients Between the Private Sector and United States Department of Veterans Affairs Medical Centers. *JAMA Netw Open*. Jan 4 2019;2(1):e187096. doi:10.1001/jamanetworkopen.2018.7096
47. Gurewich D, Shwartz M, Beilstein-Wedel E, Davila H, Rosen AK. Did Access to Care Improve Since Passage of the Veterans Choice Act?: Differences Between Rural and Urban Veterans. *Med Care*. Jun 1 2021;59(Suppl 3):S270-S278. doi:10.1097/MLR.0000000000001490
48. Griffith KN, Ndugga NJ, Pizer SD. Appointment Wait Times for Specialty Care in Veterans Health Administration Facilities vs Community Medical Centers. *JAMA Netw Open*. Aug 3 2020;3(8):e2014313. doi:10.1001/jamanetworkopen.2020.14313
49. Feyman Y, Asfaw DA, Griffith KN. Geographic Variation in Appointment Wait Times for US Military Veterans. *JAMA Netw Open*. Aug 1 2022;5(8):e2228783. doi:10.1001/jamanetworkopen.2022.28783
50. Vanneman ME, Wagner TH, Shwartz M, et al. Veterans' Experiences With Outpatient Care: Comparing The Veterans Affairs System With Community-Based Care. *Health Aff (Millwood)*. Aug 2020;39(8):1368-1376. doi:10.1377/hlthaff.2019.01375
51. Davila H, Rosen AK, Beilstein-Wedel E, Shwartz M, Chatelain L, Jr., Gurewich D. Rural Veterans' Experiences With Outpatient Care in the Veterans Health Administration Versus Community Care. *Med Care*. Jun 1 2021;59(Suppl 3):S286-S291. doi:10.1097/MLR.0000000000001552
52. Wachterman MW, Smith D, Carpenter JG, et al. A comparison of end-of-life care quality for Veterans receiving hospice in VA nursing homes and community nursing homes. *J Am Geriatr Soc*. Jan 2024;72(1):59-68. doi:10.1111/jgs.18606
53. Makarov DV, Ciprut S, Walter D, et al. Association Between Guideline-Discordant Prostate Cancer Imaging Rates and Health Care Service Among Veterans and Medicare Recipients. *JAMA Netw Open*. Aug 3 2018;1(4):e181172. doi:10.1001/jamanetworkopen.2018.1172
54. Gidwani R, Asch SM, Needleman J, et al. End-of-Life Cost Trajectories in Cancer Patients Treated by Medicare versus the Veterans Health Administration. *J Am Geriatr Soc*. Apr 2021;69(4):916-923. doi:10.1111/jgs.16941
55. Pickering AN, Zhao X, Sileanu FE, et al. Assessment of Care Cascades Following Low-Value Prostate-Specific Antigen Testing Among Veterans Dually Enrolled in the US Veterans Health Administration and Medicare Systems. *JAMA Netw Open*. Dec 1 2022;5(12):e2247180. doi:10.1001/jamanetworkopen.2022.47180
56. Gaffney A, Himmelstein DU, Dickman S, McCormick D, Woolhandler S. Uptake and Equity in Influenza Vaccination Among Veterans with VA Coverage, Veterans Without VA Coverage, and Non-Veterans in the USA, 2019-2020. *J Gen Intern Med*. Sep 26 2022:1-8. doi:10.1007/s11606-022-07797-7
57. Wadhwa A, Roscoe C, Duran EA, et al. Neighborhood Deprivation, Race and Ethnicity, and Prostate Cancer Outcomes Across California Health Care Systems. *JAMA Netw Open*. Mar 4 2024;7(3):e242852. doi:10.1001/jamanetworkopen.2024.2852

58. Rosen A, Beilstein-Wedel EE, Harris AH, et al. Comparing Postoperative Readmission Rates between Veterans Receiving Total Knee Arthroplasty in the Veterans Health Administration (VA) versus Community Care. *Medical Care*. 2021;
59. Frisch NB, Courtney PM, Darrith B, Copeland LA, Gerlinger TL. Veterans Undergoing Total Hip and Knee Arthroplasty: 30-day Outcomes as Compared to the General Population. *J Am Acad Orthop Surg*. Nov 15 2020;28(22):923-929. doi:10.5435/jaaos-d-19-00775
60. Regenbogen SE ON, Dimick JB. Hospital Characteristics and Participation in the National Surgical Quality Improvement Program. *Journal of Surgical Research*. 2012;172(2)
61. Hutt E, Radcliff TA, Henderson W, Maciejewski M, Cowper-Ripley D, Whitfield E. Comparing Survival Following Hip Fracture Repair in VHA and Non-VHA Facilities. *Geriatr Orthop Surg Rehabil*. Mar 2015;6(1):22-7. doi:10.1177/2151458514561787
62. Buys MJ, Anderson Z, Bayless K, et al. Postsurgical opioid prescribing among veterans using community care for orthopedic surgery at non-VA hospitals compared to a VA hospital with a transitional pain service: a retrospective cohort study. *Reg Anesth Pain Med*. Apr 27 2024;doi:10.1136/rapm-2023-105162
63. Williams CD, Alpert N, Redding TSt, et al. Racial Differences in Treatment and Survival among Veterans and Non-Veterans with Stage I NSCLC: An Evaluation of Veterans Affairs and SEER-Medicare Populations. *Cancer Epidemiol Biomarkers Prev*. Jan 2020;29(1):112-118. doi:10.1158/1055-9965.Epi-19-0245
64. Kesseli SJ, Samoylova ML, Moris D, et al. Outcomes in Kidney Transplantation Between Veterans Affairs and Civilian Hospitals: Considerations in the Context of the MISSION Act. *Ann Surg*. Sep 1 2020;272(3):506-510. doi:10.1097/sla.0000000000004119
65. Mull HJ, Kabdiyeva A, Ndugga N, Gordon SH, Garrido MM, Pizer SD. What is the role of selection bias in quality comparisons between the Veterans Health Administration and community care? Example of elective hernia surgery. *Health Serv Res*. Dec 7 2022;doi:10.1111/1475-6773.14113
66. Simmonds A, Keller-Biehl L, Khader A, Timmerman W, Amendola M. Comparing Outcomes in Patients Undergoing Colectomy at Veteran Affairs Hospitals and Non-Veteran Affairs Hospitals: A Multiinstitutional Study. *J Surg Res*. Mar 2024;295:449-456. doi:10.1016/j.jss.2023.11.034
67. George EL, Massarweh NN, Youk A, et al. Comparing Veterans Affairs and Private Sector Perioperative Outcomes After Noncardiac Surgery. *JAMA Surg*. Dec 29 2021;doi:10.1001/jamasurg.2021.6488
68. George EL, Jacobs MA, Reitz KM, et al. Outcomes of Women Undergoing Noncardiac Surgery in Veterans Affairs Compared With Non-Veterans Affairs Care Settings. *JAMA Surg*. May 1 2024;159(5):501-509. doi:10.1001/jamasurg.2023.8081
69. Wu AM, Wu CM, Tseng VL, et al. Characteristics Associated With Receiving Cataract Surgery in the US Medicare and Veterans Health Administration Populations. *JAMA Ophthalmol*. Jul 1 2018;136(7):738-745. doi:10.1001/jamaophthalmol.2018.1361
70. Billig JI, Evans RR, Kerr EA, Hayward RA, Sears ED. The Impact of Community Care Referral on Time to Surgery for Veterans With Carpal Tunnel Syndrome. *Med Care*. Jun 1 2021;59(Suppl 3):S279-S285. doi:10.1097/MLR.0000000000001469
71. Pettey WBP, Wagner TH, Rosen AK, Beilstein-Wedel E, Shwartz M, Vanneman ME. Comparing Driving Miles for Department of Veterans Affairs-delivered Versus Department of Veterans Affairs-purchased Cataract Surgery. *Med Care*. Jun 1 2021;59(Suppl 3):S307-S313. doi:10.1097/MLR.0000000000001491

72. Eid MA, Barnes JA, Trooboff SW, Goodney PP, Wong SL. A Comparison of Surgical Quality and Patient Satisfaction Indicators Between VA Hospitals and Hospitals Near VA Hospitals. *J Surg Res*. Nov 2020;255:339-345. doi:10.1016/j.jss.2020.05.071
73. Wagner TH, Lo J, Beilstein-Wedel E, Vanneman ME, Shwartz M, Rosen AK. Estimating the Cost of Surgical Care Purchased in the Community by the Veterans Health Administration. *MDM Policy Pract*. Jul-Dec 2021;6(2):23814683211057902. doi:10.1177/23814683211057902
74. Heiden BT, Eaton DB, Jr., Chang SH, et al. Comparison between Veteran and Non-Veteran Populations with Clinical Stage I Non-Small Cell Lung Cancer Undergoing Surgery. *Ann Surg*. May 11 2021;doi:10.1097/sla.0000000000004928
75. Harris AHS, Beilstein-Wedel EE, Rosen AK, et al. Comparing Complication Rates After Elective Total Knee Arthroplasty Delivered Or Purchased By The VA. *Health Aff (Millwood)*. Aug 2021;40(8):1312-1320. doi:10.1377/hlthaff.2020.01679
76. Rosen AK, Vanneman ME, O'Brien WJ, et al. Comparing cataract surgery complication rates in veterans receiving VA and community care. *Health Serv Res*. Oct 2020;55(5):690-700. doi:10.1111/1475-6773.13320

Appendix

SEARCH STRATEGIES

		Search Statement	Results
PubMed		"United States Department of Veterans Affairs"[mh] OR "Veterans Health"[mh] OR "veterans health services"[mh] OR "Hospitals, Veterans"[mh] OR "veterans affairs"[tiab] OR "veterans health"[tiab] OR "veterans choice"[tiab] AND Compar*[ti] OR "vs"[ti] OR versus[ti] OR difference[ti] OR "dually enrolled"[tiab] OR "dual system*"[tiab] OR "dual enrollment"[tiab] OR "overlapping use"[tiab] OR (examine*[tiab] AND (access*[tiab] OR availab*[tiab])) OR (("community care*"[tiab] OR "Community Health Services"[Majr]) AND impact*[tiab]) OR ((other[tiab] OR "private sector"[tiab] OR "non-VA"[tiab] OR medicare[tiab] OR "commercially managed"[tiab] OR "non veteran*"[tiab] OR "non VAMC"[tiab] OR "non va"[tiab] OR "non federal hospital*"[tiab] OR "university hospital*"[tiab] OR nonveteran*[tiab] OR "nonfederal hospital*"[tiab]) AND (compar*[tiab] OR comparative study[pt]))	
	1	**1/1/2015–3/9/2023**	**2200**
	2	**3/1/2023–10/6/2023**	**224**
	3	**10/1/2023–5/9/2024**	**238**
	4	**5/1/2024–11/14/2024**	**172**
PsycInfo		TI("Veterans Health" OR "veterans affairs" OR "veterans health" OR "veterans choice") OR AB("Veterans Health" OR "veterans affairs" OR "veterans health" OR "veterans choice") AND TI(Compar* OR "vs" OR versus OR difference) OR (TI("dually enrolled" OR "dual system*" OR "dual enrollment" OR "overlapping use") OR AB("dually enrolled" OR "dual system*" OR "dual enrollment" OR "overlapping use")) OR (TI(examine*) AND TI(access* OR availab*)) OR (TI(examine*) AND AB(access* OR availab*)) OR (AB(examine*) AND TI(access* OR availab*)) OR (AB(examine*) AND AB(access* OR availab*)) OR ((TI("community care*") OR AB("community care*") OR MM("Community Mental Health Services")) AND (TI(impact* OR AB(impact*))) OR (TI(other OR "private sector" OR "non-VA" OR medicare OR "commercially managed" OR "non veteran*" OR "non VAMC" OR "non va" OR "non federal hospital*" OR "university hospital*" OR nonveteran* OR "nonfederal hospital*") OR AB(other OR "private sector" OR "non-VA" OR medicare OR	

		"commercially managed" OR "non veteran*" OR "non VAMC" OR "non va" OR "non federal hospital*" OR "university hospital*" OR nonveteran* OR "nonfederal hospital*")) AND (TI(compar*) OR AB(compar*) OR TI("comparative study")))	
	1	**1/1/2015–3/10/2023**	**112**
	2	**3/1/2023–10/6/2023**	**3**
	3	**10/1/2023–5/9/2024**	**7**
	4	**5/1/2024–11/14/2024**	**5**
Web of Science		TI=("veterans affairs" OR "veterans health" OR "veterans choice" OR "veterans hospital") OR AB=("veterans affairs" OR "veterans health" OR "veterans choice" OR "veterans hospital") AND TI=(compar* OR "vs" OR versus OR difference) OR TI=("dually enrolled" OR "dual system*" OR "dual enrollment" OR "overlapping use") OR AB=("dually enrolled" OR "dual system*" OR "dual enrollment" OR "overlapping use") OR ((TI=(examine*) OR AB=(examine*)) AND (TI=(access* OR availab*) OR AB=(access* OR availab*))) OR ((TI=("community care*") OR AB=("community care*")) AND (TI=(impact*) OR AB=(impact*))) OR (TI=(other OR "private sector" OR "non-VA" OR medicare OR "commercially managed" OR "non veteran*" OR "non VAMC" OR "non va" OR "non federal hospital*" OR "university hospital*" OR nonveteran* OR "nonfederal hospital*") OR AB=(other OR "private sector" OR "non-VA" OR medicare OR "commercially managed" OR "non veteran*" OR "non VAMC" OR "non va" OR "non federal hospital*" OR "university hospital*" OR nonveteran* OR "nonfederal hospital*")) AND (TI=(compar*) OR AB=(compar*))	
	1	**1/1/2015–3/15/2023**	**136**
	2	**3/1/2023–10/6/2023**	**17**
	3	**10/1/2023—5/9/2024**	**158**
	4	**5/1/2024–11/14/2024**	**14**
		Total	**3,543**
		Total after deduplication	**2,991**

STUDIES WITH UNREPRESENTATIVE SAMPLES OR COMPARISONS

Citation
Bartel, M. J., D. J. Robertson and H. Pohl (2016). "Colonoscopy practice for veterans within and outside the Veterans Affairs setting: a matched cohort study." Gastrointest Endosc 84(2): 272-278.
Chao, D., H. Buddha, C. Damodaran, L. Tran, R. Strong and C. S. Jackson (2020). "Outcomes Comparison of the Veterans' Choice Program With the Veterans Affairs Health Care System for Hepatitis C Treatment." Fed Pract 37(Suppl 3): S18-s24.
Cullen, S. W., M. Xie, J. M. Vermeulen and S. C. Marcus (2019). "Comparing Rates of Adverse Events and Medical Errors on Inpatient Psychiatric Units at Veterans Health Administration and Community-based General Hospitals." Med Care 57(11): 913-920.
Dizon, M.P., et al., Comparing the Quality of Ambulatory Surgical Care for Skin Cancer in a Veterans Affairs Clinic and a Fee-For-Service Practice Using Clinical and Patient-Reported Measures. PLoS One, 2017. 12(1): p. e0171253.
Dueker, J. M. and A. Khalid (2020). "Performance of the Veterans Choice Program for Improving Access to Colonoscopy at a Tertiary VA Facility." Fed Pract 37(5): 224-228.
Geraci, T., et al., Lobectomy for Lung Cancer at Veterans Administration Medical Center Versus Academic Medical Center. Ann Thorac Surg, 2017. 103(6): p. 1715-1722.
Grubbs, K. M., J. C. Fortney, J. Pyne, D. Mittal, J. Ray and T. J. Hudson (2018). "A Comparison of Collaborative Care Outcomes in Two Health Care Systems: VA Clinics and Federally Qualified Health Centers." Psychiatr Serv 69(4): 431-437.

STUDIES EXCLUDED DURING FULL-TEXT SCREENING

NON-SURGICAL CARE

Ineligible Comparison, N = 61

1. Augustine, M.R., et al., Reasons Older Veterans Use the Veterans Health Administration and Non-VHA Care in an Urban Environment. J Am Board Fam Med, 2021. 34(2): p. 291-300.
2. Benzer, J.K., et al., Survey of Patient-Centered Coordination of Care for Diabetes with Cardiovascular and Mental Health Comorbidities in the Department of Veterans Affairs. Journal of General Internal Medicine, 2019. 34(1): p. 43-49.
3. Bouldin, E.D., et al., Medicare-VHA dual use is associated with poorer chronic wound healing. Wound Repair Regen, 2016. 24(5): p. 913-922.
4. Burke, J.F. and B.C. Callaghan, Author response: Neuroimaging overuse is more common in Medicare compared with the VA. Neurology, 2017. 88(6): p. 608.
5. Chen, V.W., et al., Case Sampling vs Universal Review for Evaluating Hospital Postoperative Mortality in US Surgical Quality Improvement Programs. JAMA Surg, 2023.
6. Dayoub, E.J., et al., Federal Payments for Coronary Revascularization Procedures Among Dual Enrollees in Medicare Advantage and the Veterans Affairs Health Care System. JAMA Netw Open, 2020. 3(4): p. e201451.
7. Desmarais, J. and C.Q. Chu, Utility of Anakinra in Acute Crystalline Diseases: A Retrospective Study Comparing a University Hospital with a Veterans Affairs Medical Center. J Rheumatol, 2019. 46(7): p. 748-750.
8. Ebrahimi, R., et al., Trends in Cardiovascular Disease Mortality in US Women Veterans vs Civilians. JAMA Netw Open, 2023. 6(10): p. e2340242.
9. Feyman, Y., A. Legler, and K.N. Griffith, Appointment wait time data for primary & specialty care in veterans health administration facilities vs. community medical centers. Data Brief, 2021. 36: p. 107134.
10. Gidwani-Marszowski, R., et al., Quality Of End-Of-Life Care Is Higher In The VA Compared To Care Paid For By Traditional Medicare. Health Aff (Millwood), 2018. 37(1): p. 95-103.
11. Govier, D.J., et al., Early Impact of VA MISSION Act Implementation on Primary Care Appointment Wait Time. J Gen Intern Med, 2023. 38(4): p. 889-897.
12. Griebling, T.L., Re: Comparing Catheter-Associated Urinary Tract Infection Prevention Programs between Veterans Affairs Nursing Homes and Non-Veterans Affairs Nursing Homes. J Urol, 2018. 200(6): p. 1142.
13. Hebert, P.L., et al., Reliance on Medicare Providers by Veterans after Becoming Age-Eligible for Medicare is Associated with the Use of More Outpatient Services. Health Serv Res, 2018. 53 Suppl 3(Suppl Suppl 3): p. 5159-5180.
14. Johnston, J.C. and T.P. Sartwelle, Letter re: Neuroimaging overuse is more common in Medicare compared with the VA. Neurology, 2017. 88(6): p. 608.
15. Jones, A.L., et al., National Media Coverage of the Veterans Affairs Waitlist Scandal: Effects on Veterans' Distrust of the VA Health Care System. Med Care, 2021. 59(Suppl 3): p. S322-S326.
16. Klyce, D.W., et al., Suicide Attempts and Ideation Among Veterans/Service Members and Non-Veterans Over 5 Years Following Traumatic Brain Injury: A Combined NIDILRR and VA TBI Model Systems Study. J Head Trauma Rehabil, 2023.

