

DOD Health of the Force 2021



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INTRODUCTION

The *Department of Defense (DoD) Health of the Force* report represents a coordinated effort by the Defense Health Agency and the Army, Navy, and Air Force public health experts to provide a snapshot of active component (AC) Service member health and well-being. It is meant to be a resource for military leaders and decision makers to help identify changes in the health status of AC Service members, emerging health problems, and gaps in prevention and treatment efforts. It may also be of interest to program planners, health practitioners, researchers, and others interested in the well-being of Service members.

The intent of the annual *DoD Health of the Force* report is to provide timely, concise, and useful information to generate ideas and drive progress toward enhancing the vitality and lethality of our fighting force.

The current report focuses on ten subject areas, based on data from calendar year 2021:

- Acute and cumulative traumatic injury
- Traumatic brain injury
- Noise-induced hearing injury
- Heat illness and heat index
- Behavioral health
- Sexually transmitted infections
- Sleep disorders
- Obesity
- Acute respiratory illnesses and air quality
- COVID-19

ORGANIZATION OF THIS REPORT

The Health Metrics section of this report provides health index measures for each of the ten subject areas; the Service Profiles section compares measures across Services. For the first time, this report compares AC Service member Health Metrics with Healthy People (HP) 2030 Objectives. Healthy People 2030 is a set of data-driven national objectives established by the U.S. Department of Health and Human Services to improve health and well-being over the next decade.¹ If HP 2030 objectives are related to AC Service member Health Metrics, they are discussed in a text box for contextual comparison, while unrelated HP targets are not presented. As ‘meaningful use’ policies support the improved utility of healthcare data, an understanding of metric measurement methodologies is critical for appropriate data translation. The appendices of this report present detailed information about the methods used to analyze data in each of the ten subject areas as well as specific limitations associated with the data analysis.

LIMITATIONS

There are many challenges associated with processing and interpreting healthcare data.^{2,3} Variability in the collection, collation, and processing of data; differences in study design and analytic methods; and the inherent intricacies of defining and measuring health itself contribute to complexity that cannot be fully resolved or explained in a summary report. Accordingly, this report is meant to be an adjunct to, rather than a substitute for, other reports related to Service member health, deployability, readiness, and total force fitness. Specific limitations include those associated with using electronic medical records for surveillance data (e.g., missing data, underrepresentation of conditions that do not come to the attention of the healthcare delivery system, miscoding) and failure to account for potentially important covariates such as age and sex when comparing Service populations.

In 2020, the social distancing policies implemented for the COVID-19 pandemic impacted the Military Health System (MHS) by restricting appointments and in-person staffing. Furthermore, changes to healthcare seeking behaviors likely contributed to a decrease in the diagnosis of many medical conditions in 2020. Therefore, comparison of trends between 2020 and 2021 should be interpreted with caution.

This report is meant to evolve over time. It is anticipated that specific measures will change over time to account for data-related limitations and changing paradigms related to public health surveillance. Input related to improving this report is critical and welcomed.

HIGHLIGHTS

A red arrow indicates an increase from the previous year. A green arrow indicates a decrease from the previous year, and a grey arrow indicates no change from the previous year. **Comparison of trends between 2020 and 2021 should be interpreted with caution due to the impact of the COVID-19 pandemic.**



THERE WERE 237 ACUTE AND 825 CUMULATIVE TRAUMATIC INJURIES PER 1,000 AC SERVICE MEMBERS IN 2021.

Sprains and strains were the most common acute injuries, and the lower extremities were the most commonly affected body region. The rate of acute injuries increased by 13% between 2020 and 2021. The rate of cumulative traumatic injuries increased 17%.



IN 2021, A TOTAL OF 20,027 (1.5%) AC SERVICE MEMBERS HAD AN ENCOUNTER FOR TRAUMATIC BRAIN INJURY (TBI).

The majority (74.8%) of these were mild in severity, followed by 24% moderate, 0.4% severe, and 0.3% penetrating. The prevalence of TBI increased 16% between 2020 and 2021.



THE PREVALENCE OF NOISE-INDUCED HEARING INJURY WAS 4.5% IN 2021.

Prevalence was higher in male (4.8%) compared to female (3.0%) Service members and increased with increasing age group for both sexes. The prevalence of noise-induced hearing injury increased 9% between 2020 and 2021.



A TOTAL OF 1,872 AC SERVICE MEMBERS (0.14%) SUFFERED FROM HEAT EXHAUSTION IN 2021, AND 489 (0.04%) SUFFERED FROM HEAT STROKE.

Overall, heat illnesses were more common among younger Service members and those in the Marine Corps. The percentage of AC service members affected by heat illness remained stable between 2020 and 2021.



IN 2021, 9.6% OF AC SERVICE MEMBERS HAD A BEHAVIORAL HEALTH (BH) DISORDER.

Adjustment disorder was the most common BH disorder among both male and female AC Service members. The prevalence of BH disorders increased 10% between 2020 and 2021.



APPROXIMATELY 23 PER 1,000 AC SERVICE MEMBERS WERE DIAGNOSED WITH A SEXUALLY TRANSMITTED INFECTION (STI) (CHLAMYDIA, GONORRHEA, OR TRICHOMONIASIS) IN 2021.

Chlamydia was the most common STI (19 per 1,000), followed by gonorrhea (4 per 1,000), and trichomoniasis (1 per 1,000). Younger and female Service members had higher rates compared to their respective counterparts. The incidence of all 3 STIs combined decreased by 8% between 2020 and 2021.



IN 2021, 14% OF AC SERVICE MEMBERS HAD A SLEEP DISORDER.

The most common sleep disorder among male Service members was sleep apnea; the most common sleep disorder among female Service members was insomnia. The prevalence of sleep disorders increased by 11% between 2020 and 2021.



THE OVERALL PREVALENCE OF OBESITY WAS 22% AMONG AC SERVICE MEMBERS IN 2021.

Overall obesity prevalence was higher among male (22.5%) compared to female (17.4%) and older compared to younger Service members. The prevalence of obesity increased by 12% between 2020 and 2021.



ON AVERAGE, 19 PER 1,000 AC SERVICE MEMBERS WERE DIAGNOSED WITH ACUTE RESPIRATORY INFECTIONS EACH MONTH DURING 2021.

Rates were highest in December and lowest in May (31.5 and 12.2 per 1,000, respectively). On average, female Service members had higher monthly rates of acute respiratory infections and respiratory symptoms compared to male Service members. Those in the youngest age group had the highest rates of acute respiratory infections, but those in the oldest age group had the highest rates of respiratory symptoms. The average monthly rate of acute respiratory infections and respiratory symptoms was similar in 2020 compared to 2021.

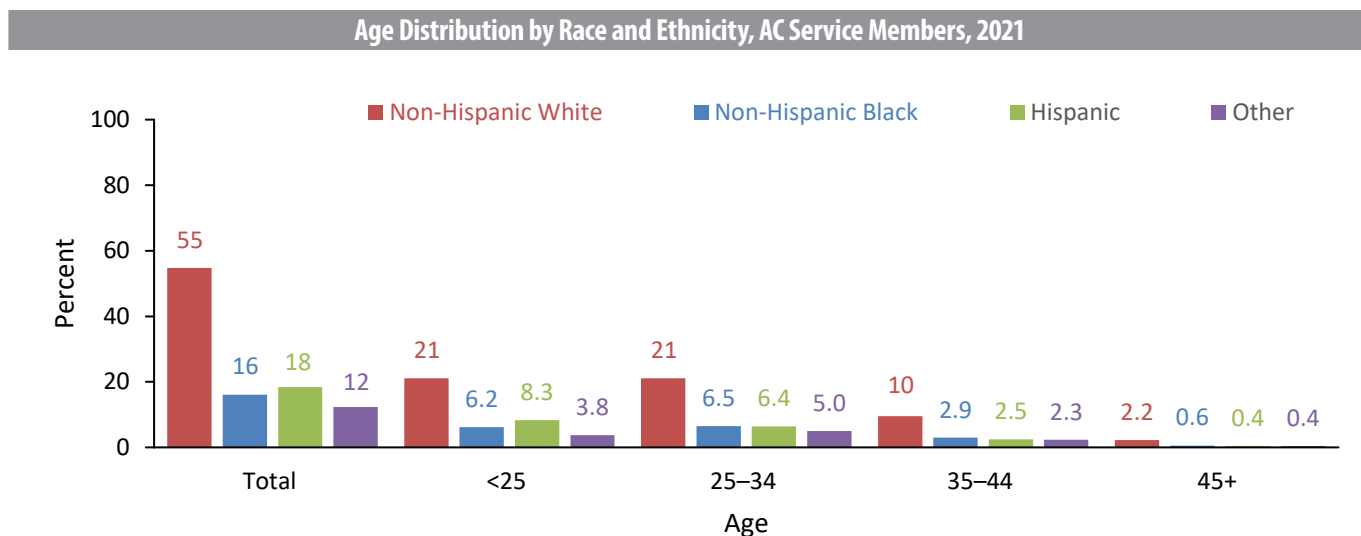
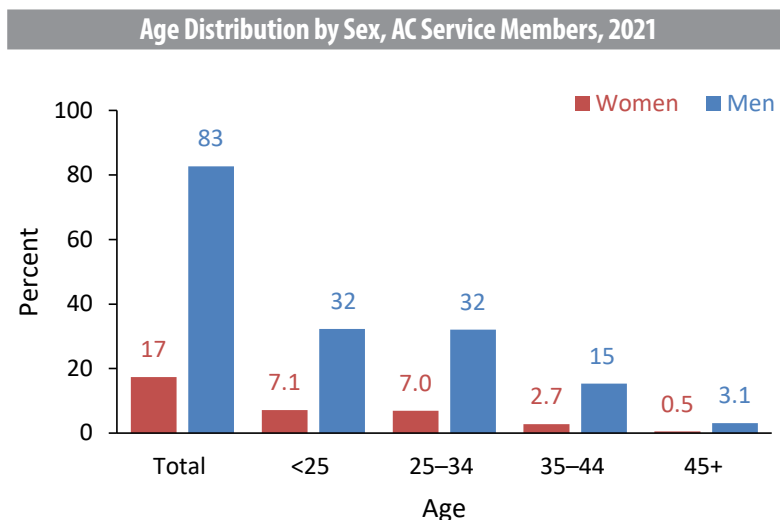


THE OVERALL PREVALENCE OF REPORTED COVID-19 INFECTION WAS 9.3% IN 2021.

Service members in the younger age groups were more likely to have COVID-19 compared to those in the older age groups. The prevalence increased 60% from 2020, when the prevalence was 5.8%.

DEMOGRAPHICS

The AC Service member population differs from the U.S. general population with respect to the distribution of age, sex, and race/ethnicity. For example, the U.S. population is 50.8% female, whereas AC Service members are 17.3% female.⁴ In addition, the U.S. population is comprised of only about one-fifth (21.2%) of adults aged 18 to 34 years, and more than half (55.2%) are aged 35 years and older.⁵ However, among AC Service members, more than three-quarters (78%) are aged 17 to 34 years, resulting in AC Service members being a much younger population on average. As the racial and ethnic composition of the U.S. has changed over time, this change has also been reflected in AC Service members. According to the 2020 U.S. census, the U.S. population is 57.8% non-Hispanic White, 12.1% non-Hispanic Black, 18.7% Hispanic, and 11.4% Other.⁶ In 2021, the distribution of race/ethnicity among AC Service members was 54.8% non-Hispanic White, 16.1% non-Hispanic Black, 17.6% Hispanic, and 11.5% Other. Differences in age, sex, race, and ethnicity are important to take into consideration when interpreting the health metrics presented in this report, as differences in health metric outcomes may be due at least in part to these differences between the two populations.



Demographic data were obtained from Defense Manpower Data Center (DMDC) data maintained in the Defense Medical Surveillance System (DMSS). Due to variation in these data across Services, additional race and ethnic categories cannot be provided.

ACUTE AND CUMULATIVE TRAUMATIC INJURY

Injuries consistently rank among the top healthcare burdens in the DoD. In this report, non-battle injury was evaluated using two broad categories: acute injury and cumulative traumatic injury (injury resulting from repeated micro-trauma). Acute and cumulative traumatic injuries include both musculoskeletal and non-musculoskeletal injuries.

Acute and cumulative traumatic injuries were identified in inpatient and outpatient medical records using the *International Classification of Diseases, Tenth Revision, Clinical Modification* (ICD-10-CM) injury codes described in the U.S. Army Public Health Center’s taxonomy of injuries for public health monitoring and reporting.⁷ The taxonomy defines body regions and nature-of-injury groups (i.e., the type of anatomic or physiologic disruption that occurred to the body region, such as a fracture, dislocation, open wound, burn, internal organ injury, or poisoning). Both acute and cumulative traumatic injuries were described by body region and nature-of-injury groups (e.g., fracture, open wound, sprain, musculoskeletal tissue damage).

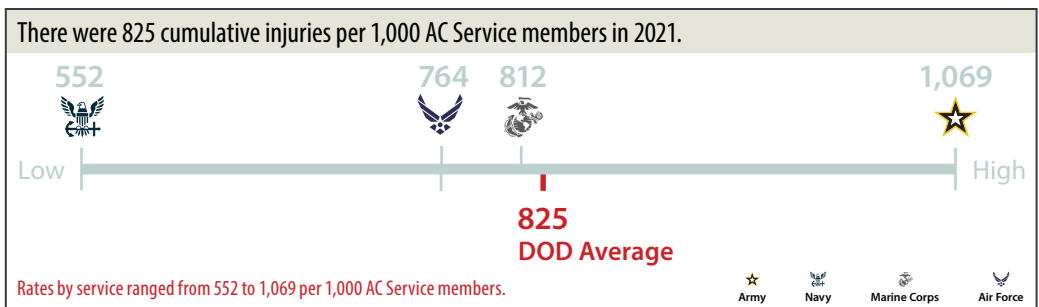
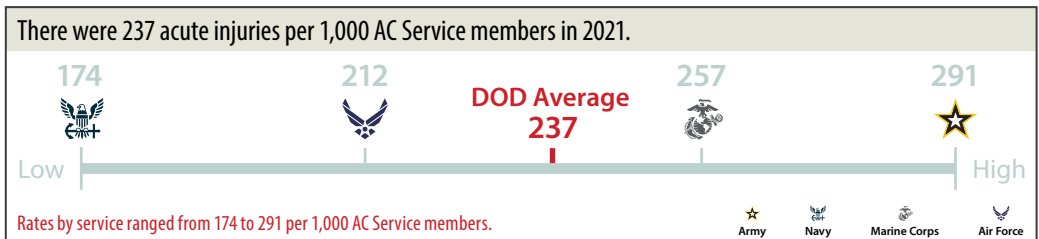
In 2021, there were 317,340 acute and 1,105,601 cumulative traumatic injuries among AC Service members, with rates of 237 per 1,000 and 825 per 1,000 AC service members, respectively. Injury rates were higher in females as compared to males in all Services and in both injury categories. Acute and cumulative traumatic injury rates were highest in the oldest age group among both sexes. Cumulative traumatic injury rates were markedly higher among older Service members, especially males, where the rate among males aged 45 years or older was more than triple that of males less than 25 years.

