

2022

Fort Carson Community Health Assessment



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COMMUNITY HEALTH ASSESSMENT

HISTORY: This is the second iteration of this document. It replaces the 2019 Fort Carson CHA.

SUMMARY: This document provides the results a comprehensive community health assessment with the purpose of providing a foundation for selecting priorities for community health improvement initiatives.

APPLICABILITY: This assessment applies to the entire Fort Carson Community.

SUGGESTED IMPROVEMENTS: For revisions and updates to this document, contact the Fort Carson Department of Public Health (DPH) at usarmy.carson.medcom-each.list.fcph@mail.mil

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List of Abbreviations

4ID	4th Infantry Division
AAFES	Army and Air Force Exchange Services
ACS	Army Community Services
AFB	Air Force Base
AFGE Union	American Federation of Government Employees
APHN	Army Public Health Nursing
ASAP	Army Substance Abuse Program
BMI	Body Mass Index
CDC	Centers for Disease Control and Prevention
CDPHE	Colorado Department of Health and Environment
CHA	Community Health Assessment
CHIP	Community Health Improvement Plan
CHPC	Community Health Promotion Council
CHSA	Community Health Status Assessment
CR2C	Community Readiness and Resilience Council
CRWG	Crime Reduction Working Group
CSTA	Community Strength and Themes Assessment
CYS	Child and Youth Services
DECA	Defense Commissary Agency
DES	Directorate of Emergency Services
DHR	Departments of Human Resources
DPH	Department of Public Health
DPW	Department of Public Works
EACH	Evans Army Community Hospital
EPCPH	El Paso County Public Health
FoC	Forces of Change
FORSCOM	US Army Forces Command
HEDIS	Healthcare Effectiveness Data and Information Set
IPT	Installation Prevention Team
LPHS	Local Public Health System
LPHSA	Local Public Health System Assessment
MAPP	Mobilizing for Action through Planning Partnerships
MWR	Morale, Welfare, and Recreation
NACCHO	National Association of County and City Health Officials
OEPR	Office of Emergency Preparedness and Response
PCMH	Patient Centered Medical Home
PH	Public Health
SCMH	Soldier Centered Medical Home
SRC	Soldier Readiness Center
STIs	Sexually Transmitted Infections
USAFA	United States Air Force Academy
USPSTF	U.S. Preventive Service Task Force
VA	Veterans Affairs
WHO	World Health Organization

Introduction

A Community Health Assessment (CHA) is a systematic examination of the health status indicators for a given population that identifies key problems and assets in a community. The ultimate goal of a CHA is to develop strategies to address the community's health needs and identified issues. A variety of tools and processes are used to conduct a CHA; however, the essential ingredients are community engagement and collaborative participation¹. A well-executed CHA identifies public health needs and resources and provides a sound basis for interventions that improve health outcomes in the community.

Health is a dynamic state of complete physical, mental, spiritual and social well-being and not merely the absence of disease or infirmity². The term “community health” refers to the health status of a defined group of people, or community, and the actions and conditions that protect and improve the health of the community. Those individuals who make up a community live in a somewhat localized area under the same general regulations, norms, values, and organizations³.

An Army post community is both unique from and a part of the community that surrounds it. Therefore, the Fort Carson CHA encompasses the military installation and then expands beyond the gates of the post. Our community is defined as the number of beneficiaries (Active Duty Service Members, National Guard, Reservists, Retirees, and dependents) residing within the 40-mile catchment area from the center of Fort Carson, Colorado, and amounts roughly to 170,000 total beneficiaries, around 120,000 (71%) of which reside in communities off military installations⁴.

The purpose of the CHA is to provide a detailed snapshot of the current health status of a community and its members. The assessment includes information on myriad of health topics including demographics, socioeconomic characteristics, quality of life, local military and civilian resources, behavioral factors, the natural and built environments, morbidity, mortality and other social determinants of health. National Army trends compared to the local county, state, and national trends.

The CHA is the basis for a Community Health Improvement Plan (CHIP). Review of the amassed data in this CHA affords the opportunity to prioritize health issues to develop strategies and interventions that support the goal of improving the health of the Fort Carson community. The CHA is a presentation of data and trends while the CHIP is a plan of action detailing the specific efforts, which will be mobilized to make lasting improvements to the health of the community.

¹ Turnock, B.J. Public Health: What It Is and How It Works. 4th ed. Sudbury, MA: Jones and Bartlett; 2009

² World Health Organization. 101st Session of the WHO Executive Board. Resolution EB101.R2. Geneva, Switzerland: WHO; 1998.

³ <https://www.encyclopedia.com/medicine/psychology/psychology-and-psychiatry/community-health>

⁴ DEERS, CARSON Market Population FY19-21, DEC 01, 2021.

Executive Summary

We used a variety of tools to conduct this assessment; the essential ingredients were community engagement and collaborative participation. Over an 8-month period, Fort Carson personnel conducted four main assessments that provided data to draw conclusions and recommendations. The Community Health Status Assessment (CHSA) examined objective data from available databases and systems of record. The Community Health Survey gathered community members' concerns and perceptions about current public health issues. The Local Public Health Systems Assessment (LPHSA) reviewed existing public health components, activities, capabilities, and capacities. The Forces of Change (FoC) assessment analyzed present and potential effects of political, economic, and social environment on community members and public health operations. Despite several limitations, the data obtained from these assessments built a detailed snapshot of the current health status of our community and its needs.

Fort Carson community includes all Tricare beneficiaries residing within the 40-mile catchment area from the center of Fort Carson. It includes individuals and families residing on and off military installations located within El Paso County to include U.S. Air Force Academy, Schriever, and Peterson Air Force Bases. The total number of community members is based on Tricare enrollment in the Colorado Military Health System market. In 2021, Fort Carson community had 170,688 members with an increase of population since 2019 by 2.7%. Overall, in terms of age and gender distribution, the Fort Carson community closely resembles the El Paso County population as a whole.

Fort Carson is one the healthiest military posts in the nation. According to the 2020 Health of the Force report, the Mountain Post is in the top three of the healthiest U.S. Army installations located within the continental U.S. Clean and safe environment with low injury and obesity rates are some of installation's strongest sides. Nevertheless, our community has health issues that could be addressed to make it even healthier place to live and work. Chronic and sexually transmitted diseases, substance abuse, and behavioral health conditions in general were identified as the key health issues in nearly all assessments. Food insecurity, LGBT member needs, and healthy lifestyle were noteworthy community needs. Both objective and subjective data as well professional opinions – all three indicated that these community health issues and needs are present in our community, concern its members, and were deemed important and manageable by our public health (PH) professionals.

The report has identified several populations within our community that exhibited a greater risk and/or an inequitable share of poor health outcomes. Soldiers over the age of 45 y/o appeared to have the greatest risk of developing muscular-skeletal injuries, chronic diseases, and behavioral health conditions in general. Specific to substance use disorder, young individuals <25 y/o had the greatest risk of being diagnosed with a

substance misuse. Female Soldiers on Fort Carson were more likely to have a behavioral health condition while male Soldiers of all ages were more likely to become obese. Young females <25 y/o were also identified as a high-risk population for chlamydia infections. Other health disparities included higher prevalence of obesity and tobacco use among Native Hawaiian/Pacific Islander Soldiers and higher prevalence of injuries and a chronic disease among Black or African American service members. Among other social determinants of health, families of junior enlisted members in the rank of Sergeant (E5) and below were more likely to experience food insecurity.

Both quantitative and qualitative data from the LPHSA indicated that we have a highly professional DPH staff and a good system of ensuring certification and maintaining continued education. A robust body of central and local regulations adequately addressing PH matters governs the system. We offer a great variety of health promotion programs and mechanisms to connect people to services they need. The local PH system has a good laboratory support, reporting mechanisms, and access to national reach-back support capabilities and resources. However, our PH system is not perfect. We should improve our ability to monitor the health status of our community members and increase our efforts in mobilizing our community to strengthen partnerships and identify and solve PH problems together.

Dynamic local and national politico-economic environment along with instability in world affairs pose potential threats to Fort Carson community and the local PH system in the near future. Current high inflation with a potential following economic recession will cause additional financial stress on families thus worsening food insecurity among lower income families. Military tensions in Eastern Europe may increase frequency and/or duration of overseas deployments. This may cause an increase in deployment-related physical and mental health issues and strained relationships and marriages because of prolonged family separations. Deficiencies in the new medical health record system, MHS Genesis, will affect the community's ability to accurately assess its health and to design adequate PH programs and services. Fiscal constraints and the enduring COVID-19 pandemic may continue disrupting healthcare and PH services delivery by reducing our staffing levels and depleting our resources. All these Forces of Change present threats but also opportunities to strengthen our community, re-assess priorities, and improve efficiency of PH programs and services.

The key findings that emerged from this comprehensive CHA will serve as the basis for future direction and work. The results will develop strategies to address the community health needs and strengths and identified issues. We did not identify any noteworthy barriers that should be considered when choosing a priority. The installation leadership is fully engaged and supportive of all community health initiatives and activities. Further prioritization and selection of improvement priorities will occur as a part of the Community Health Improvement Plan (CHIP) development.

About Us

The Fort Carson Department of Public Health (DPH) is located on the Fort Carson military installation, which is situated within three counties: El Paso, Pueblo, and Fremont. The DPH provides a multitude of services to active duty military, retirees, and their family members residing in our community as well as DA Civilians working on Fort Carson. Our mission is to ensure force health protection by preventing disease and promoting health in the workplace and community. We safeguard the health of the Fort Carson community by reducing their risk of injury and disease, identifying treatable conditions at an early stage, and promoting a healthy personal lifestyle.

Our Vision: Make the Fort Carson community a healthy and safe place to live, learn, work, and play through a broad focus on health promotion.

The DPH consists of the following sections:

- Army Wellness Center
- Occupational Health Clinic
- Hearing Readiness Clinic
- Communicable Diseases Clinic
- Army Public Health Nursing Section
- Environmental Health Section
- Industrial Hygiene Section
- Radiation Safety Section

Our major public health services and programs include:

- Hearing conservation
- STI intervention
- Occupational exposure assessment
- Ergonomics
- Respiratory protection
- Radiation exposure surveillance
- Employment physical
- Disease surveillance and reporting
- Pest surveillance and management
- Drinking and recreational water quality surveillance
- Hazardous, regulated medical, and pharmaceutical waste management
- Facility sanitation surveillance
- Health promotion and education
- Public health emergency management

The DPH also includes three remote occupational health clinics at Pueblo Chemical Depot in Colorado and Dugway Proving Ground and Tooele Army Depot in Utah. These clinics provide support to biological and chemical surety, personnel reliability, and other occupational reliability programs.

Visit our [web page](#) to learn more about the DPH.



Methods

The Big Picture: MAPP Process

Development of the CHA is a part of the Mobilizing for Action through Planning and Participation (MAPP) framework – a joint project of NACCHO (the National Association of County and City Health Officials) and the U.S. Centers for Disease Control and Prevention (CDC). MAPP is NACCHO's gold standard in community health assessment and improvement planning that has been adopted by many county and state public health departments as well as by the U.S. Army Public Health Enterprise⁵.

MAPP has seven underlying principles and six phases. The principles are important to the success of implementing MAPP, and the six phases provide the structure for the MAPP process. We will briefly set out and describe these principles and phases here.

Table 1. The MAPP underlying principles (Source: KU, n.d.).

Systems thinking	Involves examining the underlying structure of community health issues and systems in order to create lasting positive change on a community level.
Dialogue	Ensures the inclusion of diverse perspectives, and that the voices of all stakeholders are heard in the MAPP process.
Shared vision	Guarantees approval and ownership of the process by all concerned, thereby increasing its chances of success.
Data	Provides a firm basis for planning and action rather than preconceptions, anecdotes, or intuition.
Partnership	Collaboration makes for not only a fairer process, but increases access to resources and places the responsibility for success on more shoulders.
Strategic thinking	Approach is proactive, rather than a reactive, to issues and systems.
Celebration of successes	Celebration keeps enthusiasm high and marks progress and individual and group achievements.

The six phases of the MAPP process:

Phase 1. Organize for Success/Partnership Development. In this phase, processes are organized, and planned out, and members for a core group and an inclusive steering committee are recruited.

⁵ Department of the Army. "DA Pam 40-11 Army Public Health Programs." Washington, DC: Headquarters, Department of the Army, May 18, 2020

Phase 2. Visioning. The community and the committee collaborate to develop an overall, shared vision of health in the community that will guide the planning and action to follow.

Phase 3. The Four Assessments. These four assessments comprise the CHA and are discussed in detail later.

- Community Themes and Strengths Assessment (CTSA)
- Local Public Health System Assessment (LPHSA)
- Community Health Status Assessment (CHSA)
- The Forces of Change Assessment (FoC)

Phase 4. Identify Strategic Issues. Using a participatory approach, the community and the committee examine the data collected in the previous phase to identify the key issues that must be addressed in order to realize the shared vision.

Phase 5. Formulate Goals & Strategies. Once the strategic issues are identified, the group sets goals for each, based on the vision and assessment data, and formulates strategies for reaching those goals. These goals and strategies map the route from the current circumstances of the community to the future laid out in the vision.

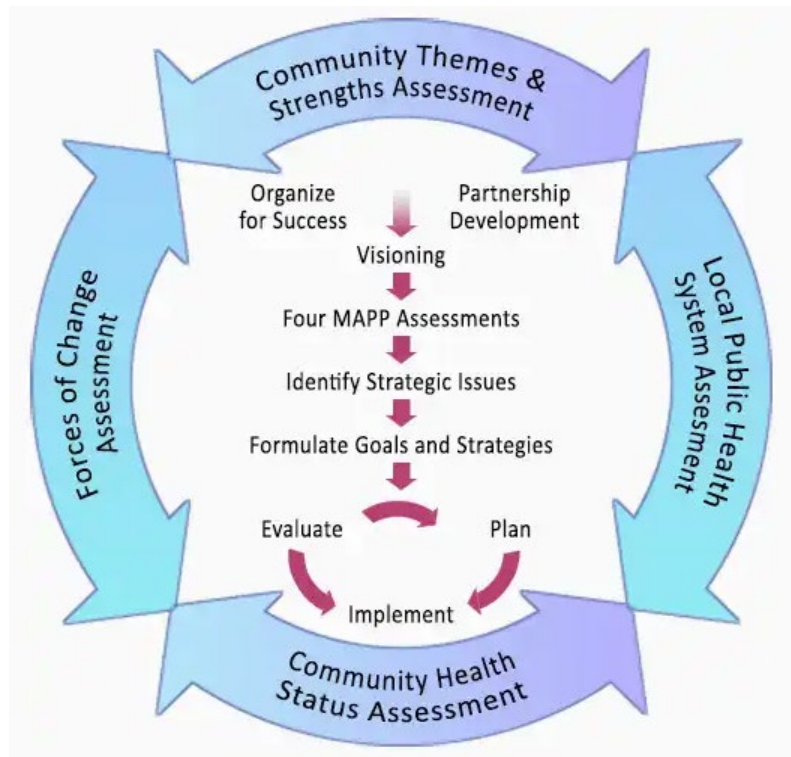


Figure 1. The MAPP process (Source: University of Kansas n.d.)

Phase 6. Action Cycle. This phase comprises the planning, implementation, and evaluation of the action that the group takes to achieve its goals. Action is continually evaluated and adjusted to achieve greater effectiveness. The planning/implementation/evaluation cycle continues until the community achieves its vision, which provides a new vision to achieve.

MAPP is an ongoing cycle, maintaining and expanding the original partnership and continuing to address community. Community assessments – as well as monitoring and evaluation of the process, its methods, and its outcomes – should be conducted regularly, so that the effort continues to speak to the current realities of the community, and that it remains as effective as possible.

The CHA

Fort Carson executed CHA following a comprehensive CHA methodology for Army installations, which is comprised of the four key assessments outlined in MAPP framework and is completed in collaboration with key installation community partners and stakeholders. The installation DPH staff led and participated in a collaborative process to complete the CHA.

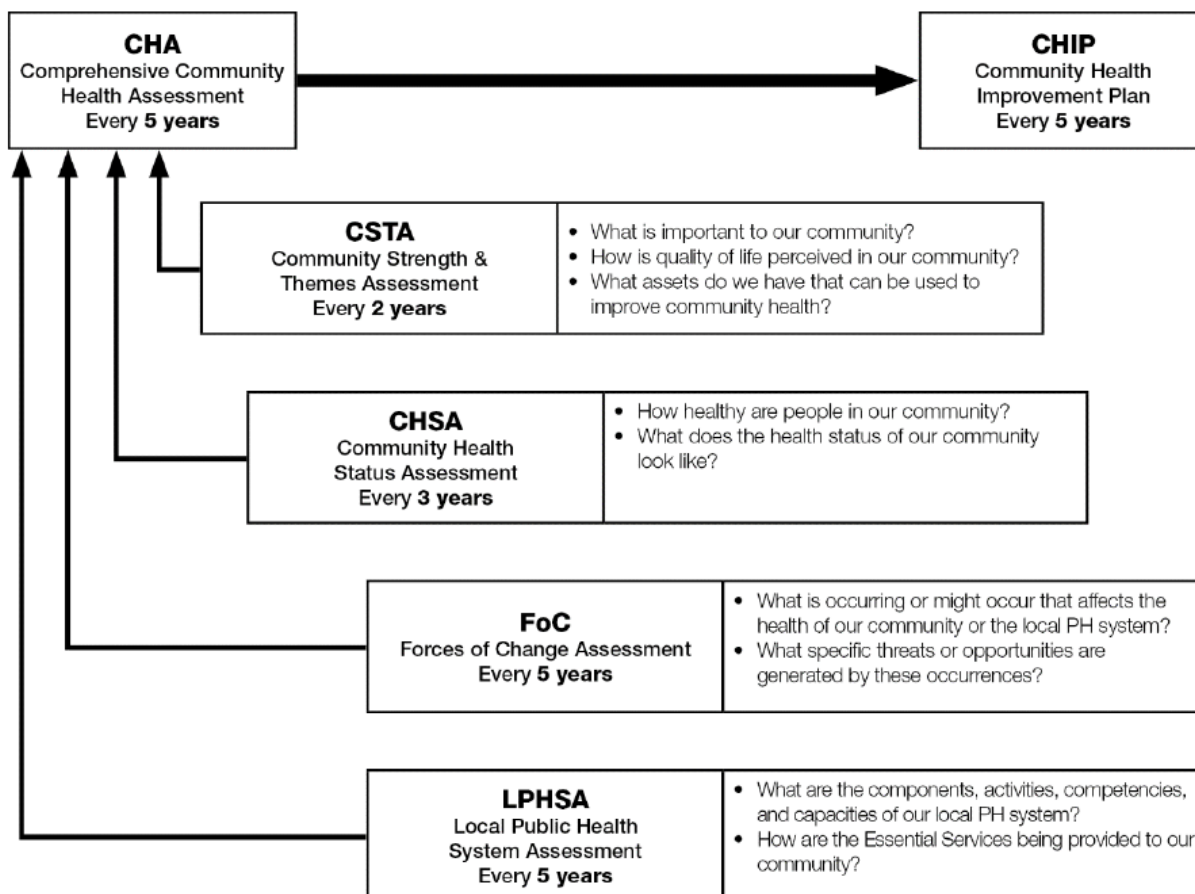


Figure 3. Comprehensive CHA development (Source: DA Pam 40-11)

The **CSTA** is a survey administered electronically to all members of the installation. It asks residents to name the issues that are important to them, to talk about how they feel about the community, and to identify community assets. The CSTA is designed to provide a deeper understanding of the issues that relate to community members' perceptions of quality of life, health, safety, and satisfaction within the environment of an Army installation. A CSTA is completed using a standardized Army CSTA tool managed by the U.S. Army Public Health Center (APHC) Health Promotion Operations Division. The Commander's Ready and Resilient Council (CR2C) conducts the CSTA every 2 years; the CR2C facilitator leads survey administration and marketing with the assistance of other installation agencies and CR2C members.

The **LPHSA** examines all elements of the installation public health system, from hospitals to home health aides, as well as how those elements work, how they are structured, how they interact with other sectors and elements of the community, and the nature of their resources. This assessment is completed using the National Public Health Performance Standards Program local instrument.

The **CHSA** looks at the health of community members and of the community. Quality of life issues – employment, housing, the environment, etc. – are also considered here as part of the community perspective on health. The CHSA is intended to answer questions such as “How healthy are the people in our community?” and “What does the health status of our community look like?” using objective data from a variety of Army, National, State, and local sources. A CHSA is completed using a standardized Army CHSA tool managed by the APHC Army Public Health Nursing Division. Using this standard tool, installation PH authorities complete the CHSA every 3 years and review the data to describe the nature of the community’s current health status.

The **FoC** assessment examines what is happening or might happen in the future that will have an impact on community health. A FoC assessment is to help the installation community and the CR2C understand the forces that affect the community and the PH system at the installation. It answers the following questions: “What is occurring or might occur that affects the health of our community or the local PH system?” and “What specific threats or opportunities are generated by these occurrences?” The FoC assessment can be compared to the Strengths, Weaknesses, Opportunities, and Threats assessment in the Strategic Planning process and, combined with other CHA results. It will inform major CHA findings and development of the CHIP.

Installation PH personnel lead or collaborate to develop a CHA report at least every 5 years, or more frequently if the findings of any one assessment have changed significantly or if leadership otherwise requests the report. The results of the CHSA, CSTA, and FoC, along with LPHSA data and findings (and other assessments as appropriate), comprise the CHA and are presented together in a comprehensive report. The CHIP, completed at least every five (5) years (or earlier if directed by leadership), reflects developed priorities and action plans based on CHA findings and in collaboration with installation, military community, and neighboring community partners and stakeholders.

Community Health Working Group

A healthy community requires a collaborative effort to mobilize all relevant public health resources and ensure community perspectives. The DPH utilizes the Community Health Working Group (CHWG) under the auspice of the installation Commander’s Ready and Resilient Council (CR2C) to achieve a community effort. The working group consists of representatives of CR2C member organizations as well as other experts in promoting community health. Based on CHA findings, the CHWG also includes

representatives of populations with an inequitable share of poor health outcomes or populations with higher health risks.

The DPH personnel, in cooperation with CR2C Coordinator, conducts periodic data gathering and trend analysis for the CHA and then presents findings and recommendations to CHWG for review. CHWG meets at least quarterly to discuss any new data or trends as well the results of on-going community health efforts. If the new information is deemed significant enough to warrant a change or update the current CHA, the CHWG meets monthly until the necessary changes and updates have been developed and incorporated.

Table 2. The CHWG members and organizations.

Public Health Nursing (Chair), DPH	Ready and Resilient, Fort Carson
Environmental Health (Recorder), DPH	Chaplain, 4 th Infantry Division (4ID)
Industrial Hygiene, DPH	Division Surgeon, 4 th Infantry Division
Communicable Disease Clinic, DPH	Commissary, Fort Carson
Army Wellness Center, DPH	SHARP Office, Fort Carson
Behavioral Health, Evans Army Community Hospital	Installation Housing Office, Fort Carson
El Paso County Public Health Department	Safety Office, Fort Carson
Better Opportunities for Single Soldiers, Fort Carson	Army Substance Abuse Program, Fort Carson
Moral, Welfare, and Recreation, Fort Carson	Child and Youth Services, Fort Carson
Army Community Services, Fort Carson	Emergency Services, Fort Carson
Family Assistance Program, Fort Carson	Commissary, Fort Carson

The following are the major objectives of CHWG meetings and activities:

- Review results of periodic assessments to provide updates to the CHA report
- Discuss community health trends and identify new issues
- Identify additional data indicators that should be included in the CHA based on local needs
- Solicit feedback from CHWG members and organizations
- Review existing, lost, and gained local community health assets and resources
- Develop information and decision briefs for the CR2C and Installation Commander

Once the CHWG members approve an updated version of CHA report, DPH personnel makes a draft version of the report available to the public served to solicit their input. The CHWG Chair presents the new CHA results to installation commanders and CR2C members and provides a copy of the report via email to APHC Public Health Nursing Portfolio. The DPH personnel post the final CHA report on the DPH website for the community-at-large access and use and distribute by email to partners and stakeholders.

Partners and Stakeholders

Completing a comprehensive CHA requires collaboration with installation, military community, and neighboring community partners and stakeholders. These partners for community health and wellbeing contribute a great deal in the accountability of our public health process. Most partner organizations and key stakeholders contribute as

members of CHWG; others by reviewing and providing their feedback to CHWG-developed reports and products. All these partners make sure our public health execution plans are ethical and accurate by evaluation of our policies. These relationships with our community can be complex, especially with the security within a military installation, but Fort Carson is still held accountable for engaging all people and organizations within our community. Table 3 depicts all Fort Carson community partners and stakeholders.



Figure 4. Fort Carson public health partners and stakeholders.

Assets and Resources

Assets are resources available to achieve a specific end, such as community resources that can contribute to community-health improvement efforts or emergency-response resources, including human, to respond to a public health emergency. There are over 40 organizations and agencies providing PH-related programs and services to Fort Carson community members. The community's major assets include the following:

- Evans Army Community Hospital (EACH)
- Fort Carson Department of Public Health (DPH)
- Fort Carson Morale, Welfare and Recreation (MWR)
- Army Wellness Center (AWC)
- Fort Carson Family Homes
- Army Community Service (ACS)
- Defense Commissary Agency (DECA)
- Department of Public Works (DPW)
- Department of Emergency Services (DES)
- Religious Support Office

These organizations administer an abundance of various programs and services. The [Community Resource Guide](#) contains a list of all available programs and services organized by subject (see Figure 4). It does not provide exhaustive information about each resource. Instead, it provides just enough information for you to quickly determine what resources are available to serve your needs. Detailed information for a particular resource is available by the included phone numbers or web links.

In addition to the Fort Carson organic assets, our community has access to other local County, State, and national resources. These resources offer training, data, funding, consultative, and laboratory support in implementing community health programs and activities.

- [The U.S. Army Public Health Center](#)
- [The Defense Centers of Excellence](#)
- [Navy Marine Corps Public Health Center](#)
- [The Department of Veterans Affairs](#)
- [Armed Forces Health Surveillance Division](#)

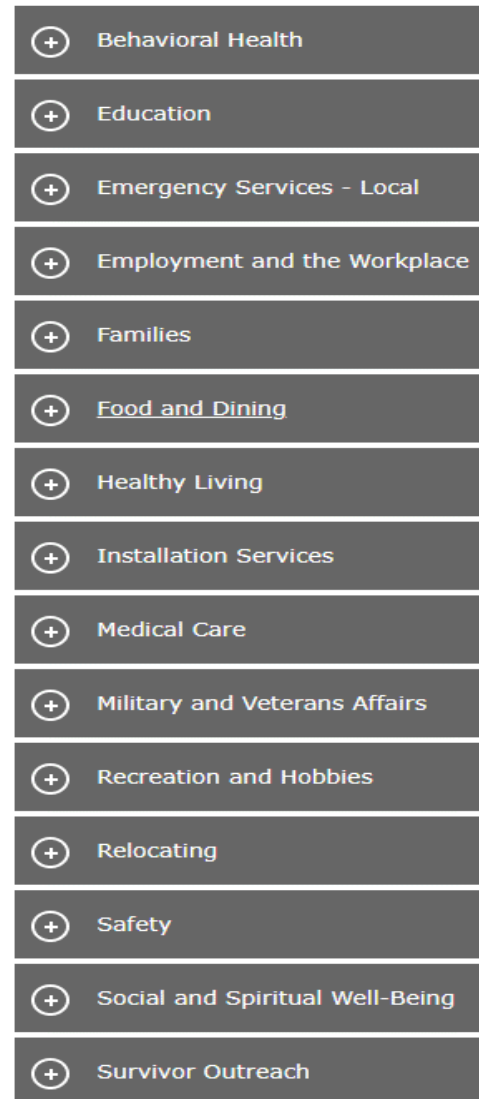


Figure 5. Community Resource Guide programs by subject.

Data Sources

The CHA utilized several major data sources (see Figure 5), although, this is not an exhaustive list of all data sources used. The CHA provides citations in the footnotes and at the end of the CHA in References. Some data sources only supply state level or county level information due to sampling limitations, and those values are used as surrogate measures where Fort Carson specific data is not available.



Figure 6. Data sources used in preparation of this CHA.

CHA Process Overview

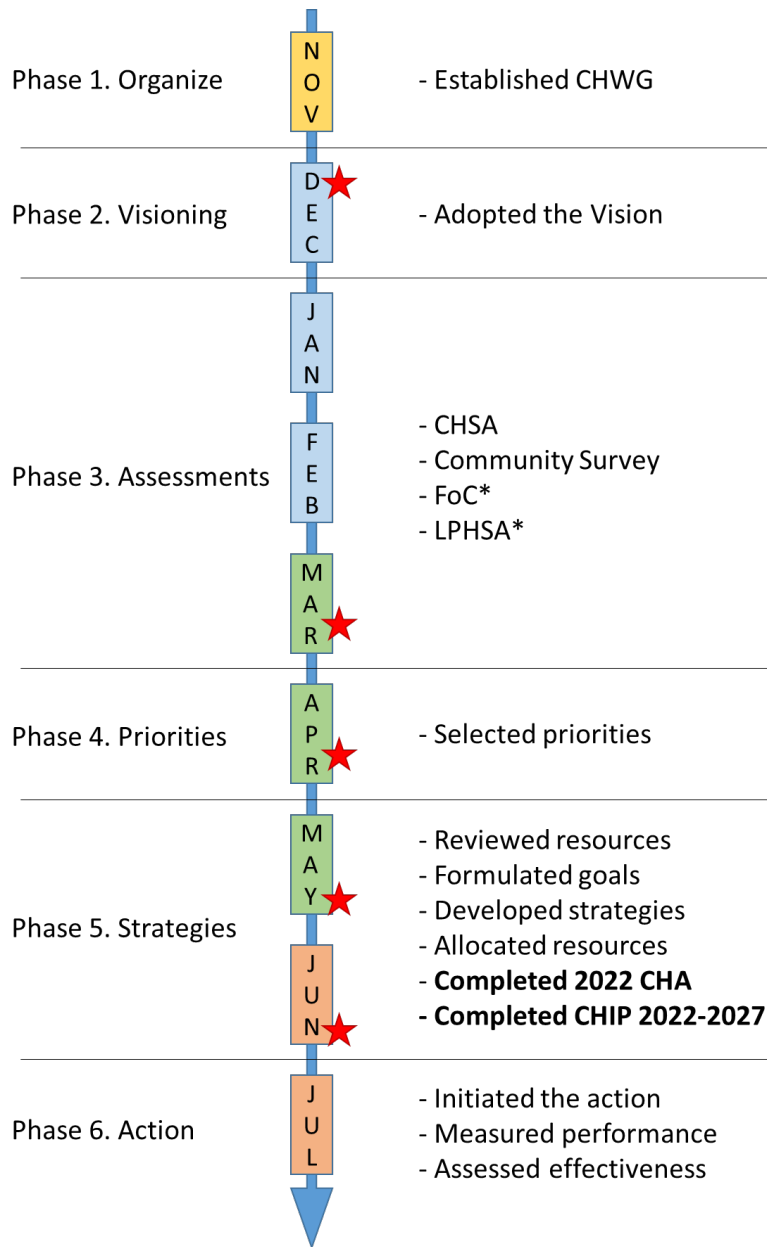
The initial 2019 CHA report

In 2016, Fort Carson DPH staff initiated relationships with local civilian and military public health stakeholders. A quarterly Public Health Coalition meeting was organized and led by the Army Public Health Nursing Division which brought together public health program managers from the United States Air Force Academy (USAFA), Peterson Air Force Base (AFB); Schriever AFB, Fort Carson Public Health and El Paso County Public Health. Each one of these military installations is housed in El Paso County, Colorado. Although Fort Carson has land that crosses into two other Colorado counties, those areas are training lands free of businesses or residences. An abundance of important information and opportunity has resulted from this strategic collaboration, which directly informed the 2019 CHA report. In support of the MAPP model, Fort Carson PH became a member of the county's Healthy Community Collaborative (HCC). The HCC consists of over 60 representatives from public health, schools, hospitals, city and government agencies, medical providers, non-profit organizations and interested citizens. This Collaborative was created to assist El Paso County to implement strategies they identified in their CHIP. Being a part of this group while the county completed their 2017 CHA, allowed Fort Carson PH to utilize a massive partnership to advise its own CHA.