17. Krishnamurthy, S., et al., Racial and Ethnic Differences in Health Care Experiences for Veterans Receiving VA Community Care from 2016 to 2021. J Gen Intern Med, 2024. 39(12): p. 2249-2260.
18. Leonard, C., et al., Operationalizing an Implementation Framework to Disseminate a Care Coordination Program for Rural Veterans. Journal of General Internal Medicine, 2019. 34(1): p. 58-66.
19. Lewinski, A.A., et al., Applied Rapid Qualitative Analysis to Develop a Contextually Appropriate Intervention and Increase the Likelihood of Uptake. Med Care, 2021. 59(Suppl 3): p. S242-S251.
20. Loganathan, S.K., et al., Racial and Ethnic Differences in Satisfaction with Care Coordination Among VA and non-VA Medicare Beneficiaries. Health Equity, 2017. 1(1): p. 50-60.
21. Machlin, S.R. and P. Muhuri, Characteristics and Health Care Expenditures of VA Health System Users versus Other Veterans, 2014-2015 (Combined), in Statistical Brief (Medical Expenditure Panel Survey (US)). 2001, Agency for Healthcare Research and Quality (US): Rockville (MD).
22. Malhotra, A., M. Vaughan-Sarrazin, and G.E. Rosenthal, Elderly veterans with dual eligibility for VA and Medicare services: where do they obtain a colonoscopy? Am J Manag Care, 2015. 21(4): p. e264-70.
23. Mattocks, K.M., et al., Understanding Maternity Care Coordination for Women Veterans Using an Integrated Care Model Approach. Journal of General Internal Medicine, 2019. 34(1): p. 50-57.
24. McAlpine, K., et al., Surgeon-level versus hospital-level quality variance in kidney cancer surgery. Urol Oncol, 2023. 41(5): p. 257.e7-257.e17.
25. McCreight, M.S., et al., Practical Use of Process Mapping to Guide Implementation of a Care Coordination Program for Rural Veterans. Journal of General Internal Medicine, 2019. 34(1): p. 67-74.
26. Mohr, D.C., et al., Organizational Coordination and Patient Experiences of Specialty Care Integration. Journal of General Internal Medicine, 2019. 34(1): p. 30-36.
27. Morral, A.R., T.L. Schell, and R. Smart, Comparison of Suicide Rates Among US Veteran and Nonveteran Populations. JAMA Netw Open, 2023. 6(7): p. e2324191.
28. Mudumbai, S.C., et al., Perioperative Opioid Prescribing Patterns and Readmissions After Total Knee Arthroplasty in a National Cohort of Veterans Health Administration Patients. Pain Med, 2020. 21(3): p. 595-603.
29. Nadpara, P.A., et al., Risk Factors for Serious Prescription Opioid-Induced Respiratory Depression or Overdose: Comparison of Commercially Insured and Veterans Health Affairs Populations. Pain Med, 2018. 19(1): p. 79-96.
30. Nelson, R.E., et al., The Impact of a Change in the Price of VA Health Care on Utilization of VA and Medicare Services. Med Care, 2018. 56(7): p. 569-576.
31. Nelson, R.E., et al., Costs Associated with Health Care Services Accessed through VA and in the Community through Medicare for Veterans Experiencing Homelessness. Health Serv Res, 2018. 53 Suppl 3(Suppl Suppl 3): p. 5352-5374.
32. New, M.L., et al., Differences in VA and Non-VA Pulmonary Nodules: All Evaluations Are not Created Equal. Clin Lung Cancer, 2023. 24(5): p. 407-414.
33. Noël, P.H., et al., Patient experience of health care system hassles: Dual-system vs single-system users. Health Serv Res, 2020. 55(4): p. 548-555.
34. Nuti, S.V., L. Qin, and H.M. Krumholz, Outcome After Admission at Veterans Affairs vs Non-Veterans Affairs Hospitals--Reply. Jama, 2016. 316(3): p. 346.

35. O'Hanlon, C.E., C. Farmer, and C. Gidengil, Comparing VA to Non-VA Care. J Gen Intern Med, 2017. 32(2): p. 152.
36. Olmos-Ochoa, T.T., et al., Staff Perspectives on Primary Care Teams as De Facto "Hubs" for Care Coordination in VA: a Qualitative Study. Journal of General Internal Medicine, 2019. 34(1): p. 82-89.
37. Pershing, S., et al., Treating age-related macular degeneration: comparing the use of two drugs among medicare and veterans affairs populations. Health Aff (Millwood), 2015. 34(2): p. 229-38.
38. Peterson, K., et al., Health Care Coordination Theoretical Frameworks: a Systematic Scoping Review to Increase Their Understanding and Use in Practice. Journal of General Internal Medicine, 2019. 34(1): p. 90-98.
39. Radomski, T.R., M.J. Fine, and W.F. Gellad, Outcome After Admission at Veterans Affairs vs Non-Veterans Affairs Hospitals. Jama, 2016. 316(3): p. 345-6.
40. Radomski, T.R., et al., The Impact of Medication-Based Risk Adjustment on the Association Between Veteran Health Outcomes and Dual Health System Use. J Gen Intern Med, 2017. 32(9): p. 967-973.
41. Ramkumar, M. and S.T. Crowley, Kidney Transplantation Rates of Veterans Administration-Listed Patients Compared with Rates of Patients on Nonveteran Lists. J Am Soc Nephrol, 2018. 29(10): p. 2449-2450.
42. Resnik, L., A.I. Roberts, and M. Borgia, Racial disparities in prosthesis use, satisfaction, and physical function in upper limb amputation and the impact of veteran status. Pm r, 2024.
43. Rinne, S.T., et al., VA Provider Perspectives on Coordinating COPD Care Across Health Systems. Journal of General Internal Medicine, 2019. 34(1): p. 37-42.
44. Rose, D.E., et al., Variations in VA and Medicare Use Among Veterans With Diabetes: Impacts on Ambulatory Care Sensitive Conditions Hospitalizations for 2008, 2009, and 2010. Med Care, 2019. 57(6): p. 425-436.
45. Rose, L., et al., Association of Expanded Health Care Networks With Utilization Among Veterans Affairs Enrollees. JAMA Netw Open, 2021. 4(10): p. e2131141.
46. Rosen, A.K., et al., Racial and Ethnic and Rural Variations in Access to Primary Care for Veterans Following the MISSION Act. JAMA Health Forum, 2024. 5(6): p. e241568.
47. Rosenberg, K., End-Of-Life Cancer Care For Veterans Through The VA Vs. Medicare. Am J Nurs, 2018. 118(5): p. 70.
48. Trivedi, A.N., et al., Dual Use and Hospital Admissions among Veterans Enrolled in the VA's Homeless Patient Aligned Care Team. Health Serv Res, 2018. 53 Suppl 3(Suppl Suppl 3): p. 5219-5237.
49. Trivedi, A.N., et al., Agreement Between HEDIS Performance Assessments in the VA and Medicare Advantage: Is Quality in the Eye of the Beholder? Inquiry, 2016. 53.
50. Tummalapalli, S.L. and S. Keyhani, Trends in Preventative Health Services for Veterans with Military Coverage Compared to Non-Military Coverage. J Gen Intern Med, 2020. 35(4): p. 1330-1333.
51. Valle, J.A., et al., Dual antiplatelet therapy in non-ST elevation acute coronary syndromes at Veterans Affairs Hospitals. Heart, 2019. 105(20): p. 1575-1582.
52. Veet, C.A., et al., Impact of Healthcare Delivery System Type on Clinical, Utilization, and Cost Outcomes of Patient-Centered Medical Homes: a Systematic Review. J Gen Intern Med, 2020. 35(4): p. 1276-1284.
53. Ward, R., et al., An Evaluation of Statin Use Among Patients with Type 2 Diabetes at High Risk of Cardiovascular Events Across Multiple Health Care Systems. J Manag Care Spec Pharm, 2020. 26(9): p. 1090-1098.

54. Weeks, W.B., Comparing VA to Non-VA Care. J Gen Intern Med, 2017. 32(2): p. 150-151.
55. Weinberger, D.M., et al., Excess Mortality Among Patients in the Veterans Affairs Health System Compared With the Overall US Population During the First Year of the COVID-19 Pandemic. JAMA Netw Open, 2023. 6(5): p. e2312140.
56. Wong, E.S., et al., Impact of VHA's primary care intensive management program on dual system use. Healthc (Amst), 2020. 8(3): p. 100450.
57. Wray, C.M., M. Khare, and S. Keyhani, Access to Care, Cost of Care, and Satisfaction With Care Among Adults With Private and Public Health Insurance in the US. JAMA Netw Open, 2021. 4(6): p. e2110275.
58. Wray, C.M., L. Lopez, and S. Keyhani, "Comparing VA and Non-VA Care Quality". J Gen Intern Med, 2019. 34(4): p. 485.
59. Yoon, J., et al., Use of the Veterans' Choice Program and Attrition From Veterans Health Administration Primary Care. Med Care, 2020. 58(12): p. 1091-1097.
60. Yu, M.K., et al., Trends in Timing of Dialysis Initiation within Versus Outside the Department of Veterans Affairs. Clin J Am Soc Nephrol, 2015. 10(8): p. 1418-27.
61. Zulman, D.M., et al., Effects of Intensive Primary Care on High-Need Patient Experiences: Survey Findings from a Veterans Affairs Randomized Quality Improvement Trial. Journal of General Internal Medicine, 2019. 34(1): p. 75-81.

Ineligible Outcome, N = 3

1. Dismuke-Greer, C.E., et al., Economic impact of comorbid TBI-dementia on VA facility and non-VA facility costs, 2000-2020. Brain Inj, 2022. 36(5): p. 673-682.
2. Wray, C., et al., Digital Health Skillsets and Digital Preparedness: Comparison of Veterans Health Administration Users and Other Veterans Nationally. JMIR Form Res, 2022. 6(1): p. e32764.
3. Scruggs-Wodkowski, E., et al., Comparing practices to prevent infectious diseases transmission among Veterans Affairs and Nonveterans Affairs hospitals: Results from a national survey in the United States. Am J Infect Control, 2024. 52(4): p. 495-497.

Ineligible Setting (Surgery), N = 9

1. Billig, J.I., et al., The Impact of Community Care Referral on Time to Surgery for Veterans With Carpal Tunnel Syndrome. Med Care, 2021. 59(Suppl 3): p. S279-S285.
2. Buys, M.J., et al., Postsurgical opioid prescribing among veterans using community care for orthopedic surgery at non-VA hospitals compared to a VA hospital with a transitional pain service: a retrospective cohort study. Reg Anesth Pain Med, 2024.
3. George, E.L., et al., Comparing Veterans Affairs and Private Sector Perioperative Outcomes After Noncardiac Surgery. JAMA Surg, 2021.
4. George, E.L., et al., Outcomes of Women Undergoing Noncardiac Surgery in Veterans Affairs Compared With Non-Veterans Affairs Care Settings. JAMA Surg, 2024. 159(5): p. 501-509.
5. Harris, A.H.S., et al., Comparing Complication Rates After Elective Total Knee Arthroplasty Delivered Or Purchased By The VA. Health Aff (Millwood), 2021. 40(8): p. 1312-1320.
6. Pettey, W.B.P., et al., Comparing Driving Miles for Department of Veterans Affairs-delivered Versus Department of Veterans Affairs-purchased Cataract Surgery. Med Care, 2021. 59(Suppl 3): p. S307-S313.
7. Rosen, A. K., E. E. Beilstein-Wedel, A. H. S. Harris, M. Shwartz, M. E. Vanneman, T. H. Wagner and N. J. Giori (2022). "Comparing Postoperative Readmission Rates Between

Veterans Receiving Total Knee Arthroplasty in the Veterans Health Administration Versus Community Care." Med Care 60(2): 178-186.
8. Simmonds, A., et al., Comparing Outcomes in Patients Undergoing Colectomy at Veteran Affairs Hospitals and Non-Veteran Affairs Hospitals: A Multiinstitutional Study. J Surg Res, 2024. 295: p. 449-456.
9. Tripathi, S.H., et al., Comparison of Outcomes After Cochlear Implantation in a Veteran Versus Nonveteran Population. Otol Neurotol Open, 2024. 4(3): p. e058.

Ineligible Publication Type, N = 6

1. Garvin, L.A., et al., Interorganizational Care Coordination of Rural Veterans by Veterans Affairs and Community Care Programs: A Systematic Review. Med Care, 2021. 59(Suppl 3): p. S259-S269.
2. Gordon, S.H., et al., County-level Predictors of Growth in Community-based Primary Care Use Among Veterans. Med Care, 2021. 59(Suppl 3): p. S301-S306.
3. Greenstone, C.L., et al., Standardizing Care Coordination Within the Department of Veterans Affairs. Journal of General Internal Medicine, 2019. 34(1): p. 4-6.
4. Hynes, D.M., et al., Veterans' Use of Veterans Health Administration Primary Care in an Era of Expanding Choice. Med Care, 2021. 59(Suppl 3): p. S292-S300.
5. Mattocks, K.M., et al., Understanding VA's Use of and Relationships With Community Care Providers Under the MISSION Act. Med Care, 2021. 59(Suppl 3): p. S252-S258.
6. Vashi, A.A., et al., Community Urgent Care Use Following Implementation of the Veterans Affairs Maintaining Internal Systems and Strengthening Integrated Outside Networks Act. Med Care, 2021. 59(Suppl 3): p. S314-S321.

Ineligible Design (Non-Research or Qualitative Study), N = 8

1. Cordasco, K.M., et al., Coordinating Care Across VA Providers and Settings: Policy and Research Recommendations from VA's State of the Art Conference. Journal of General Internal Medicine, 2019. 34(1): p. 11-17.
2. Cordasco, K.M., et al., Improving Care Coordination for Veterans Within VA and Across Healthcare Systems. Journal of General Internal Medicine, 2019. 34(1): p. 1-3.
3. Gittell, J.H. and L. Hajjar, Strengthening Patient-Centered Care in the VHA: A Relational Model of Change. Journal of General Internal Medicine, 2019. 34(1): p. 7-10.
4. Lafferty, M., D. J. Govier, S. E. Golden, N. G. Disher, D. M. Hynes and C. G. Slatore (2023). "VA-Delivered or VA-Purchased Care: Important Factors for Veterans Navigating Care Decisions." J Gen Intern Med 38(7): 1647-1654.
5. Mattocks, K.M., et al., Recommendations for the Evaluation of Cross-System Care Coordination from the VA State-of-the-art Working Group on VA/Non-VA Care. Journal of General Internal Medicine, 2019. 34(1): p. 18-23.
6. Mattocks, K.M., et al., Innovations in Community Care Programs, Policies, and Research. Med Care, 2021. 59(Suppl 3): p. S229-S231.
7. McDonald, K.M., et al., Incorporating Theory into Practice: Reconceptualizing Exemplary Care Coordination Initiatives from the US Veterans Health Delivery System. Journal of General Internal Medicine, 2019. 34(1): p. 24-29.
8. Mengeling, M.A., et al., Partnership Forum: The Role of Research in the Transformation of Veterans Affairs Community Care. Med Care, 2021. 59(Suppl 3): p. S232-S241.

Unrepresentative Sample or Comparison, N = 5

1. Bartel, M.J., D.J. Robertson, and H. Pohl, Colonoscopy practice for veterans within and outside the Veterans Affairs setting: a matched cohort study. Gastrointest Endosc, 2016. 84(2): p. 272-8.
2. Chao, D., et al., Outcomes Comparison of the Veterans' Choice Program With the Veterans Affairs Health Care System for Hepatitis C Treatment. Fed Pract, 2020. 37(Suppl 3): p. S18-s24.
3. Cullen, S.W., et al., Comparing Rates of Adverse Events and Medical Errors on Inpatient Psychiatric Units at Veterans Health Administration and Community-based General Hospitals. Med Care, 2019. 57(11): p. 913-920.
4. Dueker, J.M. and A. Khalid, Performance of the Veterans Choice Program for Improving Access to Colonoscopy at a Tertiary VA Facility. Fed Pract, 2020. 37(5): p. 224-228.
5. Grubbs, K.M., et al., A Comparison of Collaborative Care Outcomes in Two Health Care Systems: VA Clinics and Federally Qualified Health Centers. Psychiatr Serv, 2018. 69(4): p. 431-437.

SURGICAL CARE

Ineligible Comparison, N = 21

1. Benzer, J.K., et al., Survey of Patient-Centered Coordination of Care for Diabetes with Cardiovascular and Mental Health Comorbidities in the Department of Veterans Affairs. Journal of General Internal Medicine, 2019. 34(1): p. 43-49.
2. Billig, J.I., et al., Surgical Timing for Carpal Tunnel Syndrome: A Comparison of Health Care Delivery in the Veterans Administration and Private Sector. J Hand Surg Am, 2021. 46(7): p. 544-551.
3. Clarke, E.L., et al., Association of Tumor Characteristics With Insurance Type Among Patients Undergoing Mohs Micrographic Surgery for Nonmelanoma Skin Cancer. JAMA Dermatol, 2022. 158(8): p. 919-922.
4. Dayoub, E.J., et al., Federal Payments for Coronary Revascularization Procedures Among Dual Enrollees in Medicare Advantage and the Veterans Affairs Health Care System. JAMA Netw Open, 2020. 3(4): p. e201451.
5. Jones, A.L., et al., National Media Coverage of the Veterans Affairs Waitlist Scandal: Effects on Veterans' Distrust of the VA Health Care System. Med Care, 2021. 59(Suppl 3): p. S322-S326.
6. Krishnamurthy, S., et al., Racial and Ethnic Differences in Health Care Experiences for Veterans Receiving VA Community Care from 2016 to 2021. J Gen Intern Med, 2024. 39(12): p. 2249-2260.
7. Leonard, C., et al., Operationalizing an Implementation Framework to Disseminate a Care Coordination Program for Rural Veterans. Journal of General Internal Medicine, 2019. 34(1): p. 58-66.
8. Lewinski, A.A., et al., Applied Rapid Qualitative Analysis to Develop a Contextually Appropriate Intervention and Increase the Likelihood of Uptake. Med Care, 2021. 59(Suppl 3): p. S242-S251.
9. Mattocks, K.M., et al., Understanding Maternity Care Coordination for Women Veterans Using an Integrated Care Model Approach. Journal of General Internal Medicine, 2019. 34(1): p. 50-57.
10. McCreight, M.S., et al., Practical Use of Process Mapping to Guide Implementation of a Care Coordination Program for Rural Veterans. Journal of General Internal Medicine, 2019. 34(1): p. 67-74.
11. Mohr, D.C., et al., Organizational Coordination and Patient Experiences of Specialty Care Integration. Journal of General Internal Medicine, 2019. 34(1): p. 30-36.
12. Mudumbai, S.C., et al., Perioperative Opioid Prescribing Patterns and Readmissions After Total Knee Arthroplasty in a National Cohort of Veterans Health Administration Patients. Pain Med, 2020. 21(3): p. 595-603.
13. Mull, H.J., et al., Emergency Department Use After Outpatient Surgery Among Dually Enrolled VA and Medicare Patients. Qual Manag Health Care, 2019. 28(4): p. 191-199.
14. Napolitano, M.A., et al., Direct Comparison of Outcomes After Transcatheter Aortic Valve Replacement in Veterans and Non-Veterans Using the Transcatheter Valve Therapy Registry. J Invasive Cardiol, 2022. 34(8): p. E601-e610.
15. Olmos-Ochoa, T.T., et al., Staff Perspectives on Primary Care Teams as De Facto “Hubs” for Care Coordination in VA: a Qualitative Study. Journal of General Internal Medicine, 2019. 34(1): p. 82-89.

16. Peterson, K., et al., Health Care Coordination Theoretical Frameworks: a Systematic Scoping Review to Increase Their Understanding and Use in Practice. Journal of General Internal Medicine, 2019. 34(1): p. 90-98.
17. Rinne, S.T., et al., VA Provider Perspectives on Coordinating COPD Care Across Health Systems. Journal of General Internal Medicine, 2019. 34(1): p. 37-42.
18. Rosen, A.K., et al., Racial and Ethnic and Rural Variations in Access to Primary Care for Veterans Following the MISSION Act. JAMA Health Forum, 2024. 5(6): p. e241568.
19. Shih, L., et al., The Impact of Hospital-Based Systems on Plastic Surgery Resident Education: Veterans Affairs Medical Centers versus Public County Hospitals. Plast Reconstr Surg, 2020. 146(5): p. 707e-708e.
20. Valle, J.A., et al., Dual antiplatelet therapy in non-ST elevation acute coronary syndromes at Veterans Affairs Hospitals. Heart, 2019. 105(20): p. 1575-1582.
21. Zulman, D.M., et al., Effects of Intensive Primary Care on High-Need Patient Experiences: Survey Findings from a Veterans Affairs Randomized Quality Improvement Trial. Journal of General Internal Medicine, 2019. 34(1): p. 75-81.