Among AC Service members who suffered **acute injuries**, the top five body regions and the top five nature-of-injury categories were similar for all Services and accounted for 99.5% and 81% of injuries, respectively. **The rate of acute injuries decreased by 16% between 2017 and 2021. However, the rate of acute and cumulative traumatic injuries increased by 13% and 17% between 2020 and 2021, respectively.**

During 2021, 3,081 (1.4%) of the acute injury cases were hospitalized, and 1,763 (0.3%) of the cumulative traumatic cases were hospitalized. These hospitalizations resulted in 15,198 total bed days for acute injury and 5,778 total bed days for cumulative traumatic injury.

Among AC Service members who suffered **cumulative traumatic injuries**, the most commonly injured body regions were the trunk (45%) and lower extremities (35%). Musculoskeletal tissue damage (e.g., cervical disc disorders, pain in joints, tendonitis, bursitis, chondromalacia) was the most common nature-of-injury category, accounting for 90% of all cumulative traumatic injuries.

Non-combat musculoskeletal injuries have been found to be associated with increased limited duty days, decreased readiness, and increased medical costs to the U.S. government.^{8,9} Of particular concern are injuries sustained during physical training, which is one of the leading cause of injuries in Service members. Many of these types of injuries are preventable and can be mitigated by proper training techniques, use of protective equipment, and program and policy implementation to address risk factors.^{10,11}



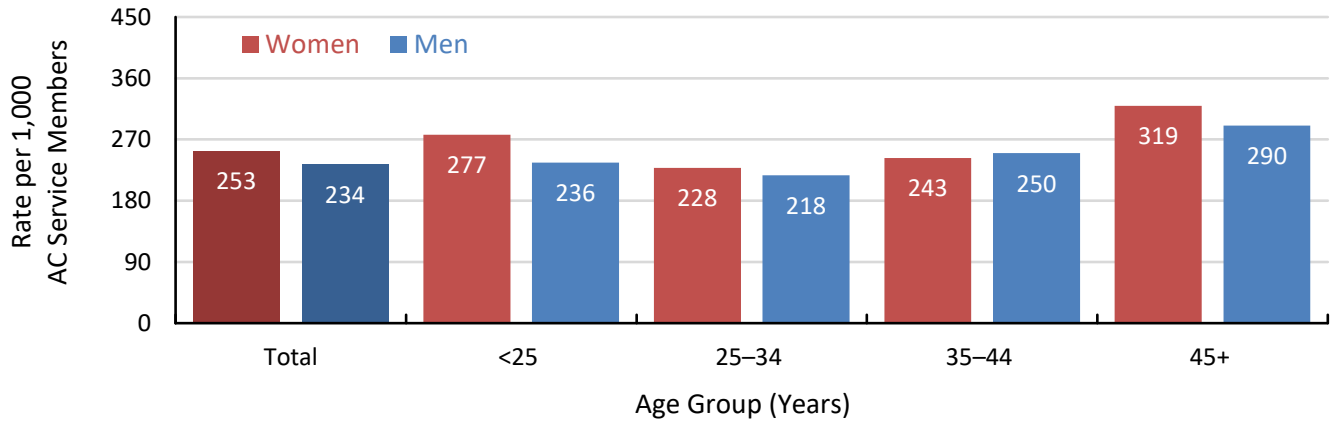
Healthy People 2030: Did you know?

A HP 2030 Objective is to reduce employer-reported nonfatal work-related injuries resulting in 1 or more days away from work (OSH-02).

- 2019 Baseline: 8.69 per 1,000.
- 2030 Target: 6.38 per 1,000.

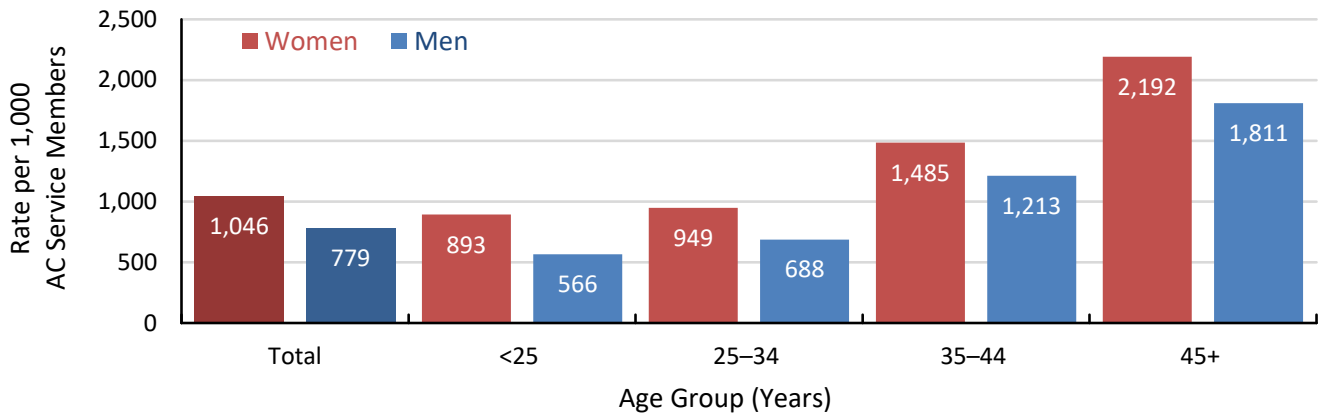
Incidence of Acute Injury by Sex and Age Group, AC Service Members, 2021

Overall, acute injury rates were higher for females (253 per 1,000) compared to males (234 per 1,000). Among both male and female Service members, acute injury rates were highest in the oldest age group (45+ years).



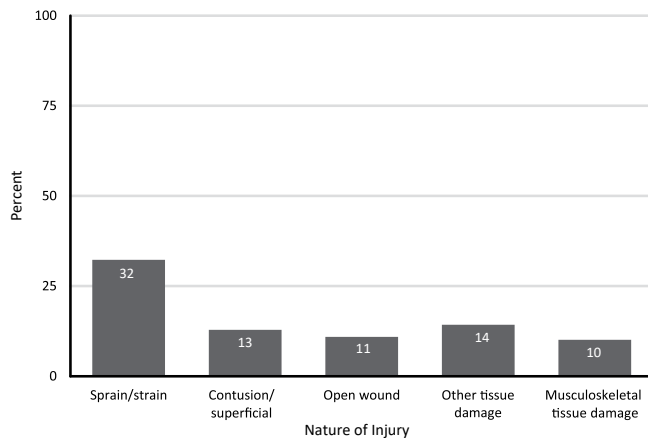
Incidence of Cumulative Traumatic Injury by Sex and Age Group, AC Service Members, 2021

Cumulative traumatic injury rates were higher for older compared to younger Service members and higher for females (1,046 per 1,000) compared to males (779 per 1,000). Among both male and female Service members, cumulative traumatic injury rates were highest in the oldest age group (45+ years).



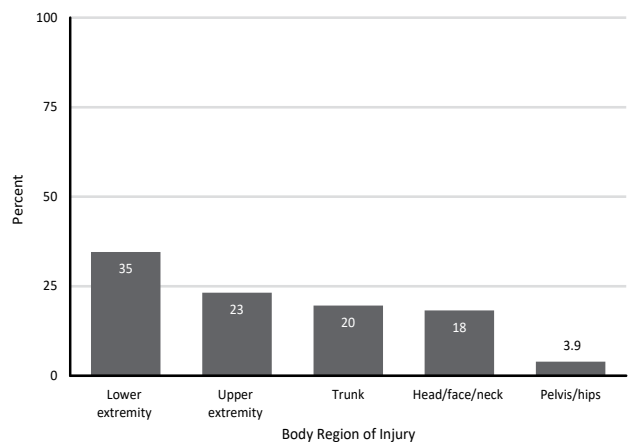
Nature of Acute Injury, Top Five Categories, AC Service Members, 2021

Sprains and strains was the most common nature-of-injury category, accounting for 32% of all incident acute injuries.



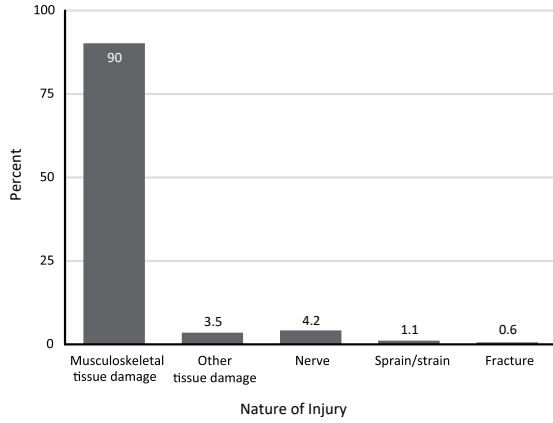
Body Region of Acute Injury, Top Five Categories, AC Service Members, 2021

Lower extremity was the most common region affected by acute injury, accounting for 35% of all incident acute injuries.



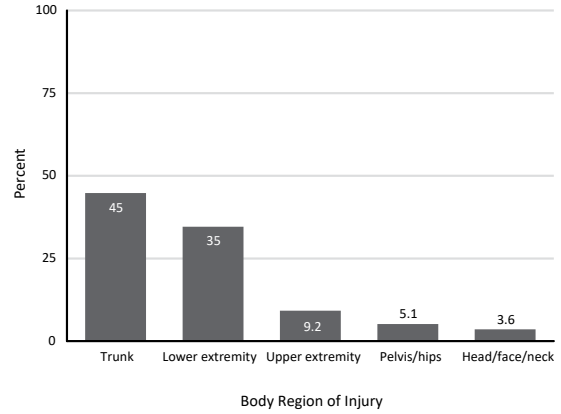
Nature of Cumulative Traumatic Injury, AC Service Members, 2021

Musculoskeletal tissue damage, other was the most common nature-of-injury category, accounting for 90% of all incident cumulative traumatic injuries.



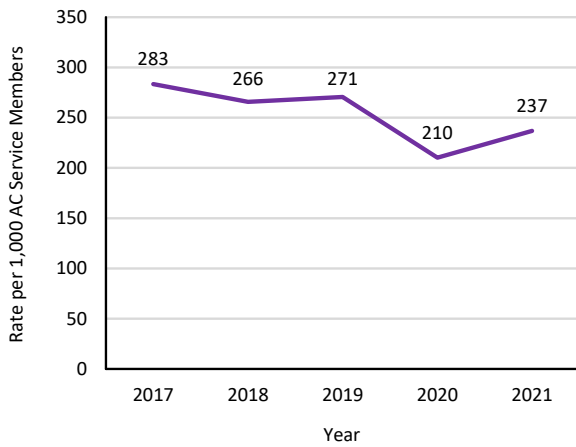
Body Region of Cumulative Traumatic Injury, Top Five Categories, AC Service Members, 2021

The trunk (45%) and lower extremity (35%) were the most common regions affected by cumulative traumatic injury.



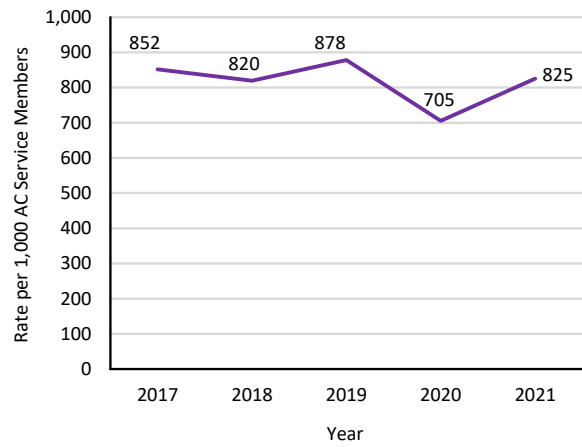
Incidence of Acute Injury, AC Service Members, 2017–2021

The rate of cumulative traumatic injuries decreased from 283 to 237 per 1,000 (16%) between 2017 and 2021.



Incidence of Cumulative Traumatic Injury, AC Service Members, 2017–2021

The rate of cumulative traumatic injuries decreased from 852 to 825 per 1,000 (3%) between 2017 and 2021.



TRAUMATIC BRAIN INJURY

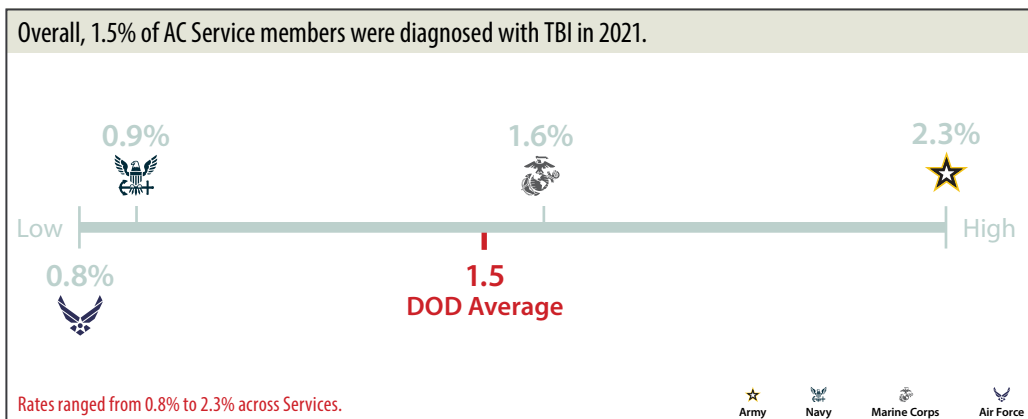
Traumatic brain injury (TBI) is structural alteration of the brain or physiological disruption of brain function caused by an external force.¹² TBI is the most common traumatic injury in the U.S. military and can be attributed to both deployment and non-deployment causes, including blast-related injuries, motor vehicle accidents, falls, contact sports, training activities, and combative actions.¹³ The effects of TBI vary depending upon the severity of the injury and may include physical (headaches, sleep disturbances), auditory processing problems, cognitive (concentration and attention problems), and emotional (anxiety, depression) dysfunction. TBI can contribute to prolonged and permanent disability and may lead to military duty limitations or separation from service.