The DPH personnel utilized multiple data sources to create the 2019 CHA report. While the MAPP model was utilized as a framework, there were some limitations to utilizing the four MAPP assessments detailed in step three of this model. This was primarily due to the dynamic transformation of the Community Health Promotion Council (CHPC) to become the Community Readiness and Resilience Council (CR2C). As a result, the most current Community Strengths and Themes Assessment available for the 2019 CHA report was from 2014.

The 2022 CHA report

In late 2021, Fort Carson DPH initiated a review of its 2019 CHA report. The purpose of the review was to examine and incorporate the new data from the latest assessments as well as to adjust CHA development process to meet the national accreditation requirements. Between November 2021 and July 2022, the DPH conducted activities along the MAPP phases 1 thru 5, effectively developing its 2022 CHA report and CHIP 2022-2027 (see Figure 6).



★ CHWG meetings
 * These assessments were postponed due to Omicron outbreak and took place during Phase 4 and 5 activities

Figure 7. 2022 CHA and 2022-2027 CHIP development timeline.

Phase 1. Organize for Success/Partnership Development. In November 2021, the DPH expanded its Public Health Coalition working group to include other key community partners and representatives from populations of concern. The new working group was re-branded as the Community Health Working Group (CHWG), whose composition and objectives were described [earlier](#).

Phase 2. Visioning. In early December 2021, the DPH personnel reviewed and confirmed its vision developed back in 2016. Later, during the first CHWG meeting in December 2021, the working group members reviewed and adopted it as the [Vision](#) for the Fort Carson community health efforts.

Phase 3. The Four Assessments. Between January and March 2022, the DPH has collected and analyzed data in support of the four assessments.

For the **CHSA**, the DPH personnel attempted to utilize the standard CHSA Tool v2 2018 as directed by the Army Public Health Center. However, due to the recent transition to a new system of medical records MHS Genesis, DPH was unable to retrieve an accurate and precise Fort Carson community-wide data for Clinical Care, Health Behaviors, and Health Outcomes sections of the CHSA Tool. Instead, the DPH explored data reported in the Health of the Force 2020 – an Army-wide report of selected environment and health outcome indicators specific to Active Duty population. Although limited to a certain population with the community, this data allowed identifying health issues and selecting priorities for improvement.

Upon CHSA initial data analysis, the DPH has identified within the Fort Carson community at least three populations with an inequitable share or a higher risk of a poor health outcome. The military retiree population had a greater incidence of chronic diseases, young females under 25 y/o were at higher risk of Chlamydia, and single Soldiers under 25 y/o had a higher risk of a substance abuse. See full analysis in the [CHSA chapter](#) of this report. From that point on, the DPH invited individuals and organizations representing and servicing these populations to attend and contribute during CHWG meetings.

In lieu of **CSTA**, the DPH personnel conducted a community health survey. A typical CSTA is a three-month long survey collecting the input from Active Duty service members and Retirees and their family members as well as DA Civilians. The survey questions focus on five domains of public health: physical, emotional, family, spiritual, and social/environmental. Fort Carson's last CSTA was conducted in 2016 and the installation leadership did not plan to conduct one in 2021-22. In order to compensate for the lack of CSTA data in this CHA report, the DPH personnel conducted a community health survey – a locally produced, shorter version of the CSTA conducted over a 7-week period. The survey focused on four out of five domains found in a typical CSTA, plus two additional areas of concern: LGBTQIA+ needs and tobacco use. To avert potential confusion with the Community Health Assessment (CHA), and at the same time to highlight the deviation from a standard CSTA protocol, authors refer to this assessment as “Community Survey”.

At the conclusion of the community health data analysis, the DPH presented its findings to the CHWG for review and feedback. During the meeting, CHWG members acknowledged the limitations and flaws in community health data but agreed that that was the best data available. The members also identified other potential health issues in the community (suicides, other behavioral health issues, and marital/relationship

challenges) that were not discussed during the meeting. The DPH reached out for further information to the local Fort Carson subject matter experts, which briefed the CHWG on identified issues during the next meeting.

The FoC and LPHS assessments that the DPH personnel scheduled to take place during Phase 3, were postponed due to Omicron outbreak and were completed during Phase 4 and 5 activities in April-May of 2022. To maintain consistency and prevent confusion, this report lists these assessments under Phase 3 activities.

In April 2022, the CHWG steering committee gathered to conduct a **FoC** assessment, during which participants engaged in brainstorming sessions aimed at identifying forces that are or will be influencing the health and quality of life of Fort Carson community and the ability of the local public health system to deliver PH services and programs. The [results](#) included a list of identified Forces and associated threats and opportunities.

In May 2022, the DPH gathered its staff and partners to conduct an **LPHSA**. Over a two-day period, the team learned about the 10 Essential Services and assessed the local public health system's performance in their fulfillment. The DPH utilized the National Public Health Performance Standards Program local instrument version 3.0 to conduct and record the results. The DPH produced and published the LPHSA as a standalone report and included its major findings and recommendations [here](#). This was the first time the DPH conducted an LPHSA. The audience lacked representation of local partner organizations and agencies contributing to public health efforts in the community. The DPH recognized this limitation and agreed to conduct a re-assessment at earliest opportunity.

At the conclusion of Phase 1-3 activities, the DPH personnel presented the CHA findings to the CHWG for review and input during its meeting in March of 2022. Once all four assessments were aggregated in CHA report, the DPH posted a draft version of 2022 CHA on its website for the community-at-large review and feedback. At the end of the 30-day public review period, the DPH incorporated the community feedback into the final version of its CHA and published the final report on its website and via email to all partners and stakeholders.

This marked the end of CHA completion and transition to CHIP development and implementation, which took place during Phase 4-6 activities. The development and content of Fort Carson CHIP 2022-2027 has been outlined in detail in a corresponding plan posted on the [DPH website](#). Mentioned here are highlights of Phase 4-5 activities to illustrate CHIP connectedness to CHA as two sequential steps of one planning process (i.e. MAPP process).

Phase 4. Identify Strategic Issues and Priorities. Following the presentation of CHA data, the CHWG met in April of 2022 to select priorities for improvement. During the meetings, the CHWG reviewed CHA findings and grouped the identified community health issues into two Lines of Effort (LOE). The working group members voted to adopt

these LOEs as the top two priorities for improvement for the next five-year period. The health issues comprising the two LOEs laid the ground for goals and strategies development during Phase 5 activities.

Phase 5. Formulate Goals & Strategies. During the May-June of 2022, the DPH personnel, in collaboration with partners and stakeholders, developed goals and strategies for identified community health issues comprising the two LOEs. The CHWG members have reviewed and approved the strategies during its monthly meetings in May and June. Once the Fort Carson CHIP 2022-2025 has been composed, the plan underwent the review and publication similar to the CHA process described earlier.

Phase 6. Action Cycle. Once the CHIP was finalized and approved, the DPH and its partners began implementing the strategies and capturing data in support of developed measures of performance and measures of effectiveness.

Assessment Results

Community Health Status Assessment (CHSA)

- How healthy are our residents?
- What does the health status of our community look like?

Summary

The DPH personnel analyzed Fort Carson community demographics based on Tricare enrollment data for the EVANS-CARSON military healthcare market. In 2021, Fort Carson community had 170,688 members with an increase of population since 2019 by 2.7%. The three major populations were Retirees and their family members (43%), Active Duty members (22%) and their family members (27%). Only 29% of community members resided on four military installations within the Fort Carson community. Community's gender and age distribution closely resembled the local El Paso County population. The 170K members of Fort Carson community comprised 23% of the local county population.

This assessment defaulted to the local El Paso County socioeconomic data to describe Fort Carson community's social determinants of health. The substantial margin of error for the 2019 census data corresponding to military installations within Fort Carson community prevented DPH personnel from using that data for statistically defensible analysis and comparison. Also, considering the fact that the overwhelming majority (71%) of the Fort Carson community resided in the local county, DPH personnel deemed appropriate to use the county data to describe its community's social determinants of health.

In overall, El Paso County ranked above national averages in about half of examined socioeconomic metrics. The proportion of children in poverty (10%) and children living in single-parent households (21%) in El Paso County in 2019 were better than the Colorado and U.S. metrics for the same period. The unemployment rate (3.3%) was slightly higher than across the Colorado (2.8%) but lower than national level (3.6%). The high school graduation rate of 74% in El Paso County in 2017-2019 was lower than both State and national statistics and was 13 points short from the *Healthy People 2020* target of 87%. The average teen birth rate in El Paso County during 2013-2019 was higher than in both Colorado and across the nation.

The lack of accurate and consistent data prevented the DPH personnel from examining properly the health-related metrics for the entire Fort Carson community. In attempt to complete the CHSA and identify some community health issues for improvement, the DPH personnel explored the best available data accessible at the time of the assessment – the *2020 Health of the Force* report. This is an Army-wide report of select environmental, medical, and healthy lifestyle indicators specific to Army installations and Active Duty populations only. Although the population of Fort Carson Active Duty members constitutes only 16% of the entire Fort Carson community, analyzing this data allowed DPH personnel to identify some community health issues and select priorities for improvement. The data presented in the following sections is limited to Army Active Duty members assigned to Fort Carson proper.

The *Installation Health Index* (IHI) score for Fort Carson placed the Mountain Post in the top three healthiest U.S. Army installations located within the continental United States. The IHI incorporated weighted, age- and sex-adjusted values for six medical metrics (injury, sleep disorder, chronic disease, obesity, tobacco product use, STI) and installation air quality. This composite measure, although short of incorporating all community health metrics, has been used to gauge and compare the health of active duty populations across Army installations.

The *physical environment* on and around Fort Carson in 2019 did not present an increased risk of negative health outcomes. The air and potable water maintained the standard throughout the year quality with zero (0) days of poor quality in 2019. Colorado's cool and dry climate was not supportive of mosquitoes breeding and, coupled with the lack of endemic pathogens, this resulted in low risk of vector-borne diseases such as Dengue, Chikungunya, or Zika. The heat injury risk on Fort Carson (3 days/year) was the lowest among all Army installations.

Medical metrics for substance use disorders, chlamydia infections, and chronic diseases among Fort Carson active duty population in 2019 were poorer than the Army average statistics. Behavioral health conditions and sleep disorders were either equal to or slightly better than Army average levels. The best performing metrics were the injury rate and obesity, which both were well below Army average rates and closer to the lowest range values across all Army installations.

Sleep, activity, and nutrition (also known as the Performance Triad or P3) and tobacco use are most commonly used *health behavior* or healthy lifestyle indicators. Fort Carson Soldiers came short from meeting all P3 targets at rates comparable to the Army average numbers. Overwhelming majority (~87%) of Soldiers met the activity goals, followed by ~50% compliance with the sleep targets and 35% for nutritional recommendations. The proportion of tobacco users (27%) among Fort Carson Soldiers in 2019 was greater than the Army average (25%) and closer to the upper range values across all Army installations (11-31%). Among the tobacco product categories, 19% of Fort Carson Soldiers reported smoking, followed by 14% of Soldiers who reported smokeless tobacco use (chewing or dipping) and 12% of e-cigarette users.

This CHSA has identified several populations among Fort Carson active duty members that exhibited a greater risk and/or an inequitable share of poor health outcomes. Soldiers over the age of 45 y/o appeared to have the greatest risk of developing muscular-skeletal injuries, chronic diseases, and behavioral health conditions (other than substance use disorder (SUD)). Specific to SUD, young individuals <25 y/o had the greatest risk of being diagnosed with a substance misuse. Female Soldiers on Fort Carson were nearly twice more likely to have a behavioral health condition while male Soldiers of all ages were more likely to become obese. Young females <25 y/o were also identified as a high-risk population for chlamydia infections. Other health disparities included higher prevalence of obesity and tobacco use among Native Hawaiian/Pacific Islander Soldiers and higher prevalence of injuries and a chronic disease among Black or African American service members.

Demographic Data

Fort Carson community includes all Tricare beneficiaries residing within the 40-mile catchment area from the center of Fort Carson. It includes individuals and families residing on and off military installations located within El Paso County to include U.S. Air Force Academy, Schriever, and Peterson Air Force Bases. The total number of community members is based on Tricare enrollment in the Colorado Military Health System market. In 2021, Fort Carson community had 170,688 members⁶ with an increase of population since 2019 by 2.7%.

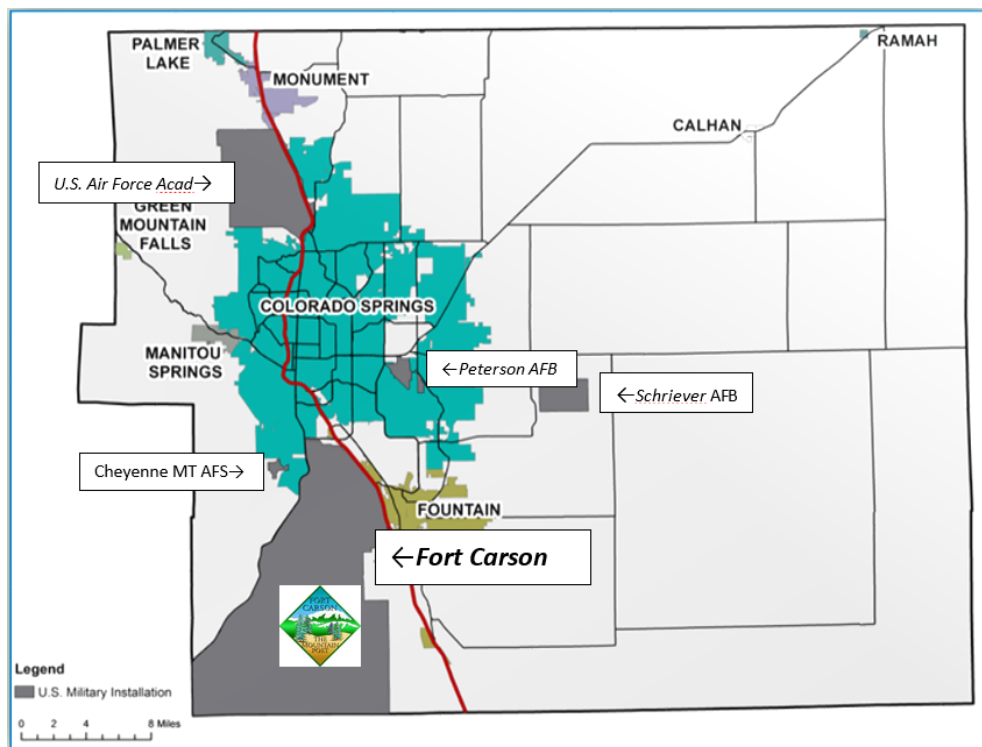


Figure 8. El Paso County map.

⁶ Hickman, B. *CARSON Market Population FY19-21*. DEC 01, 2021.

The figures in this section describe basic demographic characteristics of Fort Carson community. The DPH used the population data from Tricare enrollment, which allowed analysis of the entire 170K population of Fort Carson community. In overall, in terms of age distribution and male/female ratio, the Fort Carson community closely resembles the El Paso County population as a whole.

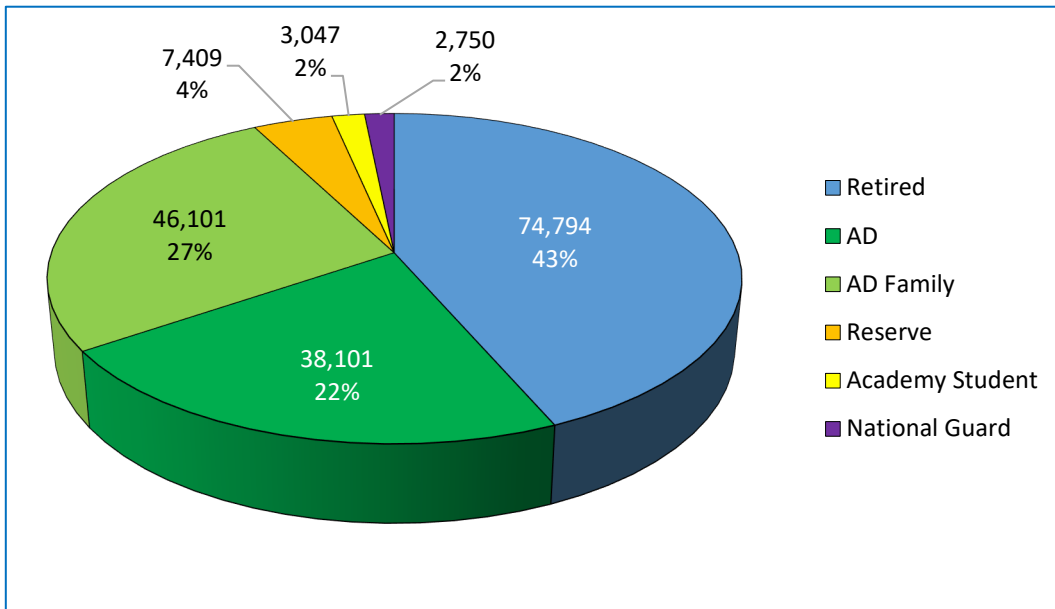


Figure 9. Ft. Carson community demographics by beneficiary category (Source: Hickman 2021).

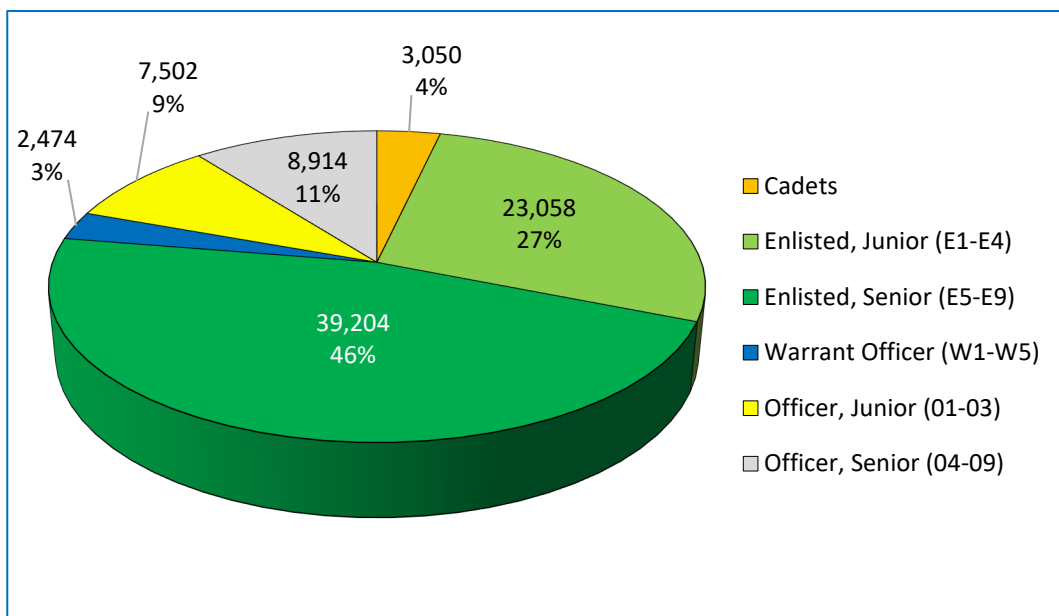


Figure 10. Demographics of Active Duty beneficiaries by rank category (Source: Hickman 2021).

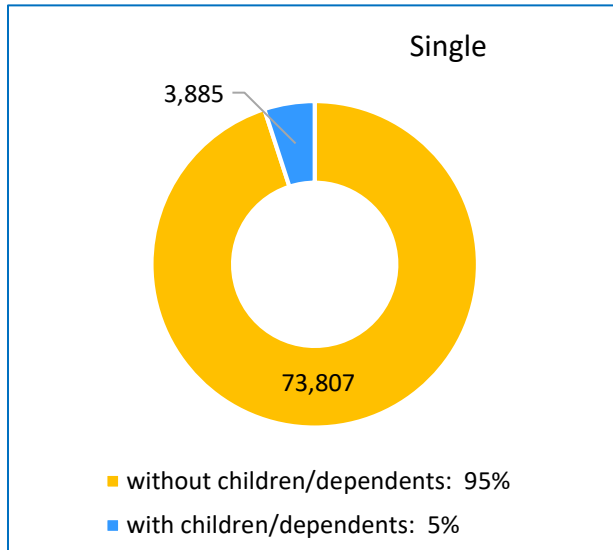
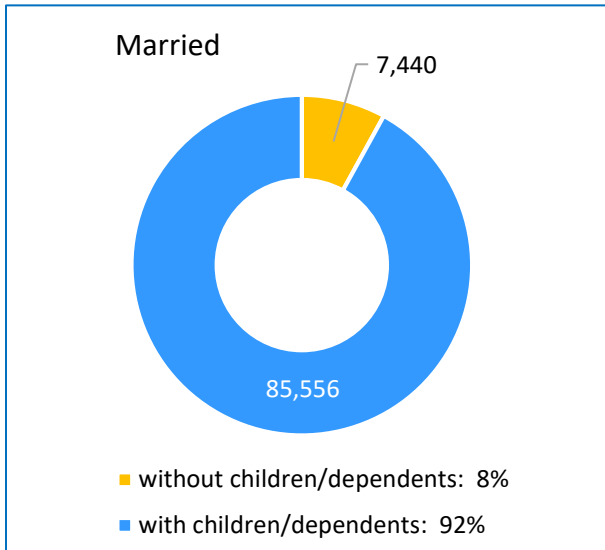
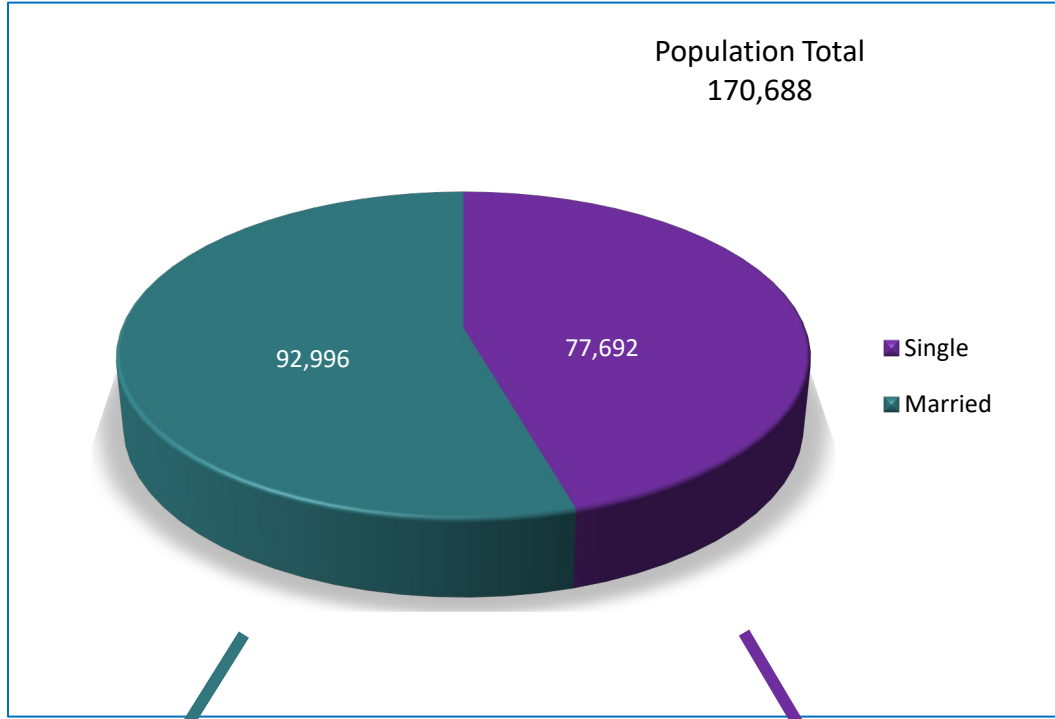


Figure 11. Community members' marital and dependents status (Source: Hickman 2021).

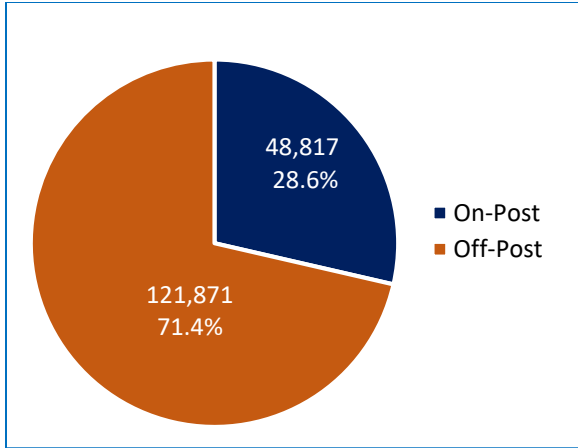


Figure 14. Ft. Carson community members' place of residence (Source: Hickman 2021).

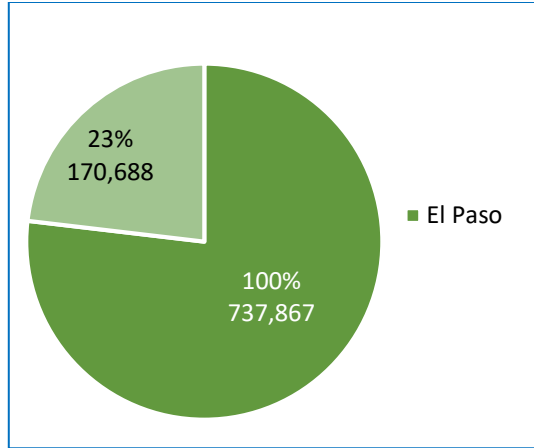


Figure 15. Percentage of El Paso County population affiliated with Ft. Carson community (Source: Hickman 2021 and Census Bureau 2021).

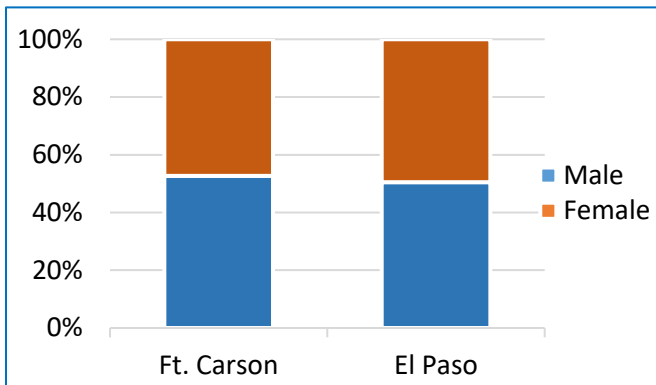


Figure 13. Gender comparison between El Paso County and Ft. Carson communities (Source: Hickman 2021 and Census Bureau 2021).

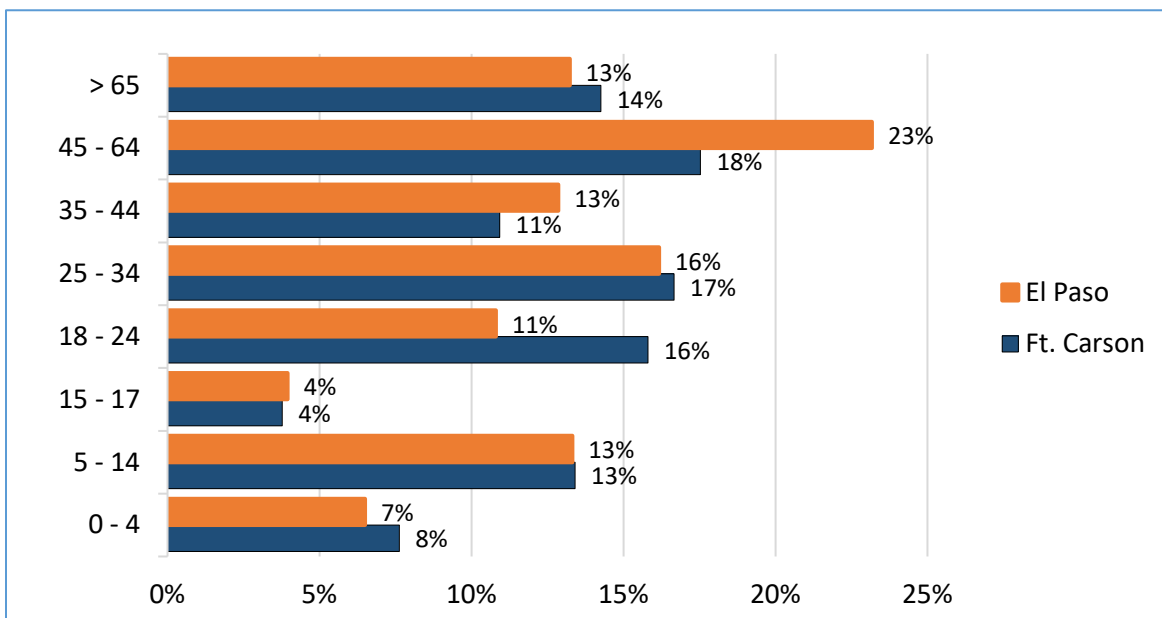


Figure 12. Comparison of age distribution in El Paso County and Ft. Carson communities (Source: Hickman 2021 and Census Bureau 2019).

Socioeconomic Factors

Economic and social insecurity often are associated with poor health. Poverty, unemployment, and lack of educational achievement affect access to care and a community's ability to engage in healthy behaviors. Without a network of support and a safe community, families cannot thrive. Ensuring access to social and economic resources provides a foundation for a healthy community.

The DPH does not have means to collect and analyze accurate and meaningful socioeconomic data for Fort Carson community. The U.S. Census Bureau collects socioeconomic data by a census tracks or a zip code. Its data related to military installations within Fort Carson community has a substantial margin of error due to small population numbers. These errors render any analysis and comparison of Fort Carson community data to County, State, or National numbers statistically insignificant. In addition, about 71% of Fort Carson community members reside in the surrounding county. Therefore, this assessment defaulted to the local El Paso County socioeconomic data to describe Fort Carson community's social determinants of health.

In overall, El Paso County ranked above national averages in about half of examined socioeconomic metrics. The proportion of children in poverty (10%) and children living in single-parent households (21%) in El Paso County in 2019 was better than the Colorado and U.S. metrics for the same period. The unemployment rate (3.3%) was slightly higher than across the Colorado (2.8%) but lower than national level (3.6%). The high school graduation rate of 74% in El Paso County in 2017-2019 was lower than both State and national statistics and was 13 points short from the *Healthy People 2020* target of 87%. The average teen birth rate in El Paso County during 2013-2019 was higher than in both Colorado and across the nation.