Ineligible Setting (Non-Surgery), N = 25

1. Axon, R.N., et al., Trends in Veteran hospitalizations and associated readmissions and emergency department visits during the MISSION Act era. Health Serv Res, 2024. 59(5): p. e14332.
2. Bagshaw, K., et al., Inclusion of Veterans Health Administration hospitals in Centers for Medicare & Medicaid Services Overall Hospital Quality Star Ratings. J Hosp Med, 2024.
3. Carico, R., et al., Receipt of Overlapping Opioid and Benzodiazepine Prescriptions Among Veterans Dually Enrolled in Medicare Part D and the Department of Veterans Affairs: A Cross-sectional Study. Ann Intern Med, 2018. 169(9): p. 593-601.
4. Cashion, W., et al., Source of Post-Transplant Care and Mortality among Kidney Transplant Recipients Dually Enrolled in VA and Medicare. Clin J Am Soc Nephrol, 2021. 16(3): p. 437-445.
5. Chan, D.C., et al., Mortality among US veterans after emergency visits to Veterans Affairs and other hospitals: retrospective cohort study. BMJ, 2022. 376: p. e068099.
6. Davila, H., et al., Rural Veterans' Experiences With Outpatient Care in the Veterans Health Administration Versus Community Care. Med Care, 2021. 59(Suppl 3): p. S286-S291.
7. Ebrahimi, R., et al., Trends in Cardiovascular Disease Mortality in US Women Veterans vs Civilians. JAMA Netw Open, 2023. 6(10): p. e2340242.
8. Eid, M.A., et al., Factors Contributing to Patient Satisfaction Among VA Medical Center and Non-VA Medical Center Hospitals. J Surg Res, 2024. 300: p. 199-204.
9. Feyman, Y., D.A. Asfaw, and K.N. Griffith, Geographic Variation in Appointment Wait Times for US Military Veterans. JAMA Netw Open, 2022. 5(8): p. e2228783.
10. Florez, H.J., et al., Differences in complications, cardiovascular risk factor, and diabetes management among participants enrolled at veterans affairs (VA) and non-VA medical centers in the glycemia reduction approaches in diabetes: A comparative effectiveness study (GRADE). Diabetes Res Clin Pract, 2021. 184: p. 109188.
11. Griebling, T.L., Re: Comparing Catheter-Associated Urinary Tract Infection Prevention Programs between Veterans Affairs Nursing Homes and Non-Veterans Affairs Nursing Homes. J Urol, 2018. 200(6): p. 1142.
12. Gurewich, D., et al., Did Access to Care Improve Since Passage of the Veterans Choice Act?: Differences Between Rural and Urban Veterans. Med Care, 2021. 59(Suppl 3): p. S270-S278.

13. LaBedz, S.L., et al., Chronic Obstructive Pulmonary Disease Outcomes at Veterans Affairs Versus Non-Veterans Affairs Hospitals. Chronic Obstr Pulm Dis, 2021. 8(3): p. 306-313.
14. Moyo, P., et al., Dual Receipt of Prescription Opioids From the Department of Veterans Affairs and Medicare Part D and Prescription Opioid Overdose Death Among Veterans: A Nested Case-Control Study. Ann Intern Med, 2019. 170(7): p. 433-442.
15. Nuti, S.V., et al., Association of Admission to Veterans Affairs Hospitals vs Non-Veterans Affairs Hospitals With Mortality and Readmission Rates Among Older Men Hospitalized With Acute Myocardial Infarction, Heart Failure, or Pneumonia. JAMA, 2016. 315(6): p. 582-92.
16. O'Hanlon, C.E., et al., Patient-reported pain and physical health for acupuncture and chiropractic care delivered by Veterans Affairs versus community providers. PLoS One, 2024. 19(5): p. e0303651.
17. Resnik, L., A.I. Roberts, and M. Borgia, Racial disparities in prosthesis use, satisfaction, and physical function in upper limb amputation and the impact of veteran status. Pm r, 2024.
18. Rose, L., et al., Association of Expanded Health Care Networks With Utilization Among Veterans Affairs Enrollees. JAMA Netw Open, 2021. 4(10): p. e2131141.
19. Schuttner, L., et al., Factors Associated With Low-Value Cancer Screenings in the Veterans Health Administration. JAMA Netw Open, 2021. 4(10): p. e2130581.
20. Scruggs-Wodkowski, E., et al., Comparing practices to prevent infectious diseases transmission among Veterans Affairs and Nonveterans Affairs hospitals: Results from a national survey in the United States. Am J Infect Control, 2024. 52(4): p. 495-497.
21. The, L., Privatising versus prioritising veterans' health. Lancet, 2018. 391(10128): p. 1332.
22. Tummalapalli, S.L. and S. Keyhani, Trends in Preventative Health Services for Veterans with Military Coverage Compared to Non-Military Coverage. J Gen Intern Med, 2020. 35(4): p. 1330-1333.
23. Vanneman, M.E., et al., Veterans' Experiences With Outpatient Care: Comparing The Veterans Affairs System With Community-Based Care. Health Aff (Millwood), 2020. 39(8): p. 1368-1376.
24. Wachterman, M.W., et al., A comparison of end-of-life care quality for Veterans receiving hospice in VA nursing homes and community nursing homes. J Am Geriatr Soc, 2024. 72(1): p. 59-68.
25. Yoon, J., et al., Comparing Quality, Costs, and Outcomes of VA and Community Primary Care for Patients with Diabetes. J Gen Intern Med, 2024.

Ineligible Publication Type, N = 11

1. Garvin, L.A., et al., Interorganizational Care Coordination of Rural Veterans by Veterans Affairs and Community Care Programs: A Systematic Review. Med Care, 2021. 59(Suppl 3): p. S259-S269.
2. Gordon, S.H., et al., County-level Predictors of Growth in Community-based Primary Care Use Among Veterans. Med Care, 2021. 59(Suppl 3): p. S301-S306.
3. Greenstone, C.L., et al., Standardizing Care Coordination Within the Department of Veterans Affairs. Journal of General Internal Medicine, 2019. 34(1): p. 4-6.
4. Hynes, D.M., et al., Veterans' Use of Veterans Health Administration Primary Care in an Era of Expanding Choice. Med Care, 2021. 59(Suppl 3): p. S292-S300.
5. Mattocks, K.M., et al., Understanding VA's Use of and Relationships With Community Care Providers Under the MISSION Act. Med Care, 2021. 59(Suppl 3): p. S252-S258.
6. Nuti, S.V., L. Qin, and H.M. Krumholz, Outcome After Admission at Veterans Affairs vs Non-Veterans Affairs Hospitals--Reply. Jama, 2016. 316(3): p. 346.

7. O'Hanlon, C.E., C. Farmer, and C. Gidengil, Comparing VA to Non-VA Care. J Gen Intern Med, 2017. 32(2): p. 152.
8. Radomski, T.R., M.J. Fine, and W.F. Gellad, Outcome After Admission at Veterans Affairs vs Non-Veterans Affairs Hospitals. Jama, 2016. 316(3): p. 345-6.
9. Ramkumar, M. and S.T. Crowley, Kidney Transplantation Rates of Veterans Administration-Listed Patients Compared with Rates of Patients on Nonveteran Lists. J Am Soc Nephrol, 2018. 29(10): p. 2449-2450.
10. Vashi, A.A., et al., Community Urgent Care Use Following Implementation of the Veterans Affairs Maintaining Internal Systems and Strengthening Integrated Outside Networks Act. Med Care, 2021. 59(Suppl 3): p. S314-S321.
11. Weeks, W.B., Comparing VA to Non-VA Care. J Gen Intern Med, 2017. 32(2): p. 150-151.

Ineligible Design (Non-Research), N = 7

1. Cordasco, K.M., et al., Coordinating Care Across VA Providers and Settings: Policy and Research Recommendations from VA's State of the Art Conference. Journal of General Internal Medicine, 2019. 34(1): p. 11-17.
2. Cordasco, K.M., et al., Improving Care Coordination for Veterans Within VA and Across Healthcare Systems. Journal of General Internal Medicine, 2019. 34(1): p. 1-3.
3. Gittell, J.H. and L. Hajjar, Strengthening Patient-Centered Care in the VHA: A Relational Model of Change. Journal of General Internal Medicine, 2019. 34(1): p. 7-10.
4. Mattocks, K.M., et al., Recommendations for the Evaluation of Cross-System Care Coordination from the VA State-of-the-art Working Group on VA/Non-VA Care. Journal of General Internal Medicine, 2019. 34(1): p. 18-23.
5. Mattocks, K.M., et al., Innovations in Community Care Programs, Policies, and Research. Med Care, 2021. 59(Suppl 3): p. S229-S231.
6. McDonald, K.M., et al., Incorporating Theory into Practice: Reconceptualizing Exemplary Care Coordination Initiatives from the US Veterans Health Delivery System. Journal of General Internal Medicine, 2019. 34(1): p. 24-29.
7. Mengeling, M.A., et al., Partnership Forum: The Role of Research in the Transformation of Veterans Affairs Community Care. Med Care, 2021. 59(Suppl 3): p. S232-S241.

Unrepresentative Sample or Comparison, N = 2

1. Dizon, M.P., et al., Comparing the Quality of Ambulatory Surgical Care for Skin Cancer in a Veterans Affairs Clinic and a Fee-For-Service Practice Using Clinical and Patient-Reported Measures. PLoS One, 2017. 12(1): p. e0171253.
2. Geraci, T., et al., Lobectomy for Lung Cancer at Veterans Administration Medical Center Versus Academic Medical Center. Ann Thorac Surg, 2017. 103(6): p. 1715-1722.

.

STUDY CHARACTERISTICS

NON-SURGICAL CARE

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Nuti, 2016[26] Y (**National**) Retrospective Acute myocardial infarction, heart failure, pneumonia Clinical quality/safety	2013-2016, vs. other non-VA; CMS Standard Analytic Files and Enrollment Database vs. VA administrative claims	N: 7929-26,231 Mortality (AMI): M 13.52/30d, 95% CI 13.38 to 13.66; Mortality (HF): M 11.43/30d, 95% CI 11.11 to 11.75; Mortality (Pneu): M 12.63/30d, 95% CI 12.19 to 13.07; Readmissions (AMI): M 17.84/30d, 95% CI 17.71 to 17.96; Readmissions (HF): M 24.66/30d, 95% CI 24.31 to 25.02; Readmissions (Pneu): M 19.44/30d, 95% CI 19.19 to 19.69	N: 124,220-269,856 Mortality (AMI): M 13.69/30 d, 95% CI 13.64 to 13.74; Mortality (HF): M 11.87/30d, 95% CI 11.80 to 11.93; Mortality (Pneu): M 12.17/30d, 95% CI 12.08 to 12.26; Readmissions (AMI): M 17.21/30d; 95% CI 17.17 to 17.25; Readmissions (HF): M 23.46/30d; 95% CI 23.39 to 23.53; Readmissions (Pneu): M 18.68/30d; 95%CI 18.63 to 18.73	Mortality (AMI): VA<non-VA,p=0.02; Mortality (HF): VA<non-VA, p=0.008; Mortality (Pneu): VA>non-VA, p=0.045; Readmissions (AMI): VA>non-VA, p<0.001; Readmissions (HF): VA>non-VA, p<0.001; Readmisions (Pneu): VA>non-VA, p<0.001;	Statistics: Hierarchical logistic regression to estimate values; t-tests to compare Other methods of controlling: NR Covariates: Age, patient cardiovascular medical history, comorbid conditions, hospital random effects	Y	
Vanneman, 2020[50] Y (**National**) Retrospective Outpatient specialty, primary, and mental health care Access Patient experience	2016-2017, vs Veterans in VA-paid community care; SHEP vs CAHPS	N=29,095-432,218 (combined VA and non-VA) NR	N=29,095-432,218 (combined VA and non-VA) NR	Access to care (specialty care): -0.0023 (VA vs non-VA; p=ns); Access to care (primary care): -0.0003 (VA vs non-VA; p=ns); Access to care (mental health): -0.001 Patient experience (specialty care):	Statistics: Multivariate regression models Other methods of controlling: NR Covariates: age, sex, race, ethnicity, education level, marital status, rurality, VA enrollment priority, and Nosos health risk score, perceived physical health status, perceived mental health status,	Y	Regression coefficients over entire time period reported

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				0.0005 (VA vs non-VA; p=ns); Patient experience (primary care): -0.0137 (VA vs non-VA; p=ns); Patient experience (mental health): -0.0218 (VA vs non-VA; p=ns);	insurance status, number of days between the outpatient visit and survey return date, and VA facility fixed effects		
Gurewich, 2021[47] Y (**National**) Retrospective Physical therapy, cardiology, optometry, dental care, and orthopedics Access	2014-2018 (FY15-FY18), vs Veterans in VA-paid community care; CDW (both VA and non-VA)	N=420,590 (FY15), 487,014 (FY18) FY15 (wait time in days for urban Veterans): Physical therapy: 30.62 Cardiology: 26.77 Optometry: 42.84 Orthopedic: 35.26 Dental: 27.70; FY18 (wait time in days for urban Veterans): Physical therapy: 26.26 Cardiology: 24.15 Optometry: 34.32 Orthopedic: 27.73 Dental: 24.01;	N=76,706 (FY15), 150,429 (FY18) FY15 (wait time in days for urban Veterans): Physical therapy: 28.94 Cardiology: 28.46 Optometry: 41.85 Orthopedic: 37.35 Dental: 25.99; FY18 (wait time in days for urban Veterans): Physical therapy: 28.84 Cardiology: 27.55 Optometry: 36.90 Orthopedic: 32.87 Dental: 25.90;	VA had greater wait time declines from FY15 to FY18 than non-VA except for cardiology (p<0.001)	Statistics: Linear regression Other methods of controlling: NR Covariates: Rurality, age, sex, race/ethnicity, marital status, FY, Nosos score, priority level, age/sex*FY18 interactions	Y	NA
Davila, 2021[51] Y (**National**) Retrospective Primary and specialty care Access Patient experience	FY16-FY19, vs Veterans in VA-paid community care; SHEP and CDW (both VA and non-VA)	N=1,019,732 FY16 (primary care, access, urban): 3.18; FY16 (specialty care, access, urban): 3.09; FY19 (primary care, access, urban): 3.27; FY19 (specialty care, access, urban): 3.17;	N=63,638 FY16 (primary care, access, urban): 2.91; FY16 (specialty care, access, urban): 3.17; FY19 (primary care, access, urban): 3.12; FY19 (specialty care, access, urban): 3.28;	FY 16 VA vs CC (rural, primary care, access): 0.17; FY 19 VA vs CC (rural, primary care, access): 0.21; FY 16 VA vs CC (rural,	Statistics: Multiple regression models Other methods of controlling: NR Covariates: Age, sex, race, education level, marital status, VA enrollment priority, Nosos risk score, and self-rated	Y	SHEP scores analyzed in raw column, effect sizes reported in comparison column; "Effect sizes [ESs] of 0.10 are often interpreted as indicating 'negligible' differences between groups; ESs of 0.20, 0.50, and 0.80 are considered 'small,'

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
		FY16 (primary care, access, rural): 3.24; FY16 (specialty care, access, rural): 3.15; FY19 (primary care, access, rural): 3.31; FY19 (specialty care, access, rural): 3.23 ; FY16 (primary care, provider rating, urban): 8.83; FY16 (specialty care, provider rating, urban): 8.69; FY19 (primary care, provider rating, urban): 8.92; FY19 (specialty care, provider rating, urban): 8.88; FY16 (primary care, provider rating, rural): 8.80; FY16 (specialty care, provider rating, rural): 8.73; FY19 (primary care, provider rating, rural): 8.90; FY19 (specialty care, provider rating, rural): 8.92	FY16 (primary care, access, rural): 3.11; FY16 (specialty care, access, rural): 3.17; FY19 (primary care, access, rural): 3.16; FY19 (specialty care, access, rural): 3.28; FY16 (primary care, provider rating, urban): 7.28; FY16 (specialty care, provider rating, urban): 8.46; FY19 (primary care, provider rating, urban): 8.30; FY19 (specialty care, provider rating, urban): 8.70; FY16 (primary care, provider rating, rural): 8.14; FY16 (specialty care, provider rating, rural): 8.43; FY19 (primary care, provider rating, rural): 8.56; FY19 (specialty care, provider rating, rural): 8.72	specialty care, access): -0.02; FY 19 VA vs CC (rural, specialty care, access): -0.07; FY 16 VA vs CC (rural, primary care, provider rating): 0.35; FY 19 VA vs CC (rural, primary care, provider rating): 0.19; FY 16 VA vs CC (rural, specialty care, provider rating): 0.16; FY 19 VA vs CC (rural, specialty care, provider rating): 0.12	physical and mental health		'medium,' and 'large,' respectively"
Intrator, 2021[30] Y (**National**) Retrospective Nursing homes Clinical quality/safety	2015-2016, vs non-Veterans in non-VA nursing homes; Vets and non-Vets in MDS, VA data (unspecified), and Medicare claims	N=23,839 Rehospitalization: M 22.51, SD 6.17; Emergency department visits: M 8.27, SD 4.56; Successful discharge: M 67.74, SD 11.47	N=1,674,578 Rehospitalization: M 21.10 SD, 5.94; Emergency department visits: M 11.85, SD 5.32; Successful discharge: M 57.04, SD 10.54	Rehospitalization: VA>non-VA, p<0.001; Emergency department visits: VA<non-VA, p<0.001; Successful discharge:	Statistics: 2-sample z test Other methods of controlling: NR Covariates: CMS risk adjust model, including age, marital status, length of stay, medication	Y	NA

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				VA>non-VA, p<0.001	utilization, treatments, comorbidities, and activities of daily living		
LaBedz, 2021[38] Y (**National**) Retrospective COPD Clinical quality/safety	2015-2018, vs all patients in non-VA hospitals; CMS Hospital Compare (VA vs non-VA)	N=126 Readmissions: M 15.3, standard error (SE) 0.17; Mortality: M 6.0, SE 0.11	N=3523 Readmissions: M 19.5 SE, 0.2; Mortality: M 8.5 SE, 0.02	Readmissions: VA<non-VA, M -4.2, 95% CI -4.5 to -3.9; Mortality: VA<non-VA, M -2.6, 95% CI -2.8 to -2.4	Statistics: T-tests, linear regression Other methods of controlling: NR Covariates: Age, comorbid conditions, and indicators of frailty	Y	Supplementary analyses: Increased readmission were associated with lower mortality for non-VA hospitals (p=0.003; "50 fewer deaths per 1000 more readmissions"); no association was found for VA hospitals
Gidwani, 2021[54] Y (**National**) Retrospective Cancer Cost/efficiency	FY10-FY14, vs Veterans in non-VA hospitals; VA administrative data vs Medicare claims	N=10,341 NR	N=18,542 NR	Total costs: VA<Medicare; beta-coeff: M -0.1, 95% CI -0.15 to -0.06; Inpatient costs: VA<Medicare; beta-coeff: M -0.12, 95% CI -0.22 to -0.02; Outpatient costs: VA<Medicare; beta-coeff: M -0.31, 95% CI -0.35 to -0.28; Drug costs: VA>Medicare; beta-coeff: M -0.71, 95% CI 0.64 to 0.78	Statistics: Generalized estimating equations Other methods of controlling: Three-level models Covariates: Age, race, distance from VA facility, rurality, enrollment priority, and type of solid tumor, and conditioning on geographic region	Y	NA
Griffith, 2020[48] Y (**National**) Retrospective	2018-2019, vs Veterans in VA-paid community	N=2,504,355 consultations	N=533,609 consultations Cardiology: M 38.0d, SD 9.2d;	NR	NR	Y	>50% of VA facilities had lower wait times for

