CareQuest Institute for Oral Health®

AIDPH
AMERICAN INSTITUTE OF DENTAL PUBLIC HEALTH

WHITE PAPER

Veteran Oral Health

Expanding Access and Equity

SUGGESTED CITATION:
The American Institute of Dental Public Health and CareQuest Institute for Oral Health. Veteran Oral Health: Expanding Access and Equity. Boston, MA: December 2021. DOI: 10.35565/CQI.2021.2041

Authors

Annaliese Cothron, DHSc, MS, CPH
Executive Director
The American Institute of Dental Public Health

Sean Boynes, DMD, MS
Vice President, Health Improvement
CareQuest Institute for Oral Health

Chelsea Chokas, MSM
Project Coordinator
CareQuest Institute for Oral Health

Lisa Heaton, PhD
Science Writer, Analytics and Evaluation
CareQuest Institute for Oral Health

Amber Shaver
Biostatician
The American Institute of Dental Public Health

Editorial Team

Priyanka Agrawal, MPH

Carolyn Brown, DDS, MA
Senior Consultant
CareQuest Institute for Oral Health

Abigail Kelly, MS
Biostatistician, Analytics and Evaluation
CareQuest Institute for Oral Health

Rebekah Mathews, MPA
Director, Value-Based Care
CareQuest Institute for Oral Health

Caroline McLeod, RDH, MS
Value-Based Solutions Manager
CareQuest Institute for Oral Health

Valerie Nieto, RDH, MS
Clinical Lecturer
University of Michigan School of Dentistry

Kelli Ohrenberger, MA
Director, Interprofessional Practice
CareQuest Institute for Oral Health

Rebecca Preston, MPH, CHES
Project Coordinator, Analytics and Evaluation
CareQuest Institute for Oral Health

Bob Russell, DDS, MPH, MPA, CPM
Senior Consultant
CareQuest Institute for Oral Health

Tamanna Tiwari, MPH, MDS, BDS
Assistant Professor, Department of Community Dentistry and Population Health
Associate Director, Center for Oral Disease Prevention and Population Health Research
Program Director, DDS/MPH program
School of Dental Medicine, University of Colorado Anschutz Medical Campus

Eric P. Tranby, PhD
Data and Impact Manager, Analytics and Evaluation
CareQuest Institute for Oral Health

Acknowledgments

This white paper was developed by CareQuest Institute for Oral Health and the American Institute of Dental Public Health (AIDPH) in concert with a national publication panel. All stakeholders united to illuminate the veteran experience of oral health. We are extraordinarily grateful to these individuals and organizations for their dedication to making this paper a reality. We could not have done this without you. Together, we are all invested in providing veterans with the best opportunities to achieve equitable oral health.

Publication Panel

Tammy Barlet, MPH
Deputy Director of National Legislative Service
Veterans of Foreign Wars

Kelly Braun, MSDH
Rural Primary Care and Integration Coordinator
Pennsylvania Office of Rural Health

Carrie Cochran-McClain, MPA
Chief Policy Officer
National Rural Health Association

Lisandra Maisonet, RDH, BS, PHDHP, EFDA, CDA
Executive Director
Dental Hygiene Health Alliance of Pennsylvania

Amy Martin, DRPH
Chair & Professor
Medical University of South Carolina

Carole Pratt, DDS
Senior Advisor and Confidential Assistant for Policy
Virginia Department of Health

Jack Ratliff, MSN, APRN, AGPCNP-BC
Director of Education, Co-chair of Research
HunterSeven Foundation

Chelsey Simoni, RN-MSN, MPH, FP-C
Clinical Nurse Researcher, Director of Research
HunterSeven Foundation

Contributing Organizations

Veterans of Foreign Wars
The Veterans of Foreign Wars (VFW) of the United States is a nonprofit veteran's service organization comprised of eligible veterans and military service members from the active, guard, and reserve forces. Our mission is to foster camaraderie among United States veterans of overseas conflicts, serve our veterans, the military, and our communities, and advocate on behalf of all veterans. We ensure that veterans are respected for their service, always receive their earned entitlements, and are recognized for the sacrifices they and their loved ones have made on behalf of this great country.

HunterSeven Foundation
HunterSeven Foundation is a veteran-founded, federally-recognized 501(c)(3) nonprofit organization that specializes in medical research and education specifically on the post-9/11 veteran cohort. The HunterSeven Foundation has quickly become the leader in identifying potential toxic exposures and subsequent illnesses in military veterans and, in turn, is able to educate both the veteran population and the health care providers who care for them on critical health information relating to their exposures utilizing evidence-based practice.

Dental Hygiene Health Alliance
The Dental Hygiene Health Alliance of Pennsylvania National Task Force exists to give RDHs strategy and tactics on a state-by-state basis to practice to the fullest extent of our education, implement access to care for all patients, and gain self-regulation.

Dental Lifeline Network
Dental Lifeline Network (DLN) is a national charitable organization whose mission is to improve the oral health of people with disabilities or who are elderly or medically fragile and have no other way to get help. DLN accomplishes its mission by developing and coordinating collaborative relationships that provide essential resources for direct-service programs, especially charitable care.

National Association of Community Health Centers
Established in 1971, the National Association of Community Health Centers (NACHC) serves as the national voice for America's Health Centers and as an advocate for health care access for the medically underserved and uninsured.

National Dental Association
The National Dental Association (NDA) promotes oral health equity among people of color by harnessing the collective power of its members, advocating for the needs of and mentoring dental students of color, and raising the profile of the profession in our communities. For over 100 years, the NDA has been a national forum for minority dentists and a leader in advancing their rights within the dental profession, the armed services, the government, and the private sector.

National Rural Health Association
The National Rural Health Association (NRHA) is a national nonprofit membership organization with more than 21,000 members. The association's mission is to provide leadership on rural health issues through advocacy, communications, education, and research. NRHA member-ship consists of a diverse collection of individuals and organizations, all of whom share the common bond of an interest in rural health.

WHITE PAPER

Veteran Oral Health

Expanding Access and Equity

Executive Summary

Oral Disease Significantly Affects Veteran Health

- The oral health status of veterans may be a marker of who joins the military and their social determinants of health as much as it reflects the policies that govern their dental access.
- Oral health improvement programs and initiatives can advance equitable care for veterans through innovative stakeholder collaboration and private-public partnerships.
- Many veterans (42%) surveyed for the National Health and Nutrition Examination Survey (NHANES) reported having had gum problems or bone loss around their teeth, a significantly higher proportion than nonveterans (27%).
- More than half (56%) of the veterans reported active and treated decay, a significantly higher percentage than the nonveteran population (37%).
- Roughly 2 in 5 veterans described their oral health as fair or poor. This translates into approximately 8 million veterans with self-reported suboptimal oral health.
- Nearly 24% of veterans live in rural areas, where consistent access to care can be challenging. Rural veterans are less likely to visit the dentist routinely and more likely to have lost all their natural teeth.

42%
of veterans reported having had **gum problems or bone loss around their teeth** compared to **27%** of nonveterans.

56%
of veterans reported **active and treated decay** compared to **37%** of nonveterans.

An Integrated Approach Is Critical

- The oral health community must continue exploring the social, structural, and individual dynamics that contribute to poor oral health outcomes among veterans.
- Because veterans experience a large oral disease burden, an integrated and whole-person approach is needed to prevent and manage oral disease in this population.
- Despite the importance of addressing systemic racism in our health care systems, little data are available about how racial discrimination influences the oral health of veterans.

Strategic Recommendations to Improve Access to Care

- Expand eligibility criteria for veterans to receive oral health services.
- Improve data collection and centralize reporting of oral health outcomes.
- Explore value-based initiatives that align care with health outcomes.
- Advance medical-dental integration.
- Expand the role of Federally Qualified Health Centers and rural health clinics.

Strategic Recommendations to Improve Quality of Care

- Prioritize trauma-informed approaches to clinical care.
- Support minimally invasive and integrated oral health care.
- Deploy diverse, multidisciplinary care teams to facilitate whole-person care.

Understanding how veterans perceive their own oral health and how they access oral health care will be critical to implementing systemic changes that reduce these oral health disparities. Many advocates at the local, state, national, and federal levels are invested in improving the oral health of veterans and determined to find solutions that advance health equity.

Introduction

According to the National Center for Veterans Analysis and Statistics, roughly 19 million veterans live in the United States today, comprising about 6% of the total US population.[1] In addition to those 19 million veterans, approximately 2 million individuals are currently serving in an active-duty capacity.[2] Health care delivery and outcomes differ for veterans compared to civilians. The health care community is dedicated to ensuring that veterans remain healthy and that benefits provided are commensurate to their service to our country. Research has established an oral-systemic connection and its importance within a whole-person approach to health care. An integrated and holistic approach that recognizes chronic oral diseases as chronic systemic diseases is even more important for veterans, a community that faces a disproportionate amount of disease and disability. Key stakeholders, including oral health providers, advocates, thought leaders, insurers, policymakers, and researchers can propel change toward equitable access to oral health for veterans through collaborative efforts.