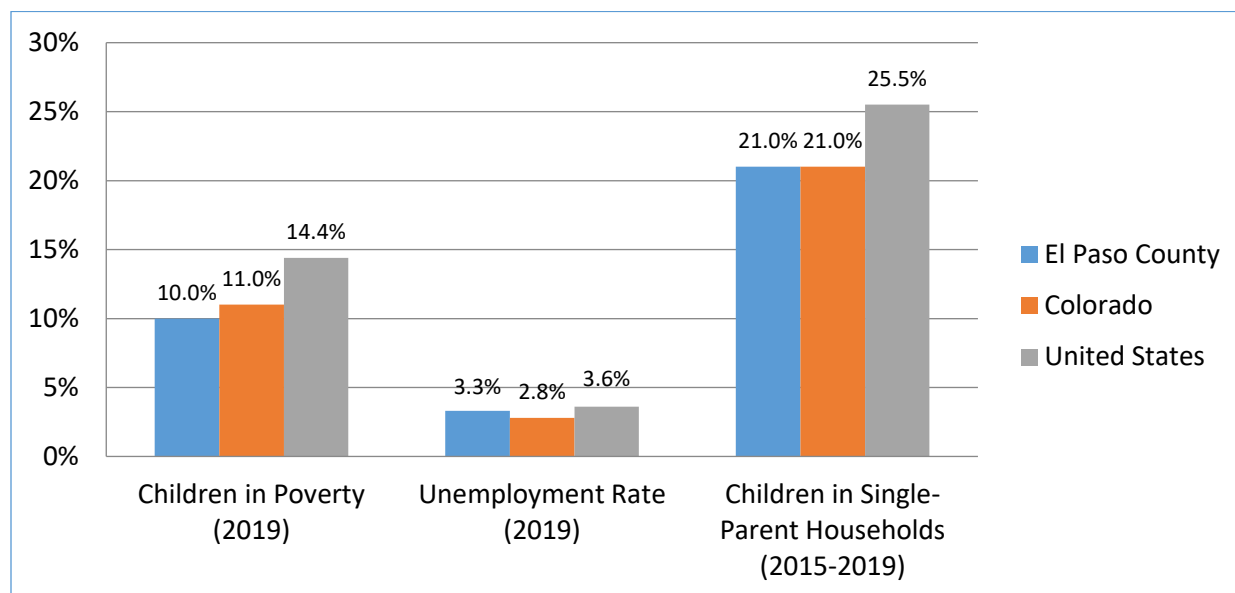


Figure 16. Select socioeconomic characteristics of El Paso County (Source: University of Wisconsin 2021, United Health Foundation 2021, Federal Reserve System 2021, and U.S. Census 2021).

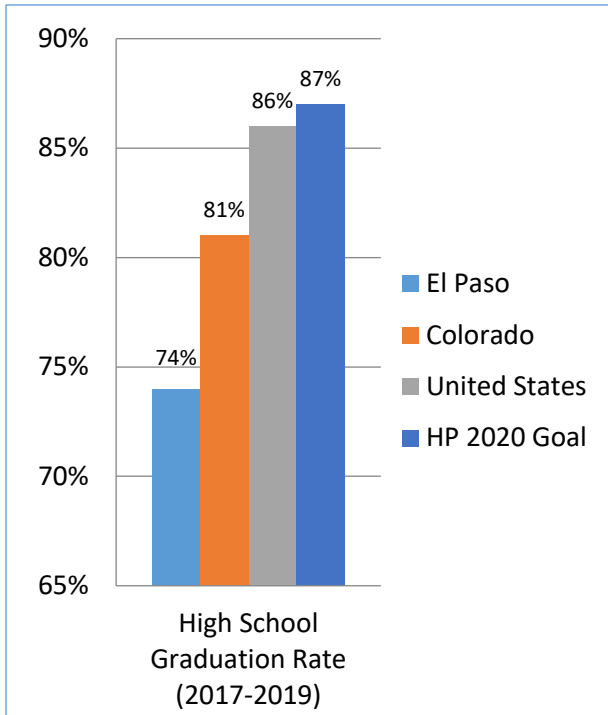


Figure 19. High school graduation rate (Source: University of Wisconsin 2021, Center for Education Statistics 2021, and U.S. Department of Health and Human Services 2021).

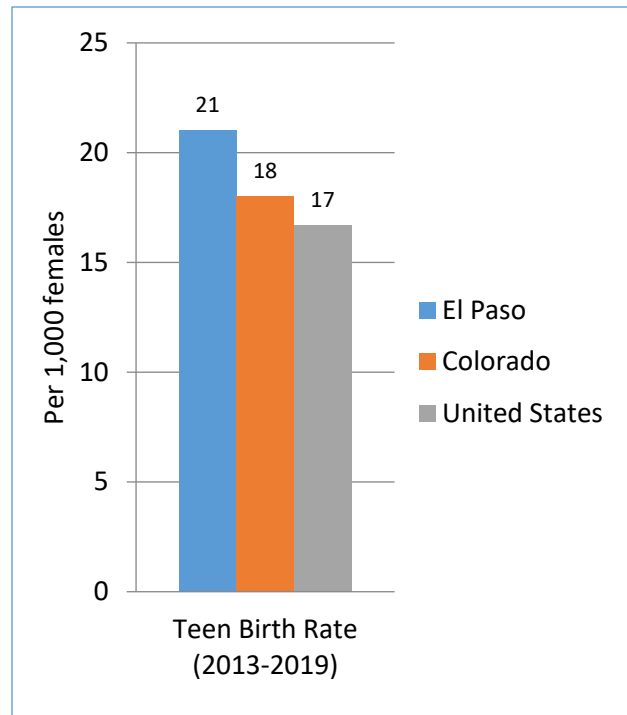


Figure 18. Teen birth rate (Source: University of Wisconsin 2021, U.S. Department of Health and Human Services 2021, and Centers for Disease Control and Prevention 2021).

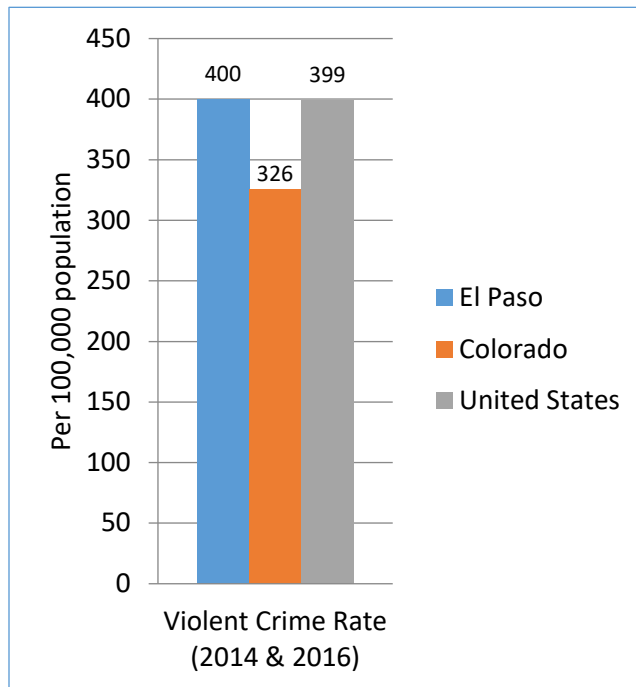


Figure 17. Violent crime rate (Source: University of Wisconsin 2021 and Federal Bureau of Investigation 2022)

Community Health Data

The Army Public Health Center have designed the standard CHSA Tool v2 dated 2018 to guide the collection and analysis of community health data. The tool includes key health indicators organized into six categories: (1) demographics; (2) social and economic factors; (3) physical environment; (4) clinical care; (5) health behaviors; and (6) health outcomes. The indicators in the last three categories are the key metrics used in the assessment of the health of a community. The data for the majority of these indicators comes from a health data system of record.

Capturing and analyzing certain health-related indicators facilitates a better understanding of the health of a community. Prevention indicators can call attention to a lack of access or knowledge regarding one or more health issues and can inform program interventions. Rates of morbidity, mortality, and emergency hospitalizations can be reduced if community residents access services such as health screenings, routine tests, and vaccinations. Measuring morbidity and mortality rates also allows assessing linkages between social determinants of health and outcomes. By comparing, for example, the prevalence of certain chronic diseases to indicators in other categories (e.g., poor diet and exercise) with outcomes (e.g., high rates of obesity and diabetes), various causal relationship may emerge, allowing a better understanding of how certain community health needs may be addressed.

The lack of accurate and consistent data prevented the DPH personnel from assessing properly the health of the entire Fort Carson community. In October of 2021, the Evans Army Community Hospital (Evans ACH) – the main healthcare facility for the Fort Carson community – has transitioned to a new system of medical records MHS Genesis. This system failed to record health-related data accurately and consistently, which prevented the DPH personnel from assessing and comparing Fort Carson community-wide health indicators to County, State, and National levels and benchmarks. At the same time, Evans ACH no longer had access to the legacy system of records and therefore could not retrieve data collected prior to October 2021. Thus, the DPH personnel could not collect and analyze data necessary to assess the health of the entire community.

The data and assessment presented in the following sections is limited to Army Active Duty members assigned to Fort Carson proper. In attempt to complete the CHA and identify some community health issues for improvement, the DPH personnel explored the best available data accessible at the time of the assessment – the *2020 Health of the Force* report. This is an Army-wide report of select environmental, medical, and healthy lifestyle indicators specific to Army installations and its Active Duty populations. This report depicts data collected over 2015-2019 period and allows comparison of Fort Carson-specific statistics to U.S. Army average figures. Although the population of Fort Carson Active Duty members constitutes only 16% of the entire Fort Carson community, analyzing this data allowed DPH personnel to identify some community health issues and select priorities for improvement.

Installation Health Index

The *Health of the Force* presents metrics with the intent of revealing actionable interpretations of health data. The Installation Health Index (IHI) is a composite measure that can be used to gauge the health of installation populations. The purpose of the IHI is to motivate discussions about successes and challenges that can be leveraged across the Force. The IHI combines installation-specific metric scores, each calculated by contrasting the installation’s metric value to the average value for the installations evaluated (subsequently referred to as the Army average). It also incorporates the number of poor air quality days, an environmental health metric. The IHI consists of two components: a score and a percentile.

How should IHI be interpreted?

IHI Score	IHI Percentile
The IHI is a global installation health indicator defined as a weighted average of z-scores corresponding to six installation medical metric values and an installation air quality score. IHI scores are standardized such that a score of zero represents the average across the Army installations included in the 2020 <i>Health of the Force</i> ; positive scores are above-average, and negative scores are below-average.	The percentile for a given installation is the probability of having an IHI equal to or lower than that installation’s IHI.
Higher IHI scores reflect comparatively better installation health. IHI scores less than -2 (i.e., more than 2 standard deviations (SD) below the average) are color-coded in red. IHI scores between -1 and -2 (i.e., between 1 and 2 SD below the average) are color-coded in yellow; IHI scores greater than or equal to 1 (i.e., ≥ 1 SD above the average) are color-coded in green.	Higher IHI percentiles reflect more favorable installation health relative to other installations.

The IHI incorporates age- and sex-adjusted values for six medical metrics (injury, sleep disorders, chronic disease, obesity, tobacco product use, STI), and installation air quality. The weights given to each metric for calculation of the IHI are shown here.

- Injury (30%)
- Obesity (BMI) (15%)
- Sleep disorders (15%)
- Chronic disease (15%)
- Tobacco product use (15%)
- Sexually transmitted infections (chlamydia) (5%)
- Air quality (5%)

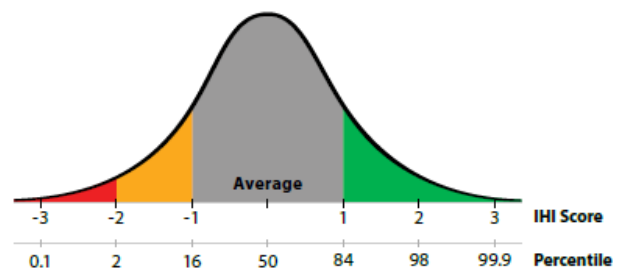


Figure 20. Interpretation of the Installation Health Index (Source: U.S. Army Public Health Center 2021).

Fort Carson’s IHI z-score of 1.1 (80-89th percentile) ranked the Mountain Post in the top three healthiest U.S. Army installations located within the continental United States (see Figure 20). Installations outside of the U.S. were ranked separately from U.S.-based installations due to differences that may bias their comparison. In the following sections, this report will summarize the findings of the *Health of the Force 2020* focusing on areas where Fort Carson scored below the Army average.

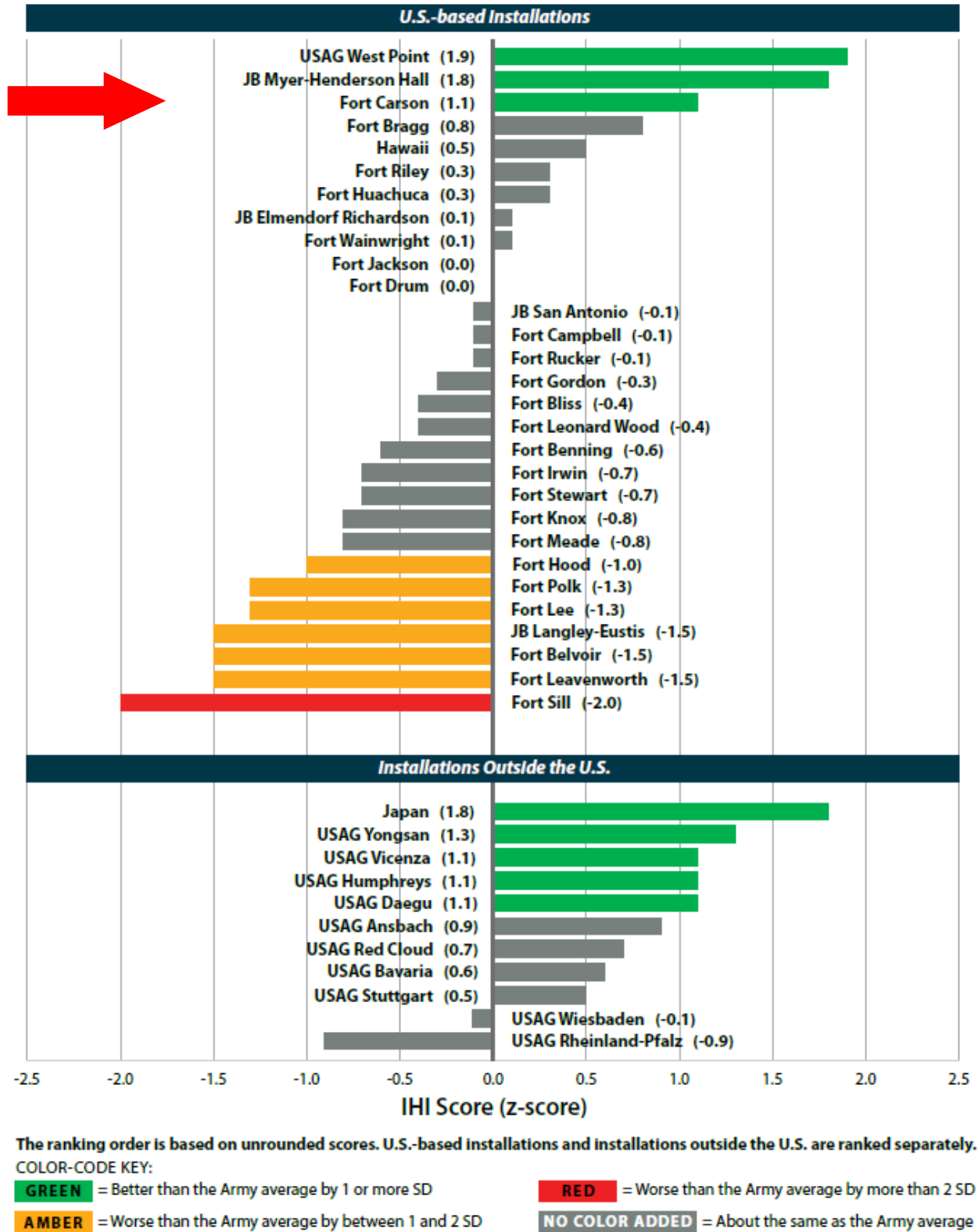


Figure 21. Ranking by Installation Health Index score (Source: U.S. Army Public Health Center 2021).

Physical Environment

The physical environment also affects a community's health. A safe, clean environment that provides access to healthy food and recreational opportunities is important to maintaining and improving community health. Environmental pollutants can cause health problems like respiratory diseases, heart disease, and some types of cancer⁷. Presence of endemic pathogens and mechanisms of transmission such as ticks and mosquitoes increases the risk of vector-borne diseases.

According to the *Health of the Force* report, the physical environment on and around Fort Carson in 2019 did not present an increased risk of negative health outcomes. The air and water quality maintained the standard throughout the year. Colorado's cool and dry climate was not supportive of mosquitoes breeding. Together with lack of endemic pathogens, this resulted in low risk of vector-borne diseases such as Dengue, Chikungunya, or Zika.



Figure 22. Fort Carson environmental health indicators in 2019 (Source: U.S. Army Public Health Center 2021).

⁷ Brusseau, M.L., I.L. Ramirez-Andreotta, and J. Maximillain. "Environmental Impacts on Human Health and Well-Being." Edited by 3. Environmental and Pollution Science, 2019: 477-499, <https://doi.org/10.1016/B978-0-12-814719-1.00026-4>

Medical Metrics

The range of health metrics detailed in *Health of the Force* provides an evidence-based resource that can help Army leaders understand the causes of and contributors to medical non-readiness and direct informed policy and programmatic efforts to optimize Soldier health. In 2019, across the entire Army active duty force, injuries and behavioral health conditions were the leading reasons for Soldier profiles. Injuries were the leading cause of medical non-readiness with 64%, followed by behavioral health conditions with 10% of all limited duty days. Combined, these conditions accounting for 11.7 million days in 2019.⁸

Medical metrics for Fort Carson active duty population show values above the Army average for substance use disorder, tobacco product use, Chlamydia infection, and chronic diseases (see Table 3). Behavioral health conditions and sleep disorder are either equal to or slightly better than Army average levels. The best performing metrics are injury rate and obesity, which both are well below Army average rates and towards the lowest range values across all Army installations.

Table 3. Fort Carson medical metrics for 2019 (Source: U.S. Army Public Health Center 2021).

MEDICAL METRICS	INSTALLATION		ARMY	
	Crude Value ¹	Adjusted Value ²	Value	Range ³
Injury (rate per 1,000)	1,377	1,459	1,756	1,257–2,739
Behavioral health (%)	14	15	16	9.9–26
Substance use disorder (%)	4.5	4.1	3.5	1.4–7.0
Sleep disorder (%)	11	14	14	6.9–25
Obesity (%)	13	14	17	12–26
Tobacco product use (%)	28	27	25	11–31
STIs: Chlamydia infection (rate per 1,000)	29	25	24	11–41
Chronic disease (%)	14	19	18	12–18

1. Crude values not adjusted by age and sex.

2. Adjusted values are weighted averages of crude age- and sex-specific frequencies, where the weights are the proportions of Soldiers in the corresponding age and sex categories of the 2015 Army active duty population. By using a common adjustment standard such as this, we are able to make valid comparisons across installations because it controls for age and sex differences in the population.

3. The Army values represent crude values for the entire Army, and the ranges represent crude values for the installations included in the report.

The following sub-sections offer a more detailed assessment of key medical metrics of interest to Fort Carson community. The CHWG utilized the *Health of the Force Online* – a digital interface allowing readers to drill down into available data. Generated charts visualize installation-specific data allowing comparisons and a better understanding of the health of the force on Fort Carson. Reported levels are expressed in crude values unless specified otherwise.

⁸ U.S. Army Public Health Center, "2020 Health of the Force", 2021, p.21.

Injury

The CHWG has identified injuries as a medical metric of interest to Fort Carson community. Although one of the best performing metrics according to the *2020 Health of the Force*, Fort Carson community members indicated in the Community Health Survey that injuries were their top physical health related concern. Fort Carson's public health professionals also identified muscular-skeletal (MSK) injuries as one of the recommended areas of improvement.

Injuries were defined as damage or interruption of body tissue function caused by an energy transfer that exceeded tissue tolerance suddenly (acute trauma) or gradually (cumulative micro-trauma). Cumulative micro-traumatic MSK injuries were referred to as "overuse" injuries. Injury incidence was estimated using specific diagnostic codes from inpatient and outpatient medical encounter records in the Military Health System Data Depository.

In overall, injuries among Fort Carson Soldiers in 2019 closely resembled trends and characteristics of the Army-wide statistic. In crude values, the incidence of all new injuries and new "overuse" injuries in 2019 was similar to incidence rates in preceding three years (see Figure 22). The "overuse" injuries, commonly attributed to military training⁹, accounted for the majority (69%) of injuries in 2019. Injury rates were higher among females and increased with age in both male and female populations (see Figures 23 and 24). Black or African American Soldiers were more likely to get injured (see Figure 25). The leading mechanism of injury among outpatient encounters over 2016-2019 period was overexertion at 19% (see Figure 26). Note, however, that only 12% of outpatient encounters included a provider-specified cause code.

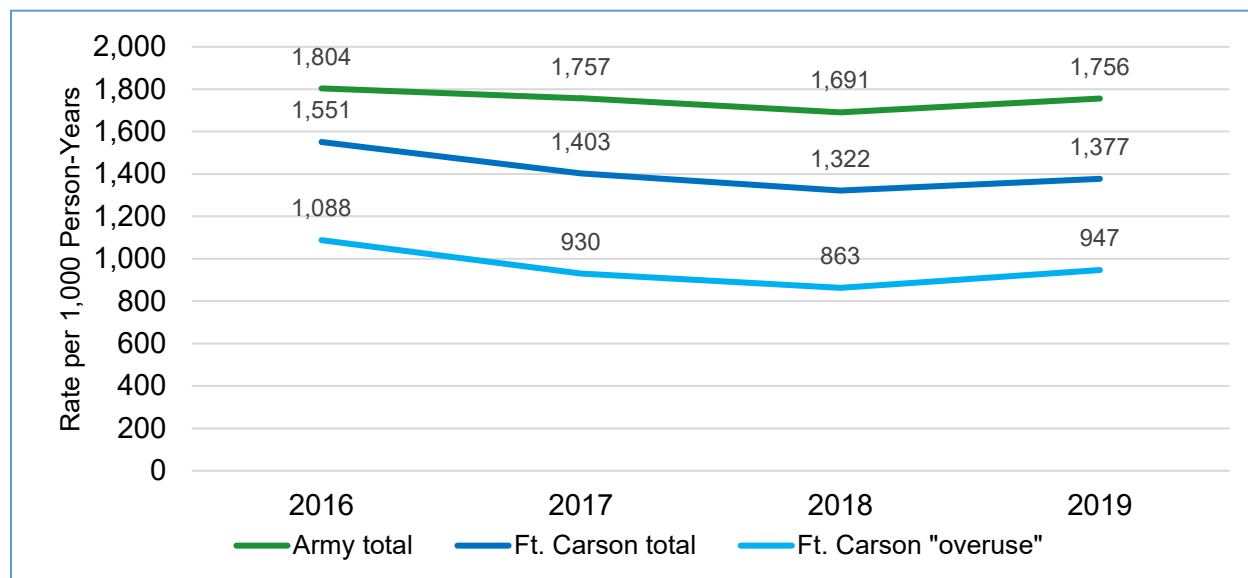


Figure 23. Trends in the rate of incident injuries (crude values), AC Soldiers, 2016-2019 (Source: Health of the Force Online n.d.).

⁹ U.S. Army Public Health Center, "2020 Health of the Force", 2021, p.23.

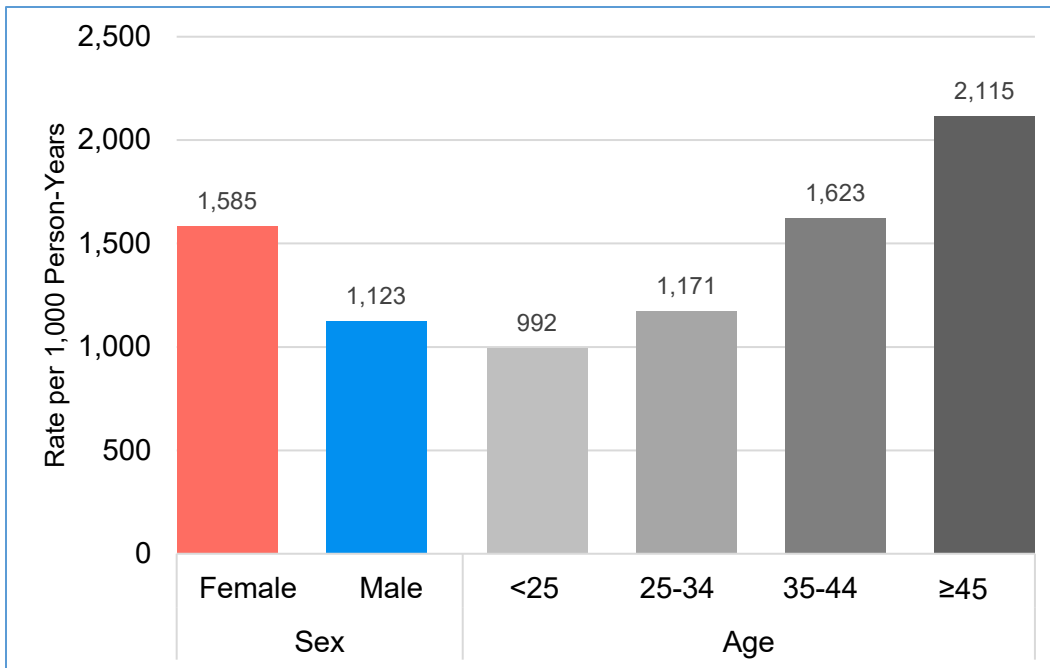


Figure 24. Average rate of incident injuries by sex and by age, AC Soldiers, Ft. Carson, 2016-2019 (Source: Health of the Force Online n.d.).

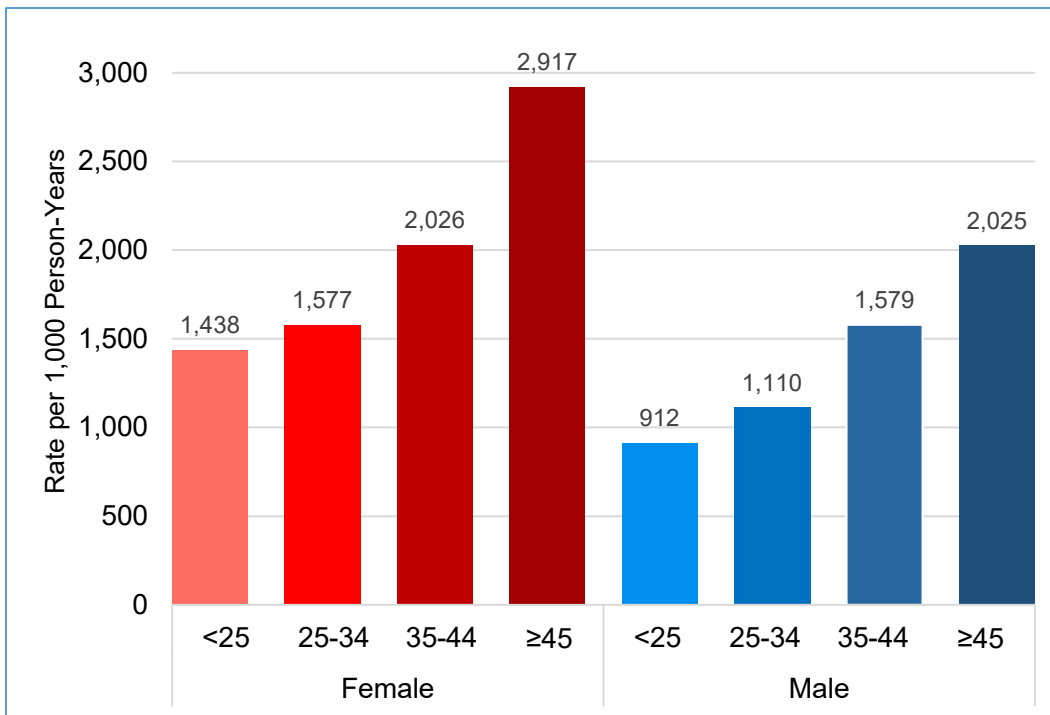


Figure 25. Average rate of incident injuries by sex and age, AC Soldiers, Ft. Carson, 2016-2019 (Source: Health of the Force Online n.d.).

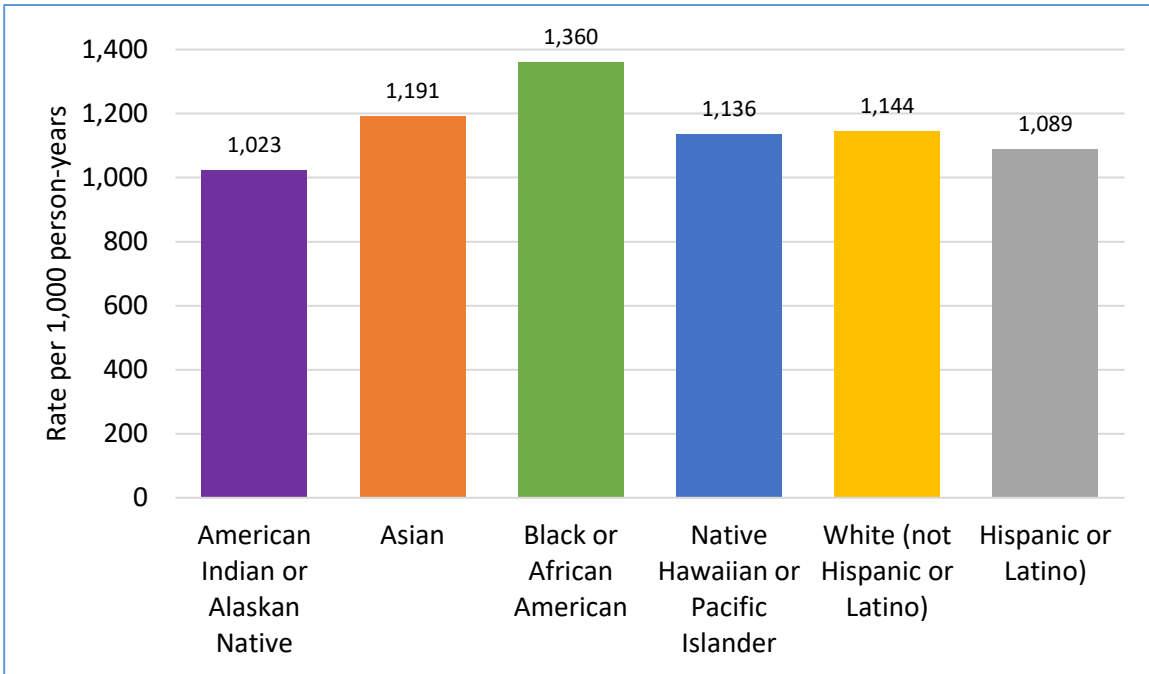


Figure 26. Average rate of incident injuries among Ft. Carson Soldiers by race/ethnicity during 2016-2019 (Source: Health of the Force Online n.d.).

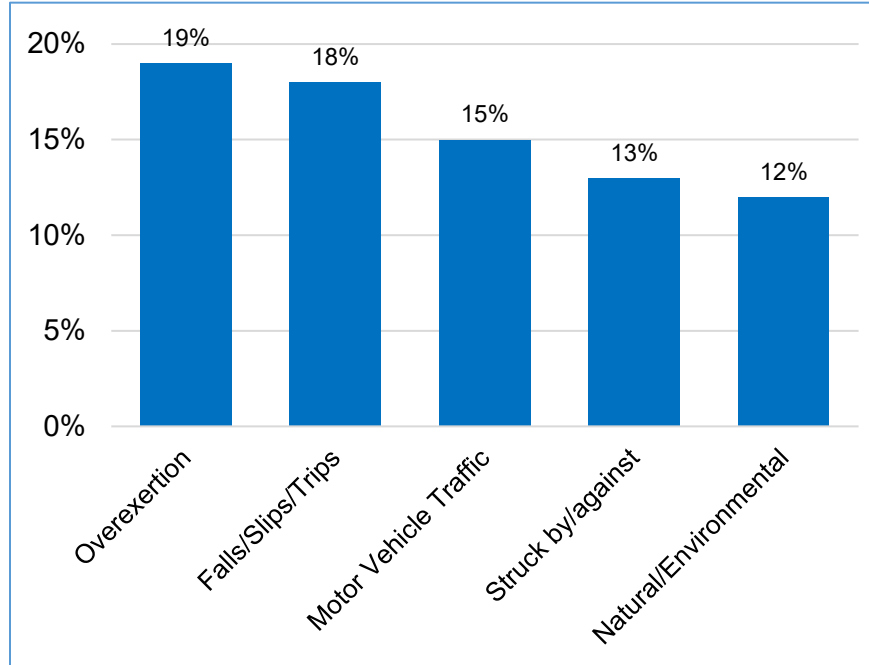


Figure 27. Top Five Causes of Unintentional Injuries, AC Soldiers, Ft. Carson, 2016-2019 (Source: Health of the Force Online n.d.).