In 2021, a total of 20,027 AC service members (1.5%) had medical encounters for TBI. Overall, similar percentages of male and female AC service members were diagnosed with TBI (1.5% and 1.6%, respectively). Male Service members aged 45 years or older (3.1%) were three times as likely to have an encounter for TBI as their counterparts aged 34 years or younger (1.0%). However, the percentage of female Service members with encounters for TBI did not increase with increasing age group. The association between increasing age and prevalence of TBI among male Service members may

be related to these members seeking medical care at the end of their service in order to document their eligibility for Veterans disability compensation or follow-up medical care after separation, which could contribute to the identification of TBIs that were sustained earlier in service. Among those with TBI encounters, the most common severity was mild (74.8%) followed by moderate (24.4%), severe (0.4%), and penetrating (0.3%). **The annual prevalence of TBI remained stable from 2017 to 2021 with a slight decrease in 2020. The prevalence of TBI increased 16% between 2020 and 2021.**

A total of 527 (2.6%) AC Service members with TBI were hospitalized in 2021, resulting in 5,595 total bed days.

A previous *MSMR* report evaluating TBI diagnoses from 2001 to 2016 found that incidence rates were highest among those aged 24 years or younger and among Service members in the Army or Marine Corps.¹⁴ Prevention, awareness, and education about mild TBI is important since many TBIs are sustained as a result of non-combat related activities such as motor vehicle crashes or sports injuries.¹³ Early detection, diagnosis, and treatment of mild TBIs will result in the best clinical outcome and help to prevent long-term neurological injury.



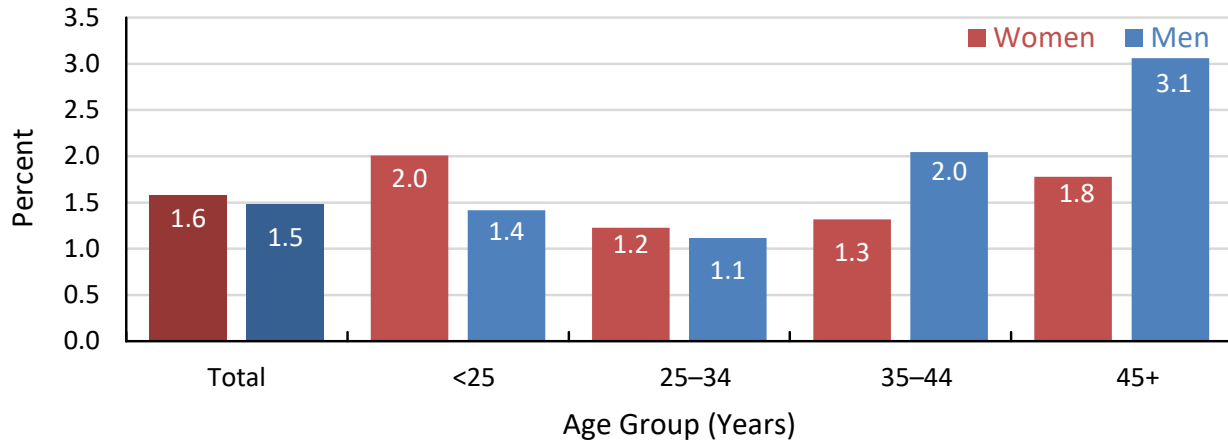
Healthy People 2030: Did you know?

A HP 2030 Objective is to reduce fatal traumatic brain injuries (IVP-05).

- 2018 Baseline: 0.0171 percent.
- 2030 Target: 0.0169 percent.

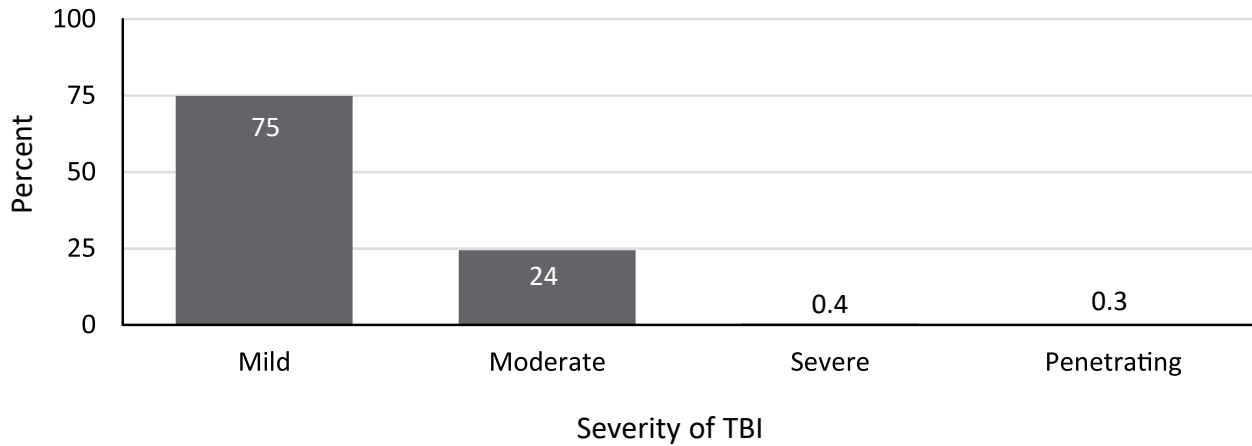
Prevalence of TBI by Sex and Age Group, AC Service Members, 2021

Among male Service members, those aged 45+ years were more likely to be diagnosed with TBI than those in younger age groups. Among female Service members, those in the youngest and the oldest age groups were more likely to be diagnosed compared to those in intermediate age groups.



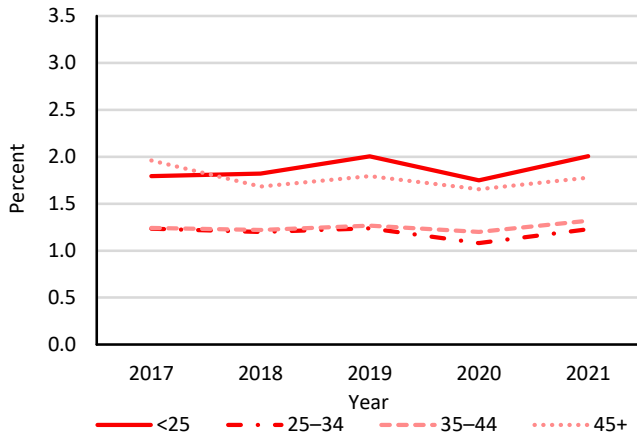
Severity of TBI, AC Service Members, 2021

Mild TBI was the most commonly diagnosed severity, accounting for 75% of all TBI diagnoses.



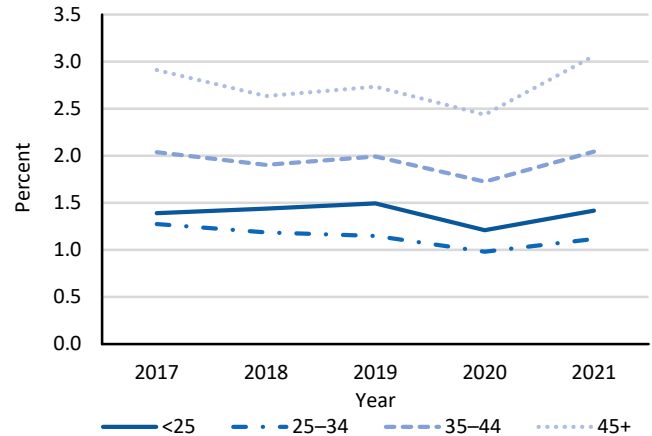
Prevalence of TBI by Age Group, Female AC Service Members, 2017–2021

Between 2017 and 2021, the percentage of female Service members who had an encounter for TBI remained stable for those aged 25 years and older and increased slightly for those aged less than 25 years.



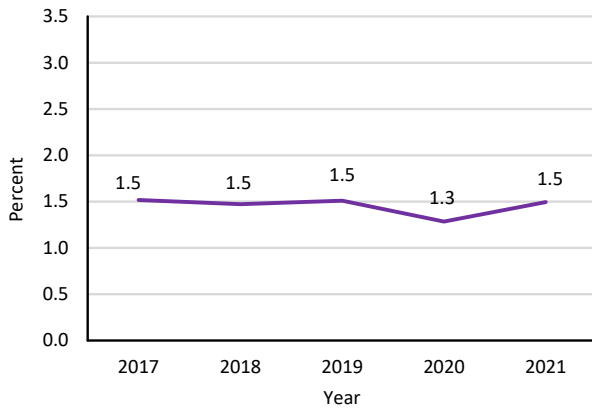
Prevalence of TBI by Age Group, Male AC Service Members, 2017–2021

Between 2017 and 2021, the percentage of male Service members who had an encounter for TBI increased for those aged 45+ years and remained stable for other age groups.



Prevalence of TBI, AC Service Members, 2017–2021

The prevalence of TBI remained relatively stable between 2017 and 2021 but decreased slightly in 2020.

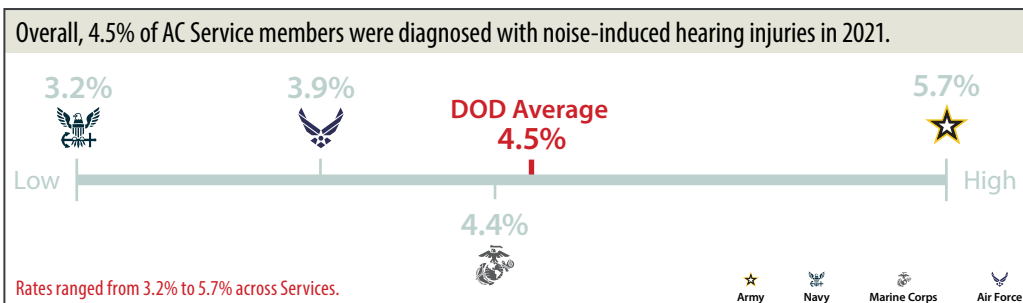
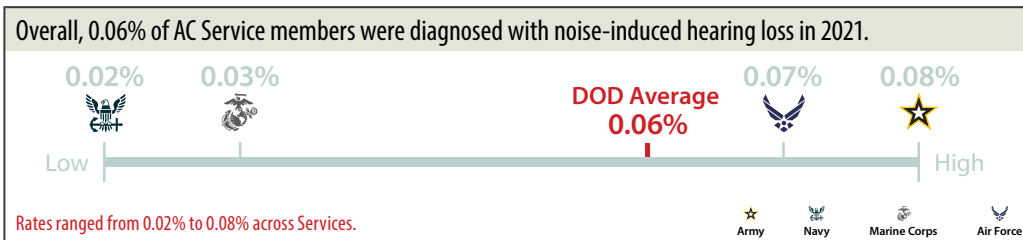


NOISE-INDUCED HEARING INJURY

Noise-induced hearing injury refers to acoustic trauma that can be caused by single exposure to an intense “impulse” sound such as an explosion or weapons fire, or by continuous or intermittent noise exposure over an extended period of time. Steady state exposures include military vehicles and aircraft, military equipment, and tools found in both military and civilian industrial environments.¹⁵ Service members may also experience harmful noise exposure from recreational sources including motorcycles, target shooting and hunting, snowmobiles, and power tools.¹⁶ Noise-induced hearing injury can significantly affect the health and operational effectiveness of Service members. Epidemiological estimates suggest that noise-induced hearing injuries are a growing problem among military personnel as well as the general population.¹⁷ Common types of noise-induced hearing injuries include tinnitus, a ringing or buzzing noise in one or both ears, and sensorineural hearing loss, which is hearing loss caused by damage to the inner ear.

In 2021, a total of 59,741 AC service members (4.5%) were diagnosed with noise-induced hearing injuries. The prevalence of noise-induced hearing injuries was higher among male compared to female Service members (4.8% and 3.0%, respectively). Service members in the oldest age group (45 years or older) had the highest prevalence of noise-induced hearing injuries in both sexes. Tinnitus (2.9%) was the most common specific noise-induced hearing injury sustained by service members in 2021, followed by sensorineural hearing loss (1.7%). **The annual prevalence of noise-induced hearing injuries remained relatively stable between 2017 and 2021. However, prevalence increased 9% between 2020 and 2021.**

Previous studies have shown that rates of noise-induced hearing injuries are higher among male Service members, those 40 years or older, and those in combat-related occupations.¹⁸ Hearing injuries can be reduced or prevented by the use of and compliance with hearing protection devices, distance and physical barriers to noise exposure, and follow-up audiological tests.^{19,20}



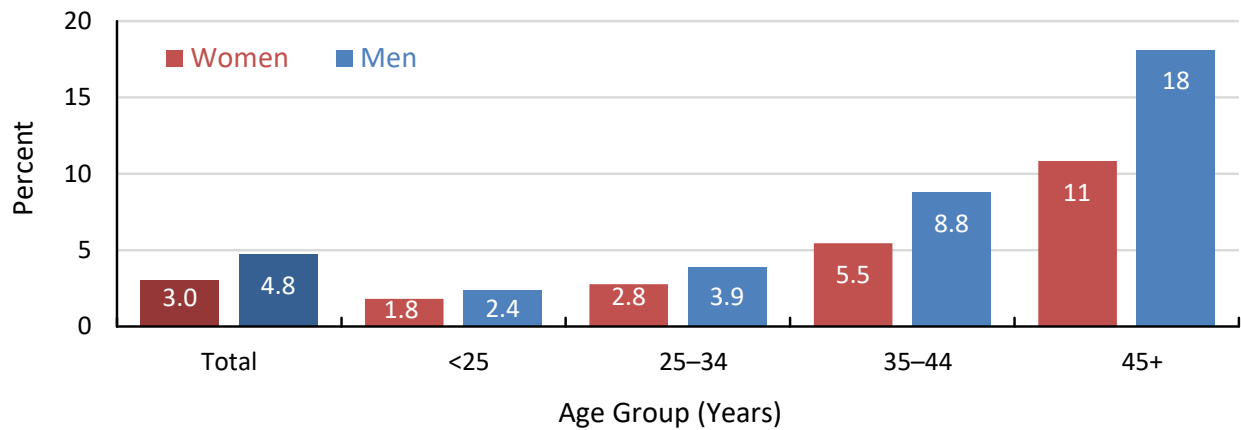
Healthy People 2030
HEALTHY PEOPLE 2030
2030: Did you know?

A HP 2030 Objective is to reduce the proportion of adults who have hearing loss due to noise exposure (HOSCD-09).