The social, structural, and individual drivers of disparate oral health outcomes experienced by veterans deserve more attention from the oral health community. This white paper offers an opportunity for the oral health community to understand the health care needs of veterans and underscores the potential for whole-person, integrated care.

The purpose of this paper is to:

1. Explore the oral health needs of veterans and highlight the drivers of care access.
2. Provide strategic recommendations for improving both access to and quality of oral health care for veterans.
3. Activate the oral health community to support the oral health care needs of veterans.
4. Support oral health care teams in implementing equitable care for veterans.

What Does Oral Health Care Look Like for Veterans?

Coverage and Benefits

Nearly half of the veteran population accesses primary care through the Veterans Health Administration (VHA), which is administered by the Department of Veterans Affairs (VA), and through the Military Health System, which is administered by the Department of Defense (DOD). Under the direction of the executive and legislative branches of federal government, the VA manages the eligibility and benefit design of veteran health care implemented within the VA.[a] The US government provides medical care funded by taxpayers to more than 9 million veterans, including those who have service-connected disabilities.[3] The level of VA care and coverage is determined by priority group status, which is generally assigned based on separation status, disability status, and income level.[4] Elected and appointed government officials are responsible for setting the parameters of priority group status and directing implementation through the VA and the DOD. Dental coverage is provided at varying levels based on priority group membership. Details regarding health care coverage and its relation to service member status can be found in the appendix, in Tables 1 and 2.

The VA reports that 15% of veterans are eligible to access dental services through the VA health system. The 85% of veterans who are not eligible for dental care through the VA access dental insurance through an employer, the VA Dental Insurance Plan (VADIP), the Federal Dental and Vision Insurance Program (FEDVIP), or as self-pay.[5] Tables 1 and 2 provide more information on eligibility for these insurance programs. Veterans who access dental care through the VA typically do so through an eligible service-connected disability.[b] The US government defines a service-connected disability as a "physical or mental injury or condition that was 'incurred or aggravated' in the line of military duty and that results in a disability. A service-connected disability need not result

a For the purposes of this paper, we refer to the VA as the overarching institution, recognizing that the VHA implements health care for veterans.

b A comprehensive list of veteran oral health eligibility is specified under Title 38 U.S.C.§§1710(c) and 1712 and implements its statutory authority through regulations that establish the Dental Program, such as Title 38 CFR §§17.160–17.166.

from combat or service during a period of war."[6] The level of compensation and the process for allocation is structured by the VA and DOD, subject to congressional approval. More information about service-connected disabilities, how they are calculated, and how care is allocated based on disability status can be found at the VA website: https://www.va.gov/disability/about-disability-ratings/.

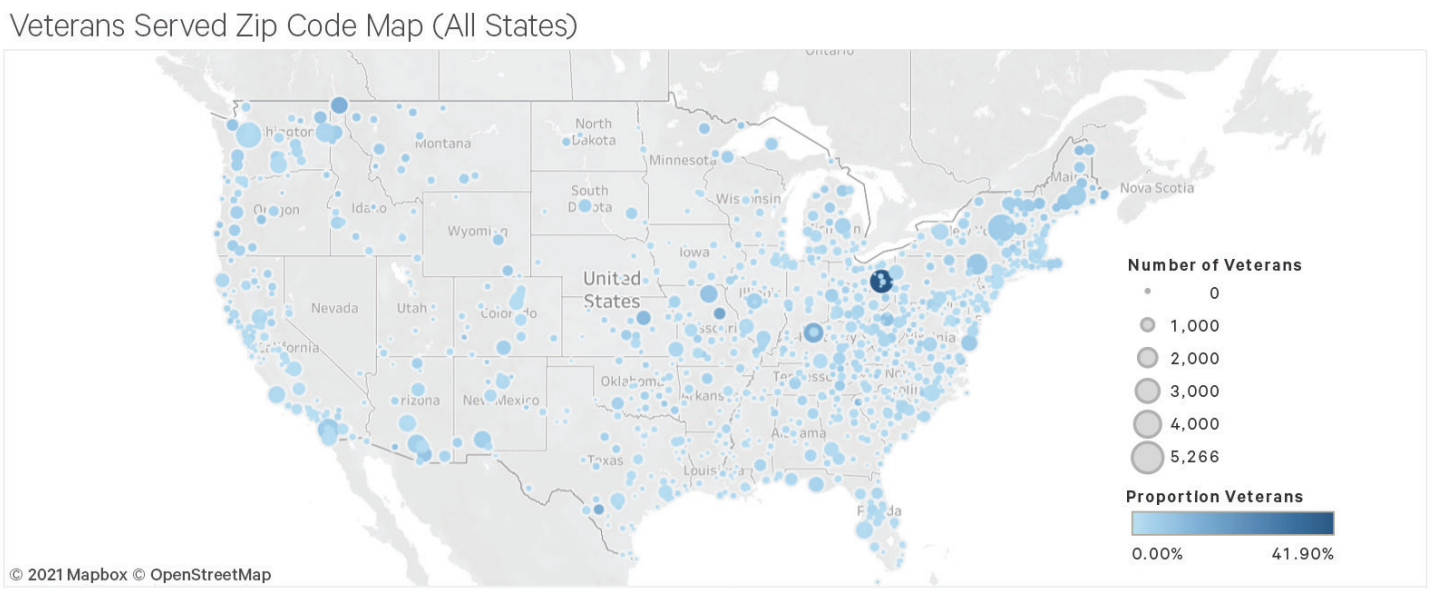
Accessing Oral Health Care

The 2022 budget report for VA health care expenditures highlights dental service cost and utilization among veterans. This report describes 1,243 health care facilities in the US, including 170 VA medical centers, 1,063 outpatient sites, and 246 dental facilities that vary in the level and complexity of care provided.[7] Of the 9.2 million veterans enrolled in VA health care, 1.4 million (15%) are eligible under current congressional standards to access comprehensive dental care. The VA reports that 33% of eligible veterans (463,000) received a total of more than 3.6 million dental procedures during 1.3 million visits in 2020. The VA notes "significant potential for growth" among dental utilization rates for veterans.[8]

In the National Survey of Veterans, close to half of veterans (41%) described their oral health as "fair" or "poor," and these veterans were more likely to report having a self-identified disability than veterans with better self-reported oral health.[c,9] More than half (56%) of veterans had seen a dentist in the past 12 months, with the majority of those individuals paying out of pocket or through other payment sources, such as employer-based dental insurance. A survey of nearly 200 veterans in Michigan found that while most (80%) were not eligible for dental benefits through the VA, over half of the respondents who were ineligible had been seen by a dentist in the previous six months. Survey respondents who were not eligible for dental benefits through the VA reported that cost was a significant barrier to seeking out dental care.[10]

Many Federally Qualified Health Centers (FQHCs) have dental facilities and accept graduated payments from anyone, based on income. FQHCs practice patient-centered care, which may enhance pathways for veterans to establish a dental home.[11] Each year, the Health Resources and Services Administration (HRSA) Health Center Program Uniform Data System (UDS) reports activities of health clinics that receive funding. In 2020, 375,867 veterans were seen in FQHCs, totaling 1.3% of the total patients seen, a steady increase from 2016, when 330,271 veteran patients were reported to have received care. Higher proportions of veterans were seen in rural locations (2.2% of patients). Figure 1 illustrates a geographic distribution of veteran patients served as a proportion of the total patient population.[12] While the UDS indicates how many veterans receive care at FQHCs, the types of services provided cannot be extracted from the data, making it difficult to determine if these patient visits include dental services.

Figure 1: Proportion of Patients Served at FQHCs Who Were Veterans, as Reported to UDS



Data source: HSRA; The National Health Center Program Uniform Data System (UDS) Awardee Data
Map based on Longitude (generated) and Latitude (generated). Color shows details about Proportion Veterans. Size shows sum of Number of Veterans. Details are shown for Zip Code (Zip Code).

c The 2010 National Survey of Veterans is conducted by the VA and is the only health survey containing data related to oral health. The most recently available data is from 2010. https://www.va.gov/vetdata/surveys.asp

Gaps in the Data and Infrastructure Stimulate Inequity

In general, data on how veterans are accessing dental care, how much veterans pay for care, and how barriers to accessing care influence health outcomes are particularly difficult to determine. A lack of publicly available data associated with care received in veteran health programs makes it challenging to examine oral health outcomes. Like many other health care and government organizations, the VA acknowledges the need to improve available data that measure dental care access and outcomes along with connections to overall health.[13] Veterans receive oral health care through an array of potential access points, care delivery systems, and financial structures, complicating a comprehensive understanding of veteran oral health. It is imperative not only to recognize the varying oral health outcomes experienced by veterans but to leverage available data toward building a connected public and private oral health care system that can meet the unique needs of veterans, their families, and their communities.