Behavioral Health

The stressors of military life can strongly influence the psychological well-being of Soldiers and their Families. Behavioral health conditions, particularly when unrecognized and untreated, can adversely affect Soldiers' medical readiness. Behavioral health conditions are also risk factors for other adverse outcomes, such as impaired job performance, early discharge from the Army, and suicidal behavior.¹⁰

The prevalence of behavioral health disorders was estimated using specific diagnostic codes from inpatient and outpatient medical records in the repository. In 2019, 15% of Fort Carson Soldiers (population-adjusted value) had a diagnosis of one or more behavioral health disorders compared to the Army average of 16% (prevalence ranged from 9.9% to 26% across Army installations). The diagnoses assessed included adjustment disorders, mood disorders, anxiety disorders, posttraumatic stress disorder (PTSD), substance use disorders (SUDs), personality disorders, and psychoses. The latter two were excluded from visualization in *Health of the Force Online* database and therefore were not discussed here.

The average annual prevalence of any behavioral health diagnosis among Fort Carson Soldier during 2015-2019 was higher among female Soldiers relative to male Soldiers in all age and race (see Figure 27), and ethnicity categories (see Figure 28). Behavioral health diagnoses were more common among older Soldiers relative to younger Soldiers. The most common behavioral health diagnosis was adjustment disorder (see Figure 29). The proportion of female Soldiers diagnosed with adjustment disorder, anxiety disorder, PTSD, or mood disorder was nearly twice that of male Soldiers. Substance use disorder was the only behavioral health condition for which the prevalence among male Soldiers exceeded that among female Soldiers (4.2% and 3.4%, respectively). The proportion of Fort Carson Soldiers with a diagnosed behavioral health disorder changed little over the last 5 years (see Figure 30).

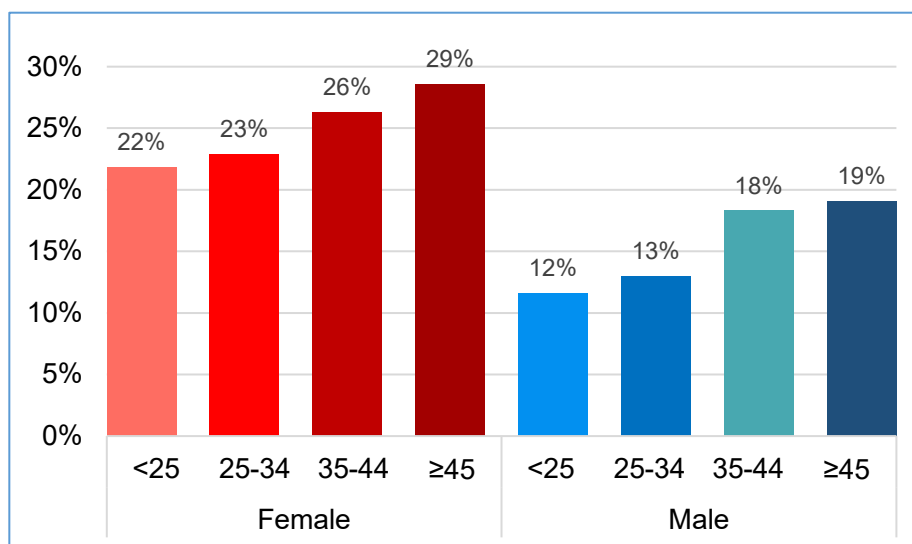


Figure 28. Average prevalence of any BH disorder by sex and age, AC Soldiers, Ft. Carson, 2015-2019 (Source: Health of the Force Online n.d.).

¹⁰ U.S. Army Public Health Center, "2020 Health of the Force", 2021, p.30.

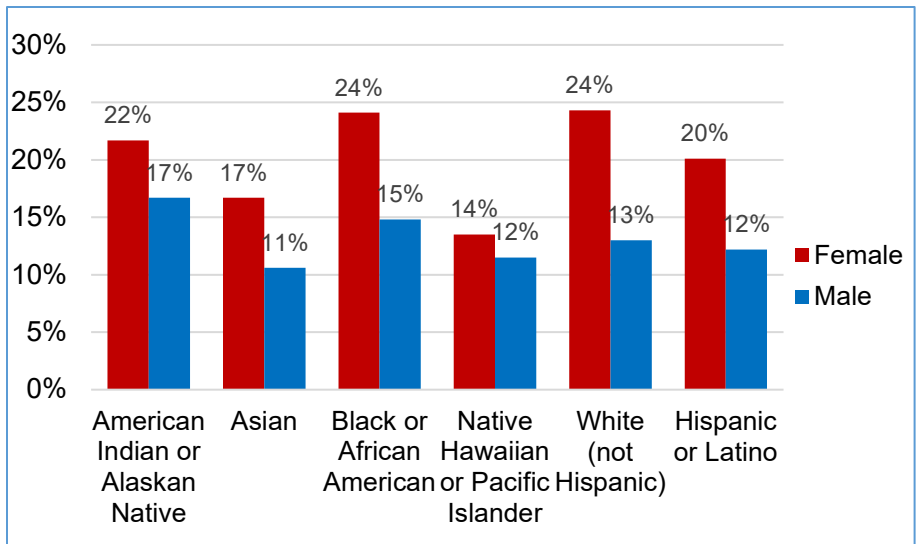


Figure 29. Average prevalence of any BH disorder by sex and race/ethnicity, AC Soldiers, Ft. Carson, 2015-2019 (Source: Health of the Force Online n.d.).

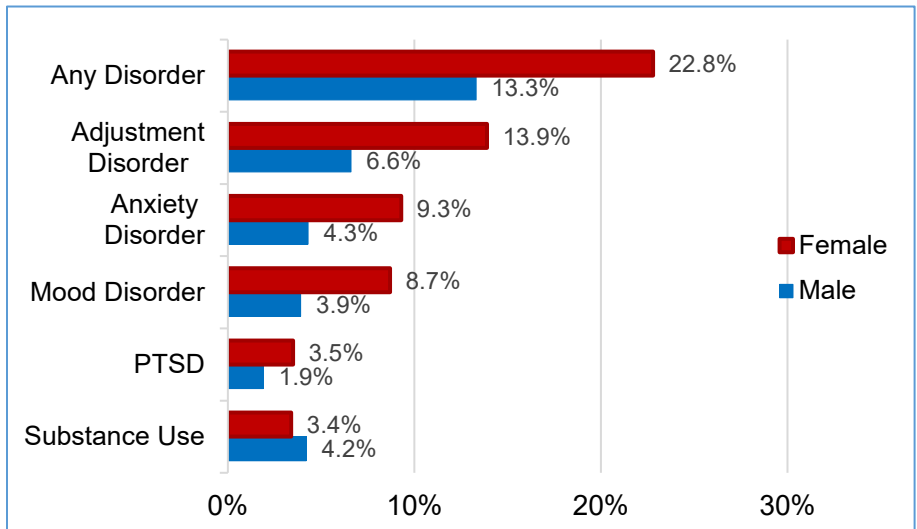


Figure 30. Average prevalence of BH disorders by type and sex, AC Soldiers, Ft. Carson, 2015-2019 (Source: Health of the Force Online n.d.).

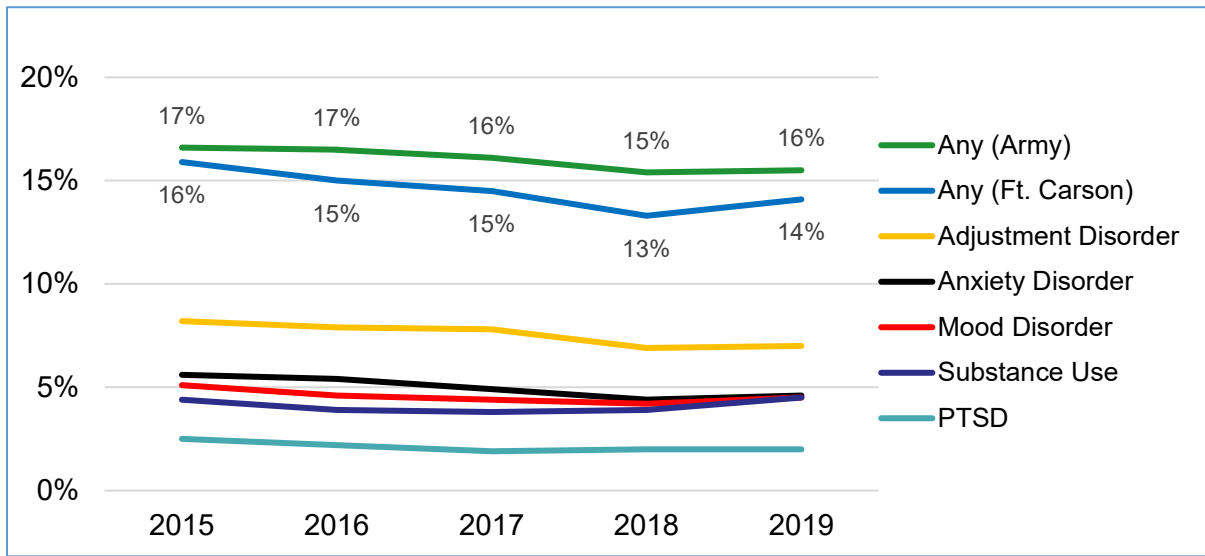


Figure 31. Trends in the prevalence of BH disorders (crude values) among Ft. Carson AC Soldiers in 2015-2019 (Source: Health of the Force Online n.d.).

Substance Use

Substance use disorder (SUD) includes the misuse of alcohol, cannabis, cocaine, hallucinogens, opioids, sedatives, or stimulants. A SUD diagnosis is based on evidence of impaired control, social impairment, risky use, and pharmacological criteria. In *Health of the Force*, SUD prevalence was estimated using specific diagnostic codes from inpatient and outpatient medical encounters in the repository.¹¹

In 2019, 4.1% of Fort Carson Soldiers (population-adjusted value) were diagnosed with a SUD compared to the Army average of 3.5% during the same year (prevalence ranged from 1.4% to 7.0% across all Army installations). Male Soldiers had a higher prevalence of SUD diagnoses relative to female Soldiers in all age categories (see Figure 31). The prevalence of SUD generally decreased with age. Prevalence was greater among Soldiers under the age of 25, both males and females, compared to those in any other age group (see Figure 32).

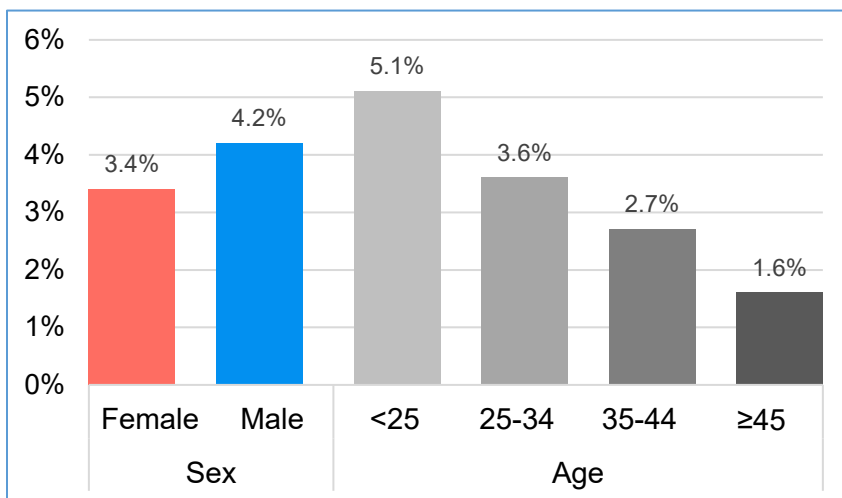


Figure 32. Average prevalence of SUD by sex and by age, AC Soldiers, Ft. Carson, 2015-2019 (Source: Health of the Force Online n.d.).

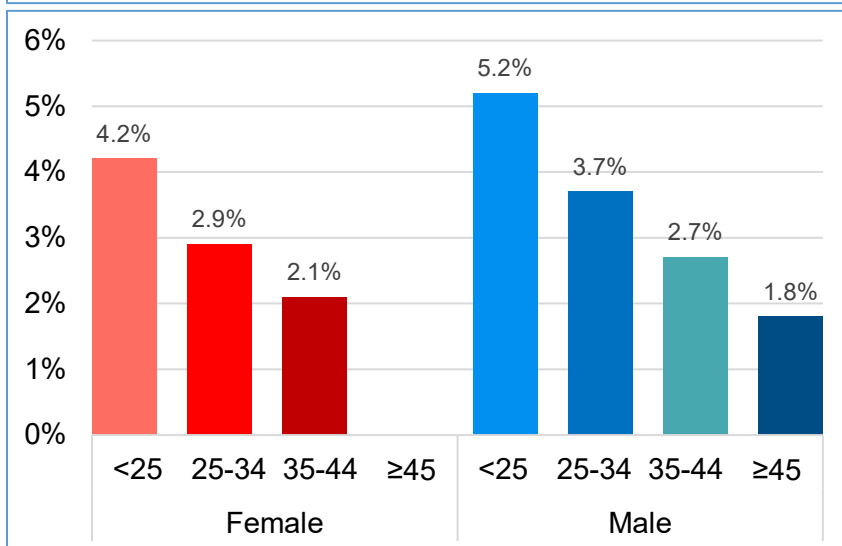


Figure 33. Average prevalence of SUD by sex and age, AC Soldiers, Ft. Carson, 2015-2019 (Source: Health of the Force Online n.d.).

¹¹ U.S. Army Public Health Center, "2020 Health of the Force", 2021, p.36.

Obesity

Obesity is a risk factor for cardiovascular disease, metabolic syndrome, type II diabetes, hypertension, and other diseases. Early studies of SARS-CoV-2 patients indicate that being overweight or obese increases risk of hospitalization, poor disease outcomes, and mortality.

Body Mass Index (BMI) provides an estimate of body fat in adults and is calculated by dividing weight in kilograms by the square of height in meters. The CDC defines BMI as:

- “**normal weight**” the BMI greater than 18.5 but less than 25;
- “**overweight**” the BMI greater than or equal to 25 but less than 30; and
- “**obese**” the BMI greater than or equal to 30.

Though conventional, these categories are arbitrary and controversial. BMI should be interpreted with caution because it does not always provide a good estimate of body fat. While BMI does not differentiate between lean and fat mass, BMI greater than or equal to 30 typically indicates excess body fat. For the *Health of the Force*, BMI was calculated using Soldiers' height and weight measurements obtained during outpatient medical encounters and stored in the repository.

In 2019, the average prevalence of obesity among Active Duty Soldiers Army-wide was 17% and ranged from 12% to 26% across all Army installations. In comparison, 26% of a similar population of employed U.S. adults were classified as obese¹². The prevalence of obesity varied widely by race and ethnicity but was significantly lower for females than males across all ages (see Figure 33). Prevalence was lowest for Asian Soldiers and highest for Native Hawaiian/Pacific Islander Soldiers. Among Soldiers of both sexes, the prevalence of obesity increased with age until the mid-40s.

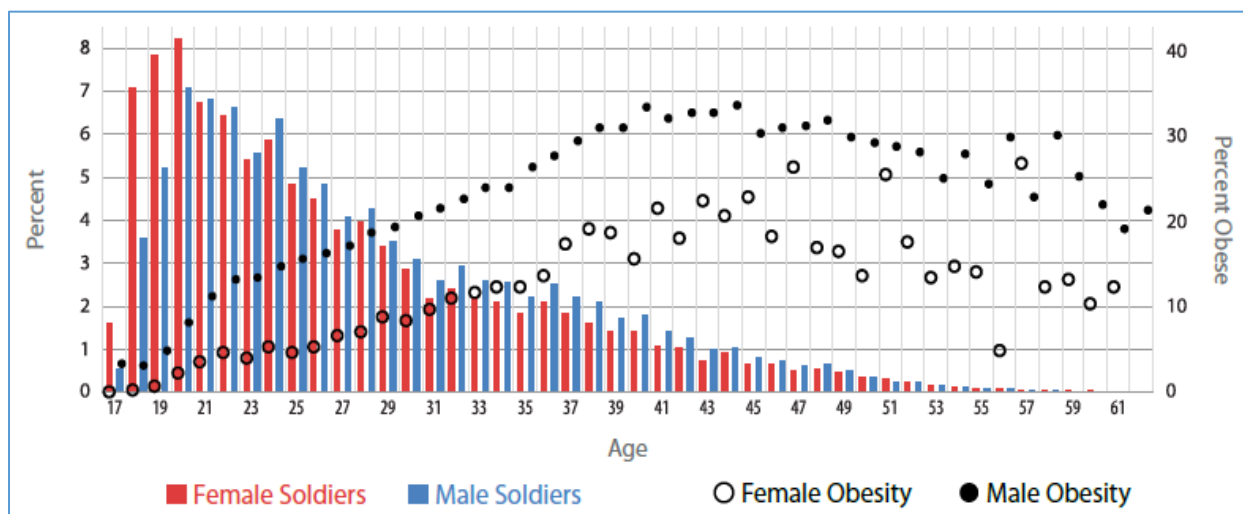


Figure 34. Age distribution and prevalence of obesity, AC Soldiers, 2019 (Source: U.S. Army Public Health Center 2021)

¹² U.S. Army Public Health Center, "2020 Health of the Force", 2021, p.40.

Specific to Fort Carson, the prevalence of obesity was 14% (population adjusted value). In crude values, 13% of Fort Carson Soldiers were obese in 2019 and 51% were considered to be overweight (see Figure 34). The distribution by sex and age were similar to Army-wide statistics.

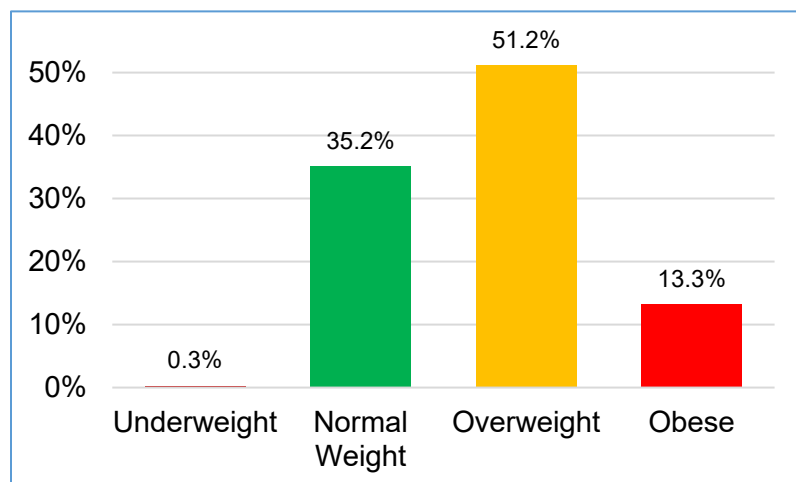


Figure 35. Prevalence of BMI categories, AC Soldiers, Ft. Carson, 2019 (Source: Health of the Force Online n.d.).

Tobacco Product Use

Tobacco product use negatively affects Soldier readiness, impairs physical fitness, and increases illness and absenteeism. In *Health of the Force*, the prevalence of tobacco product use is estimated using data from Periodic Health Assessments (PHA). The PHA asks Soldiers which tobacco products they have used on at least one day in the last 30 days. For this report:

- **smoking products** are defined as cigarettes, cigars, cigarillos, bidis, pipes, and hookah/waterpipes;
- **smokeless products** are defined as chewing tobacco, snuff, dip, snus, and dissolvable tobacco products; and
- **e-cigarettes** are defined as electronic cigarettes or vape pens.

Soldiers complete the PHA as part of a regular annual physical exam, which determines an individual's ability to deploy. To avoid potential negative attention, Soldiers may choose to underreport their tobacco usage or not to report it at all.

Excluding e-cigarette use, 27% (population adjusted value) of Fort Carson Soldiers reported using tobacco products in 2019 compared to Army average of 25% in the same year (prevalence ranged from 11% to 31% across Army installations). Regardless of sex, the majority of tobacco product users on Fort Carson were 34 years of age or younger (see Figure 35). Across the age groups, the prevalence of tobacco use among male Soldiers was roughly double that among female Soldiers (see Figure 36).

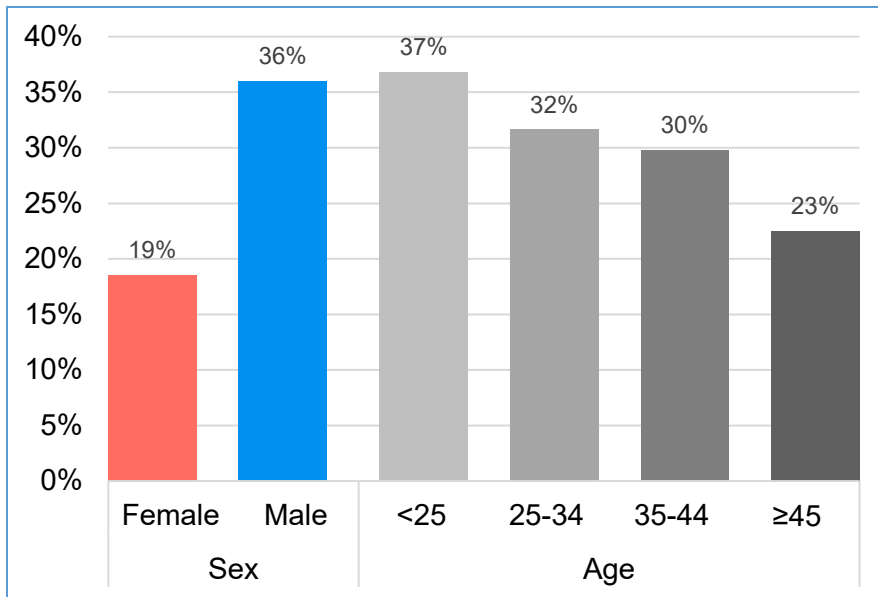


Figure 36. Prevalence of tobacco product use by sex and by age, AC Soldiers, Ft. Carson, 2019 (Source: Health of the Force Online n.d.).

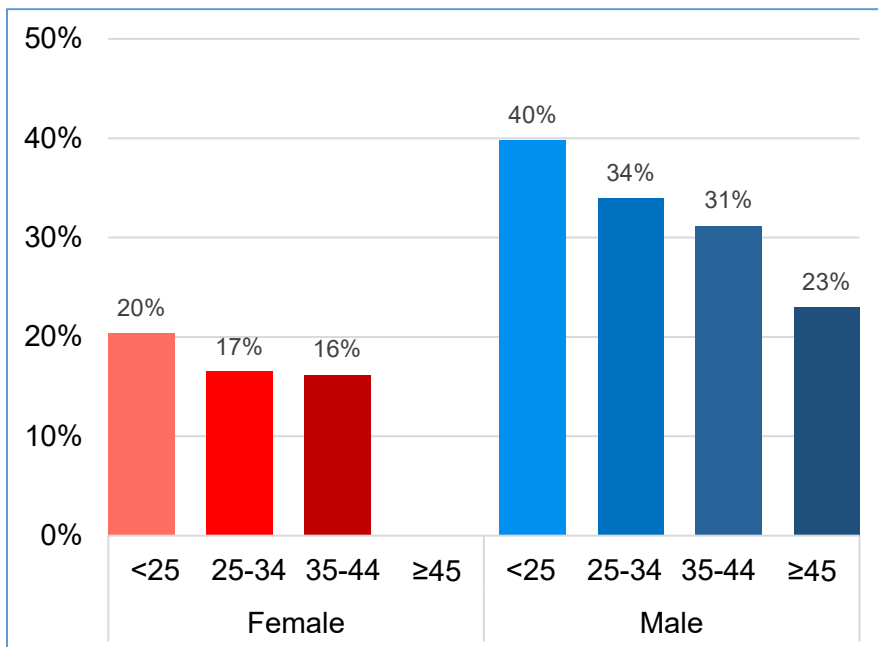


Figure 37. Prevalence of tobacco product use by sex and age, AC Soldiers, Ft. Carson, 2019 (Source: Health of the Force Online n.d.).

Among the tobacco product use categories reported in the PHA, 19% of Fort Carson Soldiers reported smoking, followed by 14% of Soldiers who reported smokeless tobacco use (chewing or dipping) and 12% of e-cigarette users (see Figure 35). For both sexes, smoking tobacco products were the primary type of tobacco used (see Figure 36). Male Soldiers most frequently reported using smoking tobacco products, followed by smokeless and e-cigarette products. Female Soldiers most frequently reported using smoking products, followed by e-cigarette products. A very small number of females reported using smokeless products (1%). Tobacco use was most common among Native Hawaiian/Pacific Islander Soldiers for all types of product and the lowest among Black or African American Soldiers or Hispanic Soldiers (see Figure 37).

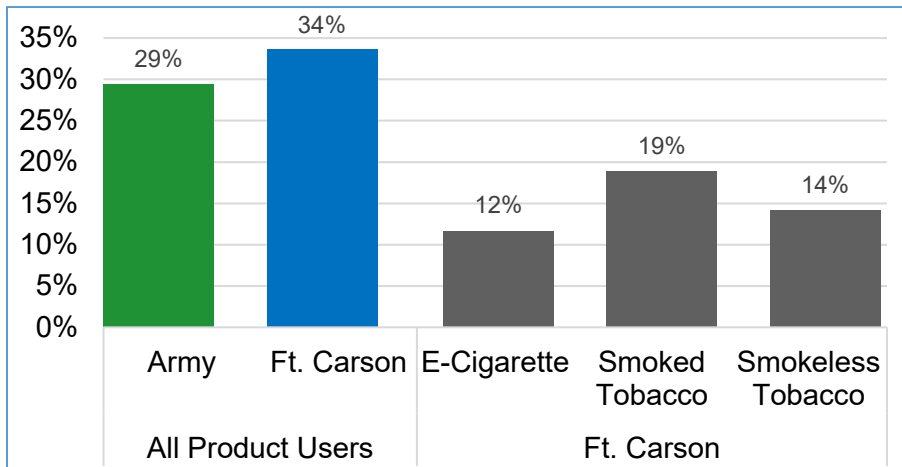


Figure 38. Comparison of tobacco use by product type, AC Soldiers, Ft. Carson, 2019 (Source: Health of the Force Online n.d.).

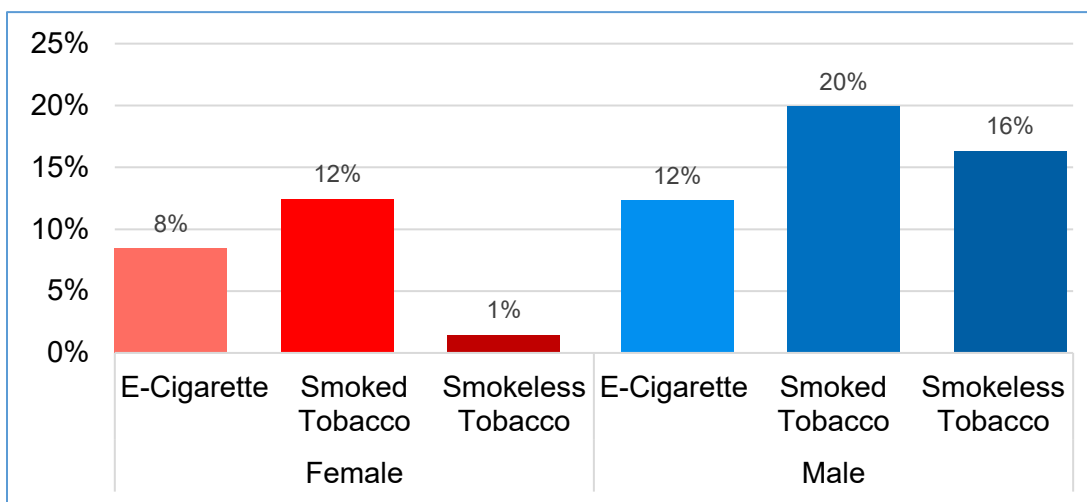


Figure 39. Comparison of tobacco product use by type and sex, AC Soldiers, Ft. Carson, 2019 (Source: Health of the Force Online n.d.).

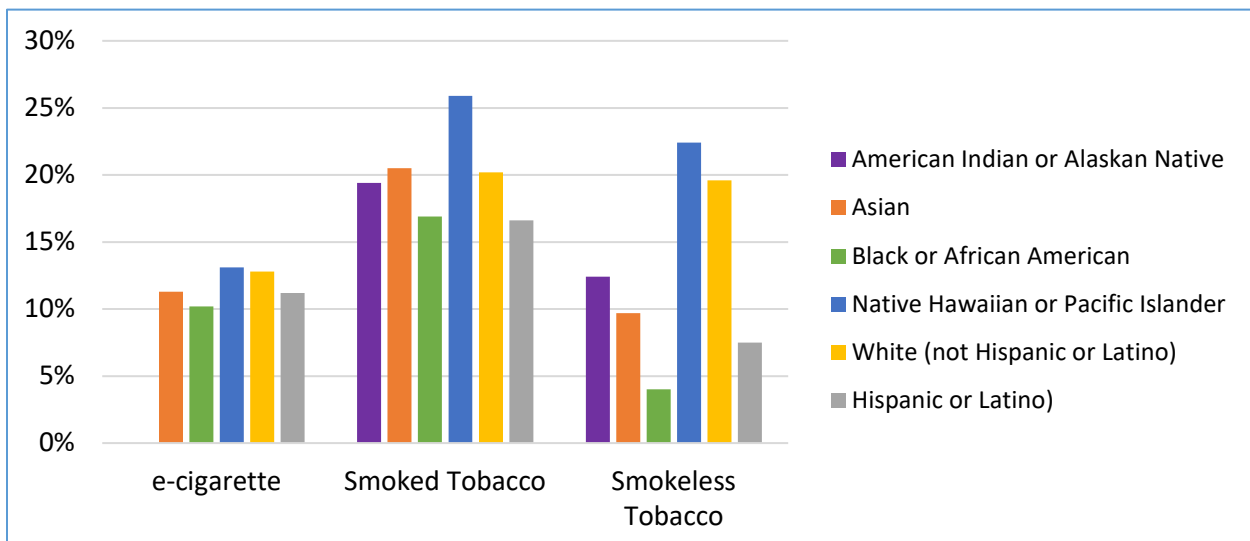


Figure 40. Comparison of tobacco product use by race/ethnicity, AC Soldiers, Ft. Carson, 2019 (Source: Health of the Force Online n.d.).

Sexually Transmitted Infections

Chlamydia is the most commonly reported sexually transmitted infection (STI) in the U.S., with about 4 million new infections estimated each year. It is often referred to as the silent infection because most infections do not cause symptoms, leaving people unaware that they are infected. Without treatment, chlamydia can lead to reproductive health complications such as pelvic inflammatory disease, ectopic pregnancy (i.e., pregnancy outside the uterus), chronic pelvic pain, and infertility, all of which can compromise Soldier readiness and well-being.¹³

Screening is essential to prevent transmission and the progression to severe disease outcomes, which disproportionately affect women. The U.S. Preventive Services Task Force (USPSTF) recommends that sexually active females under 25 years of age, and those at increased risk (e.g., individuals with multiple partners), be screened annually. For the Army AC population, chlamydia cases reported by military treatment facilities using the Disease Reporting System – Internet (DRSi). Incidence rates reflect all new infections; therefore, Soldiers may have more than one chlamydia infection per calendar year. Rates presented are conservative because of the high proportion of non-symptomatic infections, which may evade detection and reporting.