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Cardiology, gastroenterology, orthopedics, and urology Access	care; VA CDW (for VA and non-VA)	Cardiology: M 33d, SD 8.7d; Gastroenterology: M 53.9 SD 15.9d; Orthopedics: M 36.2d SD 9.3d; Urology: M 36.1d SD 9.5d; Overall: M 41.1d SD 15.9d	Gastroenterology: M 60.3d SD 16.0d; Orthopedics: M 43.6d SD 12.9d; Urology: M 50.5d SD 14.5d; Overall: M 49.0d SD 15.5d				cardiology, orthopedics, urology, and overall
Gidwani-Marszowski, 2020[43] Y (**National**) Retrospective Cancer Clinical quality/safety	FY10-FY14, vs Veterans in non-VA care; VA and Medicare administrative data	N=9522 444 potentially avoidable hospitalizations	N=17,921 1271 potentially avoidable hospitalizations	Medicare vs VA: adjusted odds ratio 1.55, 95% CI 1.37 to 1.66	Statistics: Generalized estimating equations with a logit link and a binomial family Other methods of controlling: Patients nested within geographic area (hospital referral region) Covariates: Age, number of chemotherapy treatments, receipt of concurrent radiotherapy (defined as radiotherapy within 14 days of the receipt of chemotherapy), and cancer type	Y	Sensitivity analysis covariates: enrollment priority, race, rurality, and distance from a VA facility
Penn, 2019[46] Y (**National**) Retrospective Primary care, dermatology, cardiology,	2014-2017, vs non-Veterans in non-VA community care; VA administrative data vs Merritt Hawkins secret shopper survey	N=NR, 15 metropolitan areas in 2014, 30 metropolitan areas in 2017 NR	N=NR, 15 metropolitan areas in 2014, 30 metropolitan areas in 2017 NR	VA vs non-VA, 2014: Primary care: ns; Dermatology: ns;	Statistics: Linear regression Other methods of controlling: NR Covariates: Metropolitan area, specialty	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
orthopedics Access				Cardiology: ns; Orthopedics: M 9.9d SD 4.7d vs M 23.9d SD 8.1d, p<.001; Overall: ns; VA vs non-VA, 2017: Primary care: M 20.0d SD 10.4d vs M 40.7d SD 35.0d, p=0.005; Dermatology: M 15.6 d SD 12.2d vs M 32.6d SD 16.5d, p<0.001; Cardiology: M 15.3d SD 12.6d vs M 22.8d SD 10.1d, p=0.04; Orthopedics: M 20.9d SD 13.3d vs M 12.4d SD 5.5d, p=0.01; Overall: ns			
Makarov, 2018[53] Y (**National**) Retrospective Cancer Clinical quality/safety Cost/efficiency	2004-2008, vs non-Veterans in non-VA care; CDW vs SEER Medicare	N=27,811 Low-risk men: Guideline-concordant care: 60.6%; Any imaging: 45.9%; High-risk men: Guideline-concordant care: 68.7%; Any imaging: 75.3%	N=56,671 Low-risk men: Guideline-concordant care: 53.1%; Any imaging: 52.5%; High-risk men: Guideline-concordant care: 66.8%; Any imaging: 76.8%	No statistical comparisons reported	Statistics: NR Other methods of controlling: NR Covariates: NR	Y	
Wang, 2019[32] Y (**National**) Retrospective ESRD	2008-2013, vs Veterans in VA-paid community care; VA enrollment, inpatient, outpatient, and purchased care data vs	N=1100; Two-year mortality: 24.5%	N=18,215 Two-year mortality: 41.8%	VA vs Medicare, two-year mortality: hazard ratio	Statistics: Cox proportional hazards model Other methods of controlling: NR	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Clinical quality/safety	Medicare enrollment, claims, and USRDS data			0.84 95% CI 0.73 to 0.96	Covariates: Age, race/ethnicity, sex, employment status, regional and urban residential status, calendar year of dialysis initiation, baseline eGFR at dialysis initiation, receipt of pre-ESRD nephrology care within or outside the VA in the 2 years before ESRD onset, incident dialysis modality, type of vascular access at time of dialysis initiation, history of renal transplant, cause of ESRD, 29 indicators of diagnosed physical health conditions and mental health comorbidity, body mass index, hospitalization and institutionalization in the year before dialysis initiation, hospice use in the 90 days before dialysis initiation, dialysis in the inpatient setting, insurance coverage, VA copayment exempt status, distance to nearest VA outpatient dialysis unit and VAMC, degree of VA reliance for other		

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
					outpatient care, presence of dialysis unit or nephrology services in nearest or most used VAMC, and FY11 occupancy rate of nearest VA outpatient dialysis unit.		
Thorpe, 2018[27] Y (**National**) Retrospective Dementia Clinical quality/safety	2007-2010, Veterans in non-VA care; VA Medical SAS and VA PBM vs Medicare MedPAR, Part D, and MBSF	N=35,647 Medication undersupply with no oversupply: 40%; Medication oversupply with no undersupply: 9%; Simultaneous medication oversupply and undersupply: 4%	N=9922 Medication undersupply with no oversupply: 47%; Medication oversupply with no undersupply: 5%; Simultaneous medication oversupply and undersupply: 3%	Non-VA vs VA, odds ratio: Medication undersupply with no oversupply: 1.13 95% CI 1.03 to 1.25; Medication oversupply with no undersupply: 0.39 95% 0.32 to 0.47; Simultaneous medication oversupply and undersupply: 0.48 95% CI 0.40 to 0.57	Statistics: Multinomial logistic regression Other methods of controlling: NR Covariates: Age, sex, race/ethnicity, VA priority status, Medicaid status, distance to nearest VAMC, Elixhauser Comorbidity Index, use of memantine, number of VA ED and inpatient stays and use of VA home-based primary care in 2009, days alive in 2010, number of unique generic medications in 2010, and VISN indicator	Y	
Vercammen-Grandjean, 2018[39] Y (**National**) Retrospective COPD Clinical quality/safety	2007-2011, vs non-Veterans in non-VA care; CDW vs Medicare inpatient files	N=32,856 Participation in pulmonary rehabilitation after hospital discharge: N=485	N=158,137 Participation in pulmonary rehabilitation after hospital discharge: N=3199	VA vs non-VA; Participation in pulmonary rehabilitation after hospital discharge: 1.5% vs 2%	Statistics: None Other methods of controlling: NR Covariates: NR	Y	No formal statistical comparison between VA and non-VA but sample size is large enough to estimate a significant difference

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**

Wang, 2018[33]
Y (**National**)
Retrospective
Dialysis patients
Clinical quality/safety
Cost/efficiency
	2006-2013, vs Veterans in VA-paid community care; VA Enrollment, MiniVitals, Patient Treatment, Outpatient Care, Fee Basis files vs Medicare Beneficiary Summary, MedPAR, Outpatient, and Carrier files, and USRDS data	N=1101
		Number of hospital days over 2 years follow-up period from chronic dialysis initiation: M 24.1 SD (37.2)
			N=3085 (VA Purchase Care)
			N=18,267 (Medicare)
			Number of hospital days over 2 years follow-up period from chronic dialysis initiation:
			VA-PC: M 22.4 SD (29.3);
			Medicare: M 21.9 SD (26.0)
				Number of hospital days over 2 years follow-up period from chronic dialysis initiation: VA vs VA-PC,
				incident rate ratio 0.97 95% CI 0.91 to 1.03,p=0.34;
				vs Medicare, incident rate ratio 0.98 95% CI 0.90 to 1.07,p=0.73;
				VA vs VA-PC or Medicare:
				Risk of hospitalization after dialysis: p<0.0001, but authors note differences are not clinically meaningful;
				Days of hospitalization after dialysis: p=0.80
					Statistics: Zero inflated negative binomial regression model
					Other methods of controlling: NR
					Covariates: Sex, urban vs non-urban residence, year of chronic dialysis start date, employment status, factors surrounding dialysis initiation that would influence treatment setting (e.g., pre-ESRD nephrology care within or outside the VA, incident dialysis modality, type of vascular access at time of dialysis initiation, history of prior kidney transplant, cause of ESRD), distance to the nearest VA medical center (VAMC, i.e., the center most frequently used for non-dialysis care, else the nearest VAMC to residence), the extent of VA reliance for other outpatient care, initiated dialysis in the inpatient vs outpatient setting, 29 indica- tors of diagnosed physical
						Y	Outcomes not significantly different between healthcare systems

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
					health conditions, BMI, hospitalization and institutionalization in the prior year, hospice use in the past 90 days, whether nearest VAMC had an on-site nephrology services or dialysis unit, and the 2011 fiscal year occupancy rate for nearest VAMC facility		
Augustine, 2018[15] Y (**Regional**) Retrospective Kidney transplants Access Clinical quality/safety Access	2004-2016, non-Veterans in non-VA care; SRTR (VA and non-VA data)	N=3663 Median distance to transplant center: 282 miles	N=297,794 Median distance to transplant center: 22 miles	All kidney transplants: VA vs non-VA: adjusted hazard ratio (AHR) 0.72, 95% CI 0.68 to 0.76; VA vs Medicare: AHR 0.85, 95% CI 0.81 to 0.90; VA vs Medicaid: AHR 1.00, 95% CI 0.94 to 1.06; Deceased donor kidney transplant: VA vs non-VA: AHR 0.85, 95% CI 0.80 to 0.90; VA vs Medicare: AHR 0.91, 95% CI 0.85 to 0.96;	Statistics: Cox models Other methods of controlling: Matching VA to local non-VA facility Covariates: Age group, race, gender, diagnosis group, time on dialysis at listing, candidate status at listing, panel reactive antibody, BMI group, education, malignancy, peripheral vascular disease, region, year of listing, log distance to center and community risk score	N	Note: * = p<0.05; RoB criteria not met: unbalanced samples

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				VA vs Medicaid: AHR 1.01, 95% CI 0.95 to 1.08; Live donor kidney transplant: VA vs non-VA: AHR 0.51, 95% CI 0.46 to 0.57; VA vs Medicare: AHR 0.77, 95% CI 0.69 to 0.86; VA vs Medicaid: AHR 1.00, 95% CI 0.89 to 1.12; Patient death: VA vs non-VA: AHR 0.89, 95% CI 0.82 to 0.97; VA vs Medicare: AHR 0.77, 95% CI 0.71 to 0.84; VA vs Medicaid: AHR 0.76, 95% CI 0.70 to 0.83; Delisting from kidney transplant list due to "health deterioration" or "other": VA vs non-VA: AHR 1.38, 95% CI 1.26 to 1.51; VA vs Medicare: AHR, 1.1 95% CI 1.001 to 1.2;			

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				VA vs Medicaid: AHR 1.04, 95% CI 0.95 to 1.05			
Anhang Price, 2018[37] Y (**National**) Retrospective Inpatient and outpatient care Clinical quality/safety Patient experience	2014, vs non-Veterans in non-VA care; CMS Hospital Compare (VA), VA Inpatient Evaluation Center, and VA Office of Performance Measurement vs CMS Hospital Compare (non-VA)	N=135 facilities In-hospital deaths per 1000 surgical discharges with serious treatable complications (inpatient): 100.6; Postoperative pulmonary embolism or deep vein thrombosis rate (inpatient): 3.3; Acute myocardial infarction 30-day readmission rate (inpatient): 18.6; Heart failure 30-day mortality rate (inpatient): 11; Evaluation of left ventricular systolic (LVS) function (inpatient): 99.8; Prophylactic antibiotic received within 1 h prior to surgical incision (inpatient): 96.3; Communication with doctors (inpatient): 77.1; Care transition (inpatient): 53.7; Overall rating of hospital (inpatient): 67.1; Diabetes: Eye examination: 95.9%; Tobacco use: advising smokers and tobacco users to quit (outpatient): 90.0%;	N=402 facilities In-hospital deaths per 1000 surgical discharges with serious treatable complications (inpatient): 118.8; Postoperative pulmonary embolism or deep vein thrombosis rate (inpatient): 4.6; Acute myocardial infarction 30-day readmission rate (inpatient): 17.8; Heart failure 30-day mortality rate (inpatient): 11.8; Evaluation of left ventricular systolic (LVS) function (inpatient): 98.5; Prophylactic antibiotic received within 1 h prior to surgical incision (inpatient): 98.5; Communication with doctors (inpatient): 80.3; Care transition (inpatient): 43.3; Overall rating of hospital (inpatient): 70.3; Diabetes: Eye examination: 84.6% Tobacco use: advising smokers and tobacco users to quit (outpatient): 68.5%; Hypertension: Controlling high blood pressure (diagnosis of hypertension, 18–85	All VA and non-VA differences significant ($p<0.05$); last 3 comparisons: VA vs Medicare HMO	Statistics: T-tests Other methods of controlling: Matching VA to local non-VA facility Covariates: Bed size (< 100 beds, 100–199 beds, and 200+ beds), Census division (East North Central, East South Central, Mid-Atlantic, Mountain, New England, Other, Pacific, South Atlantic, West North Central, and West South Central), location (urban, rural), and teaching status (teaching facility, nonteaching facility)	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
		Hypertension: Controlling high blood pressure (diagnosis of hypertension, 18–85 years and < 140/90 mmHg): 76.1%	years and < 140/90 mmHg): 65.5%				
Kurella Tamura, 2018[34] Y (**National**) Retrospective Pre-ESRD nephrology care Clinical quality/safety	2008-2011, vs Veterans in non-VA care; VA administrative data vs Medicare Claims, USRDS (both)	N=2966 Dialysis treatment within 2 years of incident kidney failure in pre-ESRD patients: 50.9%	N=2966 Dialysis treatment within 2 years of incident kidney failure in pre-ESRD patients: 79.2%	Medicare vs VA Dialysis treatment within 2 years of incident kidney failure in pre-ESRD patients: relative risk 1.56 95%, CI 1.50 to 1.62; Mortality after receiving dialysis care for pre-ESRD patients: -8%, 95% CI -5% to -11%;	Statistics: Poisson regression; marginal standardization Other methods of controlling: Propensity score matching Covariates: Age, sex, race, marital status, VA co-pay, distance to nearest VA with nephrology services, Charlson Comorbidity Index, and rate of eGFR decline prior to incident kidney failure	Y	
Barnett, 2018[25] Y (**National**) Retrospective Elective coronary revascularization patients (PCI & CABG) Clinical quality/safety Access Cost/efficiency	2008-2011, vs Veterans in VA-paid community care; VA and non-VA: ArcGIS, VA Vital Status File, VA Managerial Cost Accounting System	N=15,340 Total cost (procedure + readmission + travel), PCI: M $15,683.00 SD ($16,493.00); Total cost (procedure + readmission + travel), CABG: M $63,144.00 SD ($46,018.00); Actual distance traveled, PCI: M 90.8 Actual distance traveled, CABG: M 123.2	N=3715 Total cost (procedure + readmission + travel), PCI: M $22,025.00 SD ($30,701.00); Total cost (procedure + readmission + travel), CABG: M $55,526.00 SD ($74,797.00); Actual distance traveled, PCI: M 60.1 Actual distance traveled, CABG: M 81.5	30-day mortality, PCI: VA>non-VA, relative risk (RR) 2.40 95% CI 1.57 to 3.66, p<0.001; 30-day mortality, CABG: VA=non-VA, RR 0.89 95% CI 0.45 to 1.77, p=0.74; 30-day readmissions, PCI: VA=non-VA, RR 0.96	Statistics: Generalized estimating equations Other methods of controlling: Propensity weighting Covariates: age, sex, race/ethnicity, recent myocardial infarction, prior PCI, prior CABG surgery, cerebrovascular disease, peripheral vascular disease, congestive heart failure, type 1 and type 2 diabetes, body mass index,	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				95% CI 0.79 to 1.16, p=0.68; 30-day readmissions, CABG: VA=non-VA, RR 1.16 95% CI 0.89 to 1.50, p=0.28; Total cost (procedure + readmission + travel), PCI: VA<non-VA, p<0.001; Total cost (procedure + readmission + travel), CABG: VA>non-VA, p<0.001; Actual distance traveled, PCI: VA>non-VA, p<0.001; Actual distance traveled, CABG: VA>non-VA, p=0.002	renal function, dialysis, chronic obstructive pulmonary disease, atrial fibrillation, and the number of vessels revascularized		
Heidenrich, 2017[20] Y (**National**) Retrospective Hospital care Patient experience	2014; vs non-Veterans in non-VA care; Yelp (both)	N=39 facilities Patient ratings (weighted for number of reviews): M 3.70 SD 0.74	N=39 facilities Patient ratings (weighted for number of reviews): M 3.19 SD 0.54	VA vs non-VA: Difference in ratings, weighted by review count: p=0.0025 Covariate adjusted rating difference 0.65, 95% CI 0.18 to 1.12	Statistics: Multivariate regression Other methods of controlling: Local affiliate matching Covariates: Bed size, membership in COTH, presence of an accredited graduate medical education program,	N	RoB criteria not met: analysis of Yelp reviews of only 39 of 131 VA facilities due to lack of data

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
					and certification by TJC		
Blay, 2017[36] Y (**National**) Retrospective Hospital care Clinical quality/safety Patient experience	2012-2015, vs non-Veterans in non-VA care; Both VA and non-VA: Hospital Compare, AHA Annual Survey	N=129 facilities Pressure ulcers: M 0.28, 95% CI 0.21 to 0.27; Death among surgical inpatients with serious treatable conditions: M 105.82, 95% CI 96.7 to 114.92; Iatrogenic pneumothorax: M 0.27, 95% CI 0.22 to 0.32; 30-day mortality, AMI: 9.27, 95% CI 9.0 to 9.46; 30-day readmissions, AMI: M 15.59 95% CI, 15.45 to 15.74; Doctor communication: top box 76.70%, 95% CI 76.01 to 77.39%; Cleanliness: top box 73.41% 95% CI 71.95 to 74.87%; Care transition: top box 53.62%, 95% CI 51.79% to 54.46%; Quietness: 55.80% , 95% CI 54.24% to 57.37%; Recommendation of hospital to others: top box, 67.92% 95% CI 66.56 to 69.28%;	N=4010 facilities Pressure ulcers: M 0.44, 95% CI 0.44 to 0.46; Death among surgical inpatients with serious treatable conditions: M 136.34, 95% CI 135.42 to 137.26; Iatrogenic pneumothorax: M 0.41, 95% CI 0.40 to 0.41; 30-day mortality, AMI: M 14.1, 95% CI 14.04 to 14.15; 30-day readmissions, AMI: M 16.89, 95% CI 16.84 to 16.94; Doctor communication: top box 82.14%, 95% CI 81.95 to 82.32%; Cleanliness: 74.14%, 95% CI 73.86% to 74.41%; Care transition: top box 52.71%, 95% CI 52.47% to 52.96%; Quietness: top box 62.93 %, 95% CI 62.59% to 63.26%; Recommendation of hospital to others: top box 71.66%, 95% CI 71.33% to 71.99%	VA<non-VA for all clinical quality/safety outcomes, p<0.03; Non-VA>VA for all patient experience outcomes (p<0.005) except cleanliness and care transition	Statistics: T-tests Other methods of controlling: Outcomes were rates per 1000 discharges; Bonferroni correction Covariates: NR	Y	
Mody, 2017[21] N (**NA**) Prospective survey	2014-2015; vs non-Veterans in non-VA care; Original surveys (both VA and non-VA data)	N=47 facilities	N=306 facilities	Policy for appropriate indications for catheter use:	Statistics: Multivariable logistic regression models	N	RoB criteria not met: data from only half of states

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Nursing home care Clinical quality/safety		Policy for appropriate indications for catheter use: 63.8%; Policy for urinary catheter maintenance: 78.7%; Urinary catheters removed within 24–48 hrs. of admission unless there are appropriate: 74.5%; Catheter-associated urinary tract infection surveillance performed: 93.6%	Policy for appropriate indications for catheter use: 81.4%; Policy for urinary catheter maintenance: 92.8%; Urinary catheters removed within 24–48 hrs. of admission unless there are appropriate: 93.8%; Catheter-associated urinary tract infection surveillance performed: 65.7%	VA<non-VA, p=0.004; Policy for urinary catheter maintenance: VA<non-VA, p=0.001; Urinary catheters removed within 24–48 hrs. of admission unless there are appropriate: VA<non-VA, p<0.001; Catheter-associated urinary tract infection surveillance performed: VA>non-VA, p<0.001	Other methods of controlling: All nursing homes participating in AHRQ HAI/CAUTI patient safety collaborative Covariates: Number of residents in facility, short-term sub-acute rehabilitation offered, presence of an HAI committee, infection prevention training, and infection preventionist with 3 or more years of experience		
Shields, 2017[23] Y (**National**) Retrospective Psychiatric care Clinical quality/safety	2014, vs non-Veterans in non-VA care; HBIPS	N=105 facilities NR	N=141 facilities (for-profit), 180 (non-VA government) NR	For-profit vs VA: Admissions screening for inpatient psychiatric care: 37.2%, p<0.001; Restraint hours per 1000 patient hours: -77.9%, p=0.004; Seclusion hours per 1000 patient hours: -61.6%, p=0.01;	Statistics: T-tests Other methods of controlling: NR Covariates: NR	N	RoB criteria not met: no adjustment for patient characteristics