Communication between providers is key to implementing effective interprofessional practice (IP) that bridges the divide between medical and dental care for veterans. Inadequately functioning electronic health records (EHRs) and lack of software support are commonly reported reasons for increased cost and correlate to dissatisfaction with case management and care reporting.[14] Interprofessional networks will need improved EHRs and practice management systems that can assist in the formalization of a bidirectional referral process

A lack of publicly available data associated with care received in veteran health programs makes it challenging to examine oral health outcomes.

and effective care coordination, particularly in rural areas.[15] With high costs and lack of interoperability, the current health information technology (HIT) environment results in the stagnation of IP oral health networks.

Geographic barriers often exacerbate inequitable experiences of care in the veteran community, particularly given the high concentrations of veterans living in rural areas. According to the VA, nearly 24% of veterans live in rural areas, where consistent access to care can be challenging.[16] Veterans living in rural areas report lower household income, lack of broadband internet access, and more complex health conditions, but are more likely to be enrolled in the VA health system, compared to veterans living in urban areas.[17] Rural veterans are less likely to visit the dentist routinely and more likely to have lost all their natural teeth than veterans living in more urban areas.[18] Tackling these inequities could be more successful if consistent and comprehensive data are collected for an informed approach to supporting rural veterans and their oral health.

The scarcity of data adds to the significant disenfranchisement experienced by minoritized communities within the veteran population. Systemic racism affects health outcomes for Black, Indigenous, and People of Color (BIPOC). Conclusions from available research reinforce that BIPOC veterans, particularly Black veterans, have negative health care experiences, citing microaggressions and racist stereotypes as drivers of diminished utilization.[19] The connection between systemic racism and pain management is particularly important,[20] with BIPOC veterans reporting less support and more discrimination in treating pain, creating implications for BIPOC veterans who may be experiencing dental pain. Non-white veterans participating in VA health care from all other races and ethnicities experience higher mortality rates, even when controlling for other contributing factors.[21] Despite the importance of addressing systemic racism in our health care systems, little data are available about how racial discrimination influences the oral health of veterans.[22] Racial equity should be a primary focus in designing an improved oral health system for veterans, which requires dedicated data collection and reporting moving forward.

Racial equity should be a primary focus in designing an improved oral health system for veterans, which requires dedicated data collection and reporting moving forward.

The oral health status of veterans may be a marker of who joins the military as much as it is a reflection of the policies that govern their dental access.

Oral health status can be difficult to quantify given social, structural, and behavioral risk factors prior to military service. The oral health status of veterans may be a marker of who joins the military as much as it is a reflection of the policies that govern their dental access. For example, recent reports suggest that those coming into and currently in active duty are more likely than other populations to consume sugar-sweetened beverages like energy drinks.[23] Most energy drinks contain high levels of caffeine and sugar, which increase the risk of tooth decay.[24] Military members' use of e-cigarettes exposes them to potentially harmful chemicals including acrolein, benzene, acetaldehyde, cadmium, and diacetyl, increasing their risk for adverse oral health outcomes. The prevalence of e-cigarette use within the US military was 12.4%, compared to 3.5% of civilians. Approximately 40% of post-9/11 service members utilize nicotine-containing products while serving on active duty,[25] and 29% continue using nicotine products following military service.[26] This prevalence is nearly four times as high as the American civilian population, placing military service members and veterans at a comparatively high risk for adverse health outcomes including cancer.[27] Ultimately, veterans need earlier intervention to convey the importance of a healthy mouth and change the trajectory of their overall oral health outcomes.

Veteran Oral Health Outcomes: An Analysis of NHANES

For this review, 2017 - 2018 data from the National Health and Nutrition Examination Survey (NHANES) were analyzed to report and compare veteran health outcomes (see appendix, Tables 3-5). Of the representative population of the US that was surveyed during this cycle, 8.6% of the study sample were veterans. Most (93%) of the respondents who identified as veterans were male, and more than half (56%) of the veterans were 60 years of age or older; about a quarter (24%) were 45 to 60 years of age. Almost three-fourths (74%) of the veteran respondents self-identified as non-Hispanic white, 38% had a high school degree, and around 30% had a college degree or higher. The income distribution was similar to the nonveteran respondents, with almost 50% of the veterans reporting a household-level income of less than $65,000. More than half (56%) of the veterans received health coverage under private insurance, and 29% had coverage through publicly available insurance plans such as Medicare, Medicaid, Medigap, single-service plans, or other state-based insurance plans. A minority (9%) of the veteran portion of the study sample was covered under a military health plan.

Oral Health Status

More than half (56%) of the veterans in this study had a Decayed, Missing, Filled Teeth (DMFT) score of more than 11 (the median score in the total population), which was significantly higher than the percentage of the nonveteran population (37%). Similarly, 41.7% of veterans reported having had gum treatment or bone loss around their teeth (hereafter referred to as periodontal condition), a significantly higher proportion than reported by nonveterans (27%). After an oral health examination, 63% of veterans in the study received a recommendation to continue with routine dental care, while 32% received a recommendation to see a dentist at their earliest convenience to address a more urgent dental need.

1/3 of veterans **needed to address a more urgent dental need.**

More than half (52%) of veterans in the study had visited a dentist in the last six months, and 16% had not visited a dentist in the last five years. These figures were slightly but significantly higher than the corresponding proportions of nonveterans in the study (44% and 12%, respectively). Around 52% of all veterans had visited the dentist for a regular checkup, exam, or cleaning, while 25% had visited a dentist for something that was wrong, bothered them, or was hurting.

52% of veterans **had visited a dentist in the last six months** compared to **44%** of nonveterans.

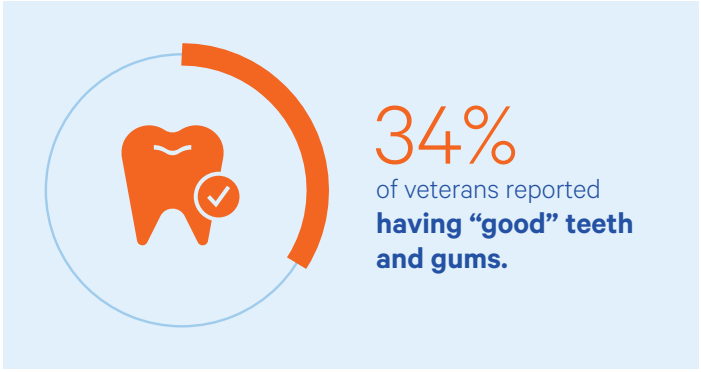
16% of veterans **had not visited a dentist in the last five years** compared to **12%** of nonveterans.

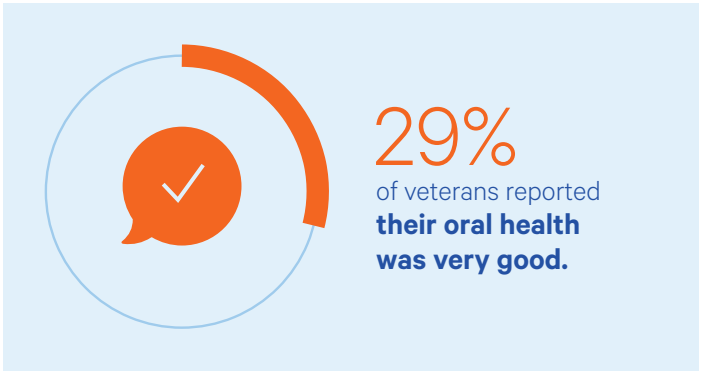
Around 11.6% of all veterans were unable to visit a dentist in the past year despite having a dental need. The top five reasons for not being able to make a dental visit were: inconvenient clinic hours (13%); veterans reporting they were too busy (10%); they expected the problem to go away (10%); they received a second opinion recommending against doing a procedure (7%); and they did not have insurance coverage for a particular procedure (7%).

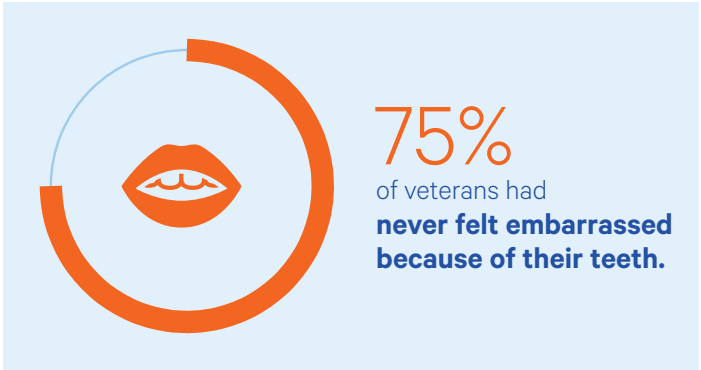
The top five reasons for not being able to make a dental visit

- 13% inconvenient clinic hours
- 10% too busy
- 10% expected the problem to go away
- 7% received a second opinion recommending against doing a procedure
- 7% did not have insurance coverage for a particular procedure

When asked how they rated the health of their teeth and gums, 34% of the veterans interviewed reported having "good" teeth and gums, and 29% reported their oral health was "very good." Almost 46% of all veterans had not experienced pain in their mouth in the last year. More than 92% reported never having had any difficulty in their respective jobs due to their oral health, and 75% had never felt embarrassed because of their teeth. With regard to these indicators, veterans' self-reported perceived oral health and well-being was higher than that of nonveterans surveyed, which was surprising given the significantly poorer clinical oral health outcomes of veterans (e.g., DMFT scores). The disparity between perceived health and well-being and clinical indicators merits future research within a veteran population.