- 2016 Baseline: 9.8 percent.
- 2030 Target: 7.9 percent.

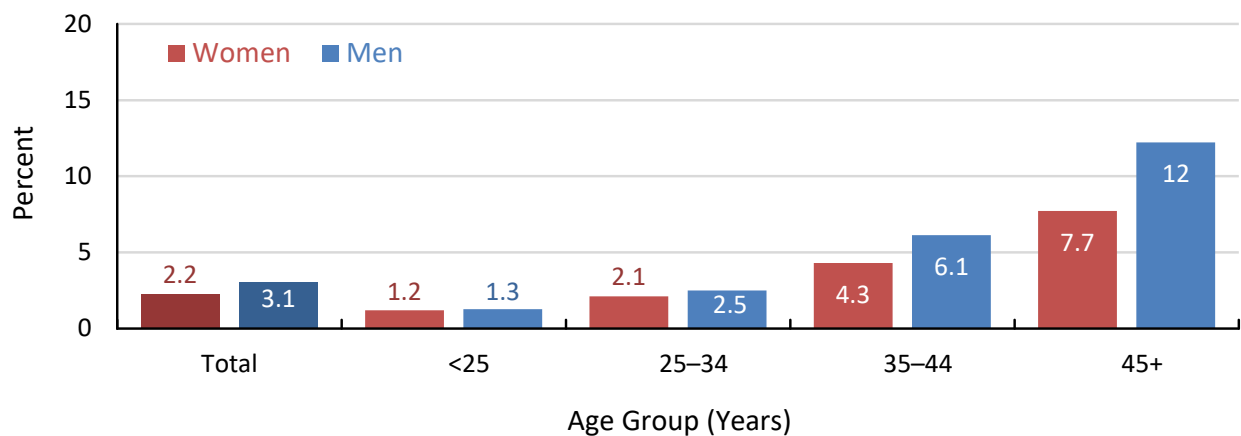
Prevalence of Noise-induced Hearing Injury by Sex and Age Group, AC Service Members, 2021

The prevalence of noise-induced hearing injuries was higher among male (4.8%) compared to female Service members (3.0%) and increased with increasing age for both sexes.



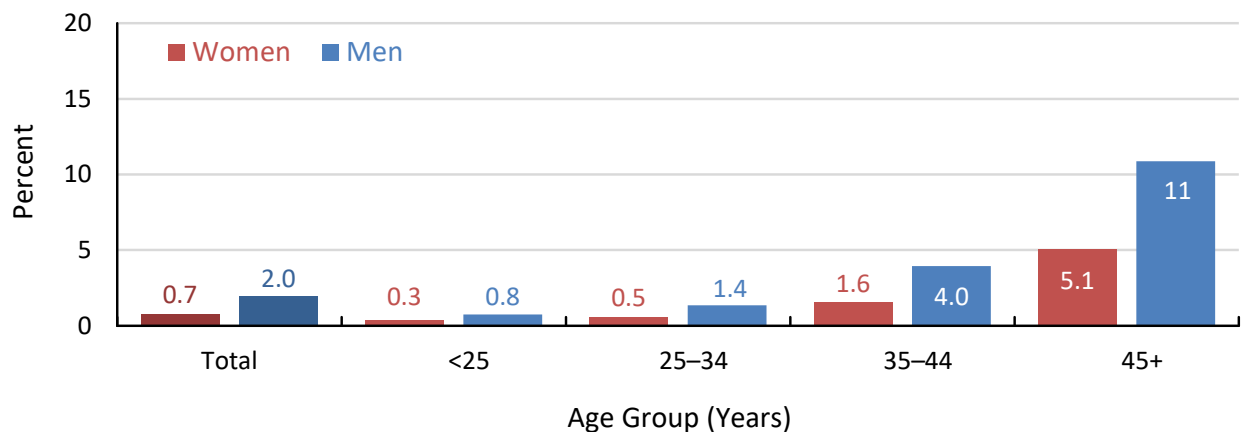
Prevalence of Tinnitus by Sex and Age Group, AC Service Members, 2021

The prevalence of tinnitus was higher for male (3.1%) compared to female Service members (2.2%), and the prevalence increased with increasing age for both sexes.



Prevalence of Sensorineural^a hearing loss by Sex and Age Group, AC Service Members, 2021

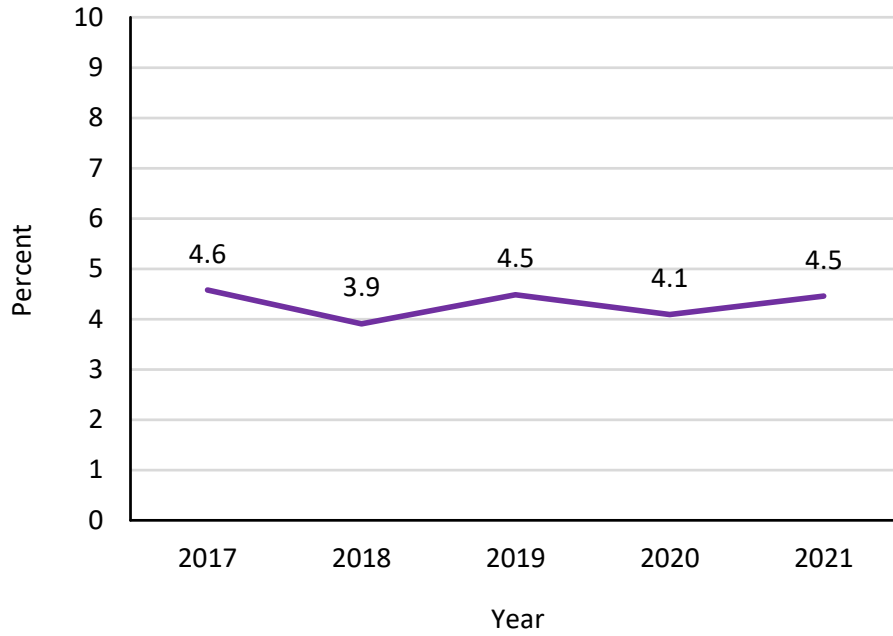
The prevalence of sensorineural Hearing Loss was higher for male (2.0%) compared to female Service members (0.7%), and prevalence increased with increasing age for both sexes.



^aSensorineural hearing loss is typically considered a form of noise-induced hearing loss; however, for the purposes of this report, the two conditions are defined separately.

Prevalence of Noise-induced Hearing Injury, AC Service Members, 2017–2021

The prevalence of noise-induced hearing injuries among Service members remained stable between 2017 and 2021.



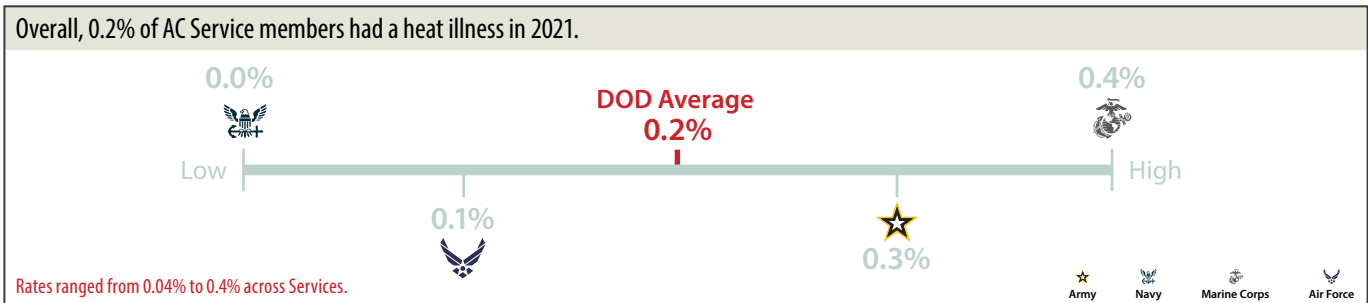
HEAT ILLNESS

Heat illness refers to a group of disorders that occur when the elevation of core body temperature surpasses the compensatory limits of thermoregulation. The Armed Forces routinely perform surveillance for the most common of these disorders, namely heat exhaustion and heat stroke. Heat exhaustion is caused by the inability to maintain adequate cardiac output because of strenuous physical exertion and environmental heat stress and is often accompanied by acute dehydration. Heat stroke is a debilitating illness characterized clinically by severe hyperthermia (i.e., a core body temperature of 104°F/40°C or greater), profound central nervous system dysfunction (e.g., delirium, seizures, or coma), and additional organ and tissue damage. The onset of heat stroke requires aggressive clinical treatments including rapid cooling and supportive therapies such as fluid resuscitation to stabilize organ function and prevent multiorgan system failure, which is the ultimate cause of mortality due to heat stroke. **In 2021, a total of 1,872 AC Service members (0.14%) were diagnosed with heat exhaustion, and 489 (0.04%) were diagnosed with heat stroke.** Overall, heat illnesses were more common among Service members under 25 years old, who accounted for 71% of all cases. Male Service members (0.18%) were slightly

more affected by heat illnesses compared to female members (0.15%). **The percentages of AC Service members affected by heat exhaustion increased slightly between 2017 and 2018, leveled off in 2019, and then decreased between 2019 and 2020, while the percentage affected by heat stroke remained stable throughout the period. The overall percentage of AC service members affected by heat illness remained relatively stable between 2020 and 2021.**

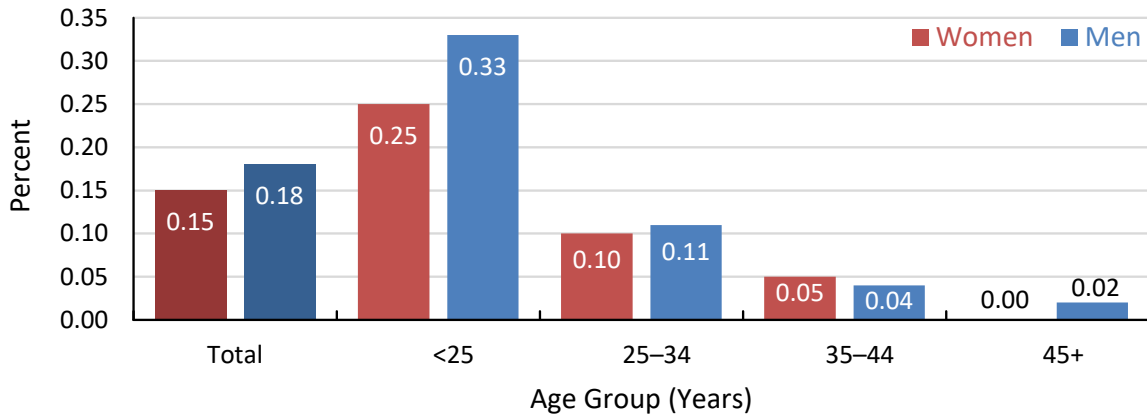
During 2021, 114 (23.3%) heat stroke cases and 19 (1.0%) heat exhaustion cases were hospitalized. These hospitalizations resulted in 324 total bed days for heat stroke and 40 total bed days for heat exhaustion.

Rates of heat illness have previously been found to be highest among recruit trainees and those serving in combat specific occupational fields.²¹ Efforts at preventing heat illnesses need to focus especially on these groups of Service members, who may engage in higher levels of demanding physical exertion during warm weather. In particular, trainees at basic training installations may not be acclimated to the heat or may not be physically fit.



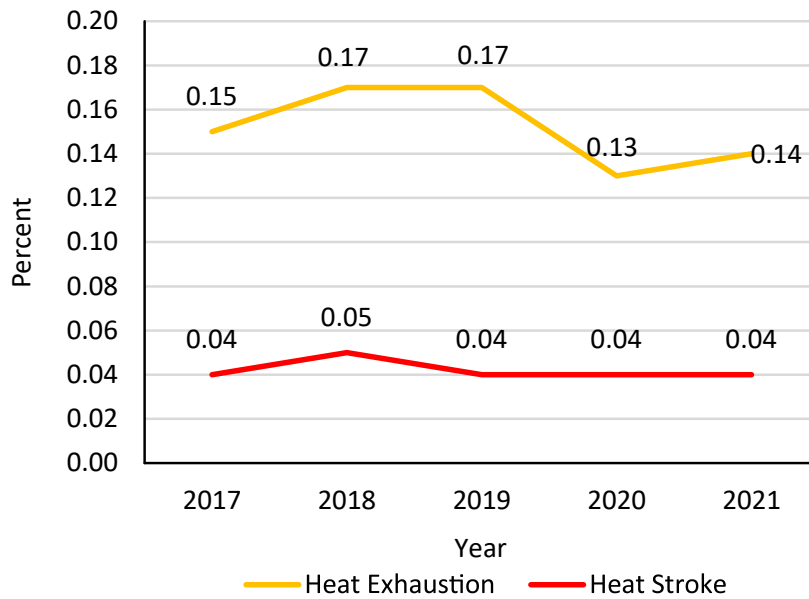
Incidence of Heat Illness by Sex and Age Group, AC Service Members, 2021

Incidence of heat illness was higher for younger compared to older Service members, and higher for males (0.18%) compared to females (0.15%).



Incidence of Heat Stroke and Heat Exhaustion, AC Service Members, 2017-2021

The percentages of Service members affected by heat exhaustion increased slightly between 2017 and 2018, leveled off in 2019, and then decreased in 2020, while the percentages who experienced heat stroke remained stable during the five-year period.