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				Creating a continuing care plan at discharge: 41.7%, p<0.001; Transmitting a continuing care plan at discharge: 40.4%, p<0.001; Non-VA government vs VA: Appropriate justification of antipsychotics at discharge: 33.9%, p<0.001			
Burke, 2016[16] Y (**National**) Retrospective Headache and neuropathy Clinical quality/safety	2004-2011, vs non-Veterans in non-VA care; CDW vs MedPAR/HRS	N=256,608 Imaging for nontraumatic headache: 22.1%; Imaging for nontraumatic headache excluding cancer, hemiplegic migraine, giant cell arteritis, epilepsy, cerebrovascular disease including TIA, head or neck trauma, altered mental status, personal history of stroke/TIA or cancer, multiple sclerosis, or dementia: 15.3%; Imaging for migraine excluding cancer, hemiplegic migraine,	N=2005 Imaging for nontraumatic headache: 49.0%; Imaging for nontraumatic headache excluding cancer, hemiplegic migraine, giant cell arteritis, epilepsy, cerebrovascular disease including TIA, head or neck trauma, altered mental status, personal history of stroke/TIA or cancer, multiple sclerosis, or dementia: 27.1%; Imaging for migraine excluding cancer, hemiplegic migraine, giant cell arteritis, epilepsy, cerebrovascular disease including TIA, head or neck trauma, altered mental	VA<non-VA for all outcomes, p<0.001; except for imaging for migraine, p=0.027	Statistics: T-tests Other methods of controlling: NR Covariates: NR	N	RoB criteria not met: unbalanced samples

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
		giant cell arteritis, epilepsy, cerebrovascular disease including TIA, head or neck trauma, altered mental status, personal history of stroke/TIA or cancer, multiple sclerosis, or dementia: 7.1%; Neuroimaging any component of neuroaxis: 9%; Neuroimaging any component of neuroaxis excluding cancer, hemiplegic migraine, giant cell arteritis, epilepsy, cerebrovascular disease including TIA, head or neck trauma, altered mental status, personal history of stroke/TIA or cancer, multiple sclerosis, or dementia: 6.1%	status, personal history of stroke/TIA or cancer, multiple sclerosis, or dementia: 15.6%; Neuroimaging any component of neuroaxis: 23.7%; Neuroimaging any component of neuroaxis excluding cancer, hemiplegic migraine, giant cell arteritis, epilepsy, cerebrovascular disease including TIA, head or neck trauma, altered mental status, personal history of stroke/TIA or cancer, multiple sclerosis, or dementia: 15%				
Lee, 2017[17] Y (**National**) Retrospective Headache and neuropathy Access	2010-2011, vs non-Veterans in non-VA care; Both VA and non-VA: Health Tracking Household Survey	N=203 Self-reported delay in care in last 12 months: M 28.68%, 95% CI 20.18% to 39.0%	N=10,719 Self-reported delay in care in last 12 months: Commercial: M 17.3, 95% CI 16.18% to 18.49%; Medicare: M 17.97 %, 95% CI 13.88% to 22.87%; Medicaid/other: M 15.26%, 95% CI 12.55% to 18.43%	Self-reported delay in care in last 12 months: VA vs commercial: adjusted odds ratio 1.76, 95% CI 1.11 to 2.80, p<0.05	Statistics: Multivariate logistic regression Other methods of controlling: NR Covariates: Perceived general health status, perceived health care satisfaction, age, gender, education, annual family income, race, and region	N	RoB criteria not met: unbalanced samples

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison** **Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Axon, 2016[22] Y (**Regional**) Retrospective Heart failure Clinical quality/safety	2007-2011, vs Veterans in non-VA care; CDW vs Medicare inpatient, outpatient, and carrier files	N=2242 Emergency department visits: All cause: M 72.6 SD (79.0); HF-related: M 6.2 SD (22.8); Hospitalizations: All cause: M 31.5 SD (56.7); HF-related: M 6.5 SD (27.1); 30-day readmissions: All cause: M 30.6 SD (54.6); HF-related: M 6.4 SD (27.0)	N=8825 Emergency department visits: All cause: M 45.0 SD (67.5); HF-related: M 3.6 SD (12.6); Hospitalizations: All cause: M 26.0 SD (34.5); HF-related: M 2.8 SD (12.4); 30-day readmissions: All cause: M 23.2 SD (32.4); HF-related: M 2.2 SD (10.2)	Non-VA vs VA Emergency department visits: All cause: adjusted odds ratio (AOR) 0.62, 95% CI 0.60 to 0.64; HF-related: AOR 0.60, 95% CI 0.55 to 0.66; Hospitalizations: All cause: AOR 0.98, 95% CI 0.95 to 1.02; HF-related: AOR 0.61, 95% CI 0.55 to 0.68; 30-day readmissions: All cause: AOR 0.87, 95% CI 0.83 to 0.90; HF-related: AOR 0.51, 95% CI 0.46 to 0.57	Statistics: Zero-inflated negative binomial models Other methods of controlling: NR Covariates: Age, race, gender, year of visit, dual use category, year of visit, and comorbidities that were found to be significant using a stepwise selection procedure	N	P-values not reported; RoB criteria not met: data only from South Carolina
Jia, 2016[31] Y (**National**) Retrospective Nursing home care Clinical quality/safety	2006-2009, vs Veterans in VA-paid community care; VA MDS 2.0 vs CMS MDS 2.0	N=12,660 Rehabilitation therapy: 75.5%; Restorative nursing care: 33.% %	N=5612 Rehabilitation therapy: 76.4%; Restorative nursing care: 30.6%	VA vs non-VA: Rehabilitation therapy: adjusted odds ratio (AOR) 1.16, 95% CI 1.01 to 1.32, p=0.033; Restorative nursing care: AOR 2.28, 95% CI 2.02 to 2.57, p<0.0001	Statistics: 2-part log-linear model Other methods of controlling: NR Covariates: Gender, education, depression score, ADL score, cognition score, comorbidity index score, number of assessments, facility region, facility rurality, facility	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
					hospital status, facility beds, facility resident-to-bed ratio		
Watkins, 2016[40] Y (**National**) Retrospective Schizophrenia, bipolar disorder, posttraumatic stress disorder, major depression, and substance use disorders Clinical quality/safety	FY07-FY08, vs non-Veterans in non-VA care; VA inpatient, laboratory and pharmacy files vs Thomson-Reuters MarketScan Commercial Claims and Encounter Database	N=836,519 Medication laboratory tests: 77.4%; Any laboratory screening tests: 86.9%; Antipsychotics, 12-week supply: 50.0%; Maintenance antipsychotics: 37.4%; Maintenance mood stabilizers: 31.3%; Antidepressants, 12-week supply: 49.0%; Maintenance antidepressants: 31.3%	N=545,484 Medication laboratory tests: 5.8%; Any laboratory screening tests: 49.7%; Antipsychotics, 12-week supply: 22.8%;; Maintenance antipsychotics: 23.1% Maintenance mood stabilizers: 20.3%;; Antidepressants, 12-week supply: 20.2% Maintenance antidepressants: 13.1%	VA>non-VA for all outcomes, p<0.001	Statistics: NR Other methods of controlling: NR Covariates: Age, gender	Y	
Jones, 2015[13] N (**NA**) Retrospective analysis of RCT Advanced chronic systolic heart failure Clinical quality/safety	1999, vs non-Veterans in non-VA care; BEST data (VA and non-VA)	N=898 NR	N=1216	VA vs non-VA: All-cause mortality among patients with advanced chronic systolic HF: adjusted odds ratio (AOR) 0.94, 95% CI 0.80 to 1.10, p=0.448; Cardiovascular mortality among patients with advanced chronic systolic HF: AOR 0.92, 95% CI 0.74 to 1.10, p=0.359; HF mortality among patients with advanced chronic systolic	Statistics: Cox proportional hazard models Other methods of controlling: NR Covariates: Age, race, body mass index, smoking, HF duration, coronary artery disease, diabetes mellitus, hypertension, atrial fibrillation, peripheral vascular disease, chronic kidney disease, randomization to bucindolol, use of angiotensin-converting enzyme inhibitors or angiotensin-receptor blockers,	N	RoB criteria not met: clinical trial sample

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				HF: AOR 0.76, 95% CI 0.57 to 1.02, p=0.064; Sudden cardiac death among patients with advanced chronic systolic HF: AOR 1.05, 95% CI 0.83 to 1.03, p=0.664; Mortality due to AMI among patients with advanced chronic systolic HF: AOR 3.12, 95% CI 1.19 to 8.19, p=0.021; All-cause hospitalization among patients with advanced chronic systolic HF: AOR 0.99 95%, CI 0.88 to 1.10; p=0.868; HF hospitalization among patients with advanced chronic systolic HF: AOR 0.88, 95% CI 0.76 to 1.02, p=0.092	digoxin, and diuretics, NYHA class symptoms, LVEF and right ventricular EF (RVEF), cardiothoracic ratio, pulmonary edema, heart rate, systolic and diastolic blood pressure, hemoglobin, serum creatinine, and serum cholesterol		
Chan, 2022[42] Y (**National**) Retrospective Emergency department care	2001-2018, vs Veterans in non-VA care; CDW and VBA death records vs Medicare claims and SSA death records	N=231,611 30-day mortality after ambulance ride: 9.32 deaths per 100 patients, 95% CI 9.15 to 9.50	N=1,238,546 30-day mortality after ambulance ride: 11.67 deaths per 100 patients, 95% CI 11.58 to 11.76	VA vs non-VA 30-day mortality after ambulance ride: difference -2.35 deaths per 100	Statistics: Ordinary least squares regression Other methods of controlling: NR Covariates: Zip code of residence,	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Clinical quality/safety				patients, 95% CI -2.16 to -2.54	demographic characteristics (age in two year bands, race or ethnic origin, and sex), six binary variables indicating receipt of VA or non-VA primary care, emergency care, and inpatient care in the 12 months before the ride, and previous medical diagnoses, specified as 31 indicators for Elixhauser comorbidities recorded in the 12 months before the ride, origin of the ride (residence; residential, domiciliary, or custodial facility; skilled nursing facility; or scene of accident or acute event), time (day of the week, month-year interactions), life support capabilities, classified according to categories for basic and advanced life support specified in the Healthcare Common Procedure Coding System codes, and primary diagnosis made during the ride, coded according to ICD-9		

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Florez, 2021[14] N (**NA**) Retrospective analysis of RCT Type 2 diabetes Clinical quality/safety	NR, vs non-Veterans in non-VA care; GRADE data (both VA and non-VA)	N=1216 HbA1c < 7% (<53 mmol/mol) among patients with a history of CVD: 18.1% BP < 140/90 mmHg among patients with a history of CVD: 80.2%; Treated for HTN among patients with a history of CVD: 93.7%; LDLc < 70 mg/dL (1.8 mmol/L) among patients with a history of CVD: 50.0%; LDLc < 100 mg/dL (2.6 mmol/L) among patients with a history of CVD: 81.1%; Statin use among patients with a history of CVD: 87.4%; Aspirin use among patients with a history of CVD: 81.9%; HbA1c < 7% (<53 mmol/mol) among patients with a history of CVD: 15.1%; BP < 140/90 mmHg among patients with no history of CVD: 73.6%; Treated for HTN among patients with no history of CVD: 74.9%; LDLc < 70 mg/dL (1.8 mmol/L) among patients with no history of CVD: 34.9%; LDLc < 100 mg/dL (2.6 mmol/L) among patients	N=3831 HbA1c < 7% (<53 mmol/mol) among patients with a history of CVD: 10.9% BP < 140/90 mmHg among patients with a history of CVD: 70.1%; Treated for HTN among patients with a history of CVD: 93.0%; LDLc < 70 mg/dL (1.8 mmol/L) among patients with a history of CVD: 36.9%; LDLc < 100 mg/dL (2.6 mmol/L) among patients with a history of CVD: 74.4%; Statin use among patients with a history of CVD: 84.1%; Aspirin use among patients with a history of CVD: 76.6%; HbA1c < 7% (<53 mmol/mol) among patients with a history of CVD: 14.2%; BP < 140/90 mmHg among patients with no history of CVD: 76.0%; Treated for HTN among patients with no history of CVD: 65.4%; LDLc < 70 mg/dL (1.8 mmol/L) among patients with no history of CVD: 24.2%; LDLc < 100 mg/dL (2.6 mmol/L) among patients	VA>non-VA, adjusted analyses BP < 140/90 mmHg among patients with a history of CVD: p=0.035 Treated for HTN among patients with no history of CVD: p=0.006 LDLc < 70 mg/dL (1.8 mmol/L) among patients with no history of CVD: p=0.045 Aspirin use among patients with no history of CVD: p=0.028 HbA1c < 7% (<53 mmol/mol) among patients with no history of CVD: p=0.003	Statistics: Pearson's chi- squared test with Yates' continuity correction Other methods of controlling: NR Covariates: Age, sex, race, and ethnicity	N	RoB criteria not met: clinical trial sample

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
		with a history of CVD: 68.2%; Statin use among patients with no history of CVD: Aspirin use among patients with no history of CVD: 70.8%; HbA1c < 7% (<53 mmol/mol) among patients with no history of CVD: 46.6%	with a history of CVD: 62.9% ; Statin use among patients with no history of CVD: Aspirin use among patients with no history of CVD: 59.5%; HbA1c < 7% (<53 mmol/mol) among patients with no history of CVD: 40.2%				
Feyman, 2022[49] Y (**National**) Retrospective Primary, specialty, and mental health care Access	2018-2021, vs Veterans in VA-paid community care; CDW (VA and non-VA)	N=4,016,156 Average wait times: Primary care: 29.0 (SD 5.5) days; Mental health care: 33.6 (SD 4.6) days; All other specialties: 35.4 (SD 2.7) days	N=3,042,060 Average wait times: Primary care: 38.9 (SD 8.2) days; Mental health care: 43.9 (SD 9.0) days; All other specialties: 41.9 (SD 5.9) days	Average wait times: Primary care: VA<non-VA in 15 of 18 VISNs; Mental health: VA<non-VA in 16 of 18 VISNs; All other specialties: VA<non-VA in 17 of 18 VISNs	Statistics: Ordinary least squares regressions; 2-sided t-tests Other methods of controlling: NR Covariates: Specialty mix (distribution of stop codes), VISN	Y	
Cashion, 2021[35] Y (**National**) Retrospective Post-kidney transplant care Quality/safety	2008-2016, vs Veterans in non-VA care; CDW vs Medicare data	N=752 5-year mortality: 11%	N=2092 5-year mortality: 20%	VA vs non-VA 5-year mortality: adjusted hazard ratio 2.2, 95% CI [1.5, 3.1]	Stats: Multivariable Cox regression Other methods of controlling: NR Covariates: Age at transplantation, sex, race, clinical comorbidities, transplant surgery site (within VA versus outside VA via Medicare), year of transplant, prior kidney transplantation, pretransplant	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
					dialysis, duration of prior dialysis, and type of transplant (living versus deceased donor)		
Presley, 2022[24] Y (**National**) Retrospective Nonsmall lung cancer Clinical quality/safety	2006-2012, vs non-Veterans in non-VA care; Veterans Central Cancer Registry (VACCR) vs Surveillance, Epidemiology, and End Results (SEER) and Medicare claims	N=18,054 Change in aggressive care at end of life between 2006 and 2012: -15.0% (46.0% to 31.0%)	N=13,277 Change in aggressive care at end of life between 2006 and 2012: -3.8% (41.9% to 38.0%)	Change in aggressive care at end of life between 2006 and 2012: VA>non-VA, p<0.001; % change in hospice admissions in Medicare hospital referral region on aggressive care at matched VA facility: AOR 0.13, 95% CI 0.08 to 0.23	Statistics: Chi-square tests Other methods of controlling: NR Covariates: Age, sex, race, comorbidities	N	No adjustment for demographic covariates in main analysis; composition of multicomponent aggressive care measure unclear
Pickering, 2022[55] Y (**National**) Retrospective Low-value prostate-specific antigen (PSA) testing Cost/efficiency	FY2017-FY2018, vs Veterans in non-VA care; CDW, Area Resource File, and VHA Service Support Center vs Beneficiary Summary File, Medicare Provider Analysis and Review, Inpatient, Skilled Nursing Facility, Outpatient, Home Health Agency, Hospice, Durable Medical Equipment, and Carrier files	N=36,469 Total downstream or "cascade" services related to low-value PSA testing: 53.9 services/100 Veterans; Cost of cascade services related to low-value PSA testing: $45.1/Veteran	N=17,981 Total downstream or "cascade" services related to low-value PSA testing: 45.3 services/100 Veterans; Cost of cascade services related to low-value PSA testing: $35.0/Veteran	Non-VA vs VA Adjusted difference in downstream or "cascade" services related to low-value PSA testing: 9.9 services/100 Veterans, 95% CI 9.7 to 10.1; Adjusted cost of cascade services related to low-value PSA testing: $11.9/Veteran,	Statistics: Negative binomial models; weighted linear regression Other methods of controlling: Stabilized inverse probability of treatment weights Covariates: Age, race and ethnicity, VA priority group, driving distance to the nearest VA facility, number of Elixhauser conditions, individual Elixhauser conditions, academic affiliation,	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**<u>VA Care</u>:** **N** **Outcomes (Raw Values)**	**<u>Non-VA Care</u>:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				95% CI $7.6 to $16.2	facility size, census region, rurality, and complexity level at the VA medical center-level		
Fortney, 2022[18] N (**NA**) Prospective survey In-person- and tele-mental health care Access Cost/efficiency Patient experience Clinical quality/safety	2019-2020, vs Veterans in VA-paid community care; CDW and telephone survey	N=303 Number of barriers to care: M 0.9, SD 1.3; Number of encounters: M 5.9, SD 7.3; Patient centeredness: M 4.3, SD 0.6; Change in PHQ-8 (depression symptoms): M -1.2, SD -4.9; Change in PCL-5 (post-traumatic stress disorder symptoms): M -3.4, SD -12.5	N=242 Number of barriers to care: M 1.3, SD 1.6; Number of encounters: M 6.2, SD 6.8; Patient centeredness: M 4.2, SD 0.7; Change in PHQ-8 (depression symptoms): M -2.2, SD -5.3; Change in PCL-5 (post-traumatic stress disorder symptoms): M -6.0, SD -12.6	Number of access-related barriers to care: VA<non-VA: p<0.001; Number of encounters: VA=non-VA; p=0.276; Patient centeredness: VA=non-VA; p=0.243; Change in PHQ-8 (depression symptoms): VA>non-VA; p=0.011; Change in PCL-5 (post-traumatic stress disorder symptoms): VA=non-VA; p=0.148	<u>Statistics:</u> Multivariate statistical analyses; chi-square and t-tests <u>Other methods of controlling:</u> NR <u>Covariates:</u> Provisional diagnosis, suicidality, rurality, and prior VA mental health use	N	Small sample size
Scheuner, 2022[44] Y (**National**) Retrospective Genetic counseling Clinical quality/safety	2010-2017, vs Veterans in VA-paid community care; CDW	N=6775 Genetic referrals completed (% of total referrals): 5073 (74.9%)	N=3423 Genetic referrals completed (% of total referrals): 1961 (57.3%)	Non-VA vs VA: Completed genetic consultations: OR 0.43, 95% CI 0.28 to 0.65; Follow-up cancer surveillance and risk-reducing	<u>Statistics:</u> Multivariate regression models <u>Other methods of controlling:</u> NR <u>Covariates:</u> Genetic referral models: care model x age, x race or ethnicity, and x gender interactions; Risk-reducing	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				procedures among those who completed a genetic consultation: OR 0.64, 95% CI 0.52 to 0.78	surveillance/ procedures models: care model x consultation status interactions, and cardiovascular disease		
Petros, 2022[19] Y (**Local**) Retrospective Colorectal cancer Clinical quality/safety Access	2015-2018, vs Veterans in VA-paid, community care; Chart review	N=235 Adenomas detection (adenoma detection rate): 147 (62.6%); Compliance with surveillance guidelines: 93.3%; Time to colonoscopy: M 83.8 days, 95% CI 45.2 to 122.4 days	N=235 Adenomas detection (adenoma detection rate): 86 (36.7%); Compliance with surveillance guidelines: 74.9%; Time to colonoscopy: M 58.4 days, 95% CI 24.7 to 92.1 days	Non-VA vs VA: Adenoma detection rate: OR 0.39, 95% CI 0.25 to 0.63; Compliance with surveillance guidelines: OR 0.21, 95% CI 0.09 to 0.45; Time to colonoscopy: non-VA<VA, p<0.0001	Statistics: Multivariate logistic regression Other methods of controlling: NR Covariates: (Adenoma model) Diabetes mellitus, preparation quality adequate, and cecal intubation; (Guideline model) adenoma detected, performed by non-gastroenterologist, screening indication, surveillance indication, and adequate bowel preparation	N	Small sample size; only one facility sample; no demographic controls in statistical models
Weeda, 2023[29] Y (**National**) Retrospective Acute myocardial infarction Clinical quality/safety	2013-2018, vs Veterans in non-VA care; CDW vs CMS data (inpatient, outpatient, and pharmacy claims from parts A, B, and D)	N=16,247 Any medication class omitted: 67.8% All medication classes omitted: 9.5% ACEI/ARB omission: 45.5% Beta-blocker omission: 23.7% Statin omission: 22.6% High-intensity statin omission: 41.2% P2Y12 inhibitor omission: 38.3%	N=102,209 Any medication class omitted: 82.8% All medication classes omitted: 29.8% ACEI/ARB omission: 62.8% Beta-blocker omission: 47.4% Statin omission: 45.5% High-intensity statin omission: 72.1% P2Y12 inhibitor omission: 59.8%	Non-VA vs. VA: Any medication class omitted: OR 3.04 (95% CI 2.88, 3.20) All medication classes omitted: OR 4.21 (95% CI 3.95, 4.49)	Statistics: Generalized linear models with a logit link Other methods of controlling: Models were built in a sequential manner using all available covariates after checking for multicollinearity. Model fit was assessed through residual analysis.	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
					Covariates: Demographic variables, service-related disability percentage, primary care utilization rates, pre-MI secondary prevention medication use, smoking status, and all comorbidities		
Gaffney, 2022[56] Y (**National**) Retrospective Influenza vaccination Equity	2019-2020, vs Veterans in non-VA care & non-Veterans in non-VA care; National Health Interview Survey	N=2821 Influenza vaccination rate: 63.0%	N=46,456 Non-VA Veterans, Influenza vaccination rate: 59.1% Non-VA, non-Veterans, Influenza vaccination rate: 46.5%	Influenza vaccination rates: Non-Veterans vs. VA: Black (vs. white): -6.9% (95% CI -15.2% to 1.4%) Hispanic (vs. white): -18.4% (95% CI -29.9% to -7.0%) Other race (vs. white): 5.4% (95% CI -7.6% to 18.3%) Middle-income vs. low-income: -6.7% (95% CI -13.2% to -0.1%) High-income vs. low-income: -8.5% (95% CI -15.6% to -1.4%) Veterans in non-VA care vs. VA:	Statistics: Logistic regressions; predicted probabilites Other methods of controlling: NR Covariates: Race/ethnicity, veteran/VA indicator, an interaction term for veteran/VA indicator, age, sex, self-reported health status, family income; family income and race covariates were used in separate models	N	Self-reported vaccination status