The disparity between perceived health and well-being and clinical indicators merits future research within a veteran population.

Risk and Associations

Tooth Decay

In the adjusted model, controlling for all other variables of interest, the veteran respondents had 1.33 (95% CI 1.13–1.79) significantly higher odds of having a high DMFT score (more than 11) compared to the nonveteran sample. Education was protective in nature, in that with higher educational status, DMFT scores were significantly lower. Those with public insurance were at 1.27 higher odds of having a high DMFT score compared to those with private insurance.

Gum Disease

As with the DMFT scores, veterans had 1.03 higher odds of having a periodontal condition; however, the association was not significant. Females were 1.16 times more likely to have periodontal conditions than males. Whereas the odds of higher DMFT scores were higher in non-Hispanic whites, the odds of having a periodontal condition were higher in all other race categories. Those with higher educational status (college or higher education) and higher annual household income (over $55,000) had 1.17 and 1.31 higher odds of having periodontal conditions than those with only high school education and a household income of less than $55,000, respectively.

The NHANES analysis indicates that veterans experience poorer oral health outcomes (higher rates of tooth decay, gum disease, and need for restorative dental care) compared to nonveterans. Protective factors including education and insurance coverage may potentially mitigate negative outcomes associated with high DMFT scores. The influence of chronic health conditions and other overall health considerations within the oral-systemic health connection should be explored and data sharing encouraged.

Promising Opportunities to Support Veteran Oral Health

Most veterans place a significant value on oral health, recognizing the benefits of improved dental insurance coverage and access to care currently not offered through VA guidelines.[28] Organizations, including FQHCs and local providers, are stepping in to meet veterans' oral health care needs, but many veterans still experience poor oral health and unmet dental needs. Advocates like the Veterans of Foreign Wars (VFW) have urged Congress to pass policy measures that expand access to oral health care for veterans. Recently, the VFW asserted, "Providing essential dental care services as a preventative health measure enhances veterans' overall well-being by reducing the risk of oral and periodontal diseases, which then reduces or prevents the cost of treating veterans with these illnesses. Good oral hygiene increases a veteran's self-esteem, which is a factor that can affect everything from mental health to employment."[29]

Veterans, like all Americans, experience a siloed system of care that does not effectively consider oral health in the context of overall health or socioeconomic and environmental factors.

Veterans, like all Americans, experience a siloed system of care that does not effectively consider oral health in the context of overall health or socioeconomic and environmental factors. Recognizing opportunities to improve veteran health, the VA announced a partnership with the National Academies of Sciences, Engineering, and Medicine to stimulate integration and person-centered care for the veteran community. The resulting committee is charged with identifying promising new research-driven health care delivery models for veterans. While oral health is not currently represented in the focus areas, the opportunity remains to integrate it into this initiative.

VETSmile is a new pilot program from the VA Center for Care and Payment Innovation (CCPI). VETSmile aims to improve access to dental care for veterans by establishing a network of community dental care providers (DCPs) that provide a dental home for veterans pro bono or at a discounted rate. The program launched July 2021 with partners from the New York University College of Dentistry in New York, NY, Zufall Health Center, Rutgers School of Dental Medicine, and CompleteCare Health Network in New Jersey. VETSmile expects to serve 3,900 veterans through 9,000 patient visits in the first year of implementation. After the initial launch, the number of veterans served overall is expected to increase as CCPI builds partnerships with additional dental care providers across the nation. CCPI's strategic partnerships with the American Dental Association, the National Association of Community Health Centers, and VA Dentistry support the development and success of this pilot. While longitudinal outcomes of the program are still pending, this promising approach to public-private partnerships can be potentially scaled to address the structural oral health care needs of veterans throughout the US.

Strategic Recommendations for Improving Access to Care

Until systemic change is implemented that reduces fragmented access points and improves care navigation for oral health care, several opportunities are available within the current infrastructure to address the oral health of veterans.

1. **Expand eligibility criteria for veterans.** Congress defines veteran eligibility for dental service as it relates to priority group and beneficiary status. The VA is thereby limited to these criteria in their ability to render dental services to veterans. Congress should continually evaluate policies that could improve health and access to dental care for veterans. Recently, Congress and the VA have collaborated to improve and expand access to care for veterans, most notably through the Veterans Benefits and Transition Act and the MISSION Act, which supported exploration of expanded dental services along with a $49 million increase to the VA's 2022 budget allocated to dental services. The recent effort to continue VADIP signals a commitment to dental care for veterans and an intention to jointly advance solutions. Building on this momentum, federal officials should continue investigating expanded eligibility for VA dental services and, if an expansion is realized, fully fund workforce and resources within the VA to implement expanded oral health services.

...Federal officials should continue investigating expanded eligibility for VA dental services and, if an expansion is realized, fully fund workforce and resources within the VA to implement expanded oral health services.

2. **Improve data collection and centralize reporting.** With most veterans accessing dental care outside of a centralized VA structure, advancing health information technology and creating data-driven solutions will constitute significant steps toward improving oral health care for veterans. Traditional communications between primary care and dental providers have usually occurred through paper and email attachments, generating inefficiencies and a fragmented referral process. A new guide was released to resolve the fragmentation by connecting disparate EHR systems and to provide the opportunity for bidirectional medical/dental electronic referrals. The Health Level Seven® (HL7) CDA® and FHIR® implementation guides are designed to facilitate care coordination and create best practices for the electronic exchange of patient data between dental and medical professionals. This exchange of health information will support IP, population health management, and value-based care for veterans through integrated reporting among care teams. Improving interprofessional communication between medical and dental providers can facilitate both appropriate referrals and necessary oral health care for veterans. Partnering within collaboratives and learning communities to advance adoption of these standards will be vital in the success of veteran oral health programs and providers.

3. **Explore value-based opportunities in oral health.** The VA has advanced its Whole Health initiative to provide health care to veterans that improves health outcomes and overall well-being.[30] Involving oral health as a part of this person-centered approach aligns with the VA's vision for complementary and integrative health (CIH) care as a standard benefit design for covered veterans.[31] Lessons learned from VETSmile could be combined with findings from the ongoing Whole Health initiative to advance solutions that improve oral health, which is currently largely excluded from primary care consideration.[32] VA CCPI is modeled to align with other health care benefit designs that are poised to implement a value-based framework for oral health.[33] As an additional layer, the Three Domain Framework, a model for care innovation and value-based payment systems in oral health, can be applied within a whole-person veteran approach.[34] The framework focuses on: (1) the utilization of teledentistry tools for emergency triage, patient outreach and access, and patient engagement and coaching; (2) advancing and enhancing the utilization of minimally invasive care aimed at preserving as much tooth and gum tissue as possible; and (3) integrating primary care into dental practice by advancing systemic disease screening and implementing nutritional counseling into daily prevention activities. Creating sustainable value-based frameworks for veterans that invest in prevention generates improved outcomes while decreasing costs of care.

4. **Advance medical-dental integration.** The oral-systemic connection influences chronic disease management and requires a holistic model of health to improve total health.[35] Care delivery that lacks a focus on mental health may not result in successful self-managed health and wellness behaviors, including oral health.[36] Integrated and interprofessional care delivery is important in facilitating whole-person health with an interdisciplinary care team of oral health and medical professionals working in concert on both care delivery and community assets. Curricula like Smiles for Life are already primed to teach medical providers and their care teams to incorporate oral health into their daily clinical practice for veterans. Integrated initiatives for veterans with the VA and the Military Health System have reduced disparities and improved health outcomes, creating opportunities for oral health to extend this existing framework.[37] To this end, advancing medical-dental integration places the veteran at the center of a comprehensive care team that collaborates seamlessly to address the veteran's medical, dental, and behavioral health needs.

5. **Expand the role of FQHCs and rural health clinics.** As part of the 2018 MISSION Act, the VA expanded access to care for veterans through the Community Care Network (CCN). The CCN comprises six regional networks that serve as the contract vehicle for the VA to finance care for veterans from community providers. The expansion is particularly helpful given the innovative model of care integration that FQHCs are uniquely positioned to provide.[38] The CCN can not only expand access points for veterans as the network broadens but can also explore value-based care integration that prioritizes the health outcomes of veterans. Similarly, extending the reach of rural health centers is critical to meeting the needs of rural veterans. The VA Office of Rural Health has implemented several initiatives to not only support the needs of veterans living in rural areas but also to train providers to support rural health.[39] These rural initiatives often include an integrated and whole-person approach to care that includes nontraditional stakeholders like clergy, social workers, and disability advocates in the health care process. Asset-based approaches to care in rural areas with both FQHCs and rural health clinics should be supported and expanded to support all facets of health, including oral health.