In 2019, the incidence of chlamydia infections among Fort Carson Soldiers was 25 per 1,000 person-years (population adjusted value) compared to Army average of 24 for the same year (incidence ranged from 11 to 41 across Army installations). The rate of reported chlamydia infections among female Soldiers was nearly 3 times the rate among male Soldiers (see Figure 40). Rates were highest among females under 25 years of age partially due to increased screening among pregnant Soldiers and females under 25 years. A steady rise in reported chlamydia infections among Fort Carson Soldiers and Army-wide has occurred over the 2015-2019 period (see Figure 41).

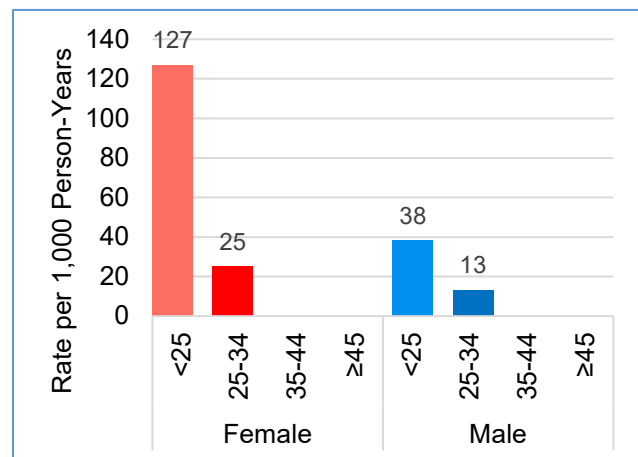


Figure 41. Incidence of chlamydia infections by sex and age, AC Soldiers, Ft. Carson, 2019 (Source:

In 2021, the STI program team in the APHN section of DPH initiated a “Sexual Health Survey” to gather a better understanding of Fort Carson population’s sexual health and behaviors. The goal of the survey was to improve the sexual health education and outreach initiatives based on trends discovered from the respondents. The survey was anonymous and on a voluntary basis. The 17-question survey collected both quantitative and qualitative data. The most helpful in understanding sexual

¹³ U.S. Army Public Health Center, "2020 Health of the Force", 2021, p.54.

behaviors and decision-making was the question about the use of condoms. The open-ended question about the reason not to use a condom, 37% of respondents rationalized that they do not need one while 31% indicated that they made a conscious decision not to use a condom (see Figure 42). The most common rational for not needing to use a condom was being married (48%) followed by a birth control use (21%). Among the respondents that did not want to use a condom, 56% named reduced sensation as the reason.¹⁴ The DPH/APHN could use these results to aim educational efforts and messaging at changing risky behaviors associated with STIs.

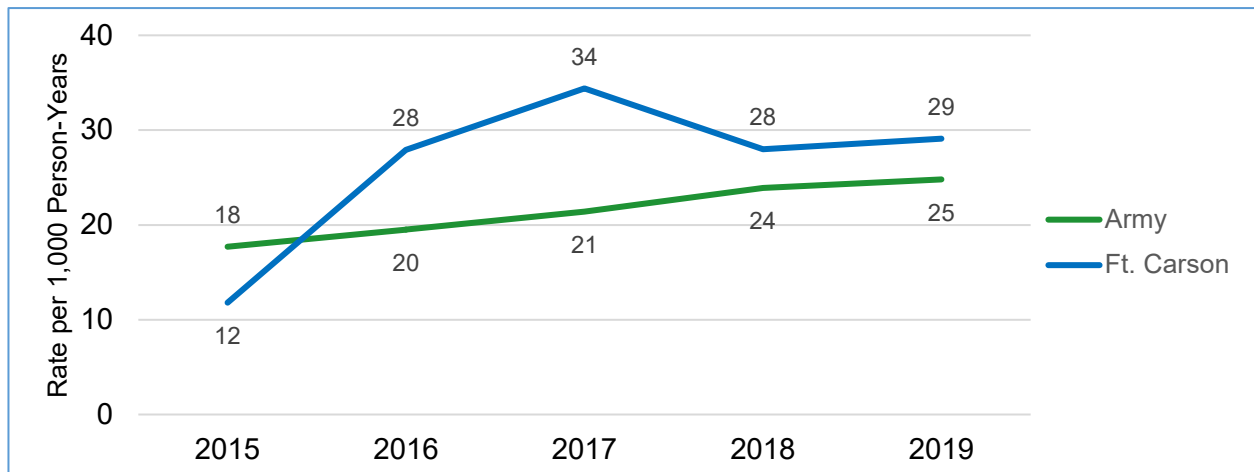


Figure 42. Trends in chlamydia infection incidence (crude values) among AC Soldiers during 2015-2019, crude values (Source: Health of the Force Online n.d.).

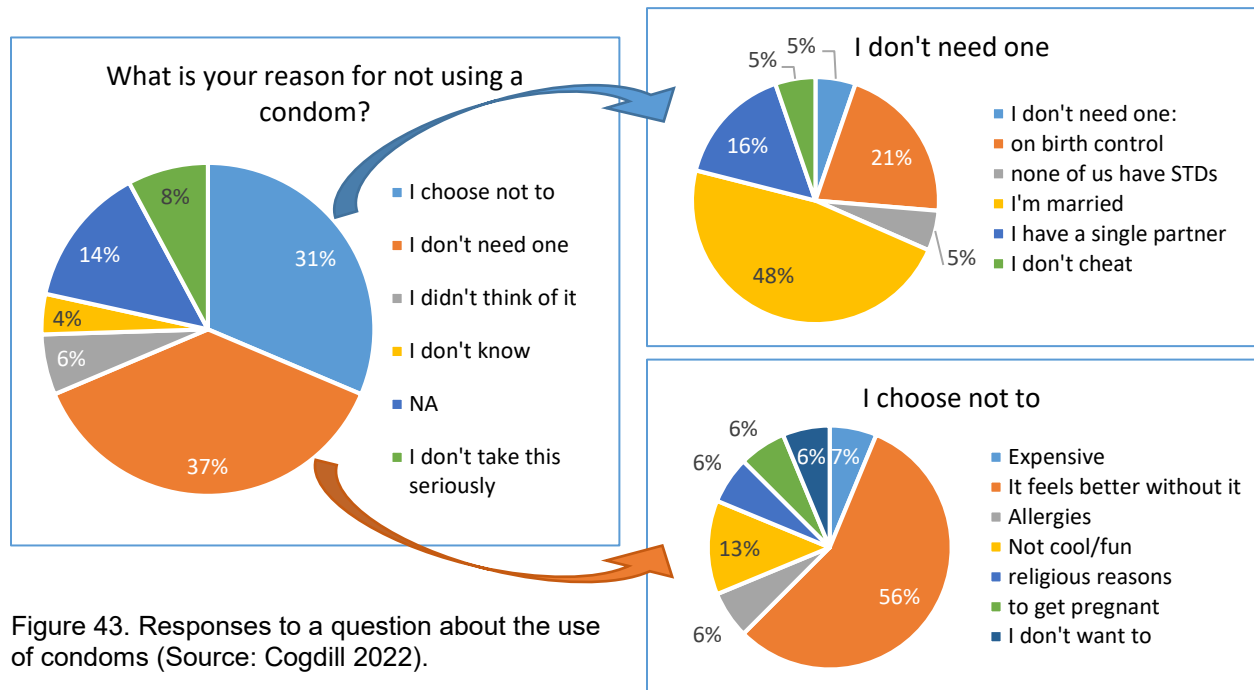


Figure 43. Responses to a question about the use of condoms (Source: Cogdill 2022).

¹⁴ Cogdill, S. (2022). Sexual Health Survey qualitative data. *Personal communication*.

Chronic Disease

Many chronic diseases can limit Soldiers' medical readiness. The chronic diseases assessed in *Health of the Force* include cardiovascular disease, hypertension, cancer, asthma, arthritis, chronic obstructive pulmonary disease (COPD), and diabetes. Each of these chronic diseases can be prevented and/or managed in part by adopting healthy lifestyle choices such as maintaining a healthy diet, exercising regularly, and avoiding tobacco use.¹⁵ The prevalence of chronic diseases was determined using specific diagnostic codes from inpatient and outpatient medical encounter records in the repository. Soldiers may have more than one chronic disease; however, the overall prevalence of chronic disease represents the proportion of AC Soldiers who have at least one of the chronic diseases assessed.

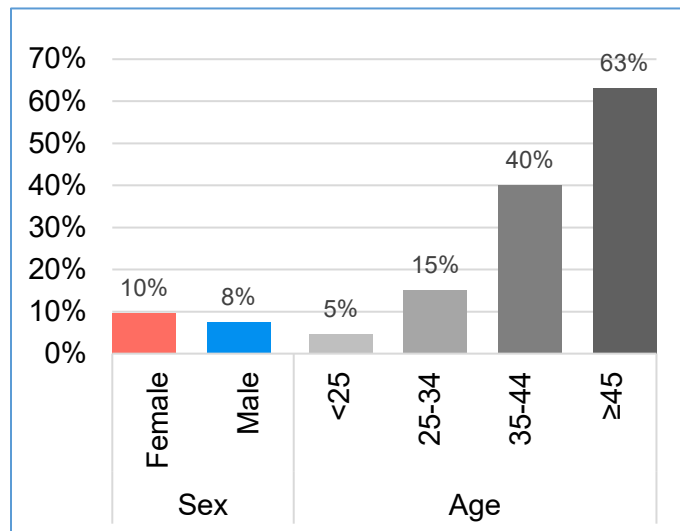


Figure 44. Average prevalence of chronic disease by sex and by age, AC Soldiers, Ft. Carson, 2015-2019 (Source: Health of the Force Online n.d.).

Fort Carson's 19% prevalence (population adjusted value) of chronic disease among AC Soldiers in 2019 was slightly above Army average of 18% for the same period (prevalence ranged from 12% to 35% across Army installations). The prevalence increased significantly with age (Figure 43) and was slightly greater among Black or African American Soldiers (Figure 44) and female Soldiers in all age categories (Figures 45). The prevalence of AC Soldiers with any diagnosed chronic disease has been decreasing slightly since 2015 (see Figure 46). The most prevalent diagnosed chronic disease was arthritis (5.7%), followed by cardiovascular disease (4.7%). Hypertension (high blood pressure) at 4.2%, although a contributor to cardiovascular disease, was analyzed separately to characterize its distinct burden.

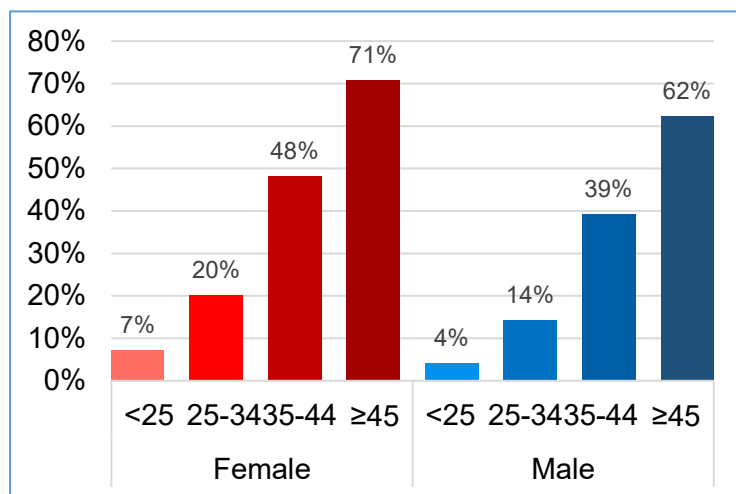


Figure 45. Average prevalence of chronic disease by sex and age, AC Soldiers, Ft. Carson, 2015-2019 (Source: Health of the Force Online n.d.).

¹⁵ U.S. Army Public Health Center, "2020 Health of the Force", 2021, p.58.

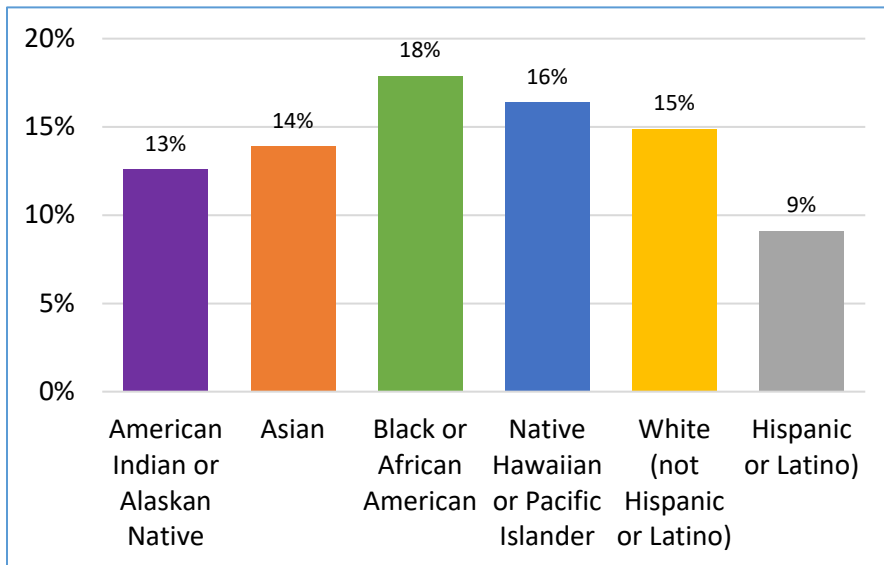


Figure 46. Average prevalence of chronic disease by race/ethnicity, AC Soldiers. Ft. Carson, 2015-2019 (Source: Health of the Force Online n.d.).

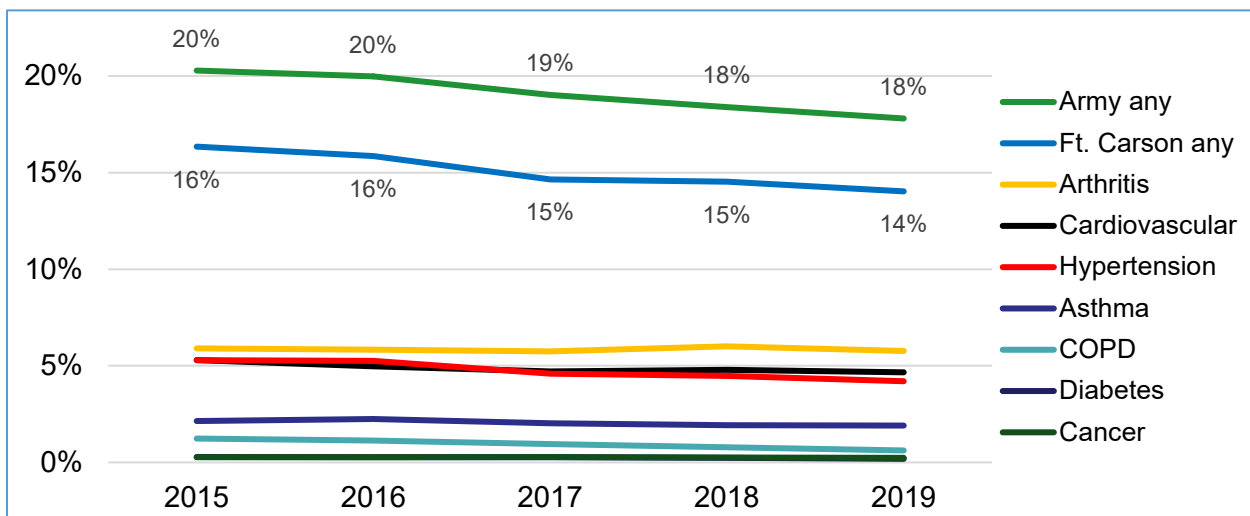


Figure 47. Trends in the prevalence of chronic disease (crude values) among AC Soldiers during 2015-2019 (Source: Health of the Force Online n.d.).

Health Behaviors

Sleep, activity, and nutrition (SAN), also known as the Performance Triad (P3), work together as the pillars of optimal physical, behavioral, and emotional health. Neglect of any single SAN domain can lead to suboptimal performance and, in some cases, injury. The Azimuth Check, previously known as the Global Assessment Tool (GAT), is a survey designed to assess an individual's SAN behaviors, among other domains. Soldiers are required to complete the Azimuth Check annually per Army Regulation 350-53, Comprehensive Soldier and Family Fitness. The data presented here summarize the proportions of Fort Carson Soldiers who met SAN targets based on data reported in the 2019 Azimuth Check. Overall, Fort Carson Soldiers in 2019 came short from meeting all P3 targets at a rate comparable to the Army average numbers.

Overwhelming majority (~87%) of Soldiers met the activity goals, followed by ~50% compliance with the sleep targets and 35% for nutritional recommendations.

The CDC and the National Sleep Foundation both recommend adults attain 7 or more hours of sleep per night. On the Azimuth Check, Soldiers report the average approximate hours of sleep they attain within a 24-hour period, during work/duty weeks and weekends/days off. Overall, Fort Carson Soldiers slightly underperformed in meeting the sleep targets compared to Army average. During work/duty weeks, only 36% of Fort Carson Soldiers reported obtaining 7 or more hours of sleep against Army average of 37% (see Figure 47). During weekends/days off, the majority of Fort Carson Soldiers (68%) reported obtaining 7 or more hours of sleep compared to 70% average across Army installations. Female Soldiers slightly outperformed their male comrades by 1-3% in meeting both sleep targets (see Figure 48).

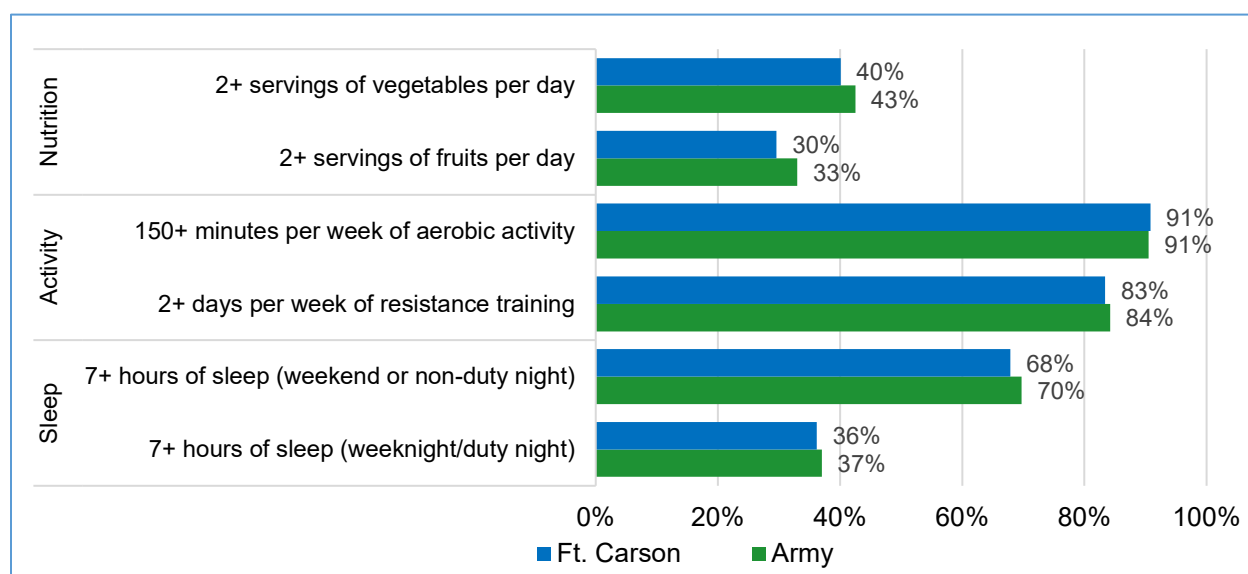


Figure 48. Comparison of P3 measures between Ft. Carson Soldiers and Army average in 2019 (Source: Health of the Force Online n.d.).

The CDC recommends two physical activity targets. The first is attaining 2 or more days per week of resistance training. The second is attaining adequate aerobic activity. The amount of activity can be attained in one of three ways:

- 150 minutes a week of moderate-intensity aerobic activity, or
- 75 minutes a week of vigorous-intensity aerobic activity, or
- an equivalent combination of moderate- and vigorous-intensity aerobic activity.

The majority of Fort Carson Soldiers met the activity targets and were on par with average numbers across Army installations. The majority of Soldiers (83%) engaged in resistance training 2 or more days per week while 91% achieved adequate moderate/vigorous aerobic activity targets. Unlike with sleep targets, 3-5% more male Soldiers met the activity targets than female Soldiers.

The nutrition targets used for the purposes of this report were informed using recommendations provided by the U.S. Department of Agriculture two or more servings

of fruits and two or more servings of vegetables per day. On the Azimuth Check, Soldiers report the approximate servings of fruits and vegetables they consumed during the past 30 days. In general, Fort Carson Soldiers came 2-3% behind the Army average levels on meeting nutrition targets. Only 30% met the fruit consumption target and 40% consumed recommended amount of vegetables. A greater proportion of females relative to males reported eating two or more servings of fruits and vegetables per day.

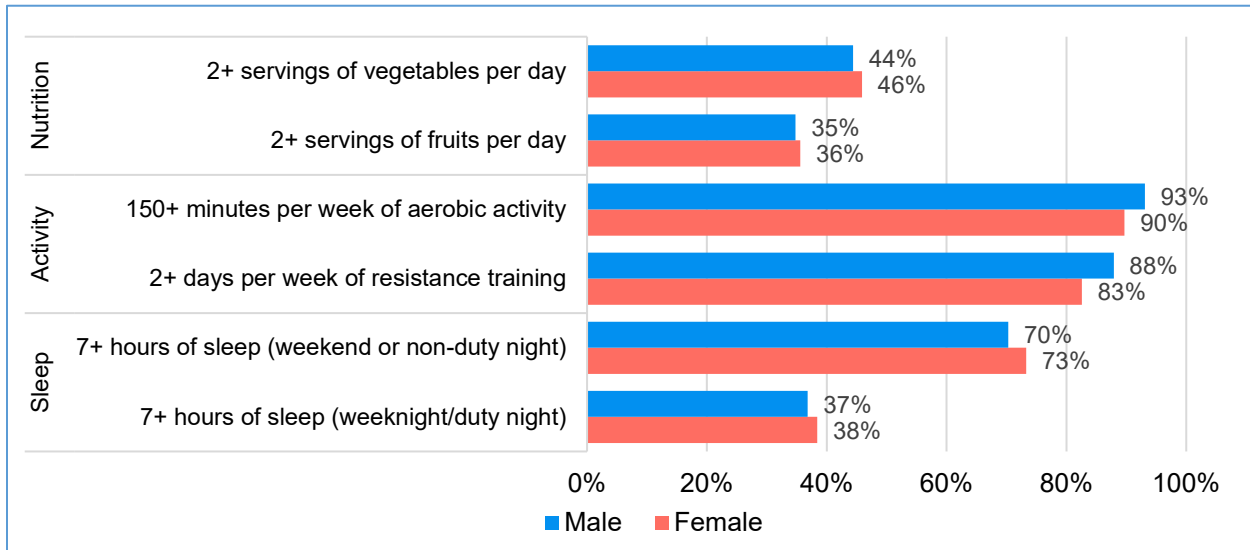


Figure 49. Comparison of P3 measures between male and female Soldiers on Ft. Carson in 2019 (Source: Health of the Force Online n.d.).

The analysis of P3 measures by age category did not yield any significant discoveries (see Figure 49).

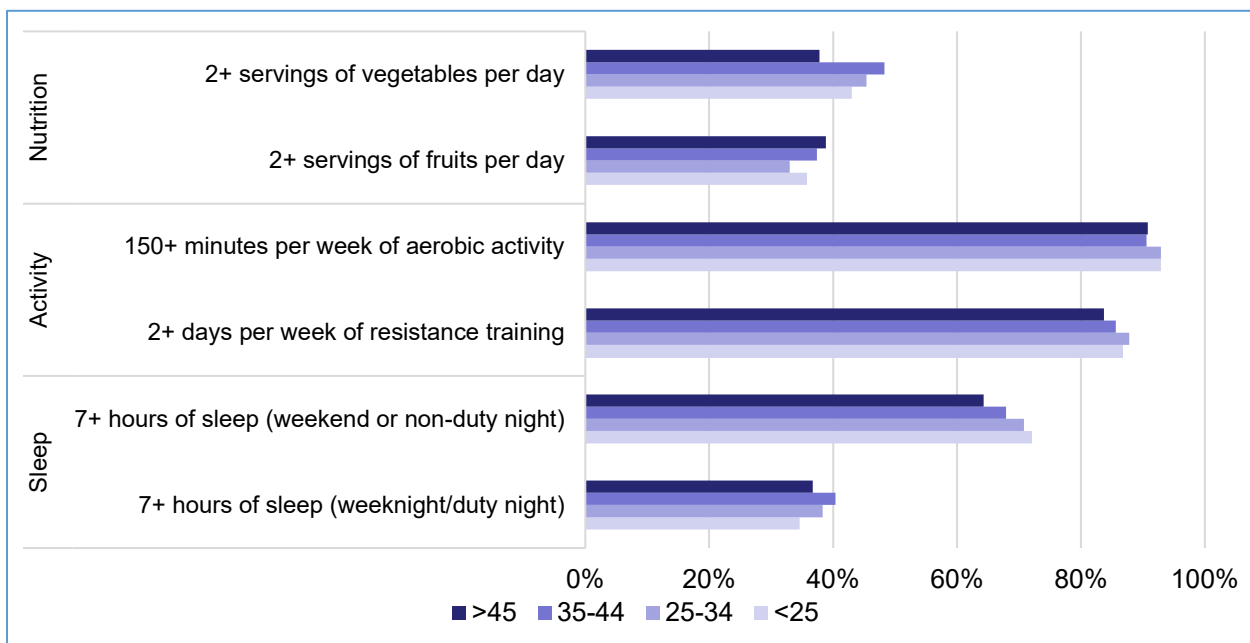


Figure 50. P3 measures by age category, AC Soldiers, Ft. Carson, 2019 (Source: Health of the Force Online n.d.).

Community Strength and Themes Assessment (CSTA)

- What is important to our community?
- How is quality of life perceived in our community?
- What assets do we have that can be used to improve community health?

Summary

The CSTA is one of the tools that can guide communities in their public health efforts. Assessing public perceptions is useful to determine if community's subjective view of its health and wellness are consistent with available objective data. It can also create buy-in and engagement with public to generate initiatives. Considering individuals' perceptions about their community can often uncover hidden issues that sometime go undetected with existing administrative data sources that either lag or do not collect information necessary to identify community health issues in real time.

The findings of 2021 Ft. Carson Community Survey (conducted in lieu of CSTA; see Limitations section) aligned with the data reported in 2020 Health of the Force in many respects. The objective data from the report showing Fort Carson rates exceeding Army average numbers for chlamydia, chronic disease, and tobacco product use were echoed by community perceptions in the survey: top five physical health concerns included tobacco use/vaping, high blood pressure, and sexually transmitted infections. Alcohol and drug abuse – the top behavioral and emotional risk factor according to the community feedback – matched the reported above average substance use disorder metric in the Health of the Force report. A substantial proportion of Fort Carson Soldiers fell short of meeting P3 Nutrition target according to the report, which coincided with the community's perception of poor diet being the second top physical health concern.

There were, nevertheless, several disagreements between objective data in the report and perceptions among community members. Despite reporting one of the lowest rates of injuries and obesity among Soldiers across all Army installations, Fort Carson community ranked injuries and overweight/obesity in the top five physical health concerns. The difference could potentially be explained with the lower rates among Active Duty service members but a higher prevalence among other members of the community i.e. Retirees and family members. Alternatively, what was a lesser issue according to the report using 2019 data, was perceived as a bigger concern two years later during the survey at the end of 2021. Regardless, repeated answers in different questions further reinforced the validity of these concerns and perceptions in the community. When asked to choose activities that the installation needs, weight loss and nutritional classes were among more frequently selected options. Despite reportedly low prevalence numbers, these public health concerns also deserve attention because they are important to community members.

The community survey uncovered perceptions of health needs that were otherwise hard to capture or measure with existing objective data collection tools. It appears that Fort Carson community experienced a substantial amount of stress in 2021. In their top behavioral or emotional concerns, respondents identified depression, anger, anxiety, stress, and toxic leadership with the latter ranking as the second top risk factor. Another potential contributor to stress were financial issues, which were identified as the top social or economic concern. Community members signaled again that they need help with this emotional pressure by choosing stress management as the top choice for recommended activity the installation needs to address the health of the community.

Financial hardship has potentially contributed to another community health issue discovered during this survey – food insecurity. Seventeen percent (17%) of Fort Carson community survey respondents reported having difficulty providing enough food for their family, overwhelming majority of which were lower income service members with families. In the question, the DPH personnel used a “in the past 30 days” stipulation in attempt to reduce the effects of potential food insecurity linked to relocation to a new duty station (PCS). PCS-associated financial hardship exacerbated by delayed travel expense reimbursement and sometimes coupled with extended stays in hotels while waiting for housing – all these factors are potential contributors to temporary food insecurity reported by many families seeking assistance from Army Community Service¹⁶. The 30-day stipulation in the survey conducted in October-November meant to reduce the interference of potential food insecurity incidence during summer PCS season. Therefore, we believe that the 17% from the community survey is a good estimate of enduring food insecurity among Fort Carson community members.

The two LGBTQIA+-related questions added to the survey were the DPH personnel’s first attempt to assess the size and needs of this particular group of Fort Carson community members. Eighteen percent (18%) of respondents affiliated themselves or a family member as a member of LGBTQIA+. Although some respondents offered their views of what population-specific services were lacking on Fort Carson, the answers were too few and too short to understand fully the needs of this group of community members. The DPH personnel recommends additional steps to assess further the needs of this population.

Looking at community health through the lens of both objective data and perceptions provided DPH personnel with a foundation to construct interventions that address both perception and trends simultaneously. While objective data sources identified trends in community health risks, they lacked the depth of context and the human experience. Understanding community perceptions allowed framing the operational environment and informing decisions of prioritization and policies for Public Health professionals and installation leadership.¹⁷

¹⁶ **There are no sources in the current document.**

¹⁷ **There are no sources in the current document.**

Limitations

The CSTA is designed to provide a deeper understanding of the issues that relate to community members' perceptions of quality of life, health, safety, and satisfaction within the environment of an Army installation. In lieu of CSTA, the DPH personnel conducted a community health survey. A typical CSTA is a three-month long survey collecting the input from Active Duty service members and Retirees and their family members as well as DA Civilians. The assessment follows a standard 36-question mixed methods survey administered by the U.S. Army Public Health Center upon request from an installation leadership. Fort Carson's last CSTA was conducted in 2016 and the installation leaders did not plan to conduct a new assessment in 2021-22. In order to compensate for the lack of CSTA data in this CHA report, the DPH personnel conducted a community health survey – a locally produced, shorter version of CSTA conducted over a 7-week period. The survey focused on four out of five domains found in a typical CSTA, plus two additional areas of concern: LGBTQIA+ needs and tobacco use. To avert potential confusion with the Community Health Assessment (CHA), and at the same time to highlight the deviation from a standard CTSA, authors refer to this assessment as "Community Survey".

The DPH personnel conducted the Fort Carson 2021 Community Survey from 07 OCT to 22 NOV 2021. The survey contained 23 questions to capture community member perceptions on quality of life, health, safety, and satisfaction within the environment of their military installation in a quantitative manner. The survey instrument aimed to identify the top concerns for physical health, behavioral/emotional health, social/environmental health, and family wellness from the perspective of community members. Respondents were able to choose up to 3-5 concerns per question. In addition, the survey captured participants' demographics and awareness of programs and services that support community needs at Fort Carson. A total of 121 individuals participated in the survey. Despite the small sample size, the DPH made several key discoveries and drew conclusions that assisted in selecting CHIP priorities.

Physical Health

The top five physical health concerns expressed by respondents were injuries, poor diet, tobacco use, high blood pressure, and three concerns that scored equally: work related hazards, sexually transmitted infections, and overweight/obesity (see Figure 50). Interestingly, these concerns coincided with the findings in the Army's CSTA report for 2019. Four of the concerns identified by Fort Carson community members were also in the top five concerns by all respondent across the Army: poor diet, lack of fitness, overweight/obesity, injuries, and tobacco use¹⁸.