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				Black (vs. white): -5.6% (95% CI -22.1% to 10.9%) Hispanic (vs. white): -3.7% (95% CI -14.9% to 7.6%) Other race (vs. white): -8.5 (95% CI -26.2% to 9.2%) Middle-income vs. low-income: -4.4% (95% CI -12.9% to 4.0%) High-income vs. low-income: -8.0% (95% CI -16.7% to 0.9%)			
Ramanathan, 2023[45] Y (**National**) Retrospective Antibiotic prophylaxis for dental procedures Clinical quality/safety	2015-2017, vs non-Veterans in non-VA care; CDW vs Marketscan data	N=18,292 Guideline concordant antibiotic prescribing: 30.9%	N=42,832 Guideline concordant antibiotic prescribing: 33.5%	VA vs non-VA: Guideline concordant antibiotic prescribing: OR 1.21 (95% CI 1.16 to 1.25) Guideline concordant antibiotic prescribing without prosthetic joint: OR 0.99 (95% CI 0.96 to 1.01) Guideline concordant antibiotic prescribing with	Statistics: Multivariable log binomial regression analyses or Poisson regressions Other methods of controlling: Backward selection, Akaike Information Criterion (AIC) for covariate selection Covariates: Age, sex, prosthetic joint, region, urban/rural, Charlson score, dental service category	N	Use of Marketscan claims data

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				prosthetic joint: OR 1.73 (95% CI 1.59 to 1.88) Guideline concordant antibiotic dosing based on antibiotic duration: OR 1.11 (95% CI 1.07 to 1.15)			
Ohl, 2023[41] Y (**National**) Retrospective Deaths and readmissions during the COVID-19 pandemic Clinical quality/safety	2020-2021, vs. Veterans in VA-paid and non-VA-paid community care; CDW, VHA Program Integrity Tool, CMS enrollment and claims, AHA survey, CDC Agency for Toxic Substances and Disease Registry Social Vulnerability Index	N=17,035 30-day mortality: 3021 (17.7%) 30-day readmissions: 2006/14,357 (14.0%)	N=47,821 30-day mortality: 12,951 (27.1%) 30-day readmissions: 4898/38,576 (12.7%)	Non-VA vs. VA: 30-day mortality: OR 1.37 (95% CI 1.21 to 1.55) 30-day readmissions: OR 0.89 (95% CI 0.86 to 0.92) Non-VA CC vs. VA: 30-day mortality: OR 1.44 (95% CI 1.26 to 1.64) 30-day readmissions: OR 0.91 (95% CI 0.81 to 1.01)	Statistics: Logistic regressions Other methods of controlling: Inverse probability of treatment weights, propensity scores Covariates: Patient age, race and ethnicity, sex, rural residence, Social Vulnerability Index, date of admission, distance to nearest VHA hospital, distance to nearest community hospital, comorbidities, acuity	Y	
Yoon, 2023[28] Y (**National**) Retrospective Hospital discharges for acute myocardial infarction, gastrointestinal hemorrhage, heart failure, pneumonia, stroke	2012-2017, vs. Veterans in non-VA care VA Managerial Cost Accounting files State-wide all-payer discharge data in 11 states	N=96450 30-day mortality (65 and over only): AMI: 9.8% GI bleed: 4.1% HF: 6.0% Pneumonia: 7.2% Stroke: 7.0%	N=418273 30-day mortality (65 and over only): AMI: 12.0% GI bleed: 5.8% HF: 10.4% Pneumonia: 9.7% Stroke: 16.5%	VA compared to nonVA care in adjusted models for 30-day mortality (65 and over): AMI:0.012 GI bleed: 0.004 HF: **-0.017** Pneumonia: -0.004	Statistics: Inverse probability weighted regression adjustment Other methods of controlling: N/A Covariates: age, sex, race, ethnicity, marital status, priority for VA care, comorbidity score,	Y	Outcomes also reported for age <65

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				Stroke**:-0.053** **Bold** = p<0.05	comorbidity for SUD or PTSD, geographic region, and post-CHOICE act period		
Wachterman, 2024[52] N (**National**) Retrospective End-of-life care	2021-2022, vs. Veterans in VA-paid community care VA Bereaved Family Survey to measures the quality of end-of-life care, stratified by VA CLC or CA-contracted community nursing homes	N=1012 Overall rating of EOL care as 9/10: 84.8%	N=226 Overall rating of EOL care as 9/10: 71.2%	Adjusted odds ratio of overall better care at VA CLC = 2.35, 95% CI 1.68-3.29	Statistics: Logistic regression using "top box" (9/10) as outcome Other methods of controlling: N/A Covariates: Age, sex, race/ethnicity, next-of-kin relationship and education, length of hospice stay	N	Based on family response to survey, which only 41% (for VA) and 21% (for community nursing homes) were completed
Wadhwa, 2024[57] Y (**Local**) Retrospective Prostate cancer outcomes in California	2000-2018, vs. non-Veterans VA Central Cancer Registry California Cancer Registry	N=1881 44.3% Black	N=47580 17.2% Black	10-year all-cause survival was worse in Black patients treated in the community (p<0.01), whereas there was no evidence of racial disparities in the VA cohort	Statistics: Kaplan-Meier analysis for all-cause survival, logistic regression, and Cox proportional hazards models Other methods of controlling: N/A Covariates: Age at diagnosis, ethnicity, year of diagnosis, socioeconomic status, stage at diagnosis, census-tract-level population density	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Bagshaw, 20241 Y Retrospective Inpatient quality, Patient experience (CMS Star Ratings)	2023, vs non-Veterans in non-VA care	N=136 hospitals N=112 hospitals in matched analysis	N=4,518 hospitals N=112 hospitals in matched analysis	VA hospitals were more likely to receive 4 or 5 star ratings and less likely to receive 2 star ratings than non-VA hospitals VA hospitals were better Non-VA hospitals in mortality and patient experience and worse in readmission and timely and effective care; the two groups were similar on safety of care Matched analysis similar to primary analysis	Statistics: t-tests other methods of controlling: matching	Y	
Axon, 2024[3] Y Retrospective Readmissions Emergency visits	2016-2021 vs Veterans getting VA-paid care in the community; and vs non-Veterans getting non-VA care VA Corporate Data Warehouse; CMS Medicare Parts A.B.C, D.	N=932,493 Veterans receiving VA care	N=929,780 Veterans receiving community care N=372,566 patients in Medicare	After MISSION Act implementation Veterans care had 37% greater risk of 7-day readmission and 19% greater risk of 30-day readmission; but 5.5% greater risk of ED visit compared to Veterans	Statistics: multivariable regression with regression discontinuity	Y	[Not sure what they adjusted for.]

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				receiving VA care			
Eid, 2024[4] Y Retrospective Patient Satisfaction Clinical Quality	2018 Vs. non-Veterans in non-VA care HCAHPS SAIL Patient Safety Indicator - 90 composite score	N=133 hospitals	N=1116 academic non-VA hospitals	VA hospitals had higher "would you recommend" ratings than non-VA hospitals (88.3 vs. 87.7; p=0.04) and lower (better) PSI-90 scores (0.88 vs. 1.03 p=0.0002)	Statistics: multi-variable linear regression with interaction term PSI-90 is risk-adjusted	Y	
O'Hanlon, 2024[5] N Retrospective Pain, physical health	2018-2020 vs Veterans with VA-paid care in the community Patient surveys	N=219 veterans getting VA acupuncture or chiropractic care	N=160 Veterans getting care in the community	No differences in adjusted 6-month outcomes between acupuncture or VA or community practitioners	Statistics: multi-variable linear regressions Control variables: Age, sex, race/ethnicity, marital status, VA co-pay, educational attainment, region urbanicity, distance to nearest VA	N	
Yoon, 2024[2] Y (National) Retrospective Diabetes Diabetes and general health Quality of care	2020-2022 VA Corporate Data Warehouse	N=652648 HgbA1c: 90% Microalbumin test: 67% No significant differences in ACSC hospitalization	N=3650	Adjusted difference in probability for receiving care relative to VA-delivered care: HgbA1c= -0.17 Eye exam = -0.04 Microalbumin test = -0.19 Acute hospitalization = 0.0.6	Inverse probability weighted regression adjustment, adjusting for age, rurality, race, Charlson comorbidity score, marital status, service connected status, baseline HgbA1c.	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Medical Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				Influenza shot = 0.1 $1741 higher mean total costs of care. No significant differences in ACSC hospitalization			

SURGICAL CARE

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
George, 2021[67] Y (**National**) Retrospective Noncardiac surgery	2015-2018, vs other non-VA VASQIP vs NSQIP	N: 736477 30-day mortality: 8008 (1.1%) 30-day complications: 125816 (17.1%) Failure to rescue: 5918 (4.7%)	N: 3174274 (NSQIP) 30-day mortality: 2602 (0.8%) 30-day complications: 299984 (9.5%) Failure to rescue: 19936 (6.7%)	VA vs NSQIP 30-day mortality: RR(adj)=0.59 (95% CI: 0.47-0.75), p<0.001 Failure to rescue (with complications): RR=0.55 (95% CI: 0.44-0.68) (reference group: gen pop)	Stats: Multivariate log binomial regression Other methods of controlling: Serial modeling with subgroup analysis for 30-day mortality Covariates: age, sex, race/ethnicity, emergency/elective, postoperative complication	Y	Also performed sensitivity analyses with frailty and urgency (not abstracted)
George, 2024[68] Y (**National**) Retrospective Noncardiac surgery in women	2016-2019, vs other non-VA VASQIP vs NSQIP	N: 36478 procedures 30-day mortality: 0.1% 30- day complications: 3.4% Failure to Rescue: 0.1%	N: 1727062 procedures 30-day mortality: 0.3% 30-day complications: 3.7% Failure to Rescue: 0.2%	VA vs NSQIP 30-day mortality: RR(adj)=0.41 (95% CI: 0.23-0.76), p<0.001 Failure to rescue (with complications): RR=0.41 (95% CI: 0.18-0.92)	Stats: Multivariate poisson regression Other methods of controlling: Coarsened matching to balance groups Covariates: frailty, race/ethnicity, operative stress score, elective/urgent	Y	Also performed sensitivity analyses on surgery type and frailty
Simmonds, 2024[66] Y (**National**) Retrospective Colectomy	2015-2019, vs other non-VA VASQIP vs NSQIP	N: 11115 procedures 30-day mortality: 1.4% Any complication: 18% Return to OR: 7.1% Surgical site infection: 3.4% Wound dehiscence: 1.6% Post-operative pneumonia: 1.4% Pulm embolism: 0.7% Cardiac arrest: 0.7% Sepsis: 3.0%	N: 235097 procedures 30-day mortality: 1.2% Any complication: 22% Return to OR: 4.6% Surgical site infection: 3.6% Wound dehiscence: 0.9% Post-operative pneumonia: 1.9% Pulm embolism: 0.5% Cardiac arrest: 0.4% Sepsis: 0.7%	VA vs NSQIP after excluding emergency cases 1.2% vs 1.4% p-=0.145 Any complication: 17.7% vs 22%, p<0.001	Stats: multivariate logistic regression Covariates: age, sex, body mass index, functional status, emergency designation, ASA class, steroid usage, preoperative sepsis, smoking status, and presence of several chronic conditions	Y	Sensitivity analysis on open vs. laparascopic cases showed more variability in open cases Data extracted for cohort that excluded emergency cases

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**<u>VA Care</u>:** **N** **Outcomes (Raw Values)**	**<u>Non-VA Care</u>:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Buys, 2024[62] Y Retrospective Orthopedic joint surgery	2018-2021, vs VA-paid community care Corporate data warehouse and medical records	N: 239 Median of 30 opioid tablets prescribed on discharge	N: 323 Median of 40 opioid tablets prescribed on discharge	Adjusted odds of receiving fewer opioid tablets in the first 90 days 0.45, p<0.001	<u>Stats: binomial regression model</u> <u>Covariates:</u> age, sex, BMI, rural residence, number of days in hospital before surgery, surgery type, any mental health diagnosis, any substance use disorder	Y	
Yoon, 2023[28] Y Retrospective CABG	2012-2017 VA Managerial Cost Accounting files State-wide all-payer discharge data in 11 states	N:2548 30-day mortality(>65 years of age) 2.1% LOS (>65 years of age) 11.7 days Cost (>65 years of age) $76,200	N:15981 30-day mortality(>65 years of age) 2.2% LOS (>65 years of age) 9.6 days Cost (>65 years of age) $53,100	Average treatment outcome (>65 years of age) 30-d mortality 0.009 p=0.17 30-d readmission (>65 years of age) -0.045, p<0.001	<u>Stats:</u> inverse probability weighted regression adjustment <u>Covariates:</u> age, sex, race, ethnicity, marital status, priority for VA care, comorbidity score, comorbidity for SUD or PTSD, geographic region, and post-CHOICE act period	Y	Outcomes also reported for age <65
Heiden, 2021[74] Y (**National**) Retrospective Lung resection	2006-2016 (vs other non-VA: NCDB) VA CDW vs NCDB	N: 6792 Length of stay: 8.12 days (SD 6.59) 30-day readmissions: 523 (7.70%) 30-day mortality: **128** (1.9%) 90-day mortality: **250** (3.7%) Median overall survival: **71.4 months**	N: 6792 (NCDB) Length of stay: **7.08 days** (SD 7.54) 30-day readmissions: 470 (7.02%) 30-day mortality: 188 (2.8%) 90-day mortality: 331 (5.0) Median overall survival: 65.2 months	<u>Unadjusted/matched cohort:</u> Length of stay: p<0.001 30-day readmissions: p=0.132 Median overall survival: p<0.001 30-day mortality: p<0.001 90-day mortality: p<0.001 Median overall survival, VA vs NCDB: p=0.0006	<u>Stats:</u> Kaplan-Meier with log-rank tests <u>Other methods of controlling:</u> **propensity score matching** <u>Covariates:</u> age, sex, race, income, educational level, Charlson/Deyo score, distance to hospital, tumor size, year of diagnosis	Y	

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Blay, 2017[36] Y (**National**) Retrospective Hospital PSI	2012-2015, vs other non-VA Hospital Compare	N: 129 hospitals Death among surg inpatients w/ treatable conditions: **105.82** per 1000 discharges Postoperative sepsis: 7.52 per 1000 discharges Postoperative wound dehiscence: 2.17 per 1000 discharges VTE: 3.94 per 1000 discharges	N: 4010 hospitals Death: 136.34 per 1000 discharges Postoperative sepsis: 10.22 per 1000 discharges Postoperative wound dehiscence: 2.32 per 1000 discharges VTE: 5.08 per 1000 discharges	Death: VA 95% CI 96.7-114.92; non-VA 95% CI 135.42-137.26 (P<0.05 with Bonferroni correction) Postoperative sepsis: VA 95% CI 6.10-8.95; non-VA 95% CI 10.12-10.32 (P<0.05 with Bonferroni correction) Postoperative wound dehiscence: VA 95% CI 1.64-2.71; non-VA 95% CI 2.30-2.33 VTE: VA 95% CI 3.42-4.45; non-VA 95% CI 5.00-5.15	Stats: t tests with and without Bonferroni correction for multiple comparisons to evaluate pairwise comparisons between VA and non-VA hospitals for risk-adjusted rates of outcome measures Other methods of controlling: N/A Covariates: N/A	Y	Hospital level data. Subgroups of only medical reasons for death and readmissions were not collected
Eid, 2020[72] N (**National**) Retrospective Surgery PSI/ satisfaction	2018, vs other non-VA Hospital Compare	N: 34 hospitals DVT/PE: 3.56 per 1000 patients Wound dehiscence: **0.29** per 1000 patients Postoperative mortality: **95** per 1000 patients Surgical-specific patient safety indicator: 18.0 per 1000 patients Compiled patient satisfaction star ratings: 2.96 Recommended hospital rating 2.7	N: 319 hospitals DVT/PE: 4.05 per 1000 patients Wound dehiscence:0.83 per 1000 patients Postoperative mortality: 167 per 1000 patients Surgical-specific patient safety indicator: 51.4 per 1000 patients Patient satisfaction star ratings: 2.97 recommended hospital rating 3.13	DVT/PE: p=**0.18** Wound dehiscence: p<0.01 Postoperative mortality: p<0.001 Surgical-specific patient safety indicator: p<0.001 Patient satisfaction star ratings: p=0.9 Recommended hospital rating: p= 0.007	Stats: paired-sample t-test Other methods of controlling: N/A Covariates: N/A	N (relative to Blay fewer hospital and fewer years	
Harris, 2021[75] Y (**National**)	VA: 2017-2019 vs Veteran in non-VA ("VA-purchased")	N: 24,407 Any complication: 712 (2.9%)	N: 18,964 Any complication: 611 (3.2%)	adjusted odds ratios (reference group: CC):	Stats: mixed-effects logistic regression (random effects for	Y	Full sample (not the 30-30 volume based sample) used to data abstract.