HEAT INDEX

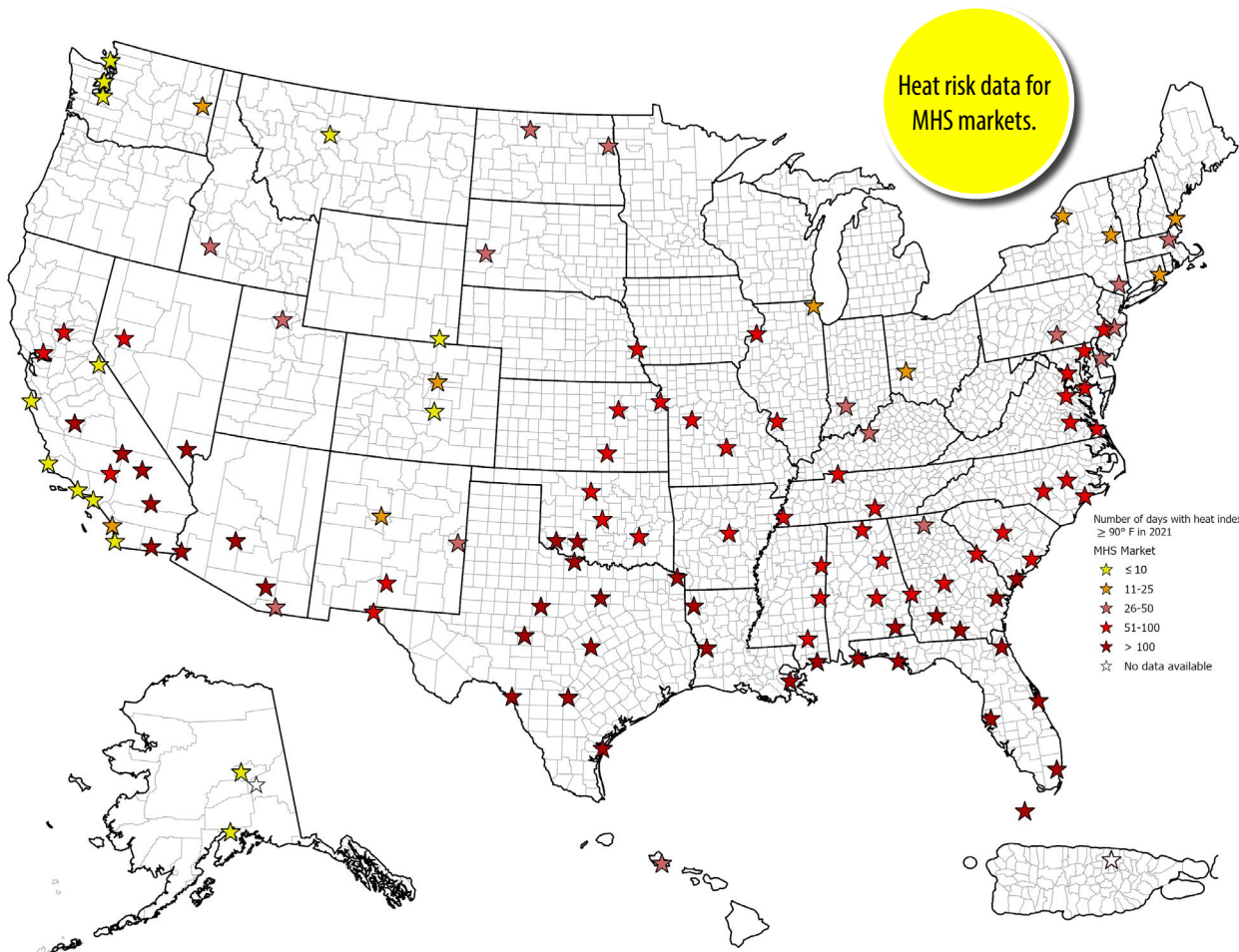
Heat index is calculated from outdoor air temperature and relative humidity to quantify what heat conditions feel like to the human body. A heat index greater than 90°F is classified as an outdoor heat status of extreme caution by the National Weather Service. Potential health impacts at this heat index level include heat cramps, heat exhaustion and heat stroke. To determine the number of heat risk days, or number of days during the calendar year that had one or more hours with the heat index greater than or equal to 90°F, data were obtained from the Air Force 14th Weather Squadron. Data were reported at a zip code-level and then mapped to one of 120 MHS markets in the United States by taking the average number of heat risk days for that market in 2021.

The distribution of the number of heat risk days was organized into 5 categories; ≤10, 11–25, 26–50, 51–100, and >100 days.

In 2021, 14 MHS markets had ≤10 days with a heat index of at least 90°F, 10 MHS markets had 11–25 days, 16 MHS markets had 26–50 days, 42 MHS markets had 51–100 days, and 36 MHS markets had >100 days. There were 2 MHS markets with no heat index data.

Overall, 83 MHS markets experienced 50 or more heat risk days during 2021. This affects almost 1 million service members who are stationed at these markets throughout the year.

With national average temperatures predicted to increase by a range of 3°F to 10°F by 2100, it is important to track and plan for the effect of ambient heat on population health.²²



BEHAVIORAL HEALTH

Like injury, behavioral health (BH) conditions are a leading cause of morbidity among AC Service members, accounting for over 2 million (10.5%) outpatient encounters and 20 thousand inpatient encounters (31.3%) in 2021.^{23,24}

To determine the proportion of AC Service members (including those who were deployed) with a BH diagnosis during a given 12-month period, the annual prevalence of BH conditions was calculated. This included estimates of specific BH conditions (adjustment disorders, alcohol-related disorders, substance-related disorders, anxiety disorders, bipolar disorder, depressive disorder, psychoses, and posttraumatic stress disorder [PTSD]). Service members were identified as having a BH disorder if they had at least two inpatient, outpatient, or in-theater encounters within 365 days with at least one of the diagnoses occurring during 2021.

To determine the proportion of AC Service members that had ever been diagnosed with a BH condition, the “lifetime” prevalence of BH disorders was calculated. Service members on active duty during December 2021 were used for this analysis and were considered to have a lifetime history of a BH condition if they had two BH disorder diagnoses within 365 days at any time between 2002 and 2021.

Overall, 9.6% of AC Service members were diagnosed with a BH disorder in 2021. The annual prevalence of BH disorders increased 12% from 2017 to 2021, and increased 10% between 2020 and 2021. Female Service members were more likely to be

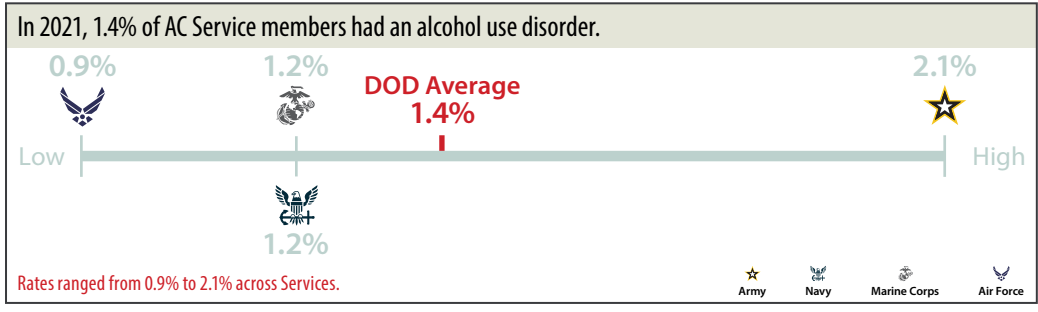
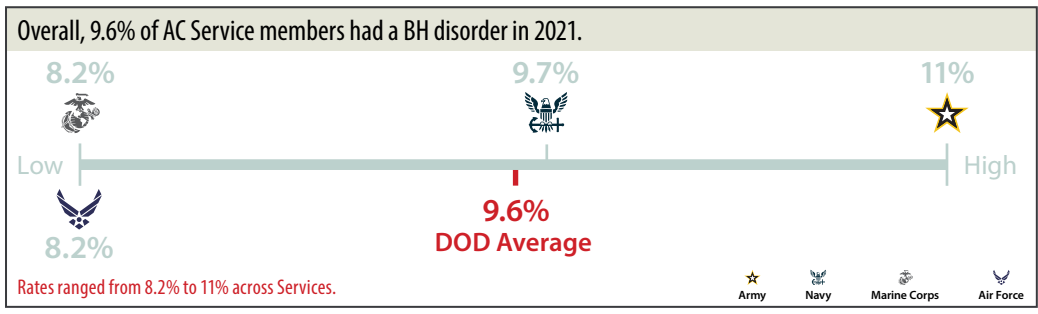
diagnosed with a BH disorder (16%) when compared to male members (8.3%). Service members in the youngest age category (less than 25 years) had the highest prevalence of BH disorders in both sexes.

More than 12% of service members with any BH disorder were hospitalized, resulting in a total of 179,608 bed days in 2021. Cases of psychoses had the highest hospitalization rate (28%), followed by bipolar disorders (19%). However, cases of depressive disorders had the highest total number of bed days (55,765), followed by alcohol-related disorders (42,961).

Among both male and female AC Service members, adjustment disorder was the leading BH diagnosis in 2021 followed by anxiety disorder and depressive disorder.

Among AC Service members on active duty during December 2021, 29% of female and 17% of male members (19% overall) had a history (lifetime prevalence) of a BH disorder. The lifetime prevalence of BH disorders ranged from 12% to 22% across Services.

To provide help for Service member with BH issues or concerns, the MHS offers several resources including free hotlines (e.g., Military OneSource, DoD Safe Helpline, Military Crisis Line),²⁵ outreach centers (e.g., Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury Outreach Center), and connections to additional support programs (e.g., National Resource Directory).



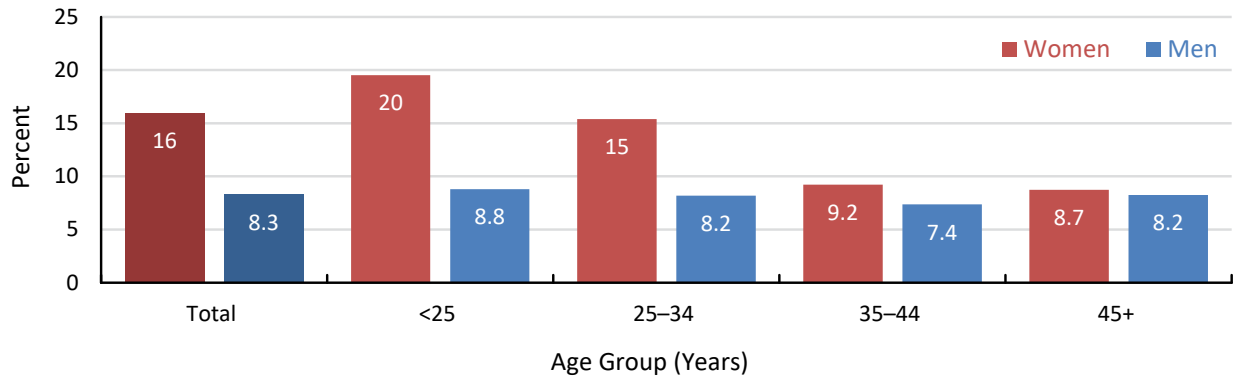
Healthy People 2030: Did you know?

A HP 2030 Objective is to reduce the proportion of persons with alcohol use disorder in the past year (SU-13).

- 2018 Baseline: 5.4%.
- 2030 Target: 3.9%.

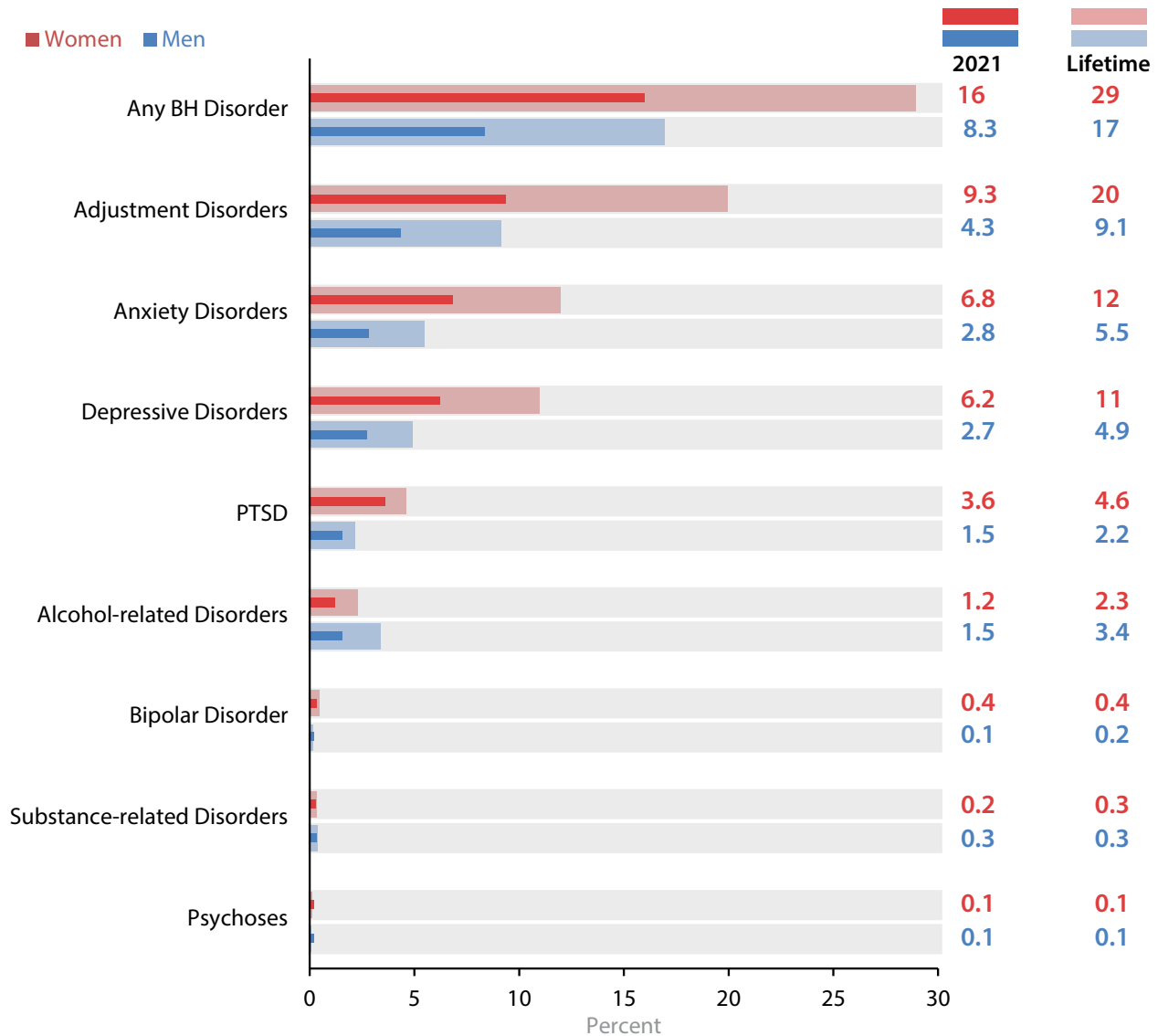
Prevalence of Behavioral Health Disorders by Sex and Age Group, AC Service Members, 2021

Females (16%) were more likely to be diagnosed with behavioral health disorders compared to males (8.3%), and those in the youngest age group were more likely to be diagnosed compared to older Service members.