¹⁸ There are no sources in the current document.

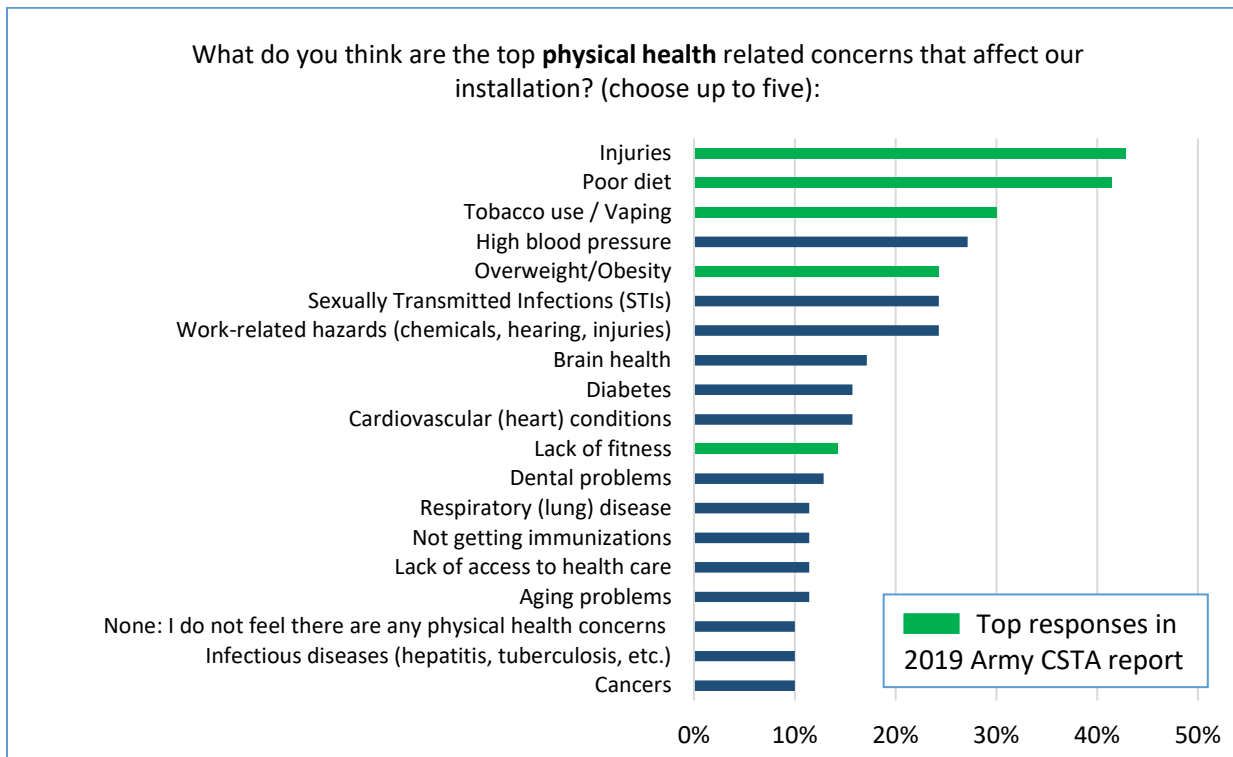


Figure 51. Community's physical health concerns.

Respondents indicated a need for additional stress management, healthy sleeping strategies, and weight loss programs on the installation to improve their physical health (see Figure 51). Majority of respondents perceived the people on Fort Carson to be either very healthy (62%) or somewhat healthy (10%) (see Figure 52). Only, 6% of the respondents viewed the community as very unhealthy, while another 23% saw Fort Carson members as being somewhat unhealthy. These perceptions very closely resemble views of all respondents in the 2019 Army-wide survey.

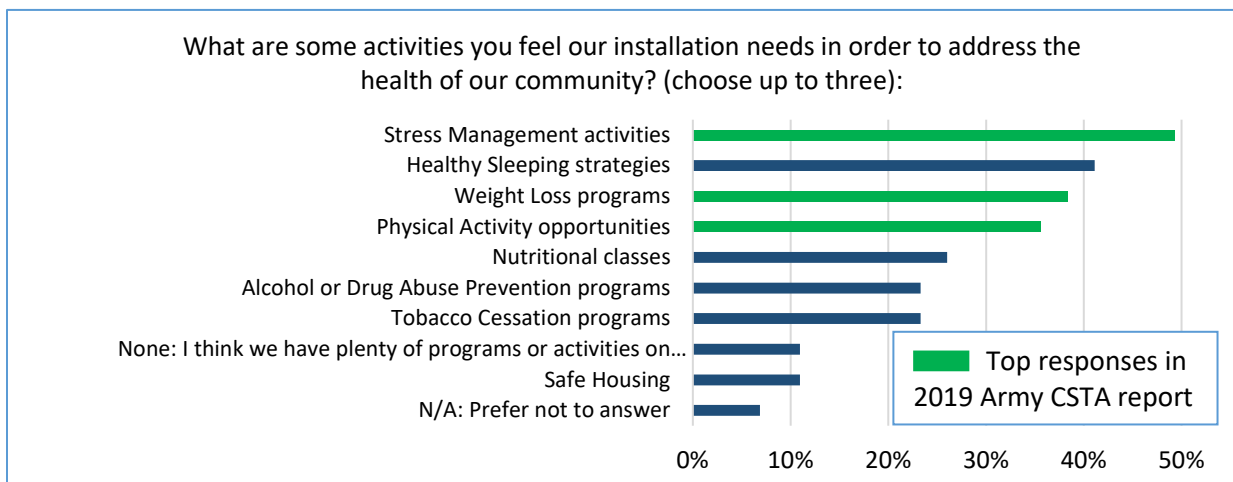


Figure 52. Physical health needs of the community.

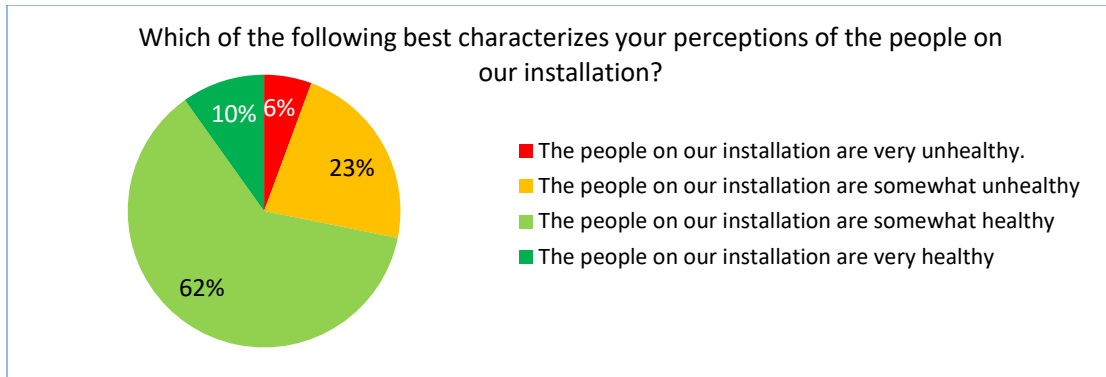


Figure 53. Respondents' perceptions about the health of the community members.

Behavioral and Emotional Health

The top five behavioral and emotional health concerns across all respondents were alcohol/drug abuse, depression, toxic leadership, anxiety, and anger. Again, four out of five concerns identified by Fort Carson community members were also in the top five concerns of all respondent in the Army CSTA in 2019 (see Figure 53).

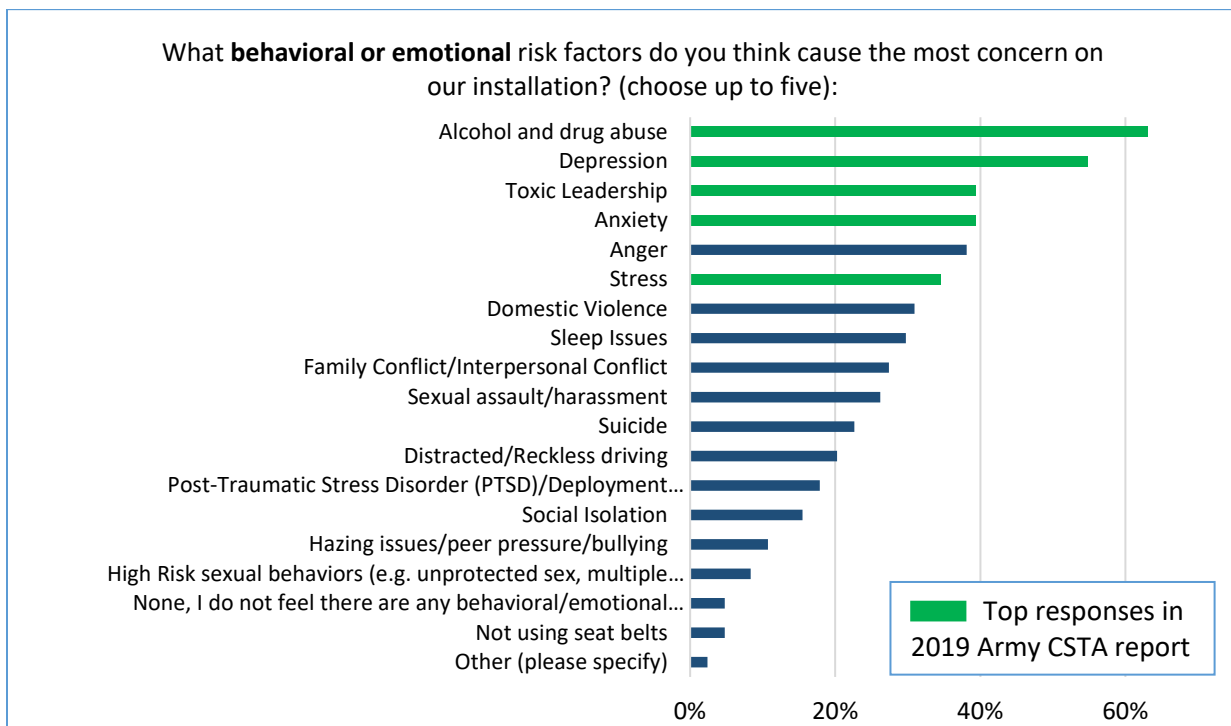


Figure 54. Behavioral and emotional health concerns.

More respondents believed that seeking help for behavioral health concerns would damage their career than otherwise (see Figure 54). Twenty-two percent (22%) of respondents perceived that it would somewhat likely and sixteen (16%) indicating it would very likely negatively affect their career. Twenty-seven (27%) had a neutral position on this matter. Forty-two percent (43%) of community members indicated they

would be somewhat likely or very likely to seek help on the installation if they were experiencing a life challenge (see Figure 55).

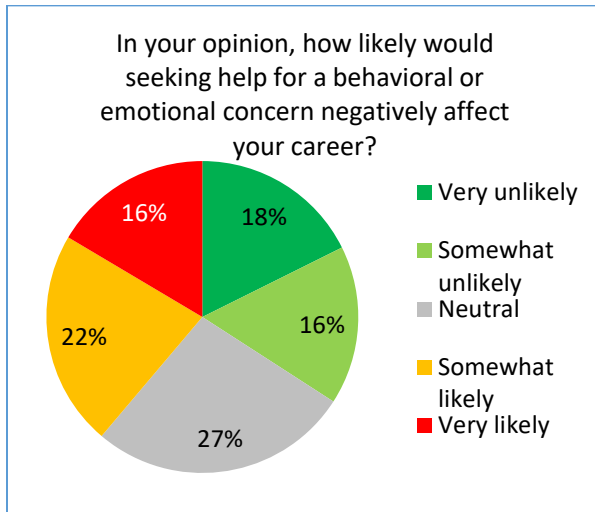


Figure 55. Stigma about seeking BH help.

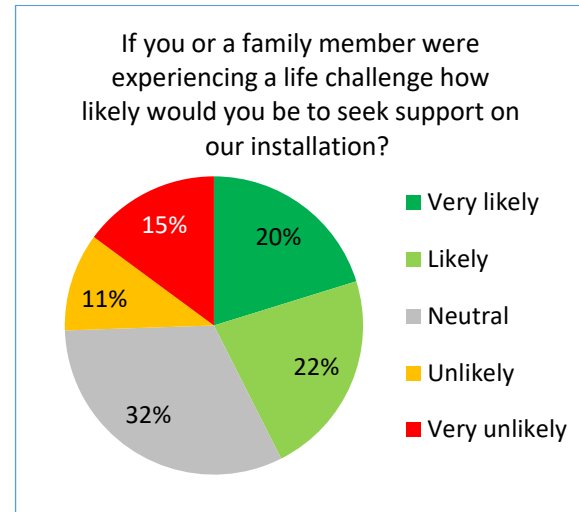


Figure 56. Seeking support on installation.

Social and Environmental Health

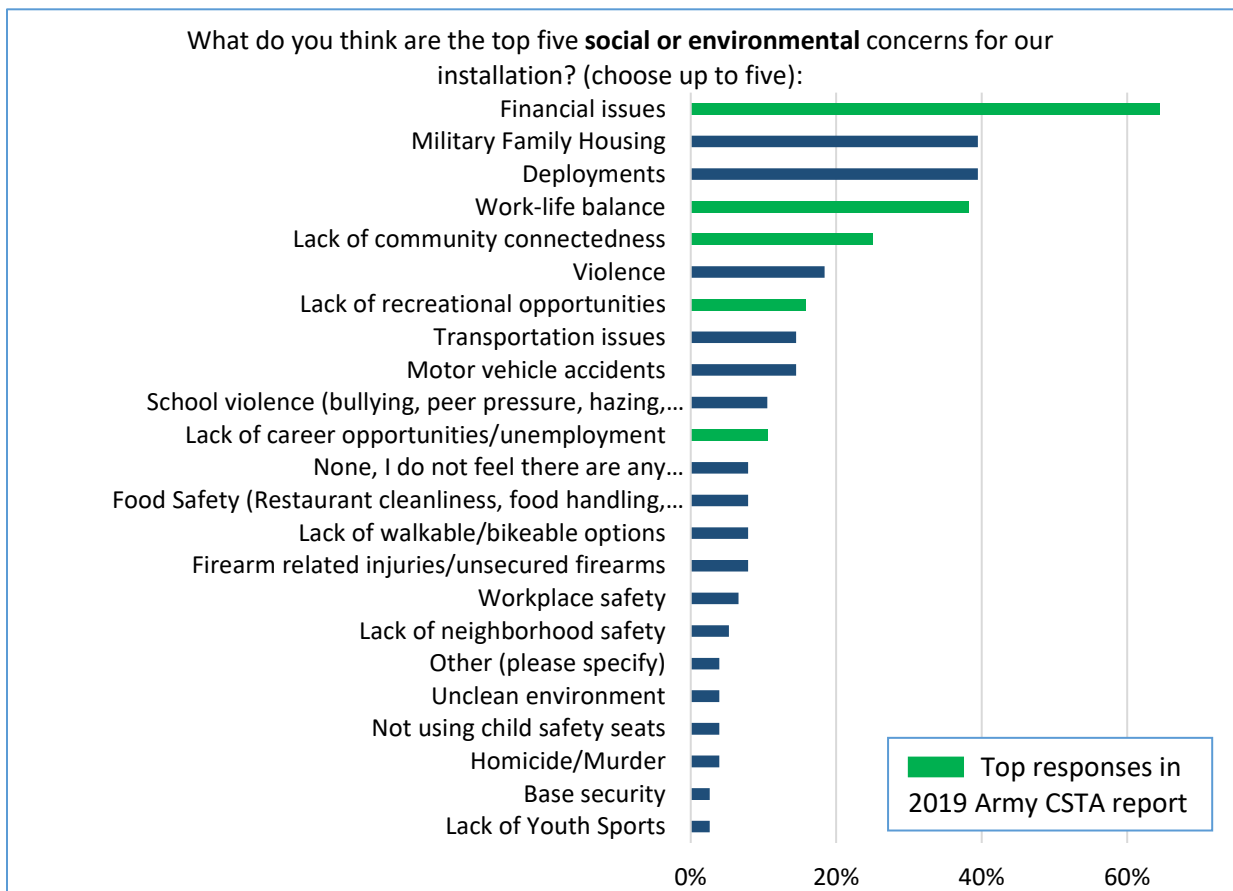


Figure 57. Social and environmental concerns.

The top five social and environmental health concerns for Community Survey respondents were financial issues, military family housing, deployments, work-life imbalance, and lack of community connectedness (see Figure 56). Financial issues was by far the most commonly selected concern – 64% of respondents. Lack of career opportunities/unemployment did not appear to be as much of a concern for Fort Carson community members in 2021 as it was in 2019 for respondents in the Army-wide survey where it scored in the top five concerns. The respondents on Fort Carson named community diversity, access to sports and recreational activities, clean environment, better opportunities for single Soldiers, and a good place to raise children to be the top five strengths of the installation (see Figure 57). Safe neighborhoods was not as often selected strength (22nd place) by Fort Carson respondents as it was in 2019 Army-wide survey where it ranked in the 4th place.

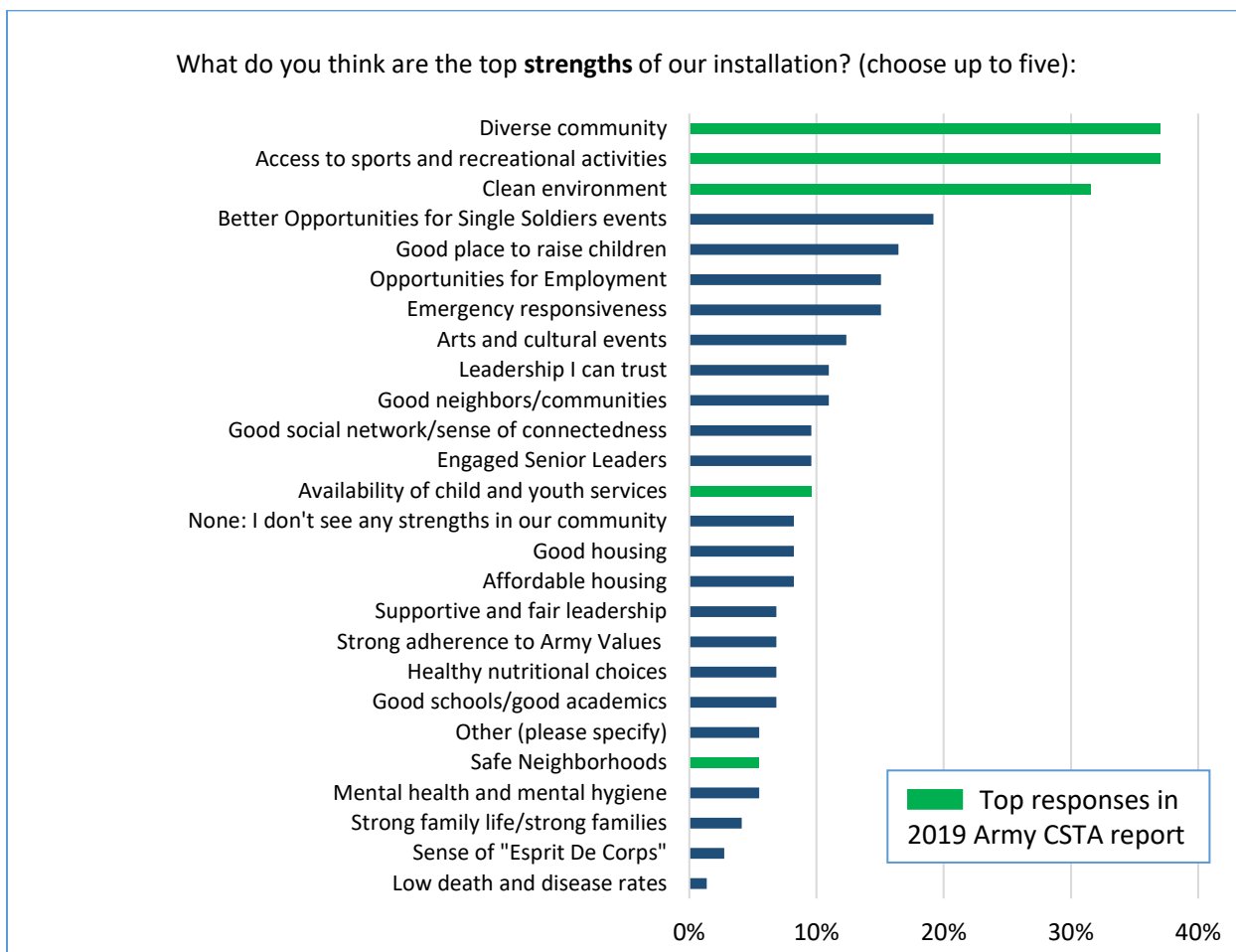


Figure 58. Respondents' perceptions about the strengths of Fort Carson installation.

Family Health

The top five family health concerns for all respondents were the following: financial issues, domestic violence, family separation due to deployments/training/TDY, child abuse/neglect, and lack of work-life balance (see Figure 58). When asked about concerns related to sending children to on-post childcare centers, the respondents most often selected exposure to communicable diseases (69%) in their top three concerns (see Figure 59).

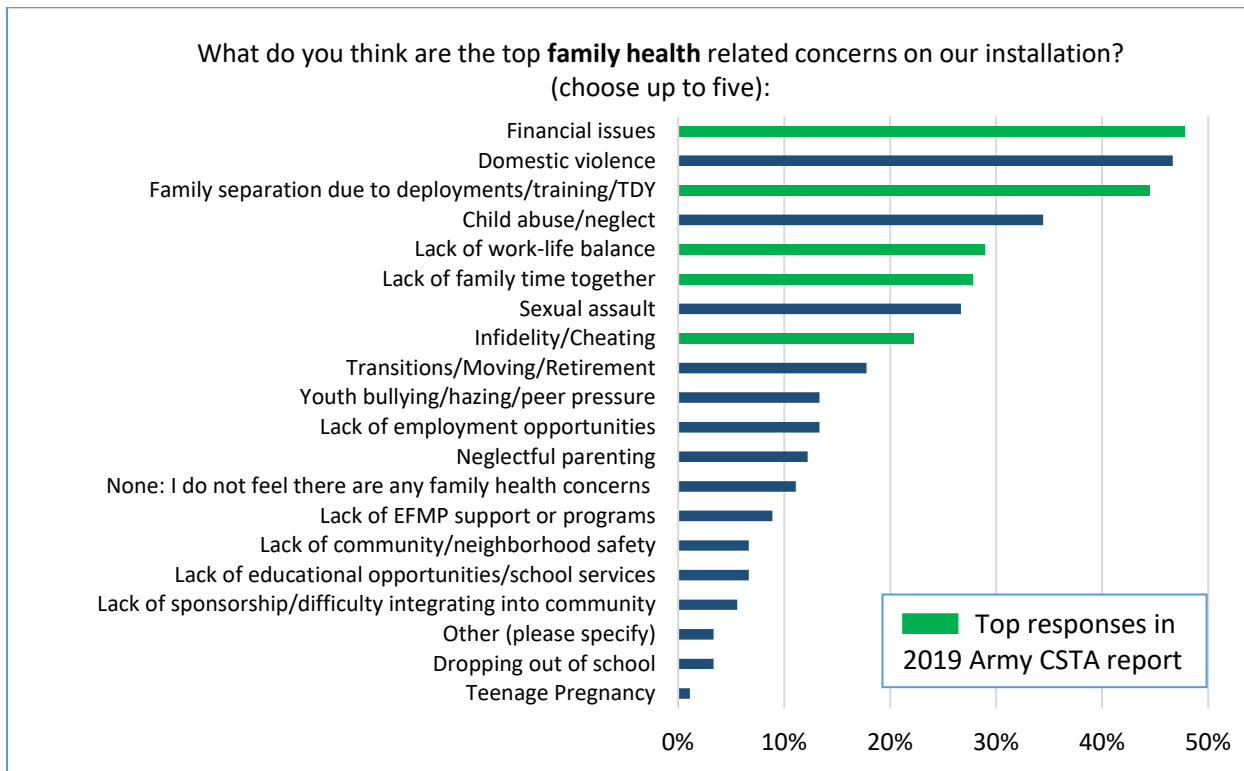


Figure 59. Family health related concerns.

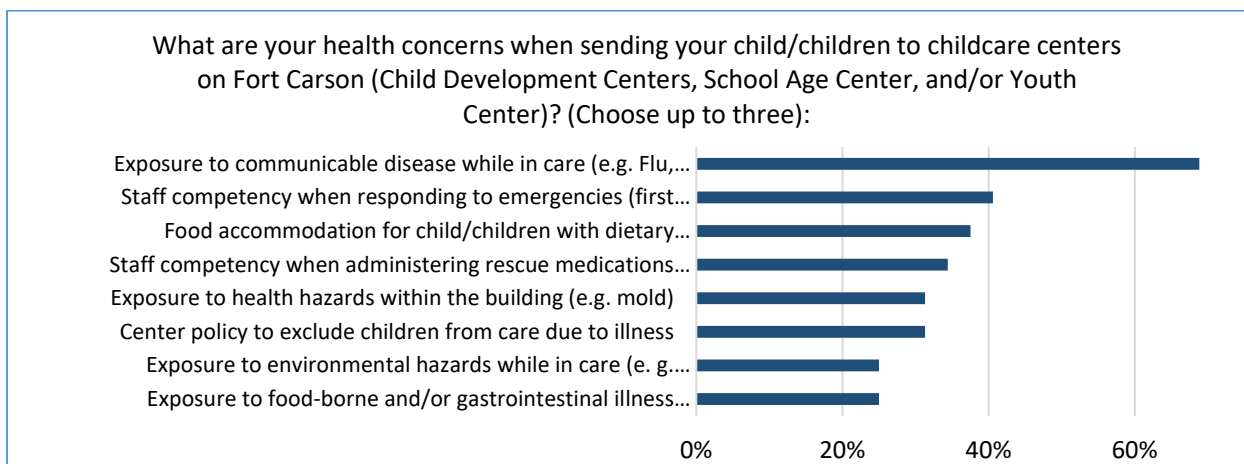


Figure 60. Community's concerns related to Child Development Centers.

Seventeen percent (17%) of Fort Carson community survey respondents reported having difficulty providing enough food for their family (see Figure 60), which was an unsettling discovery warranting further examination. Reaching out to Army Community Service (ACS) and Army Emergency Relief (AER) programs revealed that service members with food insecurity receive assistance from the Warriors Warehouse – a non-profit organization helping military families in need. According to their data, in 2019-2021, 93% of food assistance recipients were junior enlisted members in the rank of E1 to E5 with families¹⁹, which was consistent with national statistics that families with lower income are more susceptible to food insecurity.

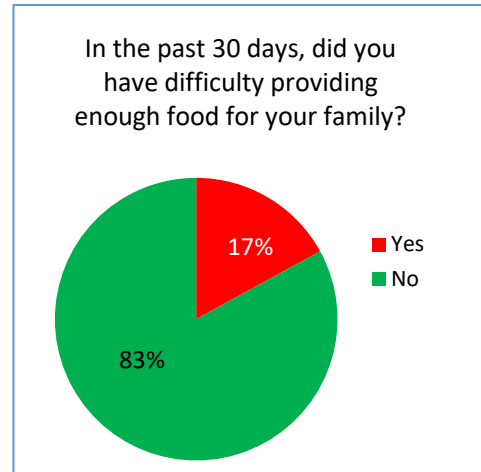


Figure 61. Food insecurity among survey respondents.

Programs and Services

Thirty-seven percent (37%) of respondents indicated they were unaware of programs and services offered on Fort Carson (see Figure 61). Twenty-five percent (25%) indicated that one of the reasons why they don't use programs and services on installation was bad experience using these services on the previous installation.