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
retrospective cohort Elective TKA	CDW/ Medicare vs CDW/ Medicare	MI: 45(0.2%) Joint/wound infection: 236 (1.0%) Pneumonia: 129 (0.5%) PE: 193 (0.8%)	MI: 92 (0.5%) Joint/wound infection: 128 (0.7%) Pneumonia: 140 (0.7%) PE: 109 (0.6%)	Any complication: 0.45 (95% CI: 0.38, 0.54) MI: 0.21 (p<0.001, CIs not reported) Joint/wound infection: 0.69 (p<0.001) Pneumonia 0.34 (p<0.001) PE 0.73 (p<0.01) (reference group: CC)	patients, setting, and VA facility) Covariates: age, sex, race, marital status, rurality, priority level (service connected disability/income level), Nosos risk score		*Reason for map being "mixed". National level data show VA better but 5 individual VA facilities (supplement S7) had worse complications*
Rosen A, 2021[76] Y (**National**) Retrospective Cataract surgery	2014-2015, VA vs vets in non-VA ("CC") CDW	N: 44546 30-day complication for complex surgeries in all eyes: 164 (1.61%) 30-day complication for routine surgeries in all eyes: 313 (0.65%) 90-day complication for complex surgeries in all eyes: 228 (2.24%) 90-day complication for routine surgeries in all eyes: 476 (0.99%)	N: 17203 30-day complication for complex surgeries in all eyes: 58 (1.52%) 30-day complication for routine surgeries in all eyes: 131 (0.59%) 90-day complication for complex surgeries in all eyes: 81 (2.13%) 90-day complication for routine surgeries in all eyes: 195 (0.89%)	30-day complication for complex surgeries in all eyes: RR(unadj)=0.94 (95% CI: 0.70, 1.27); AR=-0.09 (95% CI: -0.56, 0.38) 30-day complication for routine surgeries in all eyes: RR(unadj)=0.91 (95% CI: 0.74, 1.16); AR=-0.06 (95% CI: -0.19, 0.07) 90-day complication for complex surgeries in all eyes: RR(unadj)=0.95 (95% CI: 0.74, 1.22); AR=-0.12 (95% CI: -0.66,	Stats: Firth's penalized maximum likelihood logistic regression Other methods of controlling: N/A Covariates: community care status, complex surgery, eye risk group, complex surgery*CC, complex surgery*high-risk eye, CC*high-risk eye, complex surgery*CC*high-risk eye, demographic variables (i.e., rural status, race, number of preoperative ocular conditions)	Y	Did not abstract low- and high- risk eyes subgroups

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				0.43) 90-day complication for routine surgeries in all eyes: RR(unadj)=0.89 (95% CI: 0.75, 1.05); AR=-0.11 (95% CI: -0.26, 0.05) (Reference group: VA) 90-day complication (CC vs VA): OR(adj)=0.918 (95% CI: 0.765-1.097), p=0.349			
Rosen, 2021[58] Y (**National)** Retrospective TKA	2016-2019, VA vs vets in non-VA ("CC") CDW and Medicare data	N: 25,384 All-cause readmission rate: 4.3% TKA-related readmission rate: 1.3%	N: 19,990 All-cause readmission rate: 4.6% TKA-related readmission rate: 1.2%	adjusted odds ratio (reference: CC) all-cause readmissions: OR=0.35 (95% CI: 0.30-0.40) TKA-related readmissions: OR=0.30 (95% CI: 0.23-0.38)	Stats: mixed effects logistic regression (fixed effects for setting, random effects for VA facility and setting) Covariates: gender, age, race, marital status, rurality, Medicaid insurance, priority level, Nosos risk score	Y	Used the data that included Medicare data (did not use analysis that removed medicare) did not abstract individual facility level OR (finding: 1 VA facility had sig higher odds of all-cause readmits than paired CC; 3 VA facilities had sig higher odds TKA-related readmit vs paired CC)--*thus mixed findings*
Williams, 2020[63] Y (**National**) Retrospective Lung resection	2001-2009, vs other non-VA VA CDW vs SEER-Medicare	N: 7895 Black vs White overall 5-year survival: no raw event data Black vs White lung cancer-specific 5-year survival: no raw event data Overall treatment type: *None:* 1930 (24.5%)	N: 8744 (Seer-Medicare) Black vs White overall 5-year survival: no raw event data Black vs White lung cancer-specific 5-year survival: no raw event data Overall treatment type:	Black vs White overall 5-year survival: VA cohort HR(adj)=1.08 (95% CI: 1.00-1.16), P=0.041; SM cohort HR(adj)=1.17 (95% CI: 1.06-	Stats: multinomial logistic regression for odds of treatment type; univariate Kaplan-Meier for survival, White/Black groups compared by log-rank test. Other methods of controlling: N/A	Y	Findings confirmed by multivariate (less difference between Black and White in VA compared with non-VA)

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
		Surgery only: 3648 (46.2%) *RT only:* 1446 (18.3%) *Chemo only:* 181 (2.3%) *>1 treatment:* 690 (8.7%)	*None:* 1412 (16.2%) *Surgery only:* 4454 (50.9%) *RT only:* 978 (11.2%) *Chemo only:* 171 (2.0%) *>1 treatment:* 1729 (19.8%)	1.30), P<0.0001 Black vs White lung cancer-specific 5-year survival: VA cohort HR(adj)=1.06 (95% CI: 0.96-1.17), P=0.26; SM cohort HR(adj)=1.21 (95% CI: 1.07-1.37), P<0.0001 Unadjusted overall treatment type: p<0.01 for VA and SM Blacks vs White surgery only treatment group: VA cohort OR(adj)=0.73 (95% CI: 0.62-0.86); SM cohort OR(adj)=0.57 (95% CI: 0.47-0.70)	Covariates: age at diagnosis, marital status, Charlson comorbidity score, histology stage, year of diagnosis		
Kesseli, 2020[64] Y (**National)** Retrospective Kidney transplant	2001-2016, SRTR (vs other non-VA)	N: 1508 transplants report observed number / expected number (O:E ratio) 1-year graft survival: 78/97.8 (0.79) 1-month mortality: 3/11.3 (0.26) 1-year mortality: 33/53.6 (0.57) N: 617 transplants 3-year graft loss: O:E = 0.88 (95% CI 0.69–1.09)	N: 227,680 transplants 1-year graft survival: 14,185/14,149 (1.00) 1-month mortality: 1348/1340 (1.01) 1-year mortality: 6190/6174 (1.00) N: 74,478 transplants 3-year graft survival: O:E = 1.00 (95% CI: 0.98–1.02)	1-year graft survival: O:E= 0.79 (95% CI 0.63–0.98) vs 1.00 (0.98–1.02), P = 0.15 1-month mortality: O:E = 0.27 (0.05–0.65) VA vs 1.00 (0.95–1.06) non-VA, P = 0.03 1-year mortality: O:E = 0.62 (0.42–0.84) VA vs 1.00 (0.98–1.03) non-	Stats: observed vs expected ratios. Expected probabilities calculated from Scientific Registry of Transplant Recipients using Cox proportional hazard model from national data (includes 33 patient, donor, and transplant characteristics)	Y	Abstracted data for VA and non-VA sites (did not include VA-affiliate sites) given all data reported in paper, reporting as **equal/mixed** (abstracted data shows mostly VA better)

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				VA, P = 0.03 3-year graft survivial: p=0.46			
Barnett, 2018[25] Y (**National**) Retrospective CABG	2014 - 2017, Veterans in VA vs Veterans not in VA ("CC") ?data source: ?CDW vs CC claims	N: 4866 Actual distance traveled: 123.2 miles 30-day mortality: 1.50% (77 deaths) 30-day readmission: 7.12% (346 readmissions) Total cost (no unadjusted data)	N: 952 Actual distance traveled: 81.5 miles 30-day mortality: 1.26% (12 deaths) 30-day readmission: 8.25% (79 readmissions) Total cost (no unadjusted data)	Actual **travel distance**: p=0.02 Unadjusted 30d mortality: p=0.57 Adjusted 30d mortality: 1.51% for VA vs 1.33% for CC (p=0.74); RR (adj)=0.89 (95% CI: 0.45-1.77) Adjusted 30-day readmission: 7.00% for VA vs 8.13% for CC (p=0.28); RR (adj)=1.16 (95% CI: 0.89-1.50) Mean adjusted total cost: $65264 (SD: $47978) for VA vs $56749 (SD: $77283) for CC (p<0.01) [adjusted: CC is reference]	Stats: log binomial models for mortality and readmission, log gamma models for costs Other methods of controlling: **propensity weighting** to control for differences in case mix between VA and CC patients Covariates (in propensity adjustment): age, sex, race/ethnicity, recent myocardial infarction, prior PCI, prior CABG surgery, cerebrovascular disease, peripheral vascular disease, congestive heart failure, Type 1 diabetes, Type 2 diabetes, body mass index, renal function, dialysis, chronic obstructive pulmonary disease, atrial fibrillation, number of vessels revascularized	Y	Did not abstract PCI data Travel data: reported only actual distance traveled Costs: total cost (Table 3), which is different from mean-adjusted index cost Mortality: reporting figure 1 adjusted at patient (not hospital) level factors
Frisch, 2020[59] Y (N**ational**) Retrospective Elective THA	2014 (vs other non-VA) CDW vs NSQIP	N: 10460 Length of stay 4 days or greater: 4805 (47%) 30-day complications: 908 (9%) PE: 74 (0.7%)	N: 58820 (NSQIP) Length of stay 4 days or greater: 9815 (17%) 30-day complications: 1608 (3%) PE: 308 (0.5%)	OR(adj) for LOS >3d (VA vs non-VA) =4.46 (95% CI: 4.21-4.72) OR(adj) for 30-d complications (VA	Stats: multivariate logistic regression Other methods of controlling: N/A Covariates: sex, age, race, BMI, diabetes	Y	Reported OR(adj) for length of stay greater than 3 days rather than 4 days because missing latter analysis

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
		MI: 39 (0.4%) DVT: 152 (1.5%) Pneumonia: 82 (0.8%) Post-operative infection: 220 (2%) 30-day readmissions: 1773 (17%)	MI: 121 (0.2%) DVT: 414 (0.7%) Pneumonia: 10 (<0.1%) Post-operative infection: 619 (1%) 30-day readmissions: 1955 (3%)	vs non-VA) =2.58 (95% CI: 2.31-2.89) OR(adj) for 30-day readmissions (VA vs non-VA)=4.94 (95% CI: 4.51-5.41) Unadjusted length of stay 4 days or greater: p<0.001 Unadjusted 30-day complications: p<0.001 Unadjusted 30-day readmissions: p<0.001 Unadjusted PE: p=0.019 Unadjusted MI: p=0.001 Unadjusted DVT: p<0.001 Unadjusted pneumonia: p<0.001 Unadjusted post-operative infection: p<0.001 (Reference for adjusted measurements: non-VA)	mellitus, chronic obstructive pulmonary disease, chronic kidney disease, metastatic cancer, hypertension, congestive heart failure		
Hutt, 2015[61] N (**National**) Retrospective Hip fracture repair	2003-2005 VA vs other non-VA VA NSQIP vs Medicare	N: 947 Avg days from admission to surgery: 5.64 (SD 43.25) Survival at 30-days: 89.65% Survival at 1yr: 63.04%	N: 947 (Medicare) Avg days from admission to surgery: 1.78 (SD 2.35) Survival at 30-days: 92.93% Survival at 1yr: 70.43%	Unadjusted/matched cohort: Avg days from admission to surgery: p=.0063 Survival at 30-days: p=0.0106 Survival at 1 year:	Stats: Multivariate logistic regression Other methods of controlling: **Propensity matching** Covariates: propensity matching:	Y	Large dot because N=947 per group in the propensity matched sample, used VASQIP and Medicare data)

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
				p=0.0006 30-day survival odds (Medicare vs VA) OR :1.701 (95% CI: 1.184-2.445) (p<0.001) 1 year survival odds (Medicare vs VA) OR :1.504 (95% CI: 1.208-1.872) (p<0.001)	age, sex, race, prehospital location, type of surgery, comorbidities, region, year of surgery, primary diagnosis; odds of survival using matched cohort: year of surgery, number of hospital days before/after surgery, chronic conditions		
Griffith, 2020[48] Y (**National**) Retrospective Ortho/Urology wait times	2013-2019 vs 2018-2019 (vs Vets in non-VA)	N: 506945 (orthopedics), 353029 (urology) Mean wait time for orthopedics: 36.2 days (SD 9.3) Mean wait time for urology: 36.1 days (SD 9.5)	N: 139827 (orthopedics), 37089 (urology) Mean **wait time** for orthopedics: 43.6 days (SD 12.9) Mean wait time for urology: 50.5 days (SD 14.5)	orthopedics (r=0.50) urology (r=0.30)	Stats: mean appointment wait times; Weighted Pearson correlation coefficients between VHA and CC wait times Other methods of controlling: N/A Covariates: N/A	Y	
Billig, 2021[70] N (**National**) Retrospective Carpal tunnel	2010-2015 (vs Veteran in non-VA) CDW data	N: 23330 Median Referral PCP to CTR days: 176 days IQR: 94-470)	N: 5912 (mixed care) Median Referral PCP to CTR days: 378 days (IQR: 136-1136)	Median Referral **PCP to CTR days** (VA vs mixed care): HR(unadj)=0.63 (95% CI: 0.61-0.64); HR(adj)=0.63 (95% CI: 0.61-0.65)	Stats: Multivariable cox proportional hazard models; kaplan meier with log-rank comparisons Other methods of controlling: Controlling for other services received in community Covariates: age, sex, race, CCI, diabetes, VA priority group, PCP facility type, PCP and surgical specialist located within same facility, proportion of patients referred for any community care for a	N (mixed care group was not uniform)	Note: comparison group is people with some portion of their diagnostic workup, nonsurgical or surgical care being in community, compared to entire workup/ treatment in VA. Likely some bias with some VA surgeries occurring in the mixed comparison group, thus small circle.

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
					CTS-related service at the facility level		
Pettey, 2021[71] Y (**National**) retrospective Cataract	FY2015 (vs vets in non-VA "CC")	N: 58050 cataract procedures Median driving miles to closest VA facility: 28.1 (SD 39.2) Median driving miles to actual VA facility: 31.2 (SD 110.9)	N: 25825 cataract procedures Median **driving miles** to closest CC facility: 8.7 (SD 21.7) Median driving miles to actual CC facility: 19.7 (SD 296.0)	N/A	Stats: drive distances generated with Geographic Information System (GIS) Other methods of controlling: N/A Covariates: N/A	Y	Reported national findings (there were additional state/regional data) and excluded heatmap data Considered mixed results because closest driving miles for CC was lower than that for VA but VA better in portion of comparisons (26% of CC surgeries took place further than the closest VA, for instance)
Augustine, 2018[15] Y (**National**) Retrospective Kidney transplant	2004-2016, SRTR (vs other non-VA)	N: 2905 patients (no raw mortality, delisting event data) median distance transplant center (25%, 75%): 347.0 (196.9, 701.8)	N: 3751 (private) N: 3109 (Medicare) (no raw event data) median distance transplant center, private (25%, 75%): 42.5 (12.9, 101.1) median distance transplant center, Medicare (25%, 75%): 55.6 (16.4, 102.6)	VA vs private all transplants: HR(adj) **0.72** (95% CI: 0.65-0.79) VA vs private Mortality: HR(adj) 1.00 (95% CI: 0.83-1.20) VA vs private delisting: HR(adj**) 1.23** (95% CI: 1.003-1.50) VA vs Medicare Mortality: HR(adj) 0.81 (95% CI: 0.68-0.96) VA vs Medicare delisting: HR(adj) 0.82; 95% CI, 0.68 to 0.99) unadjusted median **distance**: p<0.001	Stats: multivariable cox regression Control: matched VA with local non-VA centers in same DSA Covariates: age group, race, sex, diagnosis group, time on dialysis at listing, candidate status at listing, panel reactive antibody (PRA), body mass index group, education, malignancy, peripheral vascular disease, year of listing, region, log distance from candidate residence to listing center (distance in miles transformed on a log-10 scale), and community risk score	Y	Only reporting matched subset (another unmatched outcome set) Supplements were reviewed for raw event data - not included

Author **Year** **Large Database** (Y/N) **Study Design** **Health Condition** **Outcome Domains**	**Years of Source Data** **Comparison Group** **Data Source(s)**	**VA Care:** **N** **Outcomes (Raw Values)**	**Non-VA Care:** **N (Population)** **Outcomes (Raw Value)**	**Comparison Statistics** **Adjusted Model Findings**	**Statistical Method** **Other Methods of Controlling** **Covariates in Model**	**Bias Criteria Met?**	**Comments & Reason If Bias Criteria Not Met**
Wu, 2018[69] Y (**National**) Retrospective Cataract	2002-2012 (vs other non-VA) VHA claims data vs medicare data	N: 1,917,254 patients Surgery within 1 y of cataract dx: 120,196 (6.3%) Surgery within 5 y of cataract diagnosis: 240,884 (12.6%)	N: 1,156,211 patients (Medicare) Surgery within 1 y of cataract dx: 213,589 (18.5%) Surgery within 5 y of cataract diagnosis: 414,586 (35.9%)	Surgery within 1 y of cataract dx: p<0.001; OR(adj): 3.39 (95% CI: 3.36-3.41) **Surgery** within 5 y of cataract dx: p<0.001; OR(adj): 3.89 (95% CI: 3.87-3.91) (Reference group: VHA)	Stats: multivariable logistic regression Other methods of controlling: N/A Covariates: age group, sex, race/ethnicity, region of US residence, Charlson Comorbidity Index score, systemic comorbidities, ocular comorbidities	Y	
Wagner, 2021[73] Y (**National**) Retrospective TKA and cataract	2017-2018 (vs vets in non-VA, "VA purchased") CDW	N: 6179 for inpatient TKAs and 65799 outpatient cataracts Average total cost of inpatient TKAs: $28969 (SD $10778) Average total cost of outpatient cataract surgeries: $4301 (SD $2835)	N: 6337 for inpatient TKA and 5959 for outpatient cataracts Average total cost of inpatient TKAs: $13339 (SD $23698) Average total cost of outpatient cataract surgeries: $1585 (SD $629)	TKA: OLS regression coef=14869.2 (SE: 299.9), p<0.001 Cataract: OLS regression coef=2680.0 (SE: 15.8), p<0.001 (Reference group: VA-purchased)	Stats: ordinary least squares Other methods of controlling: adjusted standard errors for clustering within person to account for the fact that people can have more than 1 cataract or TKA Covariates: age, gender, Nosos risk score, location of care (only for TKA analysis)	Y	Only reported inpatient TKA and outpatient cataract data
Mull, 2022[65] Y (**National)** Retrospective Hernia repair	2018-2019 vs Veterans getting hernia repair through community care CDW	N: 7991 Unadjusted postoperative complications VA 4.0%, community care = 6.6%	N: 771 Unadjusted postoperative complication rate community care = 6%	Adjusted complication rate: no statistically significant difference	Stats: unadjusted – 2 sided t-tests, adjusted – 2-stage multivariable models Covariates: comorbidity, demographics, surgical complexity, historical referral rate	Y	
Tripathi, 2024[6] N Hearing loss Hearing	2008-2019 patients at one VA vs. non-veterans care getting non-VA care	N= 83 1-year CNC score=48.5% 1-year AzBio score=62.9%	N=83 1-year CNC score=52.4% 1-year AzBio score=66.4%	No significant difference between groups	T-tests Matched analysis using age, sex baseline CNC score	N	

RISK OF BIAS ASSESSMENTS

NON-SURGICAL CARE

Trial Name or Author Year	Time Frames	Sample (VA and Non-VA)	How Did the Specifications for the Outcome Assessments Compare in VA and Non-VA Samples?	Statistical Methods
Nuti, 2016[26]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Vanneman, 2020[50]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Gurewich, 2021[47]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Davila, 2021[51]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Intrator, 2021[30]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
LaBedz, 2021[38]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Gidwani, 2021[54]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Griffith, 2020[48]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Gidwani-Marszowski, 2020[43]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Penn, 2019[46]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)