Strategic Recommendations for Improving Quality of Care

1. **Prioritize trauma-informed approaches to clinical care.** The experience of trauma can change not only the health of veterans but also their ability to engage in self-managed processes of preventive care.[40] Oral health clinicians should consider ways to incorporate best practices for a trauma-informed approach to oral health care for veterans. While trauma-informed care has been applied in many health care settings, oral health has lagged in adoption.[41] Some states have successfully incorporated a trauma-informed framework into care standards. California, for example, calibrated, educated, and certified providers in trauma-informed care, adopting a screening tool called ACEs Aware.[42] Dedicated efforts to design a care treatment plan that empowers veterans to manage their own health while also being sensitive to their life experiences can improve their ability to implement effective oral health prevention efforts and to increase the frequency of routine dental visits.
2. **Support minimally invasive and integrated oral health care.** Minimally invasive care (MIC) is the application of "a systematic respect for the original tissue."[43] The main driver of success with MIC is tissue preservation, preferably by preventing disease from occurring and intercepting its progress, but also by removing diseased tissue and replacing it with healthy material with as little tissue loss as possible. Reinforced in the Three Domain Framework, MIC is a concept that can embrace all aspects of the dental profession and can include multiple members of an integrated, multidisciplinary team. While there are other MIC agents and procedures, the delivery of MIC is often associated with silver diamine fluoride (SDF). SDF is a topical agent applied to a tooth to help with sensitivity and, in off-label use, has been utilized as a caries-arresting agent.[44] MIC should be prioritized for all dental patients but particularly for veterans. Veterans desire a benefit design that can support an integrated model of delivery, suggesting that an effectively designed system that centers the needs of the veteran could result in higher utilization.[45] Opting for MIC techniques when appropriate can engender more trust between patients and their oral health care providers while reinforcing a whole-person approach to care.
3. **Foster care team innovation.** Increasing access to care and improving both oral health and overall health require an oral health workforce working in concert. Increasing access to care and stimulating oral health innovation to include rural and underserved areas will be more successful if diverse intra- and interprofessional care teams are deployed. Regulatory and scope of practice requirements that govern all health care team members should be evaluated to ensure that access to high-quality care is a possibility for all veterans regardless of geography, level of need, or disability.[46] Alongside traditional clinical care teams, new oral health team members such as physical therapists, community health workers, behavioral health specialists, and health informaticians can innovate care delivery for veterans. The VA has promulgated a keen awareness in innovating health workforce solutions, encouraging opportunities for oral health to be considered and elevated within an existing whole-person framework.[47] Congress will need to ensure that VA oral health care teams have the resources and staffing to drive integrated approaches to care and achieve whole-body well-being. A focus on a diverse, efficient workforce will streamline the delivery system to meet veterans where they are, while enriching the communities they call home.

Regulatory and scope of practice requirements that govern all health care team members should be evaluated to ensure that access to high-quality care is a possibility for all veterans regardless of geography, level of need, or disability.

Conclusion

Veterans cannot be healthy without good oral health. Veterans experience poorer oral health outcomes than nonveterans. These disparate health outcomes are exacerbated by a historically fragmented dental care system. Clear evidence underscores a need to improve the US oral health infrastructure to support all patients, including veterans. Understanding how veterans perceive their own oral health and how they access oral health care will be critical to implementing systemic changes that improve oral health in this population. Many advocates at the local, state, national, and federal levels are invested in improving the oral health and well-being of veterans, determined to find solutions that advance health equity. Structural and systemic changes are possible through the combined efforts of this network of stakeholders. The intention of this paper is to create an awareness of the opportunities to improve veteran oral health, with the goal of catalyzing oral health professionals and policymakers toward advancing health equity for veterans.

Many advocates at the local, state, national, and federal levels are invested in improving the oral health and well-being of veterans, determined to find solutions that advance health equity.

References

1 "National Center for Veterans Analysis and Statistics," US Department of Veterans Affairs, accessed December 3, 2021, https://www.va.gov/vetdata/veteran_population.asp.

2 Council on Foreign Relations, "Demographics of the U.S. Military," July 13, 2020, https://www.cfr.org/backgrounder/demographics-us-military.

3 Korb, Lawrence J, "Caring for U.S. Veterans: A Plan for 2020," Center for American Progress, December 14, 2019, https://www.americanprogress.org/issues/security/reports/2019/12/04/478034/caring-u-s-veterans-plan-2020/.

4 "VA Priority Groups," US Department of Veterans Affairs, accessed December 3, 2021, https://www.va.gov/health-care/eligibility/priority-groups/.

5 "FY 2022 Budget Submission: Medical Programs and Information Technology Programs," US Department of Veterans Affairs, accessed December 3, 2021, https://www.va.gov/budget/docs/summary/fy2022VAbudgetVolumeIImedicalProgramsAndInformationTechnology.pdf.

6 Heather M. Salazar, Libby Perl, and Benjamin Collins, "Benefits for Service-Disabled Veterans," Congressional Research Service, October 5, 2020,https://crsreports.congress.gov/product/pdf/R/R44837.

7 "Where Do I Get the Care I Need?" US Department of Veterans Affairs, accessed December 3, 2021, https://www.va.gov/health/findcare.asp.

8 "FY 2022 Budget Submission: Medical Programs and Information Technology Programs," US Department of Veterans Affairs, accessed December 3, 2021, https://www.va.gov/budget/docs/summary/fy2022VAbudgetVolumeIImedicalProgramsAndInformationTechnology.pdf

9 R. Constance Wiener, "Oral Health Perception in Veterans with Self-Identified Disabilities: National Survey of Veterans, 2010," *Journal of Public Health Dentistry* 75, no. 3 (Summer 2015): 245—52, https://doi.org/10.1111/jphd.12095.

10 Valerie Nieto, Michelle Arnett, and Danielle Furgeson, "Attitudes and Access Patterns of Michigan Veterans Ineligible for Oral Healthcare Benefits: A Cross-Sectional Study," *Journal of Dental Hygiene* 93, no. 4 (August 2019): 6—13, https://www.ncbi.nlm.nih.gov/pubmed/31409719.

11 National Association of Community Health Centers and DentaQuest Partnership for Oral Health Advancement. *Oral Health Value-Based Care: The Federally Qualified Health Center (FQHC) Story*. DentaQuest Partnership for Oral Health Advancement. Boston, MA: August 2020. doi: 10.35565/DQP.2020.2013.

12 "Health Center Program Uniform Data System (UDS) Data Overview," Health Resources & Services Administration, accessed December 3, 2021, https://data.hrsa.gov/tools/data-reporting/program-data.

13 "Pilot Program for Dental Health Care Access," *Federal Register*, 84, no. 240, (December 13, 2019). https://www.govinfo.gov/content/pkg/FR-2019-12-13/pdf/2019-26901.pdf.

14 Sean G. Boynes; Lisa Davis; Graham Adams; Michelle Mills; and Mark Deutchman, *Narrowing the Rural Interprofessional Oral Health Care Gap.* DentaQuest Partnership for Oral Health Advancement, Westborough, MA, 2019. doi: 10.35565/dqp00002.

15 Sean G. Boynes; Ce Ce Heyward; Christine Kenney; Abigail Lauer-Kelly; Joni Nelson; Kelli Ohrenberger; Christine Veschusio; Vuong Diep; and Amy B. Martin, "Narrowing the Rural Oral Healthcare Gap: The 2017 Rural Interprofessional Oral Health Practice Symposium," *BMC Oral Health* 18, no. 212 (2018). https://doi.org/10.1186/s12903-018-0671-7.

16 Department of Veterans Affairs. *Characteristics of Rural Veterans: 2014.* Washington, D.C.: Department of Veterans Affairs, 2016. https://www.va.gov/vetdata/docs/SpecialReports/Rural_Veterans_ACS2014_FINAL.pdf.

17 "Veterans Rural Health Resource Centers," Office of Rural Health, accessed December 3, 2021, https://www.ruralhealth.va.gov/aboutus/vrhrc.asp.

18 R. Constance Wiener, "Oral Health Perception in Veterans with Self-Identified Disabilities," *Journal of Public Health Dentistry* 75, no. 3 (Summer 2015): 245—52. https://doi.org/10.1111/jphd.12095.

19 Johanne Eliacin; Marriane S. Matthias; Brooke Cunningham; and Diana J. Burgess, "Veterans' Perceptions of Racial Bias in VA Mental Healthcare and Their Impacts on Patient Engagement and Patient-Provider Communication," *Patient Education and Counseling* 103, no. 9 (September 2020): 1798–804. doi:10.1016/j.pec.2020.03.017.