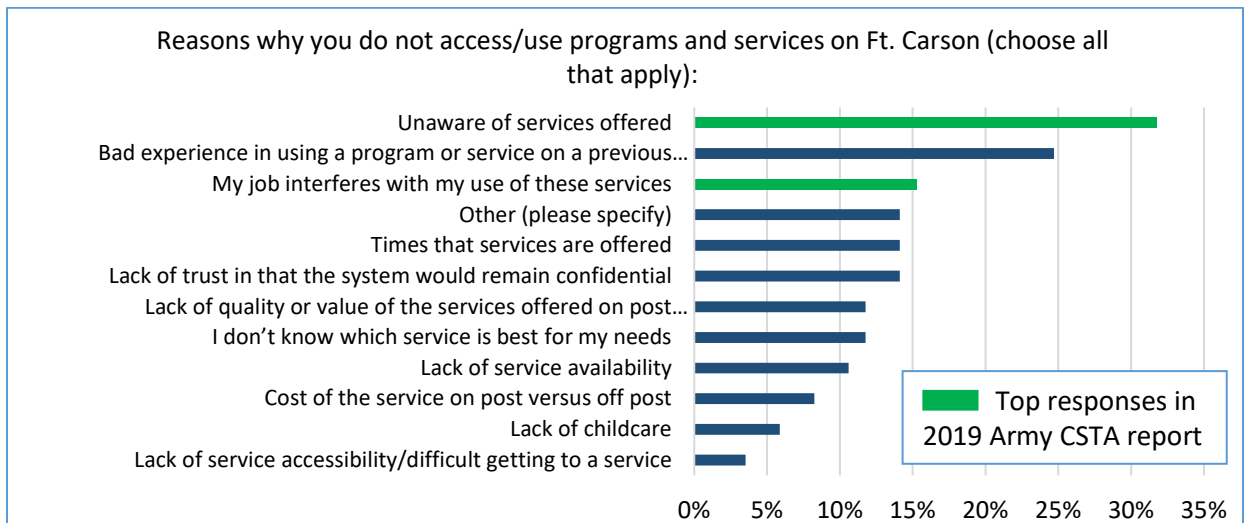
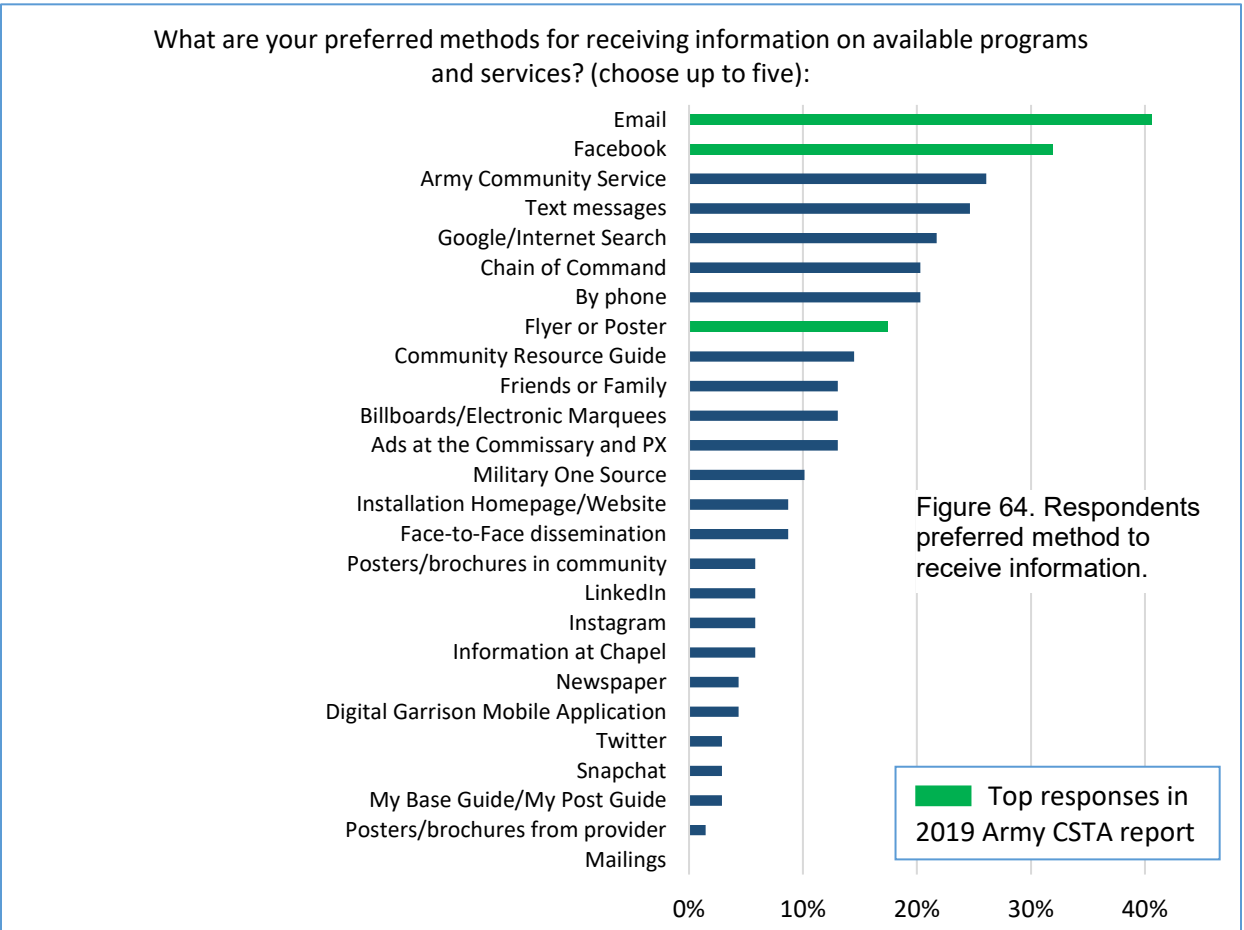
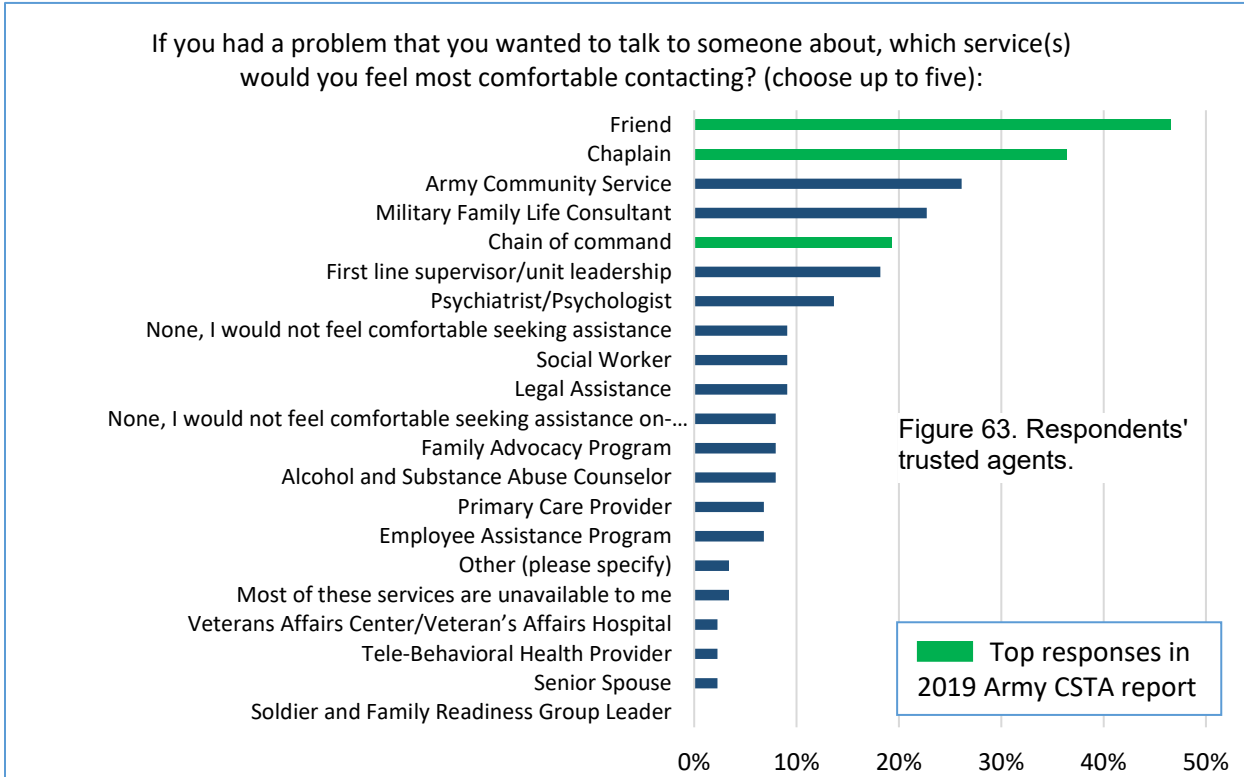


Figure 62. Perceptions about programs and services offered on Fort Carson.

Overwhelmingly, respondents indicated they would contact a friend (38%) if they had a problem they needed to discuss (see Figure 62). Chaplains were also trusted agents followed by the Army Community Service. Respondents preferred method to receive information was via directed email (40%) or Facebook (32%) (see Figure 63).

¹⁹ Swanson, D. (2022). FCPH Military Food Insecurity. *Personal communication*.



Specific to Public Health programs and services, the Fort Carson Army Wellness Center was the most popular among respondents (see Figure 64). When asked to rate their satisfaction with services offered by DPH, 58% rated favorably and 10% indicated that the services were below average (see Figure 65).

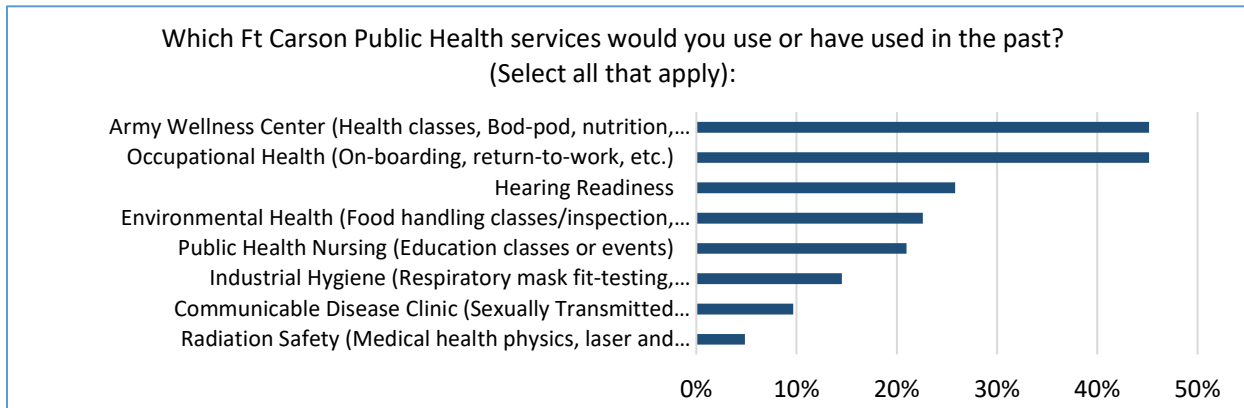


Figure 65. Popularity of Public Health programs and services

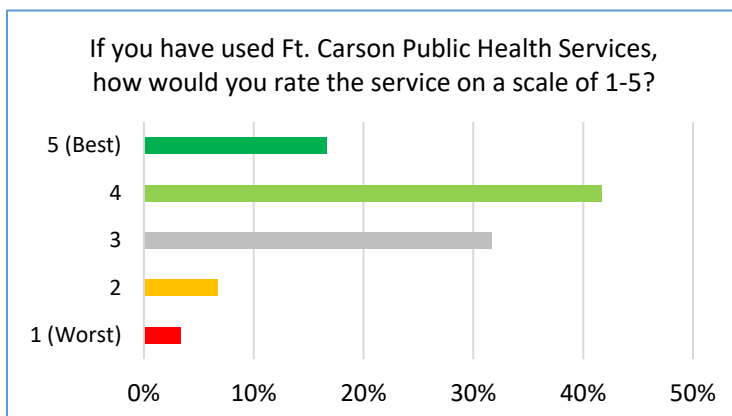


Figure 66. Participants' rating of PH services.

LGBTQIA+ Needs

The two LGBTQIA+-related questions added to the survey were the DPH personnel's first attempt to assess the size and needs of this particular group of Fort Carson community members. Eighteen percent (18%) of respondents affiliated themselves or a family member as a member of LGBTQIA+ (see Figure 66). Although some respondents offered their views of what population-specific services were lacking on Fort Carson (see Figure 67), their explanations were too few and too short to understand fully the needs of this group of community members (see Table 4). The DPH personnel recommends additional steps to assess further the needs of this population.

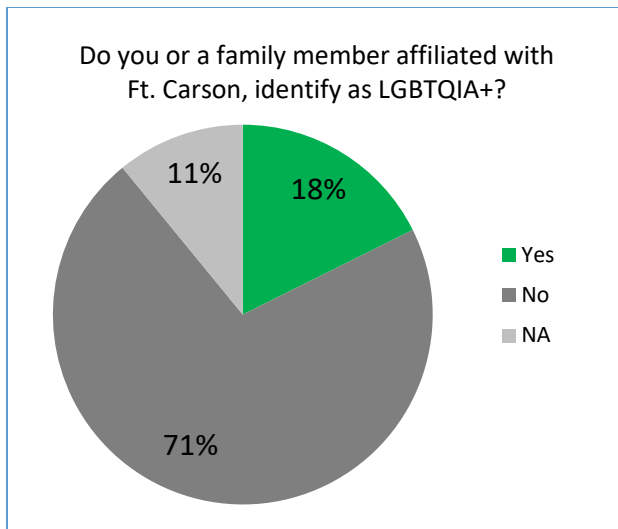


Figure 67. LGBT affiliation among respondents.

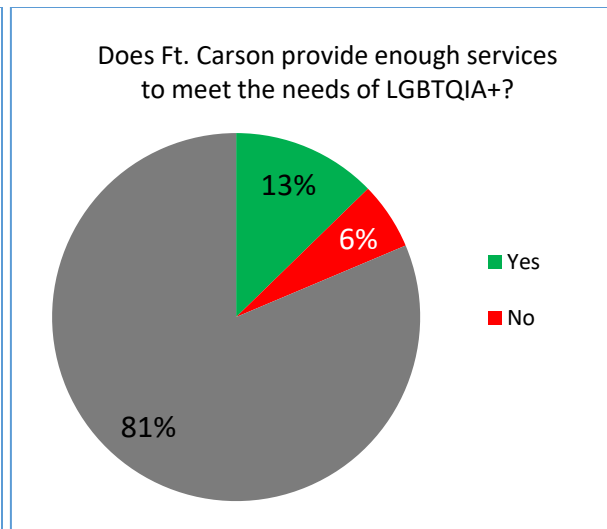


Figure 68. LGBT needs among respondents.

Table 4. Participants' responses on what LGBT services were lacking on Fort Carson.

<i>If No, please specify services that are lacking</i>
No resources, never any support, no recognition during Pride month by any organization, EO or ACS
I'm not aware of any services
Stop the virtue signaling. This is why our adversaries don't respect us. Focus on the battles not sexuality or race. This is detracting from our mission. The government shouldn't be focusing on this.
Support groups are needed
Inclusiveness training
support groups
Group meeting

Tobacco Use

The questions related to tobacco use, 30% of respondents on Fort Carson indicated that they use some tobacco products (see Figure 69), which is very close to the crude 28% prevalence reported in HoF 2020 report. Among the tobacco users, the number of smokers and e-cigarette users were equal, indicating that we should probably exert equal effort in addressing both behaviors (see Figure 68).

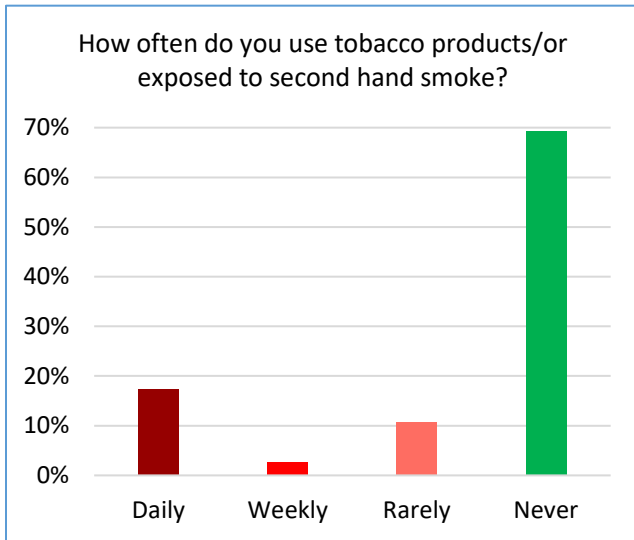


Figure 70. Tobacco product use or exposure among respondents

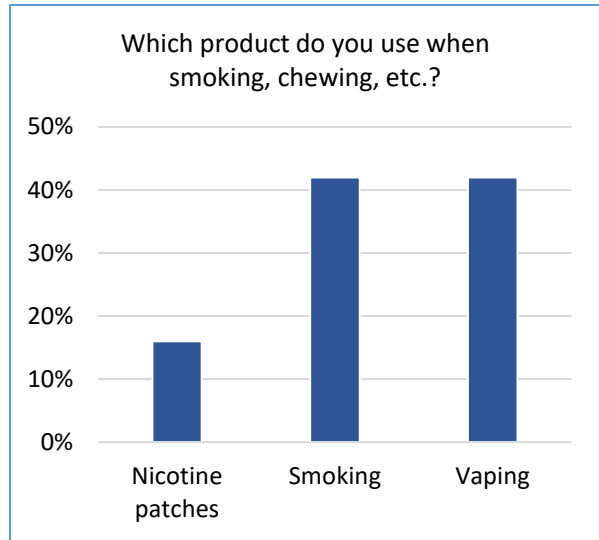


Figure 69. Prevalence of tobacco use by product type.

Demographic Data

Figures 70-75 show the demographics data of survey respondents. Despite small sample size, it appears that the survey sample was representative of Fort Carson community in terms of gender, age, and marital status. Review of race/ethnicity, affiliation/grade, and spatial distribution by zip code did not reveal any abnormalities.

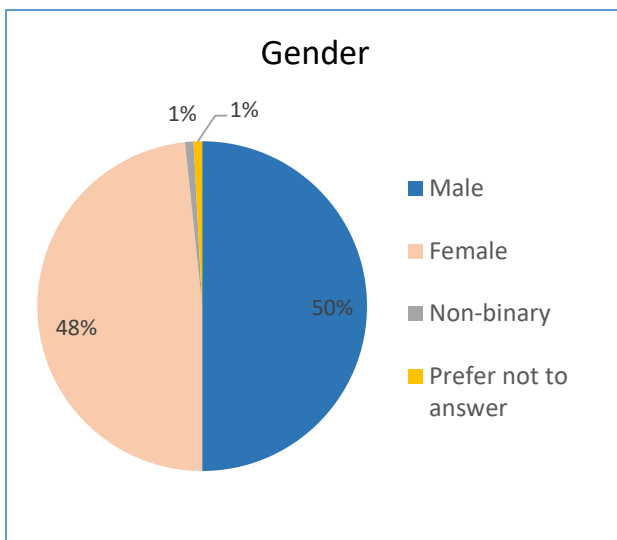


Figure 71. Gender distribution among respondents.

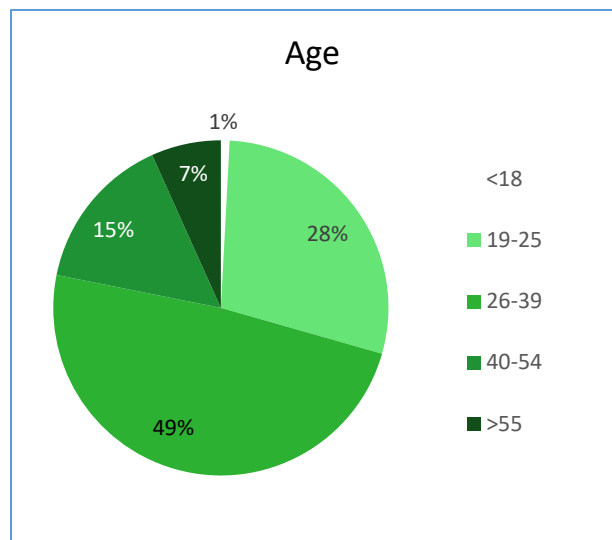


Figure 72. Age distribution among respondents.

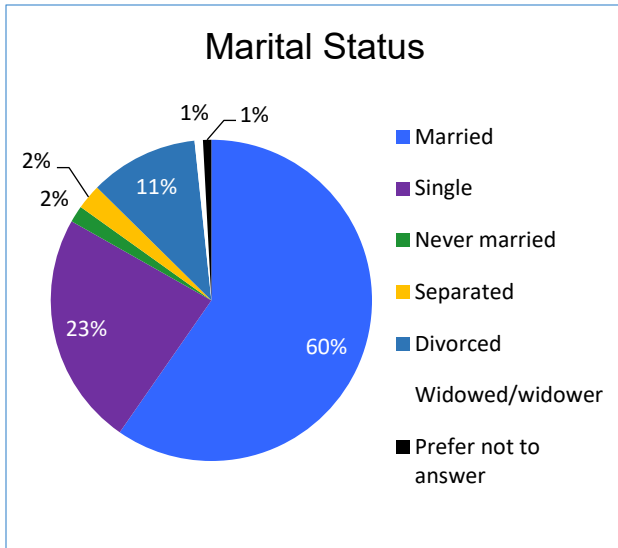


Figure 74. Respondents' marital status.

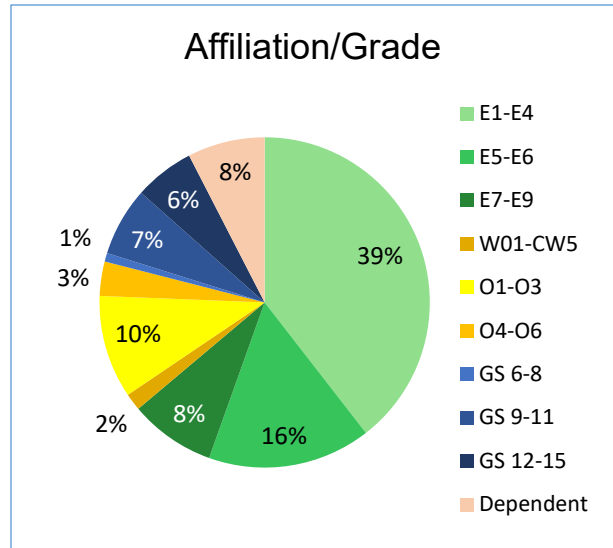


Figure 73. Respondents' affiliation and/or grade.

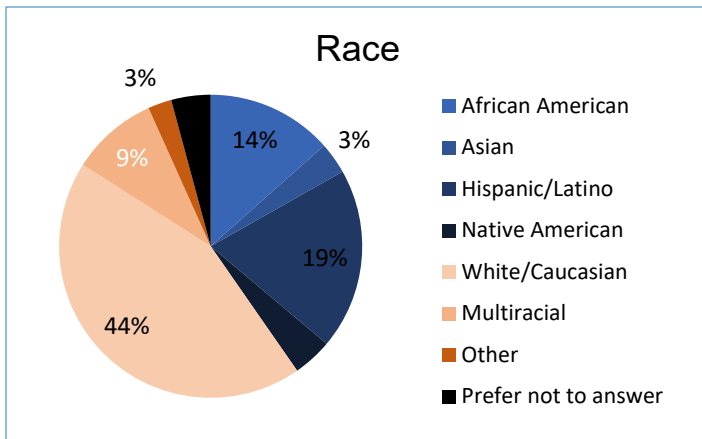


Figure 75. Race/ethnicity distribution among respondents.

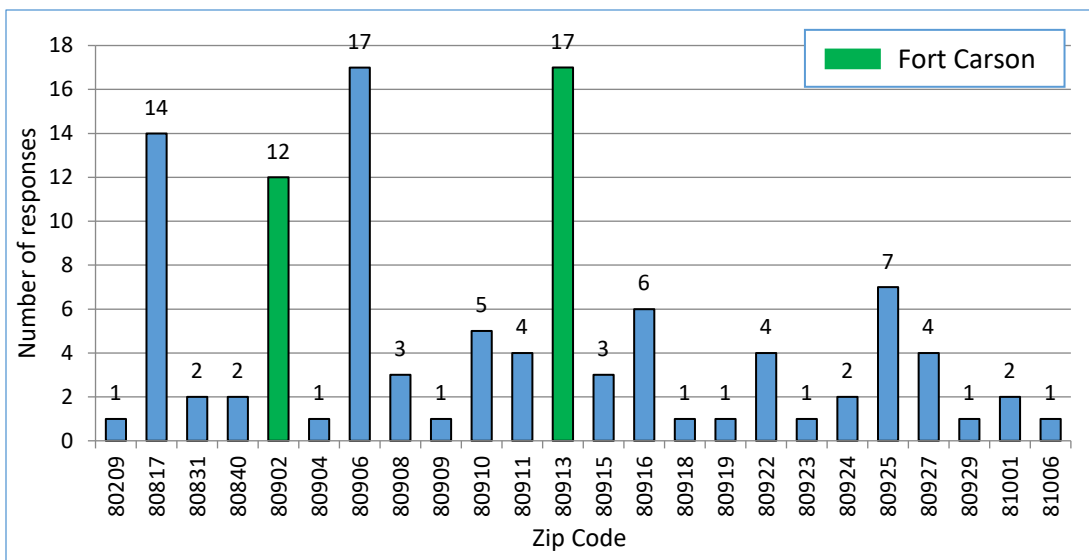


Figure 76. Respondents' zip code of residence.

Local Public Health System Assessment (LPHSA)

- What are the components, activities, competencies, and capacities?
- How are the 10 Essential Public Health Services being provided to our community?

Summary

In May 2022, the DPH gathered its staff and partners to conduct an **LPHSA**. Over a two-day period, the team learned about the 10 Essential Services (ES) and assessed the local public health system's (LPHS) performance in services fulfillment. The DPH utilized the National Public Health Performance Standards Program local instrument version 3.0 to conduct and record the results. The DPH produced the LPHSA as a standalone, 61-page report that can be requested by contacting [DPH administration](#). LPHSA major findings and recommendations have been included here. This was the first time the DPH conducted an LPHSA. The audience lacked representation of local partner organizations and agencies contributing to public health efforts in the community. The DPH recognized this limitation and agreed to conduct a re-assessment at earliest opportunity.

In overall, Fort Carson LPHS' average score of 44.2% fell short of nationally recommended benchmark of 60%. Our LPHS was strongest in ES 2: diagnosing and investigating health problems and health hazards in the community (76.4%), ES 6: enforcing laws and regulations that protect health and ensure safety (58.5%), and ES 7: linking people to needed personal health services (53.1%). Our LPHS was weakest in ES 10: researching for new insights and innovative solutions to health problems (16%), ES 1: monitoring health status to identify community health problems (29.2%), and ES 4: mobilizing community partnerships to identify and solve health problems (37.5%). These results are reflective of Fort Carson LPHS structure and common practices and, therefore, are rather expected.

Both quantitative and qualitative data from the assessment show that our LPHS has a highly professional staff and a good system of ensuring certification and maintaining continued education. The system is govern by a robust body of central and local regulations adequately addressing PH matters. These regulations reviewed and updated periodically and the Command Inspection Program is adequately designed to evaluate system's compliance with existing laws and regulations. There is a great variety of individual and interpersonal health promotion programs and many elements in our LPHS that help people to connect to services they need (e.g. Chaplains, healthcare workers, social workers, Red Cross and other non-profit organizations, unit chain of command, MFLC, SFRG, childcare development center staff, etc.). The LPHS has a good laboratory support, reporting mechanisms, and access to national (Army and DoD) reach-back support capabilities and resources.

The historical structure and practices of military LPHSs in general and Fort Carson in particular coupled with recent technological challenges explain some of the key weaknesses of our PH system. Centrally planned PH programs and services based on research conducted by DoD organizations relieved LPHS from the need to conduct its own research. Well-defined and prescribed from higher PH programs did not require monitoring health status of the community nor necessitated mobilizing community partnerships to identify and solve local health problems. Recent introduction of MHS Genesis as a new medical records system further complicated LPHS ability to assess the health of local community. Inaccurate and inconsistent coding of medical conditions and procedures in medical records made irrelevant any analysis and comparison to State or national statistics.

Considering our strengths and weaknesses, and what results are most important to us, our LPHS improvement priorities should focus on our ability to monitor health status of our community. We should also mobilize our community and strengthen partnerships between LPHS elements to identify and solve public health problems. To improve performance within these specific areas, we need to engage our health informatics professionals to address and fix current issues with inconsistent and inaccurate coding. We should also reach out to our local partners, stakeholders, and community members to solicit their strong participation in all LPHS activities aimed at identifying public health issues, selecting priorities for improvement, and developing strategies to solve them. To achieve this, LPHS elements would need to increase social media communication capabilities at lowest levels, take a full advantage of its website, and train its staff on effective community organizing techniques.

To get better results, we need to develop a feedback mechanism to assess the effectiveness of LPHS and community partnerships in improving community health. Building relationships with military commanders to earn their trust and confidence would gain access to additional resources and give command emphasis to PH programs. Creating a forum for PH leaders from other installations to interact and share experiences and lessons learned could also assist LPHS leaders and professionals in improving administration of PH programs. Despite scoring the lowest, researching for new insights and innovative solutions to health problems should not be the focus of our improvement efforts since it has the lowest priority of all ES. Relying on existing military medical research facilities will effectively compensate for this LPHS weakness.

Despite its limitations, this assessment provided data that will prove invaluable as we move forward with our improvement efforts. It is crucial that all LPHS elements use these performance assessment results to identify high and low performing areas. Using the results in this report will help LPHS elements to generate their priorities for improvement, as well as resource allocation to enhance LPHS performance.

About the LPHSA

The self-assessment was structured around the Model Standards for each of the ten ES, which were developed through a comprehensive, collaborative process involving input from national, state and local experts in public health. Altogether, for the local assessment, 30 Model Standards served as quality indicators that are organized into the ten essential public health service areas and address the three core functions of public health. Figure 76 below shows how the ten ES align with the three Core Functions of Public Health.

The DPH divided participants into groups organized by each of the 10 ES. Group members then worked together to identify the extent to which the community performs activities associated with each ES using a rating scale. During a collaboration session, each group informed all LPHSA participants of key aspects of their respective ES, activities performed by the LPHS in support of their ES, and the score the group has given to each Model Standard comprising ES. LPHSA participants from other groups expressed their thoughts and opinions about the extent of fulfillment and collectively agreed to a respective score for each standard. Each group also presented a qualitative assessment of their ES in terms of Strengths and Weaknesses and then recommended short- and long-term opportunities for improvement.

There are a number of limitations to the LPHSA results due to self-report, wide variations in the breadth and knowledge of participants, and differences in interpretation of assessment questions. Data and resultant information did not reflect the capacity or performance of any single agency or organization within the LPHS and therefore should not be used for comparisons between jurisdictions or organizations. Use of LPHSA data and associated recommendations are limited to guiding an overall public health infrastructure and performance improvement process for the public health system as determined by organizations involved in the assessment.

All performance scores were an average; Model Standard scores were an average of the question scores within that Model Standard, ES scores were an average of the Model Standard scores within that ES, and the overall assessment score was the average of the ES scores. The development of a response for each question from



Figure 77. The ten Essential Public Health Services and how they relate to the three Core Functions of Public Health.

diverse system participants with different experiences and perspectives incorporated an element of subjectivity. The assessment methods were not fully standardized and these differences may have introduced an element of measurement error. In addition, there were differences in knowledge about the public health system among participants. This may have led to some interpretation differences, potentially introducing a degree of random non-sampling error.

Quantitative Data

The National Public Health Performance Standards Program local instrument version 3.0 that was utilized to conduct the LPHSA was constructed using the ten ES as a framework. Within the instrument, each ES included between 2-4 Model Standards that describe the key aspects of an optimally performing public health system. Each Model Standard was followed by assessment questions that serve as measures of performance. Responses to these questions indicated how well the Model Standard - which portrays the highest level of performance or "gold standard" - was being met. Using the responses to all of the assessment questions, a scoring process generated score for each Model Standard, ES, and one overall assessment score. Scores ranged from a minimum value of 0% (no activity was performed pursuant to the standards/ES) to a maximum value of 100% (all activities associated with the standards/ES were performed at optimal levels) (see Table 5).

Table 5. Summary of Assessment Response Options.

Optimal Activity (76-100%)	Greater than 75% of the activity described within the question is met.
Significant Activity (51-75%)	Greater than 50%, but no more than 75% of the activity described within the question is met.
Moderate Activity (26-50%)	Greater than 25%, but no more than 50% of the activity described within the question is met.
Minimal Activity (1-25%)	Greater than zero, but no more than 25% of the activity described within the question is met.
No Activity (0%)	0% or absolutely no activity.

Figure 77 displays the average score for each ES, along with an overall average assessment score across all ten ES. The black bars identify the range of reported performance score responses within each Essential Service. In Table 6, each score (performance, priority, and contribution scores) at the Essential Service level is a calculated average of the respective Model Standard scores within that Essential Service.

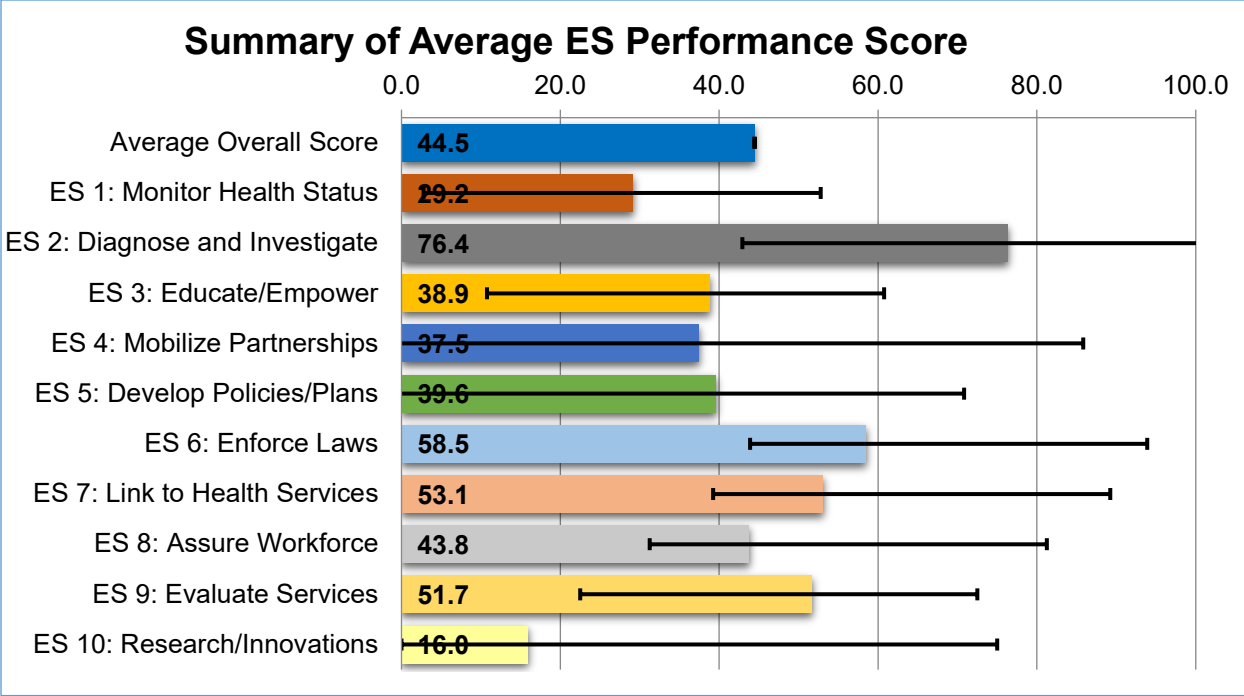


Figure 78. Summary of Average Essential Public Health Service Performance Scores.