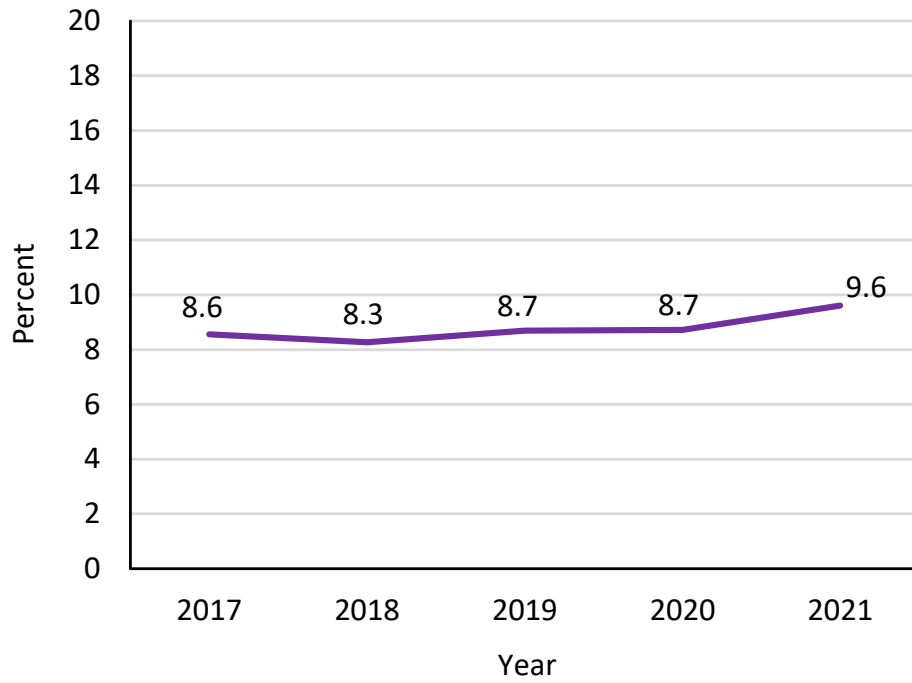
Annual and Lifetime Prevalence of Behavioral Health Disorders by Sex and Condition, AC Service Members, 2021

Overall, 19% of Service members (29% of women and 17% of men) received diagnoses of a behavioral health disorders between 2002 and 2021. The percentages were higher for females compared to males for most behavioral health disorders.



Prevalence of Behavioral Health Disorders, AC Service Members, 2017–2021

The prevalence of behavioral health disorders increased from 8.6% to 9.6% between 2017 and 2021.



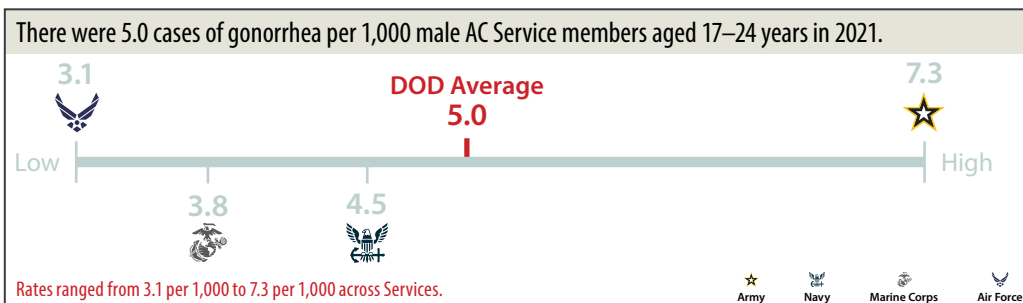
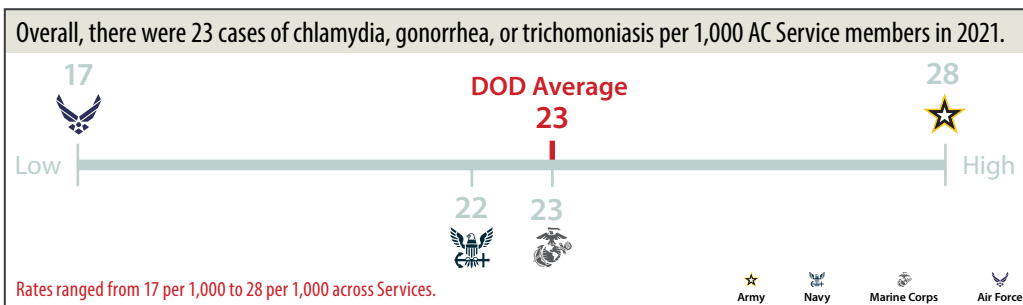
SEXUALLY TRANSMITTED INFECTIONS

Sexually transmitted infections (STIs) are relevant to Service members because of their relatively high incidence, adverse impact on individual readiness, and potential for serious medical sequelae if left untreated.²⁶ Two of the most common bacterial STIs are caused by *Chlamydia trachomatis* (chlamydia) and *Neisseria gonorrhoeae* (gonorrhea). Trichomoniasis, caused by the parasite *Trichomonas vaginalis*, is another common STI. The overall incidence and time trends related to these three STIs (chlamydia, gonorrhea, and trichomoniasis) among AC Service members in 2021 are reported here.

In 2021, 23 per 1,000 AC Service members were diagnosed with or tested positive for one of the three STIs. Female Service members had higher rates of STIs compared to male members, particularly among the younger age groups. **Chlamydia was most common (18.6 per 1,000), followed by gonorrhea (3.5 per 1,000) and trichomoniasis (0.7 per 1,000).** Among both male and female Service members, STIs were most common in the youngest age groups. AC Service members less than 25 years of age were almost three times more likely to have an STI compared to those aged 25–34 years.

The annual incidence rates of chlamydia and gonorrhea among AC Service members increased between 2016 and 2019, but decreased from 2019 to 2021. These trends were primarily attributed to Service members under age 25. Rates of trichomoniasis remained relatively stable between 2017 and 2021. **The incidence of all 3 STIs combined decreased by 8% between 2020 and 2021.**

Previous studies have demonstrated increases in the incidence rates of chlamydia and gonorrhea among AC Service members during the past five years,²⁶ with consistently higher rates among female Service members. Higher rates of most STIs among female compared to male Service members can likely be attributed to implementation of the Services' screening programs. An annual *MSMR* report summarizes the incidence of HIV, human papillomavirus (HPV), herpes simplex virus, and syphilis among AC Service members in 2021 and in prior years.²⁶ Continued behavioral risk reduction interventions are needed to counter the increasing incidence of some STIs and maintain any decreases.

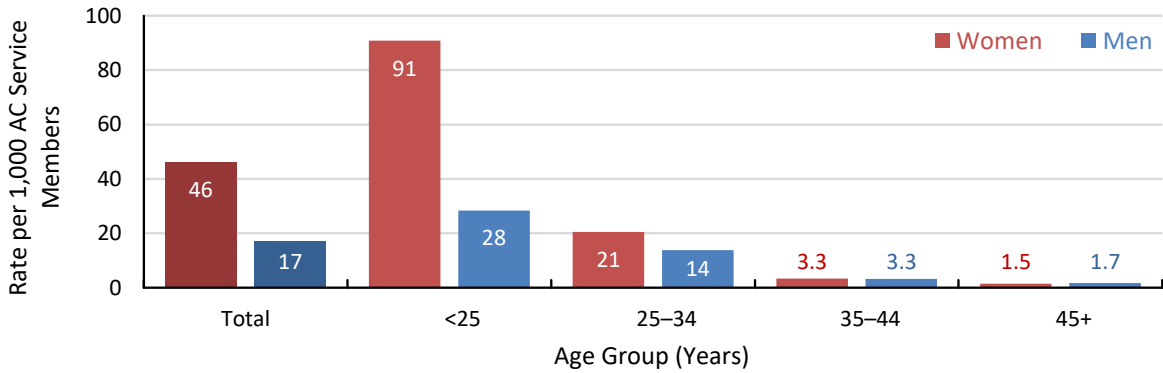


A HP 2030 Objective is to reduce gonorrhea rates in male adolescents and young men (STI-02).

- 2017 Baseline: 5.2 cases of gonorrhea per 1,000 males aged 15–24 years.
- 2030 Target: 4.7 per 1,000.

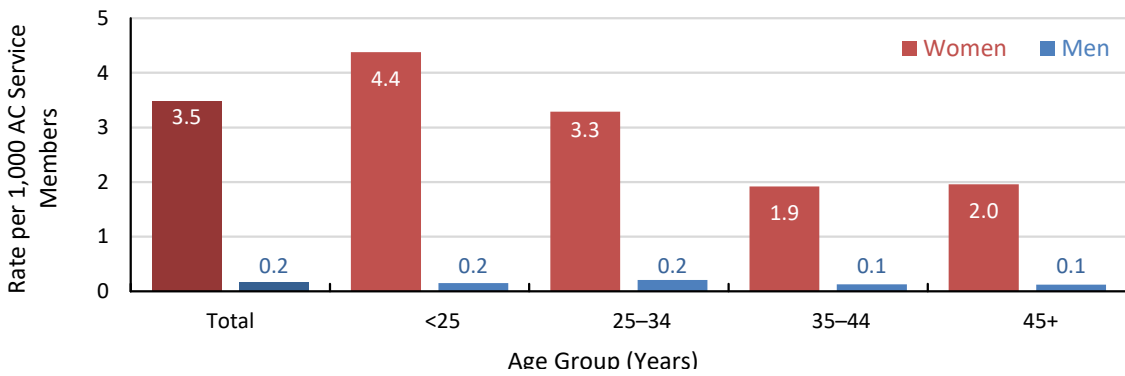
Incidence of Chlamydia and Gonorrhea by Sex and Age Group, AC Service Members, 2021

Among AC Service members in 2021, females (46 per 1,000) had higher rates of chlamydia and gonorrhea compared to males (17 per 1,000), and rates were highest among the younger age groups.



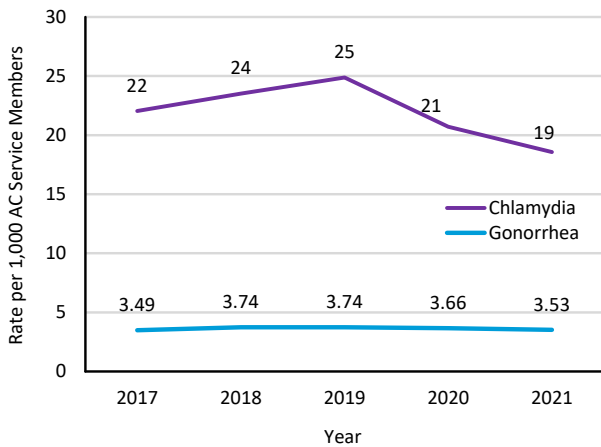
Incidence of Trichomoniasis by Sex and Age Group, AC Service Members, 2021

Overall, females had higher rates of trichomoniasis compared to males.



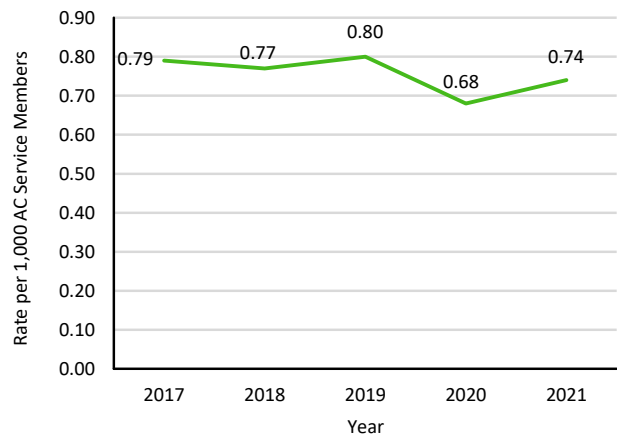
Incidence of Chlamydia and Gonorrhea, AC Service Members, 2017-2021

The incidence of chlamydia increased from 2017 to 2019, and decreased between 2019 and 2021. The incidence of gonorrhea remained relatively stable.



Incidence of Trichomoniasis, AC Service Members, 2017-2021

The incidence of trichomoniasis remained relatively stable between 2017 and 2021.



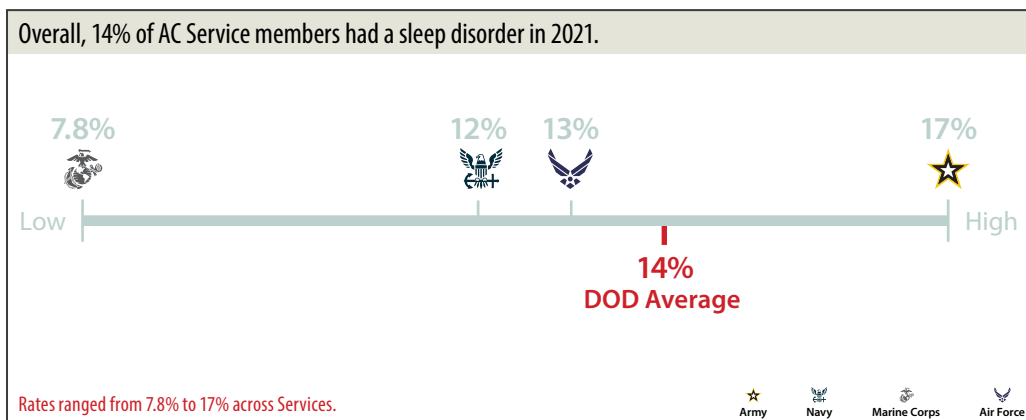
SLEEP DISORDERS

The American Academy of Sleep Medicine recommends at least seven hours of sleep per night for adults aged 18–60 years.²⁷ Lack of sleep can impair cognitive function, decreasing performance and increasing the risk for injury and accidents. Insufficient sleep is also associated with a number of chronic diseases including diabetes, heart disease, obesity, and depression.²⁸ The overall prevalence and time trends related to sleep disorders (including sleep apnea, insomnia, hypersomnia, circadian rhythm disorders, narcolepsy, parasomnia, and sleep-related movement disorders) among AC Service members in 2021 are reported here, along with the prevalence of the most commonly diagnosed sleep disorders.