20 Leslie R. M. Hausmann; Audrey L. Jones; Shauna E. McInnes; and Susan L. Zickmund, "Identifying Healthcare Experiences Associated with Perceptions of Racial/Ethnic Discrimination among Veterans with Pain: A Cross-sectional Mixed Methods Survey," *PLOS ONE* (September 2020): e0237650. https://doi.org/10.1371/journal.pone.0237650.

21 Michelle S. Wong; Katherine J. Hoggatt; W. Neil Steers; Susan M. Frayne; Alexis K. Huynh; Elizabeth M. Yano; Fay S. Saechao; Boback Ziaeian; and Donna L. Washington, "Racial/Ethnic Disparities in Mortality Across the Veterans Health Administration," *Health Equity* 3, no. 1 (July 2019): 99—108. http://doi.org/10.1089/heq.2018.0086.

22 J. L. Bastos, R. K. Celeste, and Y. C. Paradies, "Racial Inequalities in Oral Health," *Journal of Dental Research,* 97, no. 8 (July 2018):878—86. doi: 10.1177/0022034518768536.

23 Chelsey Poisson; Sheri Boucher; Domenique Selby; Sylvia P. Ross; Charulata Jindal; Jimmy T. Efird; and Pollie Bith-Melander, "A Pilot Study of Airborne Hazards and Other Toxic Exposures in Iraq War Veterans," *International Journal of Environmental Research and Public Health* 17, no. 9 (May 2020): 3299. doi: 10.3390/ijerph17093299.

24 Kevin A. Clauson; Kelly M. Shields; Cydney E. McQueen; and Nikki Persad, "Safety Issues Associated with Commercially Available Energy Drinks," *Journal of the American Pharmacists Association* 48, no. 3 (May–June 2008): e55—e67. doi:10.1331/JAPhA.2008.07055.

25 Chelsey Poisson; Sheri Boucher; Domenique Selby; Sylvia P. Ross; Charulata Jindal; Jimmy T. Efird; and Pollie Bith-Melander, "A Pilot Study of Airborne Hazards and Other Toxic Exposures in Iraq War Veterans," *International Journal of Environmental Research and Public Health* 17, no. 9 (May 2020): 3299. doi:10.3390/ijerph17093299.

26 Kevin A Clauson; Kelly M Shields; Cydney E McQueen; and Nikki Persad, "Safety Issues Associated with Commercially Available Energy Drinks," Journal of the American Pharmacists Association 48, no. 3 (May – June 2008): e55-e67. doi:10.1331/JAPhA.2008.07055.

27 Lisa A. Brenner; Andrew J. Hoisington; Kelly A. Stearns-Yoder; Christopher E. Stamper; Jared D. Heinze; Teodor T. Postolache; Daniel A. Hadidi; Claire A. Hoffmire; Maggie A. Stanislawski; and Christopher A. Lowry, "Military-Related Exposures, Social Determinants of Health, and Dysbiosis: The United States-Veteran Microbiome Project (US-VMP)," *Frontiers in Cellular and Infection Microbiology* 8, no. 400 (November 2018). https://doi.org/10.3389/fcimb.2018.00400.

28 Valerie Nieto; Michelle Arnett; and Danielle Furgeson, "Attitudes and Access Patterns of Michigan Veterans Ineligible for Oral Healthcare Benefits: A Cross-Sectional Study," *Journal of Dental Hygiene* 93, no. 4 (August 2019): 6-13. https://www.ncbi.nlm.nih.gov/pubmed/31409719.

29 Hearing: Legislative Hearing on: H.R. 6039; H.R. 6082; H.R. 4908; H.R. 2791; H.R. 4526; H.R. 3582; H.R. 96; H.R. 4281; H.R. 3010; H.R. 7163; H.R. 7111; H.R. 2435; H.R. 7287; H.R. 3228; H.R. 6141; H.R. 6493; and H.R. 7445; Discussion Draft – Burial Equity for Guards and Reserves Act of 2020; Discussion Draft – To amend title 38, United States Code, to extend certain employment and reemployment rights to members of the National Guard who perform State active duty, and Discussion Draft – To amend title 38, United States Code, to clarify the scope of procedural rights of members of the uniformed services with respect to their employment and reemployment rights, and for other purposes. US House of Representatives. July 23, 2020. https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=110920.

30 "Whole Health," US Department of Veterans Affairs, accessed December 3, 2021, https://www.va.gov/wholehealth/.

31 "Whole Health: Complementary and Integrative Health," US Department of Veterans Affairs, accessed December 3, 2021, https://www.va.gov/WHOLEHEALTH/professional-resources/clinician-tools/cih.asp.

32 "VETSmile: Connecting Veterans with Dentists in Their Communities," US Department of Veterans Affairs, accessed December 3, 2021, https://www.innovation.va.gov/careandpayment/pilots/vetsmile.html?CFID=838580&CFTOKEN=7a0c56886237aead-D8240841-1DD8-B71E-E9EBD984529E732E.

33 "CMS Innovation Center", Centers for Medicare and Medicaid Services, accessed December 3, 2021, https://innovation.cms.gov/.

34 CareQuest Institute for Oral Health. *System Transformation: A Three Domain Framework to Innovating Oral Health Care*. Boston, MA: October 2020. doi:10.35565/CQI.2020.2015.

35 CareQuest Institute for Oral Health. Impacts Beyond the Mouth. Boston, MA: June 2020. doi: 10.35565/CQI.2020.4002.

36 David L. Albright; Kelli Godfrey; Justin T. McDaniel; Kari Fletcher: Kate H. Thomas; Jessica Bertram; Dustin I. Cobb; and Teresa M. Stephens,"Oral Health among Student Veterans: Effects on Mental and Physical Health," *Journal of American College Health* 68, no. 3 (April 2020): 263–70. doi: 10.1080/07448481.2018.1540985.

37 Carri-Ann Gibson, "Review of Posttraumatic Stress Disorder and Chronic Pain: The Path to Integrated Care," *Journal of Rehabilitation Research and Development* 49, no. 5 (2012): 753–76. doi: 10.1682/jrrd.2011.09.0158.

Kristin M. Mattocks; Aimee Kroll-Desrosiers; Rebecca Kinney; and Sara Singer, "Understanding Maternity Care Coordination for Women Veterans Using an Integrated Care Model Approach," *Journal of General Internal Medicine* 34 (May 2019): 50–57. https://doi.org/10.1007/s11606-019-04974-z.

Jessica Y. Breland; Susan M. Frayne; Christine Timko; Donna L. Washington; and Shira Maguen, "Mental Health and Obesity among Veterans: A Possible Need for Integrated Care,"*Psychiatric Services* 71, no. 5 (May 2020): 506–9. https://doi.org/10.1176/appi.ps.201900078.

38 National Association of Community Health Centers and CareQuest Institute for Oral Health.*Oral Health Value-Based Care:* The Federally Qualified Health Center (FQHC) Story. Boston, MA: August 2020. doi: 10.35565/CQI.2020.2013.

39 "Rural Veterans and Access to Healthcare," RHI Hub, accessed December 3, 2021, https://www.ruralhealthinfo.org/topics/returning-soldier-and-veteran-health.

40 Sheela Raja; Michelle Hoersch; Chelsea F. Rajagopalan; and Priscilla Chang, "Treating Patients with Traumatic Life Experiences: Providing Trauma-Informed Care,"*The Journal of the American Dental Associatio* n 145, no. 3 (March 2014): 238–45. https://doi.org/10.14219/jada.2013.30.

41 Sheela Raja; Michelle Hoersch; Chelsea F. Rajagopalan; and Priscilla Chang, "Treating Patients with Traumatic Life Experiences: Providing Trauma-Informed Care," The Journal of the American Dental Associatio n 145, no. 3 (March 2014): 238–45. https://doi.org/10.14219/jada.2013.30.

42 D. Bhushan; K. Kotz; J. McCall; S. Wirtz; R. Gilgoff; S. R. Dube; C. Powers; J. Olson-Morgan; M. Galeste; K. Patterson; L. Harris; A. Mills; C. Bethell; and N. Burke Harris, *Roadmap for Resilience: The California Surgeon General's Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. doi: 10.48019/PEAM8812.*

43 Dan Ericson, "What Is Minimally Invasive Dentistry?"*Oral Health and Preventive Dentistry* 2 Suppl 1 (2004): 287–92.

44 "Silver Diamine Fluoride," ADA, accessed December 3, 2021, https://www.ada.org/resources/research/science-and-research-institute/oral-health-topics/silver-diamine-fluoride.