Table 6. Overall Performance, Priority, and Contribution Scores by Essential Public Health Service and Corresponding Model Standard.

Model Standards by Essential Services	Performance Scores, %	Priority Rating	Agency Contribution Scores, %
ES 1: Monitor Health Status	29.2	10.0	100.0
1.1 Community Health Assessment	25.0	10.0	100.0
1.2 Current Technology	25.0	10.0	100.0
1.3 Registries	37.5	10.0	100.0
ES 2: Diagnose and Investigate	76.4	10.0	75.0
2.1 Identification/Surveillance	66.7	10.0	75.0
2.2 Emergency Response	75.0	10.0	75.0
2.3 Laboratories	87.5	10.0	75.0
ES 3: Educate/Empower	38.9	7.7	58.3
3.1 Health Education/Promotion	50.0	7.0	75.0
3.2 Health Communication	25.0	7.0	50.0
3.3 Risk Communication	41.7	9.0	50.0
ES 4: Mobilize Partnerships	37.5	5.5	50.0
4.1 Constituency Development	50.0	5.0	25.0
4.2 Community Partnerships	25.0	6.0	75.0
ES 5: Develop Policies/Plans	37.5	10.0	37.5
5.1 Governmental Presence	16.7	10.0	25.0
5.2 Policy Development	25.0	10.0	25.0
5.3 CHIP/Strategic Planning	50.0	10.0	50.0
5.4 Emergency Plan	58.3	10.0	50.0
ES 6: Enforce Laws	58.5	7.0	41.7

6.1 Review Laws	68.8	4.0	50.0
6.2 Improve Laws	41.7	8.0	50.0
6.3 Enforce Laws	65.0	9.0	25.0
ES 7: Link to Health Services	53.1	8.5	25.0
7.1 Personal Health Service Needs	56.3	7.0	25.0
7.2 Assure Linkage	50.0	10.0	25.0
ES 8: Assure Workforce	43.8	9.3	43.8
8.1 Workforce Assessment	25.0	9.0	50.0
8.2 Workforce Standards	50.0	9.0	75.0
8.3 Continuing Education	50.0	9.0	25.0
8.4 Leadership Development	50.0	10.0	25.0
ES 9: Evaluate Services	51.7	8.3	41.7
9.1 Evaluation of Population Health	50.0	8.0	25.0
9.2 Evaluation of Personal Health	80.0	8.0	25.0
9.3 Evaluation of LPHS	25.0	9.0	75.0
ES 10: Research/Innovations	16.0	2.3	41.7
10.1 Foster Innovation	25.0	3.0	25.0
10.2 Academic Linkages	16.7	3.0	25.0
10.3 Research Capacity	6.3	1.0	75.0
Average Overall Score	44.2	7.9	51.5
Median Score	41.3	8.4	42.7

Figures 78 and 79 display the proportion of performance measures that met specified thresholds of achievement for performance standards. The five threshold levels of achievement used in scoring these measures are shown in the legend. For example, measures receiving a composite score of 76-100% were classified as meeting performance standards at the optimal level.

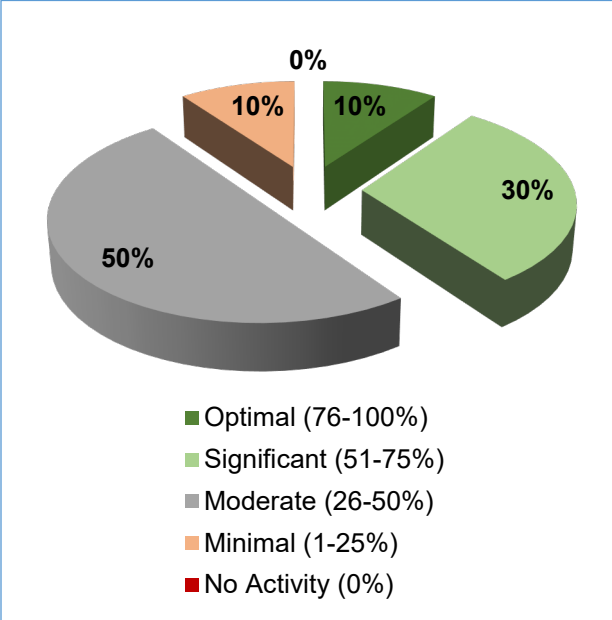


Figure 79. Percentage of the system's Essential Services scores that fall within the five activity categories.

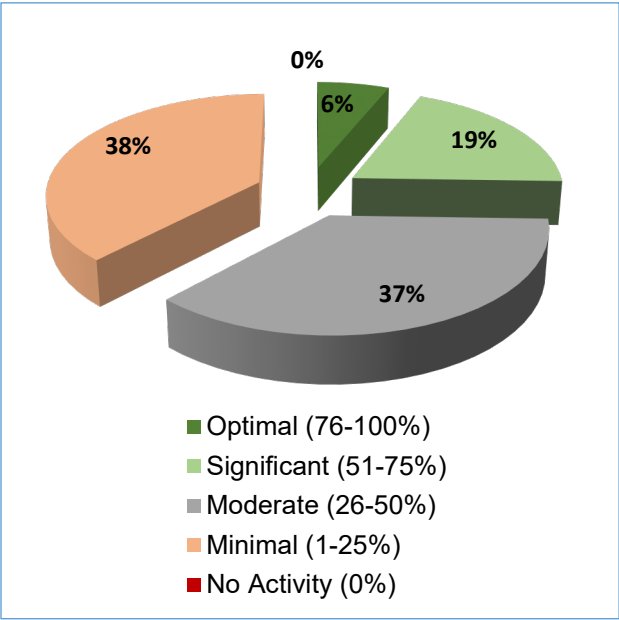


Figure 80. Percentage of the system's Model Standard scores that fall within the five activity categories.

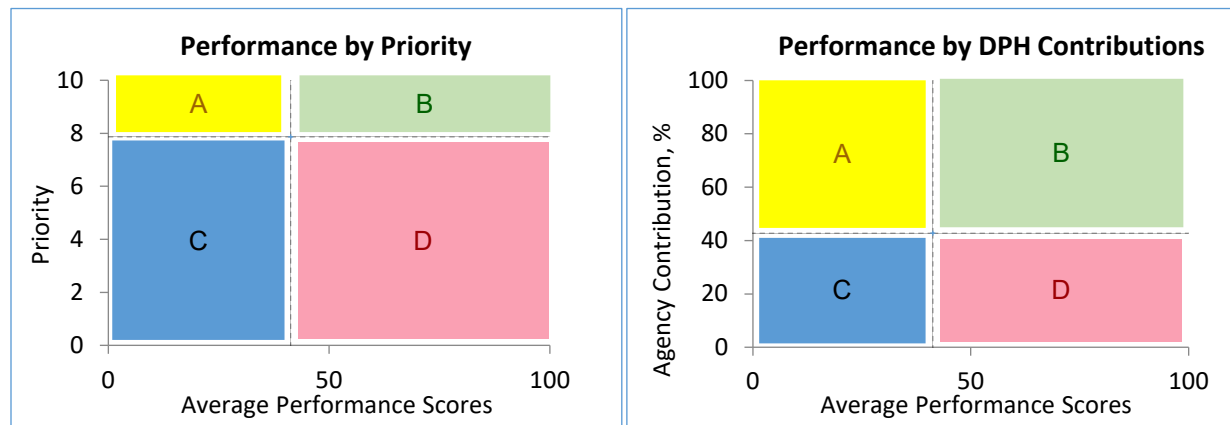
Participants also considered the priority of each ES during the assessment. Using a scale of 1 to 10 (with 1 being the lowest and 10 being the highest), the audience collectively rated the priority of each Model Standard without regard to performance scores or rank order. In considering this questionnaire, the participants used the following questions. Example A: “On a scale of 1 to 10, what is the priority of this Model Standard to our local public health system?” Example B: “On a scale of 1 to 10, how important is it to improve our performance in this activity (e.g., through a quality improvement process, increased emphasis or resources)?”

Participants also considered the contribution that the Fort Carson DPH has to each Model Standard. Using a similar scale used to assess the Model Standards in the core Local Instrument, use the following scale:

- 0—for no contribution to the Model Standard
- 25—for agency contribution of 1–25%
- 50—for agency contribution of 26–50%
- 75—for agency contribution of 51–75%
- 100—for agency contribution of 76–100%

Participants completed these two additional questionnaires in a single group setting, and then presented their findings to the whole audience for discussion and acceptance.

The four quadrants shown and described in Figure 80 visually depict how the performance of each ES and/or Model Standard compares with the priority or contribution ratings. The dashed lines dividing the space into quadrants represent the average scores for Performance, Priority, and Contributions. This grouping provided guidance in considering areas for attention and next steps for improvement.



Quadrant A	(High Priority/Contribution and Low Performance) – These activities may need increased attention.
Quadrant B	(High Priority/Contribution and High Performance) – These activities are being done well, and it is important to maintain efforts.
Quadrant C	(Low Priority/Contribution and High Performance) – These activities are being done well; consideration may be given to reducing effort in these areas.
Quadrant D	(Low Priority/Contribution and Low Performance) – These activities could be improved but are of low priority/contribution. They may need little or no attention at this time.

Figure 81. Explanation of quadrants of Performance by Priority or Contribution and considerations for improvement.

Table 7 below displays priority ratings (as rated by participants on a scale of 1-10, with 10 being the highest priority) and performance scores for Model Standards, arranged under the four quadrants.

Table 7. Model Standards by Priority and Performance Score.

Quadrant	Model Standard	Performance Score (%)	Priority Rating
Quadrant A	9.3 Evaluation of LPHS	25.0	9
Quadrant A	8.1 Workforce Assessment	25.0	9
Quadrant A	6.2 Improve Laws	41.7	8
Quadrant A	5.2 Policy Development	25.0	10
Quadrant A	5.1 Governmental Presence	16.7	10
Quadrant A	3.3 Risk Communication	41.7	9
Quadrant A	1.3 Registries	37.5	10
Quadrant A	1.2 Current Technology	25.0	10
Quadrant A	1.1 Community Health Assessment	25.0	10
Quadrant B	9.2 Evaluation of Personal Health	80.0	8
Quadrant B	9.1 Evaluation of Population Health	50.0	8
Quadrant B	8.4 Leadership Development	50.0	10
Quadrant B	8.3 Continuing Education	50.0	9
Quadrant B	8.2 Workforce Standards	50.0	9
Quadrant B	7.2 Assure Linkage	50.0	10
Quadrant B	6.3 Enforce Laws	65.0	9
Quadrant B	5.4 Emergency Plan	58.3	10
Quadrant B	5.3 CHIP/Strategic Planning	50.0	10
Quadrant B	2.3 Laboratories	87.5	10
Quadrant B	2.2 Emergency Response	75.0	10
Quadrant B	2.1 Identification/Surveillance	66.7	10
Quadrant C	7.1 Personal Health Services Needs	56.3	7
Quadrant C	6.1 Review Laws	68.8	4
Quadrant C	4.1 Constituency Development	50.0	5
Quadrant C	3.1 Health Education/Promotion	50.0	7
Quadrant D	10.3 Research Capacity	6.3	1
Quadrant D	10.2 Academic Linkages	16.7	3
Quadrant D	10.1 Foster Innovation	25.0	3
Quadrant D	4.2 Community Partnerships	25.0	6
Quadrant D	3.2 Health Communication	25.0	7

Table 8 display Model Standard scores arranged by DPH contribution and performance scores.

Table 8. Model Standard scores arranged by DPH contribution and performance scores.

Quadrant	Model Standard	DPH Contribution (%)	Performance Score (%)
Quadrant A	10.3 Research Capacity	75.0	6.3
Quadrant A	9.3 Evaluation of LPHS	75.0	25.0
Quadrant A	4.2 Community Partnerships	75.0	25.0
Quadrant A	1.3 Registries	100.0	37.5
Quadrant A	1.2 Current Technology	100.0	25.0
Quadrant A	1.1 Community Health Assessment	100.0	25.0
Quadrant B	8.2 Workforce Standards	75.0	50.0
Quadrant B	3.1 Health Education/Promotion	75.0	50.0
Quadrant B	2.3 Laboratories	75.0	87.5
Quadrant B	2.2 Emergency Response	75.0	75.0
Quadrant B	2.1 Identification/Surveillance	75.0	66.7
Quadrant C	9.2 Evaluation of Personal Health	25.0	80.0
Quadrant C	9.1 Evaluation of Population Health	25.0	50.0
Quadrant C	8.4 Leadership Development	25.0	50.0
Quadrant C	8.3 Continuing Education	25.0	50.0
Quadrant C	7.2 Assure Linkage	25.0	50.0
Quadrant C	7.1 Personal Health Services Needs	25.0	56.3
Quadrant C	6.3 Enforce Laws	25.0	65.0
Quadrant C	6.1 Review Laws	50.0	68.8
Quadrant C	5.4 Emergency Plan	50.0	58.3
Quadrant C	5.3 CHIP/Strategic Planning	50.0	50.0
Quadrant C	4.1 Constituency Development	25.0	50.0
Quadrant D	10.2 Academic Linkages	25.0	16.7
Quadrant D	10.1 Foster Innovation	25.0	25.0
Quadrant D	8.1 Workforce Assessment	50.0	25.0
Quadrant D	6.2 Improve Laws	50.0	41.7
Quadrant D	5.2 Policy Development	25.0	25.0
Quadrant D	5.1 Governmental Presence	25.0	16.7
Quadrant D	3.3 Risk Communication	50.0	41.7
Quadrant D	3.2 Health Communication	50.0	25.0

Qualitative Data

In addition to a quantitative assessment, for each of the 30 Standards, participants jointly assessed the LPHS through the lens of strengths, weaknesses, and opportunities. This qualitative data helped identifying immediate actions and activities to improve local public health operations as well as provided ideas for longer-term improvement opportunities. Presented here is a summary of qualitative assessment. The complete dataset could be viewed in the standalone LPHSA report upon request to DPH administration.

Below are general themes of Fort Carson LPHS **strengths** identified by participants:

- Local PH system has a robust body of local regulations adequately addressing PH matters. These regulations reviewed and updated periodically and the Command Inspection Program (CIP) system of inspections is perfectly designed to evaluate organization's compliance with existing laws and regulations.
- LPHS has a highly professional staff and a good system of ensuring/maintaining certification and continuing education. Comprehensive workforce assessment has been completed and some competency gaps were identified.
- Good laboratory support, reporting mechanisms, and access to national (Army and DoD) reach-back support capabilities and resources.
- Strong medical emergency response program with trained staff and clearly identified responsibilities.
- There is a great variety of individual and interpersonal health promotion programs and many elements in LPHS helping people to connect to services they need (e.g. Chaplains, healthcare workers, social workers, Red Cross and other non-profit organizations, unit chain of command, MFLC, SFRG, childcare development center staff, etc.)

Here are key **weaknesses** of Fort Carson LPHS:

- Lack of social media communication capabilities at lowest levels of LPHS. Limited control over our own DPH website. No trained PH spokesperson.
- Poor health data due to MHS Genesis conversion and new system deficiencies. Inability to collect complete health data for the entire population since some beneficiaries seek medical care outside the network, therefore, that data is not captured in MHS system of record.
- Lack of community engagement in setting priorities, plans, and activities. Keeping community and other LPHS elements engaged is the biggest challenge.
- Low awareness among LPHS staff on 10 Essential Services and 8 Core Competencies. Low coordination between LPHS elements. PHAB accreditation is mandated but not properly staffed and resourced.
- DPH itself has zero (0) enforcement powers, only consultative. Military Commanders retain power to enforce or waive regulatory requirements.
- We evaluate satisfaction of our patients but not the accessibility or effectiveness of our services.

Key recommendations for **short-term opportunities** for immediate improvement:

- Increase collaboration and synchronization of efforts between LPHS elements. Communicate/publicize CHA/CHIP existence and where it can be found to both stakeholders and community members. Conduct more community-level health promotion and outreach events. Conduct awareness training on Essential Services and Core Competencies.

- Correct deficiencies in MHS Genesis data collection techniques and/or operator miscoding faults.
- Identify and train a PH spokesperson to provide local Risk Communication support during crises.
- Conduct a thorough AAR upon completion of PHAB accreditation efforts to identify enduring support (personnel and funding) requirements to maintain activities ISO accreditation re-certification in the future.
- Learn and implement Health Impact Assessments.
- Continue developing strategies to address community health issues identified in CHA and CHIP. Develop mechanisms/metrics to evaluate accessibility and effectiveness of PH services.

Participants recommended the following **priorities** for long-term improvement:

- Train/hire personnel to lead community outreach efforts. Develop a mechanism for including community in selection and design of health promotion priorities and activities. Create a public forum to communicate public health issues (e.g. “report a problem” button on DPH website).
- Develop relationships with Military Commanders to gain their trust and confidence.
- Develop a mechanism to assess the effectiveness of LPHS and community partnerships in improving community health.
- Identify gaps in resources to provide 10 ES and request it.
- Create a forum for PH leaders from other installations to interact and share experiences and lessons learned.
- Identify local issues and/or areas needing research. Collaborate with local institutions to conduct research, field training, and continuing education.

In a separate, breakaway session, a group of DPH senior personnel was asked to express their expert opinions of where Fort Carson community should focus its public health efforts. The following are community health issues that PH professionals working on Fort Carson recommended based on organization’s structure, capabilities/capacities, expertise, as well as the observed trends in the community:

- Obesity
- Muscular-Skeletal Injuries
- Stress Management through Sleep, Activity, Nutrition
- Chronic diseases (heart disease, hypertension, diabetes)
- Family housing/ indoor air quality/ sick building syndrome
- STIs (Chlamydia, Gonorrhea, Syphilis)
- Nutrition (Women, Infant, and Children)
- LGBTQIA+ outreach and engagement

Forces of Change Assessment (FoC)

- What is occurring or might occur that affects the health of our community or the local public health system?
- What specific threats or opportunities are generated by these occurrences?

Summary

The broader contextual environment is constantly affecting installation communities and their local public health systems. In May 2022, the CHWG steering committee gathered to conduct a FoC assessment, during which participants engaged in brainstorming sessions aimed at identifying forces that are or will be influencing the health and quality of life of Fort Carson community and the ability of the local public health system to deliver PH services and programs. Forces are a broad, all-encompassing category that includes trends, events, and factors:

- **Trends** are patterns over time, such as influx of new Soldiers or units or unit restructuring or anti-military sentiment in the state or country.
- **Factors** are discrete elements, such as a surrounding community's large ethnic population, a particular isolated setting or the installation's proximity to a major waterway.
- **Events** are one-time occurrences, such as a hospital closure, a natural disaster or the passage of new legislation.

The committee members aimed to produce a comprehensive, focused list that identifies Forces and describes their impact. Achieving that required a balanced approach. On one hand, it was necessary to think broadly when identifying events, factors, and trends that represent major forces. Local, regional, national and global concerns were considered. On the other hand, it was necessary to focus on specific issues that affect the installation and its LPHS as well as the health and quality of life of the community. For each identified Force, committee members attempted to describe associated threats and opportunities. Table X below lists all identified Forces and their effects on community and/or LPHS operations. Types of forces considered in this assessment included:

Social	Scientific
Economic	Legal
Political	Ethical
Technological	Organizational
Environmental	

The major Forces affecting or having a potential to affect Fort Carson community in the near future identified during FoC assessment were inflation with a following potential

economic recession and political tension in Europe that may increase operational tempo (OPTEMPO) for military units stationed on and around Fort Carson. The inflation has already and will continue causing an additional financial stress on families thus worsening food insecurity issue among lower income families. Political and military tensions in Eastern Europe may increase frequency and/or duration of overseas deployments. This may cause an increase in deployment-related physical and mental health issues and strained relationships and marriages because of prolonged family separations.

Aside from these negative effects, the Forces present opportunities. Increased financial and emotional stress on the community may help identify subtle or dormant community health issues otherwise masked or undetectable. High gasoline prices could stimulate more carpooling, biking to work, and walking, which will result in a healthier lifestyle and lesser air pollution. Mandatory deployment and re-integration activities present an opportunity for DPH personnel to conduct health promotion and education engagements with troops and family members. Additional income related to deployments may actually strengthen financial security of military families.

The committee members also identified several Forces affecting LPHS' ability to design adequate PH programs and services. Recent transition to a new system of records MHS Genesis is the most significant, and currently still unresolved, event. The new coding of medical conditions and procedures lack clarity and standardization. As a result, the health data that we have now is not reliable and not compatible to military- and nation-wide statistics. To make matters more complicated, 70% of our community reside off-post and often seek medical care at civilian healthcare institutions. These encounters are not captured in MHS records and therefore the data we have is incomplete or skewed. The DPH uses the health data to assess the health of the community and to make decisions on implementation of PH programs and activities. Poor quality data will affect LPHS' ability to aim effectively PH efforts at existing issues.

The potential economic recession caused by inflation and continuing COVID-19 pandemic will affect LPHS' ability to administer effectively PH operations. Potential budget cuts in following fiscal years could result in PH services degradation. High gas prices may increase staff absenteeism and force LPHS organizations to expand telework protocols, which will decrease PH services capacity. Enduring COVID-19 pandemic will continue disrupting healthcare and PH services delivery by reducing our staffing levels and diverting resources. All these Forces will impede LPHS operations but will also present an opportunity to re-assess priorities and improve efficiency of PH programs and services.

Dynamic local and national environment along with instability in world affairs will result in a significant degree of uncertainty over the coming years. What will remain firm is the necessity to understand these Forces and their effects. LPHS organizations will need to remain flexible and responsive to changes in the environment affecting local community and LPHS operations.

Findings

Table 9. Forces of Change.

Forces (Trend, Events, Factors)	Threats Posed	Opportunities Created
Inflation and potential economic recession in 2022-2023 (Event, economic).	<ul style="list-style-type: none"> Potential budget cuts resulting in PH services degradation. Decreased PH services capacity due to staff absenteeism. Financial hardship/stress on families causing an increase in BH conditions, drug abuse, and food insecurity. 	<ul style="list-style-type: none"> Opportunity to increase efficiency of PH efforts through prioritization and focal application of resources. Opportunity to identify subtle or dormant community health issues otherwise masked or undetectable. High gasoline prices could stimulate more carpooling, biking to work, and walking, which will result in a healthier lifestyle and lesser air pollution.
Political tensions in Europe and Asia resulting in higher OPTEMPO and deployments (Event, political).	<ul style="list-style-type: none"> Increase in deployment-related physical and mental health issues among service members and families. Increase in marital/relationship issues resulting from family/partner separation. Life disruption and emotional trauma among children of single parents forced to relocate to a caregiver while the parent is deployed. 	<ul style="list-style-type: none"> Health promotion educational engagements with troops and family members during re-deployment/reintegration activities. Improved financial security due to increase in household income.
Transition to MHS Genesis system of health records (Factor, technological).	<ul style="list-style-type: none"> Inconsistently and inaccurately captured health data in MHS Genesis denies DPH personnel Ft. Carson-specific data necessary to assess the health of the entire community. 	<ul style="list-style-type: none"> none
>70% of Ft. Carson community members live off-post in the surrounding Colorado Springs / El Paso County community (Factor, social).	<ul style="list-style-type: none"> Exposure to local community issues such as crime and drugs. Potentially unsafe housing (lead, radon, asbestos, etc.). Inability to capture health related data if seen at off-post healthcare facilities. 	<ul style="list-style-type: none"> Allows access to local PH resources thus diversifying services and programs. Stimulates collaboration with the local PH department.
COVID-19 pandemic (Factor, environmental).	<ul style="list-style-type: none"> Disruption of healthcare and PH services delivery. Potential long-term health effects and chronic diseases. Increase in BH and marital issues due to life disruptions and stress. Financial hardship and food insecurity due to loss of income. 	<ul style="list-style-type: none"> Opportunity for health promotion and education, disease awareness, vaccination, etc. Application and expansion of telemedicine practices effectively increased an access to care. Increased practice of personal hygiene (handwashing) and other PH measures (no handshakes) also reduced risk/transmission of other communicable diseases.

Forces (Trend, Events, Factors)	Threats Posed	Opportunities Created
Frequent adverse weather events (snow, hail, wind, and wildfire) (Factor, environmental).	<ul style="list-style-type: none"> • Disruption of healthcare and PH services delivery. • Drop in air quality and water quality. • Increased cost of living due to higher expenditures on insurance products/services, higher housing rents, etc. • Loss of property/income. 	<ul style="list-style-type: none"> • Heightened alert and awareness of home and travel safety measures in the community. • Opportunity to practice emergency drills and plans.
DoD policy on allowing openly gay, lesbian and bisexual men and women to serve in the military (Event, legal).	<ul style="list-style-type: none"> • none 	<ul style="list-style-type: none"> • Opportunity to identify and address population needs of LGBTQIAP+ members.
Evans Hospital recently transitioned to DHA oversight and created the Colorado Military Health System market (Event, organizational).	<ul style="list-style-type: none"> • Potential PH staff mismanagement, disruption in communications, and degradation of IT capabilities (website). • New, potentially conflicting guidance on practice and delivery of PH services and programs. • Potential depletion/diversion of PH resources to other military installations within the market. 	<ul style="list-style-type: none"> • Increased access to DoD/DHA resources such as Air Force PH Center, laboratories, and research agencies. • Opportunity to combine efforts of PH staff/assets from other military installations within the market.
Fluid population - Average time on station for military personnel and their families, which comprise 49% of Ft. Carson community, is 3 years (Trend, social).	<ul style="list-style-type: none"> • Adds a potentially significant variability into health data and survey results due to a high population changeover rate for Active Duty and their family members. • Fluctuating demand for PH services and programs. 	<ul style="list-style-type: none"> • none
Privatized military housing (Factor, legal)	<ul style="list-style-type: none"> • Reduces LPHS ability to ensure safe and healthy dwellings as well as environmental conditions (waste, pests, etc.). 	<ul style="list-style-type: none"> • none
Commanders Ready and Resilient Council (CR2C) is the driving force behind all matters related to BH and resiliency (Factor, organizational).	<ul style="list-style-type: none"> • none 	<ul style="list-style-type: none"> • Allows consolidation of BH-related efforts under one “roof” with consistent guidance, oversight, and personal investment from installation and unit leadership.
Legalized recreational use of marijuana in Colorado (Factor, environmental)	<ul style="list-style-type: none"> • Allows an easy access to a recreational drug still prohibited by Federal Government. 	<ul style="list-style-type: none"> • Opportunities for research related to health and social effects of THC and CBD.

Forces (Trend, Events, Factors)	Threats Posed	Opportunities Created
Pending closure of Pueblo Chemical Depot in the Fall on 2023 (Event, organizational).	<ul style="list-style-type: none"> Potential PH staff reduction. 	<ul style="list-style-type: none"> Opportunity to absorb PH members into Ft. Carson PH Department.
Baby formula shortage (Event, economic).	<ul style="list-style-type: none"> Increased food insecurity among families with small children. 	<ul style="list-style-type: none"> Opportunity to reassess food security initiatives on Ft. Carson to ensure adequate support to families with small children.
Chain of Command military hierarchy of control (Factor, organizational).	<ul style="list-style-type: none"> Military commanders have a power to deviate from rules and regulations, including PH-related, if mission and/or readiness dictates or else. Commanders have/set priorities focused on force readiness, which may not coincide with community health needs. 	<ul style="list-style-type: none"> Great line of communication to disseminate information and/or enforce policies and standards. Commanders have additional resources that LPHS could utilize upon request and approval.
Government civilian and contractor personnel are not Tricare beneficiaries (Factor, legal).	<ul style="list-style-type: none"> Unequal access to care, limited to OSHA requirements. 	<ul style="list-style-type: none"> Engage civilian workforce at their workplace with educational activities on health promotion and prevention.

Conclusion

A Community Health Assessment (CHA) is a systematic examination of the health status indicators for a given population. The ultimate goal of a CHA is to identify public health needs and resources and to provide a sound basis for interventions that improve health outcomes in the community. A variety of tools and processes were used to conduct this CHA; the essential ingredients were community engagement and collaborative participation. The results of this CHA will be used to develop strategies to address the community health needs and identified issues.

Overall, Fort Carson is one the healthiest military posts in the nation. Fort Carson's Installation Health Index placed the Mountain Post in the top three healthiest U.S. Army installations located within the continental U.S. Clean and safe environment with low injury and obesity rates are our installation's strongest sides. Yet, our community has health issues that could be addressed to make it even healthier place to live and work.

The Community Health Status Assessment (CHSA) identified the following areas requiring attention or presenting an opportunity for improvement:

- Substance Use Disorder
- Tobacco Product Use
- STIs: Chlamydia
- Chronic Diseases
- Performance Triad (Sleep, Activity, Nutrition)

The examination of health-related perceptions in the community via Community Health Survey (conducted in lieu of CSTA) revealed the following concerns among Fort Carson community members:

- LGBTQIA+ needs
- Substance abuse
- Tobacco use
- STIs
- Sleep management
- Nutrition / Weight loss
- Stress management
- Chronic Diseases
- Injuries / Work-related hazards
- Food insecurity

The DPH personnel consisting of senior PH professionals expressed their expert opinions of where Fort Carson community should focus its public health efforts:

- Obesity
- Muscular-Skeletal Injuries
- Stress Management
- Chronic diseases
- Family housing/ indoor air quality
- STIs
- Nutrition
- LGBT outreach and engagement

The FoC assessment anticipated that current events, factors, and trend in local, national, and global economic, political, and social environment might have the following effects on Fort Carson community and LPHS operations:

- Increase in financial and food insecurity
- Increase in deployment-related physical health, BH, and relationship issues
- Sustained degradation and disruption in delivery of PH programs and services

The review of the above lists of identified community health issues and recommended focus areas discovered certain themes across multiple assessments. Chronic diseases and STIs were listed in nearly all assessments. Substance abuse, stress management, and BH conditions in general is another prominent theme represented in three out of four assessments. Another common theme is the healthy lifestyle encompassing adequate sleep, nutrition, and physical activity. Both objective and subjective data as well professional opinions – all three indicate that these issues are present in Fort Carson community, concern its members, and deemed important and manageable by PH professionals.

Chronic disease focus area has potential to reach the largest number of people that live, work and/or use the services in Fort Carson community where Retirees and their family members comprise 43% with an overall age group >44 y/o accounting for 32% of the entire community. Meeting healthy nutrition and sleep targets is where our Soldiers have the most room for improvement. Only 35% of them met the nutritional recommendations and about 50% reached the sleep targets. The tobacco product use among our active duty service members is also one the highest in the Army and has been identified as one of the top three physical health concerns by the community.

This CHA also uncovered new, previously unidentified community health issues and concerns. Food insecurity among low-income families was sometimes observed but was never measured on a military installation. LGBT community needs were hidden until its members were allowed to serve openly in the military. These community health needs are noteworthy opportunities that should be considered when choosing a focus area.

The report has identified several populations within the community that exhibited a greater risk and/or an inequitable share of poor health outcomes. Soldiers over the age of 45 y/o appeared to have the greatest risk of developing muscular-skeletal injuries, chronic diseases, and behavioral health conditions (other than substance use disorder (SUD)). Specific to SUD, young individuals <25 y/o had the greatest risk of being diagnosed with a substance misuse. Female Soldiers on Fort Carson were more likely to have a behavioral health condition while male Soldiers of all ages were more likely to become obese. Young females <25 y/o were also identified as a high-risk population for chlamydia infections. Other health disparities included higher prevalence of obesity and tobacco use among Native Hawaiian/Pacific Islander Soldiers and higher prevalence of injuries and a chronic disease among Black or African American service members.

The key findings and themes that emerged from this comprehensive CHA will serve basis for future direction and work. We did not identify any noteworthy barriers that should be considered when choosing a priority. The installation leadership is fully engaged and supportive of all community health initiatives and activities. Further prioritization and selection of improvement priorities will be done as part of the Community Health Improvement Plan (CHIP) development.

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