In 2021, 14% of AC Service members were diagnosed with at least one sleep disorder. Proportions were similar for male and female Service members (14% and 12%, respectively). **The most commonly diagnosed sleep disorders were sleep apnea and insomnia (7.7% and 5.5%, respectively).** Male Service members were more likely to be diagnosed with sleep apnea than female members (8.5% and 3.9%,

respectively), while a greater percentage of female than male Service members were diagnosed with insomnia (7.4% and 5.0%, respectively). **The prevalence of sleep disorders among AC Service members remained relatively stable during 2017–2021. However, prevalence of sleep disorders increased by 11% between 2020 and 2021.**

Military work duties can present challenges to receiving enough sleep on a nightly basis, as they may include night shift work, time zone changes, and scheduled watch duties. In addition, stress can lead to sleep disturbances, which are highly prevalent in combat operations and may persist long after the deployment has ended. The following are recommendations to promote sleep health in AC Service members: prevent sleep problems through increased education and further research, increase identification and diagnosis of sleep problems, clinically manage sleep disorders through evidence-based practices, and make appropriate policy improvements to sleep in training and operational contexts.²⁹



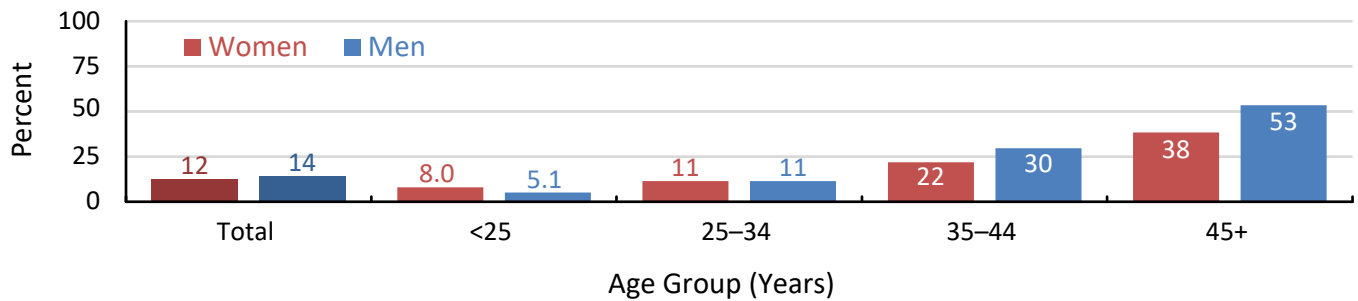
Healthy People 2030
Healthy People 2030: Did you know?

A HP 2030 Objective is to increase the proportion of adults who get sufficient sleep (SH-03).

- 2017 Baseline: 67.5%
- 2030 Target: 68.6%

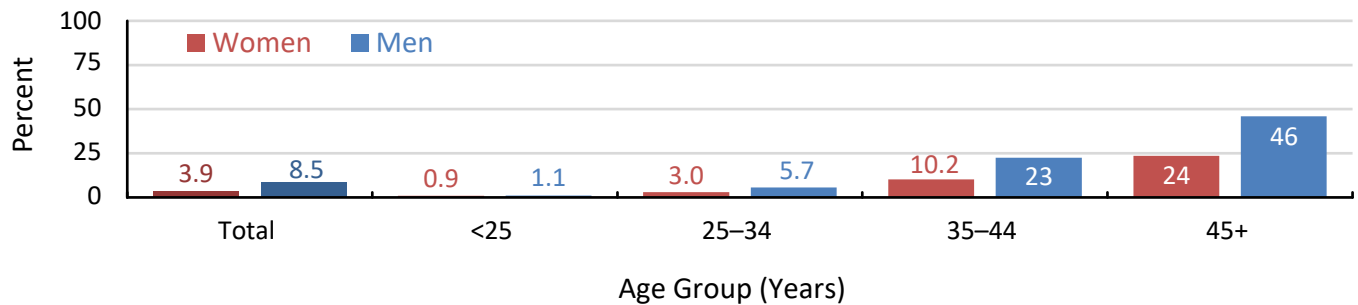
Prevalence of Sleep Disorders by Sex and Age Group, AC Service Members, 2021

The prevalence of sleep disorders was similar for males (14%) and females (12%) and increased with age among both sexes.



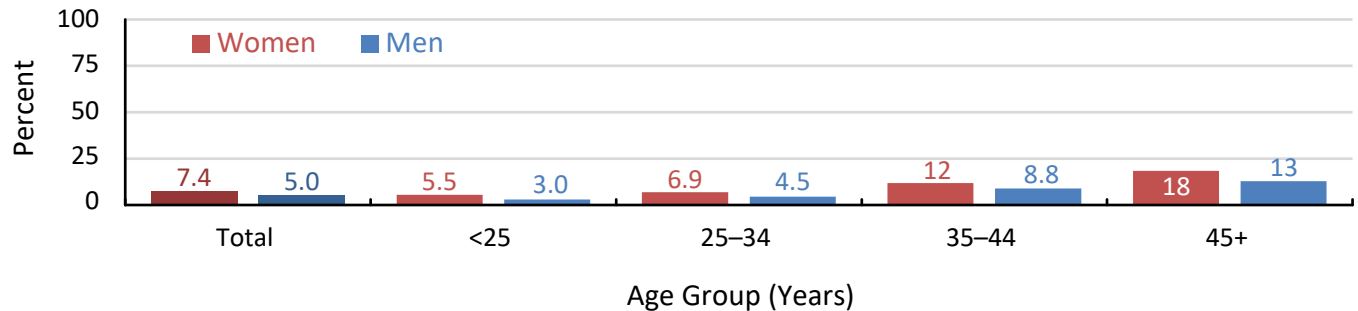
Prevalence of Sleep Apnea by Sex and Age Group, AC Service Members, 2021

The prevalence of sleep apnea was higher for males (8.5%) compared to females (3.9%), and the prevalence increased with age among both sexes.



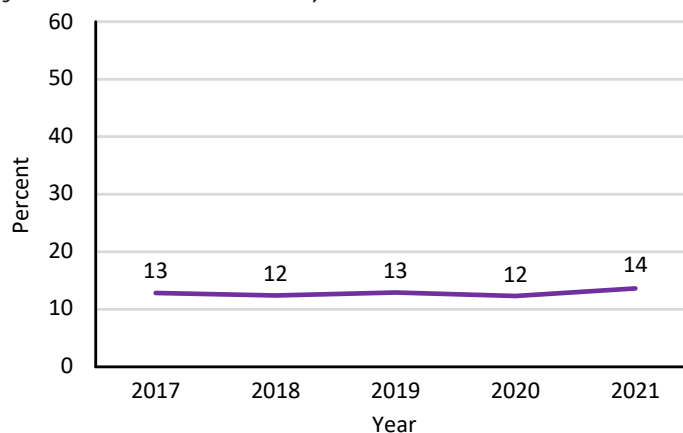
Prevalence of Insomnia by Sex and Age Group, AC Service Members, 2021

The prevalence of insomnia was higher for females (7.4%) compared to males (5.0%), and the prevalence increased with age among both sexes.



Prevalence of Sleep Disorders, AC Service Members, 2017-2021

The prevalence of sleep disorders among Service members remained relatively stable between 2017 and 2021.



OBESITY

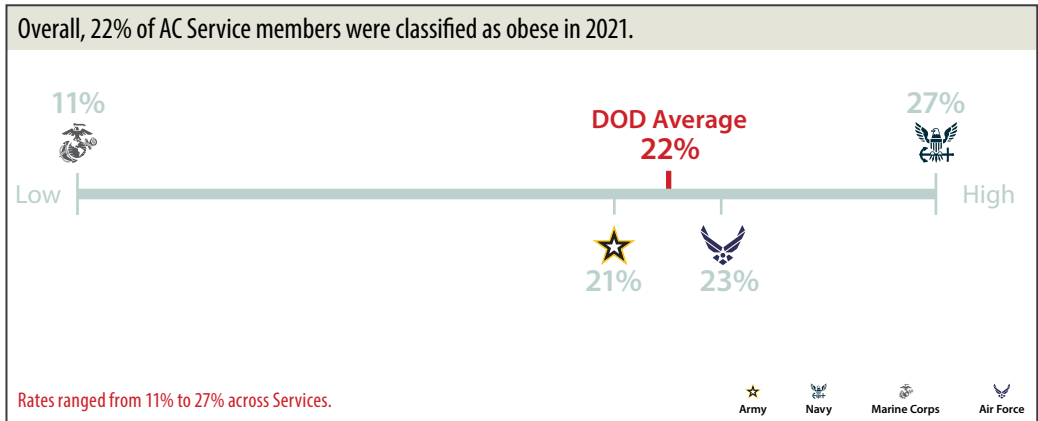
Obesity negatively impacts physical performance and military readiness and is associated with long-term health problems such as hypertension, diabetes, coronary heart disease, stroke, cancer, and risk for all-cause mortality. Studies also suggest that healthcare utilization is higher among obese Service members than their normal-weight counterparts.³⁰

The Clinical Data Repository (CDR) vital sign table and Genesis vitals table within the MHS Data Repository (MDR) were used to identify all records for AC Service members with a height and weight measurement available on the same day; pregnant Service members were excluded. Body mass index (BMI) was calculated utilizing the latest height and weight record in a given year. In accordance with the Centers for Disease Control and Prevention (CDC), a BMI ≥ 30 was considered obese.³¹

The overall prevalence of obesity among AC Service members was 21.6% in 2021. Obesity rates were

higher among male (22.5%) compared to female Service members (17.4%). The lowest prevalence of obesity was in Service members less than 25 years old (13%) and the highest was among those aged 35–44 years (32.5%). **The overall prevalence of obesity increased between 2017 and 2021. Between 2020 and 2021, the prevalence of obesity increased by 12%.**

Prior studies have demonstrated an increasing trend of obesity among Service members in all branches and sociodemographic groups.^{32,33} However, it should be noted that BMI is not always an accurate measure of obesity because it does not take muscle mass into account. Regardless, there should be an increased focus on evidence-based initiatives to reduce obesity such as programs to provide healthier food and beverage options on military bases, technology-based approaches to improving fitness, and sustainable weight management training and follow-up services.³⁴



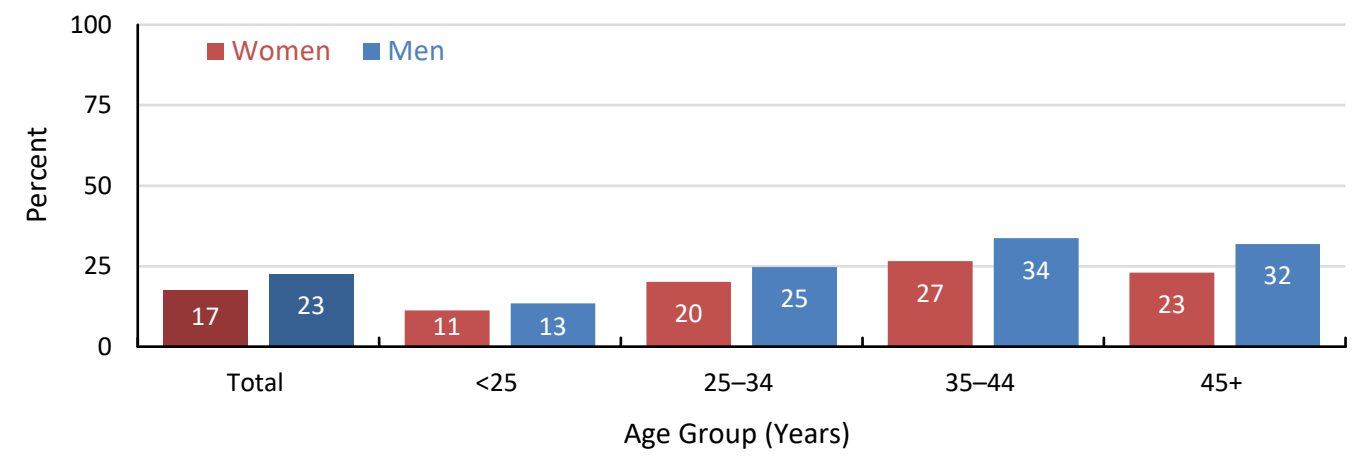
Healthy People 2030: Did you know?

A HP 2030 Objective is to reduce the proportion of adults with obesity (NWS-03).

- 2016 Baseline: 38.6%.
- 2030 Target: 36.0%.

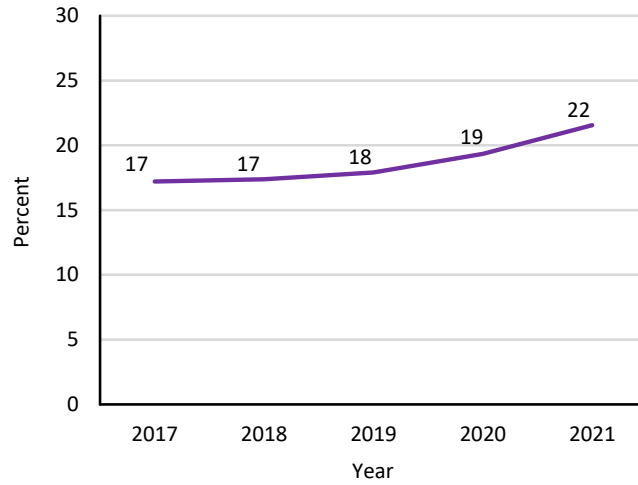
Prevalence of Obesity by Sex and Age Group, AC Service Members, 2021

Obesity rates were higher among males (23%) compared to females (17%). The prevalence of obesity increased with increasing age through 35–44 years then decreased among those aged 45 years or older.



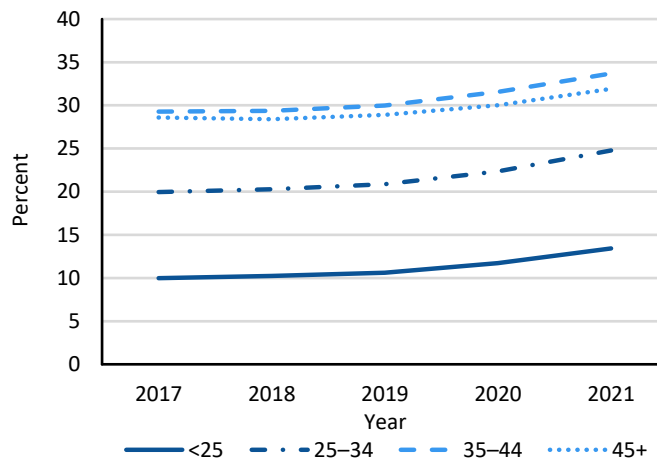
Prevalence of Obesity, AC Service Members, 2017–2021

The prevalence of obesity increased from 17% in 2017 to 22% in 2021.



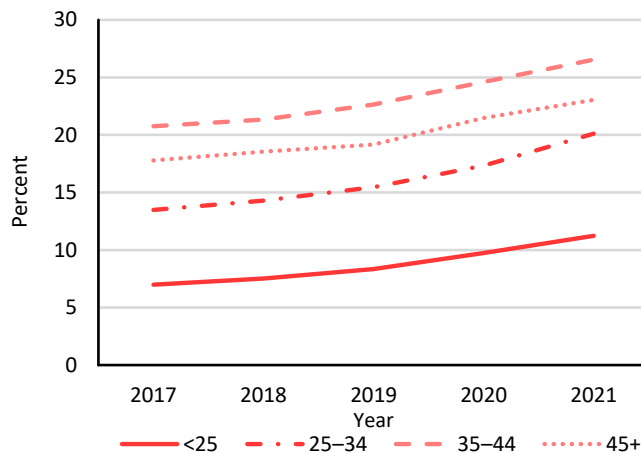
Prevalence of Obesity by Age Group, Male AC Service Members, 2017–2021

The prevalence of obesity increased among males for all age groups between 2017 and 2021.