45 Eric F. Crawford; Eric B. Elbogen; H. Ryan Wagner; Harold Kudler; Patrick S. Calhoun; Mira Brancu; and Kristy A. Straits-Troster, "Surveying Treatment Preferences in U.S. Iraq-Afghanistan Veterans with PTSD Symptoms: A Step Toward Veteran-Centered Care," *Journal of Traumatic Stress* 28, no. 2 (April 2015) 118–26. doi: 10.1002/jts.21993.

46 Margaret Langelier; Tracey Continelli; Jean Moore; Bridget Baker; and Simona Surdu, "Expanded Scopes of Practice for Dental Hygienists Associated with Improved Oral Health Outcomes for Adults," *Health Affairs* 35, no. 12 (December 2016): 2207–16. doi: 10.1377/hlthaff.2016.0807.

47 Allison Amrhein, "Revolutionizing VHA's Workforce to Innovate for Veterans," V*Antage Point*, August 15, 2021, https://blogs.va.gov/VAntage/93349/revolutionizing-vhas-workforce-to-innovate-for-veterans/.

Appendix

Table 1: Description of Service Member Health Care Plans

Plan	Brief Description
TRICARE Prime	TRICARE Prime is offered to active-duty service members and their families. All health care delivery is covered in full for active duty. TRICARE Prime is also offered to retirees for an annual enrollment fee (approximately $600) after which all care is typically covered in full if accessed on a military base. Dental coverage is not included in full medical coverage outside of an active-duty service member, but families may opt into paid dental plans.
TRICARE Select	TRICARE Select is offered to reservists and their families along with some separated/retired service members depending upon eligibility status. TRICARE Select offers a range of coverage plans and costs with enrollment fees and co-pays associated with each. Dental coverage is not included as standard care, but members/families can access insurance plans depending on eligibility.
Temporary Health Coverage	The Transitional Assistance Management Program and the Continued Health Care Benefit Program provide temporary health coverage to service members and their families while separating or transitioning from active duty. TRICARE Prime is offered for medically necessary care and does not include dental benefits.
Veterans Health Administration	The Department of Veterans Affairs (VA) manages and funds the Veterans Health Administration (VHA). Type of coverage and access locations depend on the disability status, retirement status, and/or types of disability. If a member is retired or disabled at 100%, all health and dental care can be accessed at a VA clinic. Payments and access depend on the priority group to which the member is assigned. Dental care is covered for conditions associated with a service-connected disability.
FEDVIP Dental	The federal benefits system is open to federal employees, active-duty service members, and their families. This is a marketplace of private pay options that are offered at discounted rates. Dental is available as a traditional fee-for-service plan through national insurance companies.

Note: Veterans who are retired medically or disabled at 30% or higher will have VA benefits. At more than 30%, veterans are able choose which compensation is higher, either through their branch of service or the VA Compensation offered.

Table 2: Description of Health Care Benefits by Status

Service Member Status	Health Benefit	Dental Benefit	Family Health Benefit	Family Dental Benefit	Additional Detail
Active Duty	FC	FC	FC	OOP	Covered through TRICARE Prime with no annual premium.
Reservist	FC/OOP	FC/OOP	FC/OOP	OOP	If activated, covered through TRICARE Prime. If not activated, covered through Select.
Retired	FC	OOP	FC	OOP	Care depends on TRICARE selection, but Prime is available for full coverage. An annual premium is required ($600) after which all costs are covered if care is provided at a military base.
Medically Retired – Branch of Service	FC	OOP	FC	OOP	An annual premium is required ($600) after which all costs are covered if care is provided at a military base. Care options can depend on the percentage of disability rating.
Medically Separated – VA	FC	FC/OOP	None	None	Care options can depend on the percentage of disability rating and only obtained at a VA clinic.
Separated	None	None	None	None	No coverage provided unless military member is determined to have a service-connected disability.
Family Survivor	—	—	FC/OOP	None	Care options depend on the service member's status at time of passing including combat-related death, retirement and/or disability status, etc.

FC = Full Coverage through Care Plan, **OOP** = Out of Pocket Plan through Eligible Care Plan, **None** = No eligibility for a Care Plan

Table 3: NHANES Demographic Characteristics for Population above 18 Years of Age

Variables	Veteran Status				Total		*p*-value
	No		Yes				
	N	%	*N*	%	*N*	%	
Total	225,861,284	91.39	21,292,114	8.61	247,153,399		
Gender							
Male	99,446,723	44.03	19,701,593	92.53	119,152,654	48.21	< 0.001
Female	126,414,561	55.97	1,590,521	7.47	128,000,745	51.79	
Age							
18 to 24	301,073	13.33	20,228	1.87	304,987	12.34	<0.001
25 to 34	417,618	18.49	20,228	9.50	437,709	17.71	
35 to 44	371,768	16.46	20,206	9.49	391,985	15.86	
45 to 60	588,820	26.07	51,974	24.41	640,869	25.93	
More than 60	579,334	25.65	116,532	54.73	695,984	28.16	
Race							
Non-Hispanic white	1,375,043	60.88	157,306	73.88	1,532,351	62.00	<0.001
Mexican American	217,504	9.63	25,146	3.11	224,168	9.07	
Other Hispanic	165,105	7.31	25,146	4.04	173,749	7.03	
Non-Hispanic Black	255,675	11.32	25,146	11.81	280,766	11.36	
Non-Hispanic Asian	142,970	6.33	13,329	0.90	144,832	5.86	
Other race/multiracial	102,315	4.53	13,329	6.26	115,668	4.68	
Education							
Less than 9th grade	89,215	3.95	10,348	1.32	91,941	3.72	<0.001
9th–12th grade	187,239	8.29	10,348	4.86	197,723	8.00	
High school/GED	635,122	28.12	56,531	26.55	691,535	27.98	
Some college or AA degree	670,356	29.68	81,336	38.20	751,593	30.41	
College graduate or higher	673,970	29.84	61,875	29.06	735,776	29.77	
Income (household)							
Less than $34,999	591,531	26.19	51,122	24.01	642,599	26.00	0.081
$35,000 to $64,999	538,453	23.84	56,083	26.34	594,651	24.06	
$ 65,000 to $100,000	458,273	20.29	44,117	20.72	502,463	20.33	
More than $100,000	593,789	26.29	58,766	27.60	652,485	26.40	
Marital status							
Married	1,176,737	52.10	136,908	64.30	1,314,362	53.18	<0.001
Widowed	131,451	5.82	12,435	5.84	144,090	5.83	
Divorced	219,989	9.74	30,661	14.40	250,861	10.15	
Separated	58,950	2.61	13,925	3.46	66,484	2.69	
Never married	455,788	20.18	13,925	6.54	468,850	18.97	
Living with partner	214,794	9.51	11,625	5.46	226,145	9.15	
Health insurance							
Private insurance	1,309,995	58.00	118,214	55.52	1,428,299	57.79	<0.001
Military health care	19,198	0.85	18,460	8.67	37,567	1.52	
Public (Medicare, Medicaid)	589,272	26.09	60,683	28.50	650,013	26.30	
No insurance	323,659	14.33	15,352	7.21	339,094	13.72	

Note: Additional information about the NHANES survey, including weighting methodology, can be found in the Plan and Operations manual.[†]
[#]Statistics NCfH. NHANES Survey Methods and Analytic Guidelines. Available at: https://wwwn.cdc.gov/nchs/nhanes/analyticguidelines.aspx. Accessed June 1, 2021.

Table 4: NHANES Health Status Indicators

Variables	Veteran Status				Total		*p*-value
	No		Yes				
	N	%	*N*	%	N	%	
General health condition							
Excellent	213,213	9.44	22,037	10.35	176,715	7.15	0.057
Very good	633,541	28.05	65,473	30.75	778,039	31.48	
Good	825,523	36.55	85,318	40.07	1,024,204	41.44	
Fair	341,728	15.13	35,302	16.58	433,260	17.53	
Poor	46,076	2.04	32,258	2.23	59,317	2.40	
Prior Conditions							
Asthma	340,147	15.06	32,258	15.15	347,498	14.06	0.588
Overweight	898,476	39.78	94,622	44.44	993,062	40.18	0.062
Arthritis	605,534	26.81	81,187	38.13	687,581	27.82	< 0.001
Gout	109,091	4.83	17,268	8.11	126,543	5.12	< 0.001
CHF	46,753	2.07	10,625	4.99	57,587	2.33	< 0.001
CHD	77,922	3.45	23,719	11.14	102,074	4.13	< 0.001
Angina	49,464	2.19	15,394	7.23	65,248	2.64	0.001
Heart attack	66,177	2.93	23,102	10.85	89,964	3.64	< 0.001
Stroke	67,307	2.98	14,053	6.60	81,808	3.31	< 0.001
Thyroid	278,261	12.32	19,823	9.31	298,067	12.06	0.549
Emphysema	28,684	1.27	32,321	3.82	37,073	1.50	< 0.001
Chronic bronchitis	130,774	5.79	32,321	15.18	163,863	6.63	< 0.001
COPD	91,022	4.03	17,438	8.19	108,747	4.40	< 0.001
Liver	107,058	4.74	14,862	6.98	122,094	4.94	0.508
Abdominal pain	477,471	21.14	50,228	23.59	527,920	21.36	0.607
Cancer	223,151	9.88	46,757	21.96	270,633	10.95	< 0.001
Diabetes	229,475	10.16	46,608	21.89	276,070	11.17	< 0.001
Depression							
None	1,583,965	70.13	163,396	76.74	1,865,514	75.48	< 0.001
Mild	315,754	13.98	32,577	15.30	388,525	15.72	
Moderate	110,446	4.89	11,413	5.36	136,923	5.54	
Moderately severe	41,558	1.84	46,268	2.01	55,115	2.23	
Severe	12,422	0.55	46,268	0.60	25,457	1.03	
Smoking status							
Former smoker	448,561	19.86	46,268	21.73	1,205,614	48.78	0.667
Current smoker	353,699	15.66	36,473	17.13	404,837	16.38	
Nonsmoker	1,261,887	55.87	130,180	61.14	861,082	34.84	

Note: Additional information about the NHANES survey, including weighting methodology, can be found in the Plan and Operations manual.[†]
[#]Statistics NCfH. NHANES Survey Methods and Analytic Guidelines. Available at: https://wwwn.cdc.gov/nchs/nhanes/analyticguidelines.aspx. Accessed June 1, 2021.