Trial Name or Author Year	Time Frames	Sample (VA and Non-VA)	How Did the Specifications for the Outcome Assessments Compare in VA and Non-VA Samples?	Statistical Methods
Makarov, 2018[53]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Wang, 2019[32]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Thorpe, 2018[27]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Vercammen-Grandjean, 2018[39]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Wang, 2018[33]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Augustine, 2018[15]	Contemporaneous time frames	All between A and C	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Anhang Price, 2018[37]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Kurella Tamura, 2018[34]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Barnett, 2018[25]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Heidenreich, 2017[20]	Contemporaneous time frames	All between A and C	Identical	All between A and C
Blay, 2017[36]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Mody, 2017[21]	Contemporaneous time frames	All between A and C	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)

Trial Name or Author Year	Time Frames	Sample (VA and Non-VA)	How Did the Specifications for the Outcome Assessments Compare in VA and Non-VA Samples?	Statistical Methods
Shields, 2017[23]	Contemporaneous time frames	All between A and C	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Burke, 2016[16]	Contemporaneous time frames	Small, limited, unequal or non-representative samples	Identical	Insufficient sample size and/or methods questionable to address hypothesis(ses)
Lee, 2017[17]	Contemporaneous time frames	All between A and C	Identical	All between A and C
Axon, 2016[22]	Contemporaneous time frames	All between A and C	Identical	All between A and C
Jia, 2016[31]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Watkins, 2016[40]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Jones, 2015[13]	Contemporaneous time frames	All between A and C	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Chan, 2022[42]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Florez, 2021[14]	Contemporaneous time frames	All between A and C	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Feyman, 2022[49]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Cashion, 2021[35]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Presley, 2022[24]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	All between A and C
Pickering, 2022[55]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)

Trial Name or Author Year	Time Frames	Sample (VA and Non-VA)	How Did the Specifications for the Outcome Assessments Compare in VA and Non-VA Samples?	Statistical Methods
Fortney, 2022[18]	Contemporaneous time frames	All between A and C	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Scheuner, 2022[44]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Petros, 2022[19]	Contemporaneous time frames	All between A and C	Identical	All between A and C
Ramanathan, 2023[45]	Contemporaneous time frames	All between A and C	Identical	All between A and C
Gaffney, 2022[56]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	All between A and C
Weeda, 2023[29]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Ohl, 2023[41]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Yoon, 2023[28]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Sufficiently similar for valid comparisons	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Wachterman, 2023[52]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	All between A and C
Wadhwa, 2024[57]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Sufficiently similar for valid comparisons	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Bagshaw, 2024[1]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Axon, 2024[3]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Eid, 2024[4]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)

Trial Name or Author Year	Time Frames	Sample (VA and Non-VA)	How Did the Specifications for the Outcome Assessments Compare in VA and Non-VA Samples?	Statistical Methods
O'Hanlon, 2024[5]	Contemporaneous time frames	All between A and C	Identical	All between A and C
Yoon, 2024[2]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)

SURGICAL CARE

Trial Name or Author Year	Time Frames	Sample (VA and Non-VA)	How Did the Specifications for the Outcome Assessments Compare in VA and Non-VA Samples?	Statistical Methods
Buys 2024	Contemporaneous time frames	Small, limited, unequal or non-representative samples	Sufficiently similar for valid comparisons	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Simmonds 2023	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Yoon 2023	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Sufficiently similar for valid comparisons	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Harris, 2021[75]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Pettey, 2021[71]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Rosen, 2021[58]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Wagner, 2021[73]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Sufficiently similar for valid comparison	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Heiden, 2021[74]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Sufficiently similar for valid comparison	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Billig, 2021[70]	Contemporaneous time frames	Small, limited, unequal or non-representative samples	Identical	All between A and C
Griffith, 2020[48]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Kesseli, 2020[64]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)

Trial Name or Author Year	Time Frames	Sample (VA and Non-VA)	How Did the Specifications for the Outcome Assessments Compare in VA and Non-VA Samples?	Statistical Methods
Rosen, 2020[76]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Eid, 2020[72]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Frisch, 2020[59]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Williams, 2020[63]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Augustine, 2018[15]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Wu, 2018[69]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Barnett, 2018[25]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Sufficiently similar for valid comparison	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Blay, 2017[36]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Hutt, 2015[61]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Sufficiently similar for valid comparison	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
George, 2021[67]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Sufficiently similar for valid comparison	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
George 2024	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Sufficiently similar for valid comparisons	Sufficient sample size and/or methods appropriate to address hypothesis(ses)
Mull, 2022[65]	Contemporaneous time frames	Representative or national samples (both VA and non-VA)	Identical	Sufficient sample size and/or methods appropriate to address hypothesis(ses)

Trial Name or Author Year	Time Frames	Sample (VA and Non-VA)	How Did the Specifications for the Outcome Assessments Compare in VA and Non-VA Samples?	Statistical Methods
Tripathi, 2024[6]	Not clear if contemporaneous	All between A and C	Identical	All between A and C

PEER REVIEW COMMENTS AND RESPONSES

Comment #	Reviewer #	Comment	Author Response
Are the objectives, scope, and methods for this review clearly described?			
1	1	Yes	Thank you.
2	2	Yes	Thank you.
3	3	Yes	Thank you.
4	4	Yes	Thank you.
5	5	Yes	Thank you.
6	7	Yes	Thank you.
7	8	Yes	Thank you.
8	10	Yes	Thank you.
Is there any indication of bias in our synthesis of the evidence?			
9	1	No	Thank you.
10	2	No	Thank you.
11	3	No	Thank you.
12	4	No	Thank you.
13	5	No	Thank you.
14	7	No	Thank you.
15	8	No	Thank you.
16	10	No	Thank you.
Are there any published or unpublished studies that we may have overlooked?			
17	1	No	Thank you.
18	2	No	Thank you.
19	3	No	Thank you.
20	4	No	Thank you.
21	5	Yes - Recent JAMA Open Network paper on wait times in VA and Community Care by Feyman et al.	This has been added to the report and map.
22	7	No	Thank you.

Comment #	Reviewer #	Comment	Author Response
23	8	No	Thank you.
24	10	No	Thank you.
Additional suggestions or comments can be provided below.			
25	1	Overall this is an excellent review of the literature comparing VA to non VA care. The authors have divided the available studies into surgical and non surgical care, and divided the outcomes according to standard health services research categories. I was particularly glad to see that more studies are now available outside of quality and safety. The summary figure is very useful and will no doubt be very informative to policy makers.	Thank you for your comment.
26	1	The search methods were quite thorough and I have little doubt that they have found all the relevant published literature. The inclusion criteria are very reasonable. I have some curiosity about whether the few excluded lower quality (fatal flaw) studies tended in the same direction of equal or better VA care overall, but in the end I think it is probably better that the authors did not spend time in sensitivity analyses in that direction.	We have now added information about these fatal flaw studies.
27	1	Most of my suggestions revolve around interpretation. I would give more valence to more recent studies as the both the VA and non VA system are evolving over time. The last paragraph of the discussion covers the difference between the pre2015 and post2015 studies. I would have liked a bit more detail those differences.	We have now called out in each text section those studies specifically about the CHOICE/MISSION act comparisons, which are most of the more recent studies, and the comparison of greatest policy interest.
28	1	Similarly there were innovative recent studies that probably deserve more highlighting. Observational studies are of course always subject to bias, and the authors do a great job of assessing how robust the individual studies are. However the recent Chan study on mortality was	Unfortunately the Chan study was the only one if its kind. We have beefed up and discussed in more detail that the #1 limitation to all studies is the possibility of unmeasured confounding. I don't think we can do better than that.

Comment #	Reviewer #	Comment	Author Response
		particularly interesting in that it used a novel instrumental variable and was directed at a particularly important outcome - mortality. There were only a handful of other mortality studies in either surgical or nonsurgical care, and by the description provided all of narrower scope or poorer quality. I would have like to see a paragraph or at least a statement on how this key outcome compared.	
29	1	Finally it is important to note that almost all the studies covered only a single or small subset of conditions. Thus the overall conclusion about VA care could be limited to those conditions and that might be noted.	This has been added to the Limitations.
30	2	Well conducted review. Limitation of what's available is noteworthy. Looking at the surgical topics, the specialty areas are focused on specific operations/diseases eg. lung resection for NSC; or kidney transplant. These clearly are important, but are probably not the common bread/butter operations that all the VA surgical care address.	This has been added to the Limitations.
31	3	An obvious limitation is that the data do not provide insights on social challenges of veteran patients that are exacerbated by receiving care in a VHA facility that can influence hospital length of stay following surgery (e.g. availability of family/friend to take home when meeting discharge criteria).	This has been added to the Limitations.
32	4	Page 14, lines 20-21. One of the main impetus for carrying out this evidence synthesis was to evaluate the quality of care Veterans receive in the community following passage of the Choice (2014) and MISSION (2018) Acts. And the authors were tasked with categorizing studies based on whether Veterans received care at a VA facility as opposed to a community facility through the Choice and MISSION Acts. However, a lot of the studies included in this summary had	We have now separated out in the map and the text the studies that are about non-VA care received as part of the CHOICE or MISSION Act. Given that we identified some studies that compared VA care to VA-paid community care that preceded the CHOICE Act, we grouped all of these into a category now called “compared to Veterans getting VA-paid community care”

Comment #	Reviewer #	Comment	Author Response
		analyzed data that pre-dated the Choice and MISSION Acts. It would be nice to have some delineation or header in the manuscript for studies that specifically analyzed data after passage of the Choice legislation starting in 2014/2015.	
33	4	Page 15, line 24: Was 'Timing' defined by publication date or when data was collected. As mentioned above, it appears that a lot of data included in this evidence synthesis was collected prior to 2015.	Timing was publication date as this update was intended to pick up the evidence where the last systematic review stopped.
34	4	Page 21, line 60. I was wondering why cardiovascular revascularization procedures were included in KQ#1 group as opposed to KQ#2. It might make more sense to group all interventional procedures in the surgical group.	We agree that this is one potential classification system, but elected to keep the organization consistent with the prior 2012 review, which classified studies into surgery vs non-surgery (medical).
35	4	Page 24, line 45: There is a typo; delete "for".	This has been fixed, thank you.
36	4	Page 27, line 46: I am curious why the authors included "Hospital Patient Safety Indicators and Outpatient Quality of Care" studies under the Patient Experience heading. It seems out of place.	This paragraph about these two studies was inadvertently placed in Patient Experience. It has now been moved to where it belongs in Quality and Safety.
37	5	In general, this is a succinct, clearly written report. The organization is clear , the methods seem appropriate and the conclusions generally sound. I have inserted a number of comments directly in the report but have 4 general observations/suggestions:	Thank you for your comments.
38	5	1. The report describes two general types of studies: comparisons restricted to Veterans getting care in VA or non-VA setting, and comparisons of VA outcomes to general population outcomes. In fact there are further differences. In the first category, there are studies comparing enrolled veterans who get care in VA	We have now split out the studies of comparison to CHOICE/MISSION Act care.

Comment #	Reviewer #	Comment	Author Response
		or VA-paid care provided outside VA through Community Care/choice/contracted care. There are also studies comparing outcomes of dually eligible veterans who get care in VA vs in Medicare. Among the second group of studies, there are studies where comparison population are all insured (Medicare, Medicaid or HMO comparisons) and others where the population comparisons are non-VA hospital patients who include a mix of insured and uninsured.	
39	5	2. The report gives insufficient attention to the challenges in comparing quality and outcomes based on available data and how various sources of bias will vary based on the populations being compared and the outcomes used. I would have preferred more comment on the adequacy of efforts to control for clinical factors – if this was part of the evaluation of methods in the bias assessment it should be stated more clearly. The ability to adequately control for clinical and sociodemographic factors that affect clinical outcomes like mortality and readmission will vary substantially if some of the records are Medicare or private health systems. The cleanest comparisons are those that use Veteran populations and compare care in VA to that bought outside VA for the same patients, since both populations are insured, have comparable data, and are using the VA. For studies comparing enrolled Veterans getting VA care vs Medicare, there are selection factors that lead to greater VA or greater Medicare use that can bias outcomes. For some outcomes, claims level data may be adequate but for others such as CHF and MI, severity may vary by the source of care. Perhaps this is less than an issue than I worry, but some discussion should be included about what we know about the severity of illness and comorbidity of Veterans who get care in VA and those who get care in Medicare, or of Veterans	The issue of comparability has been added to the Limitations.

Comment #	Reviewer #	Comment	Author Response
		vs. general Medicare population. Similarly, comparing VA hospital outcomes to private hospitals will be affected by the comorbidity of patient populations and sociodemographics. Readmissions may be driven by patients who are uninsured with poor social supports.	
40	5	3. Table D on the medical care studies is confusing and spars in the data. Table E is much better organized and it would be preferable that Table D be reformatted in that manner. At a minimum, better description of the PICOTs elements for each study should be included at the beginning before listing all the individual outcome comparisons.	This has been reformatted.
41	5	4. The conclusions should spend a little more time in discussing the potential uses of this data and which comparisons might be most useful. First, comparisons are useful in identifying possible quality issues where VA performance should be improved. Looking at specific outcomes is important. Second, comparisons of VA vs Community Care are critical to shaping decisions about the expansion of that program and determining whether sending Veterans out for care in an effort to improve timeliness or convenience comes as a cost in terms of clinical outcomes. Third, some comparisons are useful at judging the potential advantages of the VA's national system of integrated care vs. care delivery in less organized settings – eg delivery of preventive care and control of chronic disease.	This has been added to the Discussion.
42	5	5. Recommendations for research are underdeveloped.	This has been fixed.
43	5	Page 16, Line 11: What about studies ability to adjust for differences in patient population -- eg underlying health status? If you didnt include this perhaps state why.	Adjusting for differences in patient population was one of the factors considered in "appropriate statistical methods". We have added this to the text.

Comment #	Reviewer #	Comment	Author Response
44	5	Literature Flow: Is it meant to be "...Clinical Care in VA..."	This has been fixed.
45	5	Literature Flow: Same error here: ...Quality of clinical CARE...	This has been fixed.
46	5	Page 22, Line 46: Did this study adjust for HF severity?	This study was not able to adjust for HF severity, only for the presence or absence of multiple comorbidities. We added this information to the text, and noted in the Limitations that the inability to control for things like this is a problem.
47	5	Page 23, Line 11: The nursing home populations are very different in VA and non-VA settings, especially by gender, age and presence of dementia. The ability to adjust for these differences will depend on the outcome being assessed.	We have added to the text the variables that were used in adjustments.
48	5	Page 23, Line 31: What risk factors were adjusted for?	We have added to the text the variables that were used in adjustments.
49	5	Page 23, Line 51: This sentence is potentially confusing -- I assume that is is a hazard ratio from a time-dependent model, but the point that it implies lower rates of transplant may be lost. I would clarify with a parenthetical phrase (lower rate of transplant)	We added this parenthetical phrase.
50	5	Page 26, Line 40: Better?	We changed ‘higher’ to ‘better’.
51	5	Page 26, Line 56: Is timing to transplant affected by the organ allocation system that VA does not control?	We do not know the answer to this question and the article itself does not provide information about this.
52	5	Page 28, Line 4: Risk adjusted readmission?	Yes these are risk-adjusted and we have added that to the text.
53	5	Page 36, Line 35: Length of stay in VA can be driven by problems with nursing home placements. While this is a relevant indication of a problem it is different than if it were due to other factors.	This is acknowledged but nevertheless, the data are what they are and are compatible with the experience of VA clinicians on the inpatient service: length of stay is much longer in VA due to disposition challenges.
54	5	Page 36, Line 60: I think more needs to be said about the ability of individual studies to account	This has been added to the Limitations.

Comment #	Reviewer #	Comment	Author Response
		for differences in study populations, differences in who seeks community care, etc. These differences paly out differently depending on study design and outcome. A study of CHF mortality that cant adjust for severity of CHF is prone to error. Can we say anything about the underlying comorbidity of VA vs, medicare patients?	
55	7	None	
56	8	This report is flawless from a standpoint of rigor and analysis. It is, however, a bit dense for busy policymakers. The bubble charts (a nice innovation) help but take a bit of time to absorb. I suggest 2 minor enhancements:	Thank you for your comment.
57	8	1. Include a "Pull Out Box" that quickly states what this new report adds. (I note that BMJ, Annals, MMWR have recently instituted these so check them out if you want to see what I'm talking about)	We think the “Key Findings” box at the beginning of the Executive Summary does this.
58	8	2. To make the bubble charts easier to use, start with a set of instructions first (right now, the key is a footnote to the chart) that orient the user. (This may take a bit of trial and error and perhaps a willing "test audience")	This set of instructions is contained in the text.
59	10	This evidence synthesis report updates prior comparisons of the quality of VA and non-VA care to include those published between 2015 to 2021. The comparisons were grouped under the broad category of non-surgical and surgical care - again in line with previously published evaluations. The search strategy appeared comprehensive and the studies were graded in a rigorous manner. I think this was a well-done synthesis.	Thank you for your comment.
60	10	Main suggestions: 1) One of the key conclusions is as follows: "In the domain of quality and safety, the great majority of studies found that VA care is as good as, or better than, care in the	We considered adding this….but ultimately elected not to do so, because it may make casual readers assume

Comment #	Reviewer #	Comment	Author Response
		community." While this is a reasonable summary, I view "better than" to be fundamentally distinct from "as good as". I would consider whether this distinction should be made in the abstract/executive summary. Ie, XXX studies demonstrated the VA was better than, YYY sudies showed the VA was as good as , and ZZZ studies showed the VA delivered worse ..." This grouping would align better with the evidence maps that bucketed studies into the following groupings: "VA care is better", "VA and community have equal or mixed results", and "community care is better".	that we – the authors – are giving equal weight to each study, which we aren't doing.
61	10	2) Although there was a lot of appropriate description of the validity of the studies and grading the quality of the research among a number of dimensions. I wonder if the research team included the importance of the outcome or quality measure in its assessment. In otherwords, some measures - like mortality and patient ratings of care - have strong face validity as important indicators of quality. For others - like length of stay and costs, it is not clear whether these actually represent quality measures (vs undefined metrics of resource utilization), whether lower is necessarily better, or whether they are appropriately risk-adjusted - particularly for critical factors like social support, function, or availability of stable housing.	This is a great question and one we discussed extensively. The problem is that if we, the research team, picks "importance" it is necessarily a subjective assessment. While at the extremes this may not be controversial—the example given of mortality compared to length of stay—other distinctions might be more controversial: for example, which is more important? Wait times for a urology appointment versus length-of-stay following joint replacement surgery? Because we did not think we could draw a bright and defensible line between important and less important outcomes, we elected to put them all in without an "importance" qualfier. But we did add to the Limitations that some outcomes will be more important than others and that this may vary by stakeholder.
62	10	3) There were five studies excluded because of 'fatal flaws". Would consider adding a brief description of the fatal flaw to exhibit B - similar to what was done in Exhibit C to describe why each studies did not meet inclusion criteria.	This was probably a bad use of jargon on our part. We have re-named them for what they are: unrepresentative samples, most single provider or single site studies.
63	10	4) It is unclear why studies of travel distance were included in this review. Longer travel distances for Veterans receiving some kinds of care (ie transplant) compared to non-Veterans may relate to decisions about whether VA	Travel distance was included in the review because it was in CHOICE as a criterion. We have added to the Limitations that travel distance may be of differing importance to different stakeholders.

Comment #	Reviewer #	Comment	Author Response
		patients are more likely to live in rural locations and the fact that the VA serves a subset of military veterans in ~130 centers whereas community care by definition includes the entire US population and all clinical facilities.	
64	10	5) In grading the quality of the evidence, did the authors consider the appropriateness of the risk-adjustment models? Many of the studies that examine mortality and readmission rely on claims-based approaches and compare outcome in the VA with that in Medicare. Given the incentives for private providers to overcode comorbidities, this kind of approach may penalize the VA since Medicare or private-sector patients would be labeled as being sicker. If some comparisons include a more comprehensive (and less "gameable") set of risk-adjustment variables, perhaps they should be called out as being stronger.	This is a great comment and something we tried to assess but have added to the limitations that for some it is impossible (like the upcoding in FFS medicine).