Table 5: NHANES Oral Health Status Indicators

Variables	Veteran Status				Total		*p*-value
	No		Yes				
	N	%	*N*	%	*N*	%	
Last time visited a dentist							
6 months or less	98,385,175	43.56	11,033,573	51.82	109,414,810	44.27	< 0.001
6 months–1 year	35,279,533	15.62	2,129,211	10.00	37,394,309	15.13	
1–2 years	29,316,795	12.98	1,358,437	6.38	30,671,737	12.41	
2–3 years	15,765,118	6.98	1,794,925	8.43	17,547,891	7.10	
3–5 years	16,849,252	7.46	1,343,532	6.31	18,190,490	7.36	
More than 5 years	26,967,837	11.94	3,434,418	16.13	30,399,868	12.30	
Never have been	2,891,024	1.28	27,680	0.13	2,916,410	1.18	
Main reason for last dental visit							
Went in on own for checkup, examination, or cleaning	130,931,786	57.97	11,048,478	51.89	141,964,912	57.44	0.041
Was called in by the dentist for checkup, examination, or cleaning	17,097,699	7.57	1,662,914	7.81	18,783,658	7.60	
Something was wrong, bothering or hurting	54,455,156	24.11	5,344,321	25.10	59,786,407	24.19	
Went for treatment of a condition that dentist discovered at earlier checkup or examination	18,136,661	8.03	2,648,739	12.44	20,785,601	8.41	
Other	4,652,742	2.06	5,770,163	27.10	5,239,652	2.12	
Past year needed but could not visit a dentist							
Yes	41,648,821	18.44	2,463,498	11.57	44,116,882	17.85	0.02
Reasons (*n* = 2,463,498, 11.57)							
Office not open at convenient time	19,609,276,677	86.82	280,630,063	13.18			
Too busy	20,338,808,624	90.05	211,856,534	9.95			
Expected dental problems to go away	20,372,687,817	90.2	208,662,717	9.8			
Another dentist recommended not doing it	20,912,496,286	92.59	157,774,565	7.41			
Insurance did not cover	20,962,185,768	92.81	153,090,300	7.19			
Could not afford cost	21,477,149,496	95.09	101,350,463	4.76			
Did not want to spend money	21,513,287,301	95.25	101,137,542	4.75			
Other reasons	21,526,838,978	95.31	99,860,015	4.69			
Dental office too far	21,549,425,106	95.41	97,730,803	4.59			
Afraid or do not like dentists	21,619,442,104	95.72	91,130,248	4.28			
Unable to take time off from work	22,448,353,017	99.39	12,988,190	0.61			
Other reasons	21,526,838,978	95.31	99,860,015	4.69			
Ache in the mouth in last year							
Very often	6,166,013	2.73	419,455	1.97	6,549,565	2.65	0.008
Fairly often	9,892,724	4.38	643,022	3.02	10,479,304	4.24	
Occasionally	39,525,725	17.50	3,083,098	14.48	42,460,954	17.18	
Hardly ever	68,819,933	30.47	7,358,555	34.56	76,345,685	30.89	
Never	101,411,717	44.90	9,787,985	45.97	111,243,745	45.01	

Table 5: NHANES Oral Health Status Indicators *(cont.)*

Variables	Veteran Status				Total		*p*-value
	No		Yes				
	N	%	*N*	%	*N*	%	
Difficulty with job							
Very often	1,829,476	0.81	57,489	0.27	1,878,366	0.76	0.153
Fairly often	2,484,474	1.10	195,887	0.92	2,669,257	1.08	
Occasionally	5,262,568	2.33	347,061	1.63	5,585,667	2.26	
Hardly ever	18,362,522	8.13	1,077,381	5.06	19,302,680	7.81	
Never	197,899,657	87.62	19,614,295	92.12	217,692,714	88.08	
Embarrassed because of teeth							
Very often	14,793,914	6.55	909,173	4.27	15,620,095	6.32	0.283
Fairly often	8,650,487	3.83	819,746	3.85	9,465,975	3.83	
Occasionally	19,808,035	8.77	1,403,150	6.59	21,106,900	8.54	
Hardly ever	26,719,390	11.83	2,012,105	9.45	28,620,364	11.58	
Never	155,866,872	69.01	16,145,810	75.83	172,290,634	69.71	
Self-rating of teeth and gums							
Excellent	28,932,830	12.81	2,367,683	11.12	31,314,336	0.1267	< 0.001
Very good	60,598,582	26.83	6,253,494	29.37	66,854,994	0.2705	
Good	74,285,776	32.89	7,162,667	33.64	81,437,045	0.3295	
Fair	41,852,096	18.53	4,100,861	19.26	45,970,532	0.186	
Poor	20,033,896	8.87	1,335,016	6.27	21,378,769	0.0865	
Recommendation of care							
See a dentist immediately	149,068	0.07	48,972	0.23	197,723	0.08	0.294
See a dentist within the next two weeks	11,473,753	5.08	1,070,993	5.03	12,530,677	5.07	
See a dentist at your earliest convenience	73,201,642	32.41	6,817,735	32.02	80,028,271	32.38	
Continue your routine care	141,027,786	62.44	13,354,414	62.72	154,396,728	62.47	
DMFT							
Less than or equal to 11	142,541,056	63.11	9,377,047	44.04	151,900,479	61.46	< 0.001
More than 11	83,320,228	36.89	11,915,067	55.96	95,252,920	38.54	
Decayed							
Less than or equal to 1	204,314,118	90.46	19,750,565	92.76	224,044,556	90.65	0.111
More than 1	21,547,166	9.54	1,541,549	7.24	23,108,843	9.35	
Missing							
Less than or equal to 2	177,075,247	78.40	15,453,816	72.58	192,532,498	77.90	< 0.001
More than 2	48,786,037	21.60	5,838,298	27.42	54,620,901	22.10	
Filled							
Less than or equal to 8	138,949,862	61.52	9,626,165	45.21	148,563,908	60.11	< 0.001
More than 8	86,911,422	38.48	11,665,949	54.79	98,589,491	39.89	
Periodontal condition (combined gum disease and bone loss)							
No	165,104,599	73.10	12,423,949	58.35	177,530,287	71.83	< 0.001
Yes	60,756,685	26.90	8,868,165	41.65	69,623,112	28.17	

Note: Additional information about the NHANES survey, including weighting methodology, can be found in the Plan and Operations manual.[†]
[#]Statistics NCfH. NHANES Survey Methods and Analytic Guidelines. Available at: https://wwwn.cdc.gov/nchs/nhanes/analyticguidelines.aspx. Accessed June 1, 2021.

CareQuest Institute for Oral Health

CareQuest Institute for Oral Health® is a national nonprofit championing a more equitable future where every person can reach their full potential through excellent health. We do this through our work in grantmaking, research, health improvement programs, policy and advocacy, and education as well as our leadership in dental benefits, care delivery, and innovation advancements. We collaborate with thought leaders, health care providers, patients, and local, state, and federal stakeholders to accelerate oral health care transformation and create a system designed for everyone. To learn more, visit carequest.org.

The American Institute of Dental Public Health

The American Institute of Dental Public Health (AIDPH) is a 501(c)(3) nonprofit centering health equity as a cornerstone of oral health education and training. We offer educational training for oral health professionals, support student growth and career development in dental public health, and serve as conveners of stature to facilitate systems change in the oral health community. AIDPH was established to pursue our mission of fostering professional excellence and advancing innovation in the education and practice of dental public health. Join us in pursuing our vision: an equity-oriented oral health workforce prepared to lead. To learn more, visit aidph.org.

This report and others are available at carequest.org.