Prevalence of Obesity by Age Group, Female AC Service Members, 2017–2021

The prevalence of obesity increased among females for all age groups between 2017 and 2021.



ACUTE RESPIRATORY ILLNESSES

Outbreaks and epidemics of acute respiratory illnesses can have adverse effects on individual and military unit readiness. The Armed Forces have long recognized the special risks of respiratory illnesses among Service members who live in congregate settings, mix with Service members from other geographic regions, undergo the stresses of military training and operations, and travel to foreign countries. To counter the threat of such illnesses, the Armed Forces have for many years emphasized both preventive measures as well as continuous surveillance for respiratory infections. Vaccines are given or offered to new Service members to prevent a variety of respiratory diseases caused by bacteria (diphtheria, pertussis, and meningococcal infections) and viruses (adenovirus, influenza, measles, mumps, rubella, varicella, and most recently, COVID-19). This report summarizes temporal trends of specific respiratory infections and syndromes as well as respiratory symptoms. For this metric, data are also presented separately for recruits.

On average, 19 per 1,000 AC Service members were diagnosed with acute respiratory infections each month during 2021, with rates highest in December (31.5 per 1,000) and lowest in May (12.2 per 1,000). Female Service members had higher monthly rates of acute respiratory infections and respiratory symptoms compared to male members. Those in the youngest age category (less than 25 years old) had the highest rates of acute respiratory infections, but those in the oldest age group had the highest rate of respiratory symptoms. **Compared to AC Service members overall, recruits had higher average monthly rates of acute respiratory infections (41 per 1,000) but similar average rates of respiratory symptoms (10.7 per 1,000) in 2021.**

Rates of acute respiratory infections remained relatively stable between 2016 and 2019, but decreased sharply in April 2020, particularly among recruits. The decline in April 2020 coincides with the beginning of the COVID-19 pandemic, when Military Treatment Facilities (MTFs) began limiting access to non-essential services.³⁵ Rates of respiratory symptoms remained relatively stable between 2016 and 2020 but spiked in March 2020, again coinciding with the beginning of the COVID-19 pandemic. **There were noteworthy patterns of seasonal increases (in winter) and declines (in summer) for both AC Service members overall and for recruits. The average monthly rate of acute respiratory infections and respiratory symptoms was similar in 2020 compared to 2021.**

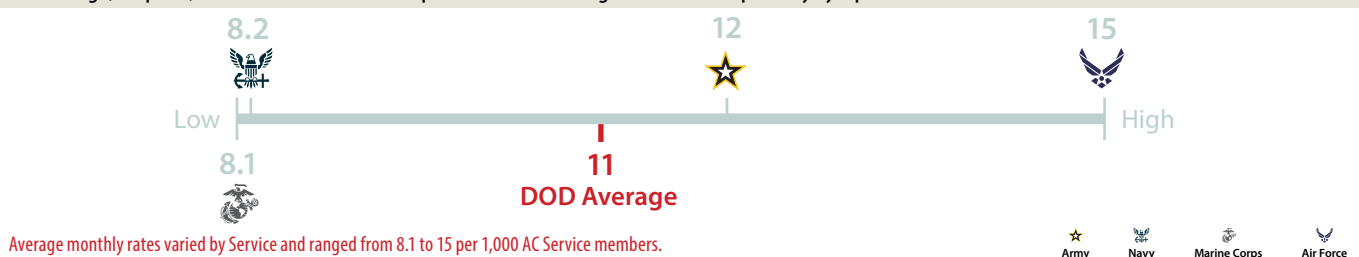
A total of 257,760 Service members had at least one acute respiratory infection diagnosis in 2021. Of these Service members, 1,405 (0.6%) were hospitalized, resulting in 8,466 total bed days.

Rates among trainees were likely higher because of their relative youth, the spread of infections among trainees in congregate settings during basic training, strict requirements for sick trainees to receive medical care, and more thorough surveillance of trainees, including collection of specimens to identify etiologic pathogens. For both the trainees and AC service members, the rates of diagnoses of respiratory symptoms were considerably lower than the rates of specific acute respiratory illnesses. This observation indicates that healthcare providers recorded specific diagnoses much more often than nonspecific symptom diagnoses during encounters for acute respiratory illnesses.

On average, 19 per 1,000 AC Service member per month were diagnosed with acute respiratory infections in 2021.

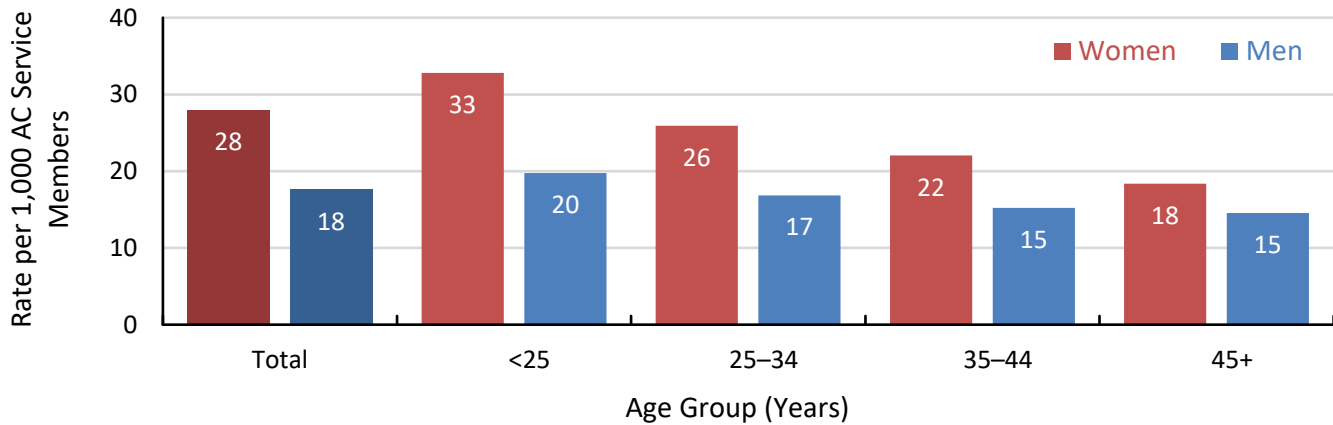


On average, 11 per 1,000 AC Service members per month were diagnosed with respiratory symptoms in 2021.



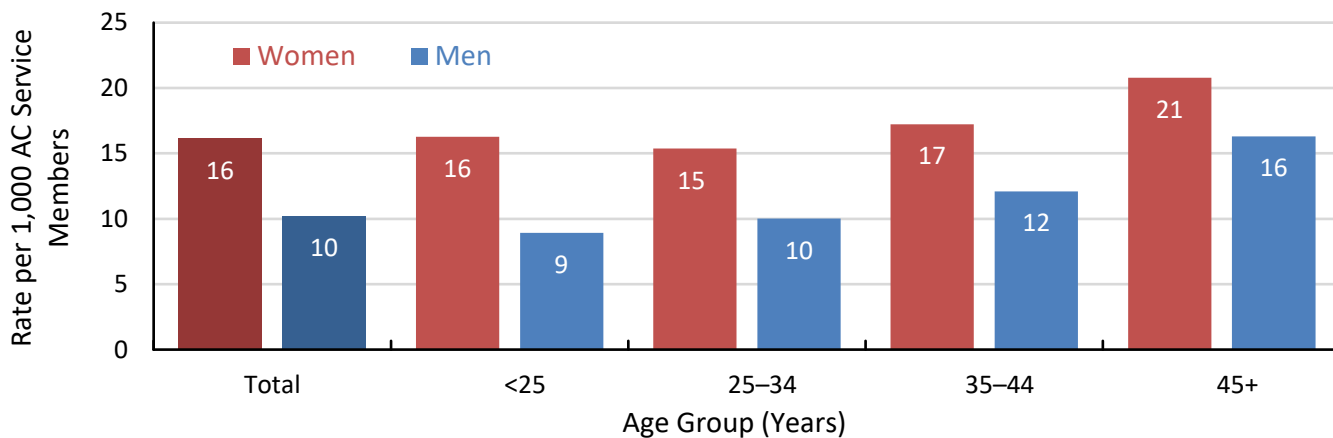
Average Monthly Incidence of Acute Respiratory Infections by Sex and Age Group, AC Service Members, 2021

Service members in the younger age groups had higher average monthly rates of acute respiratory infections than those in the older groups. Compared to males, females had higher rates within each age group.



Average Monthly Incidence of Respiratory Symptoms by Sex and Age Group, AC Service Members, 2021

Females (16 per 1,000) had higher rates of respiratory symptoms compared to males (10 per 1,000). Rates were highest among Service members aged 45 years or older.



Incidence of Acute Respiratory Infections, AC Service Members and Recruit Trainees, 2017–2021

Rates of acute respiratory infections had seasonal increases in winter months and declines in summer months. The overall rates of respiratory infections remained relatively stable between 2017 and 2019, but declined beginning in 2020. Recruits had consistently higher rates of acute respiratory infections compared to AC Service members.



Incidence of Respiratory Symptoms, AC Service Members and Recruit Trainees, 2017–2021

Similar to acute respiratory infections, rates of respiratory symptoms displayed seasonal increases in winter months and declines in summer months. The overall rates remained relatively stable between 2017 and 2019, with peaks in March 2020 and July 2021.



AIR QUALITY

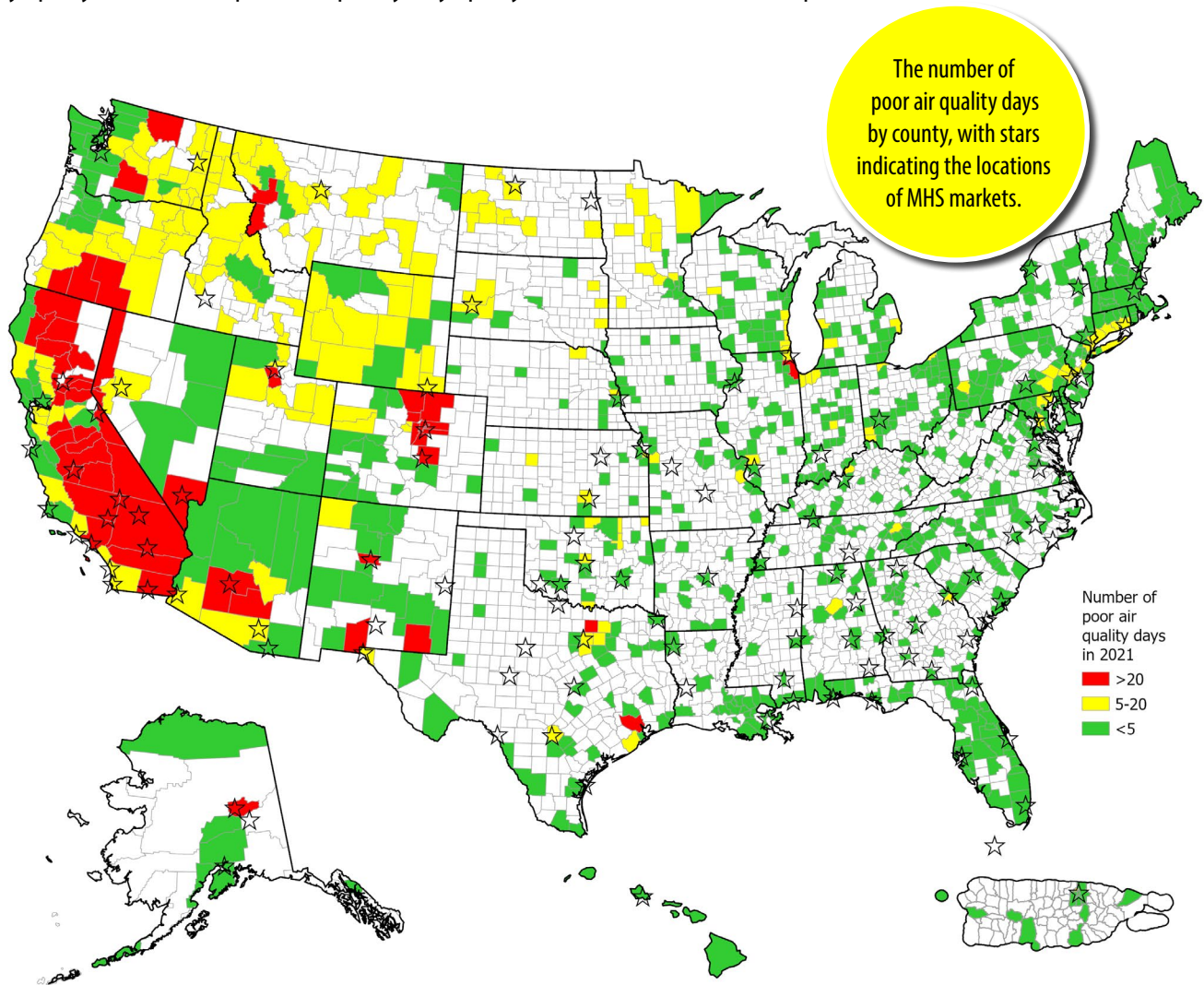
The air quality metric reports the annual number of days when outdoor air pollution levels are deemed unhealthy for some or all of the general public. Air quality is deemed unhealthy when the Air Quality Index (AQI) is greater than 100 for any given day. To determine AQI, the Environmental Protection Agency (EPA) uses outdoor air pollution levels measured at monitoring stations operated by state and federal authorities. The EPA AQI was used to determine the number of poor air quality days for all counties located within the U.S. Poor air quality has been associated with overall increased morbidity and mortality as it tends to cause acute and chronic respiratory, cardiac, and central nervous system diseases.³⁶

Poor air quality days were organized into 3 categories; < 5 poor air quality days per year, 6–20 poor air quality days per year, and >20 poor air quality days per year.

In 2021, annual poor air quality days ranged from 0 to 225 days per year, with the greatest number of days occurring in Maricopa, Arizona. There were 16 MHS markets located across 57 counties that had >20 days/year of poor air quality, affecting more than 110,000 active duty service members. Of the 57 counties, 25 were in the state of California.

The map shows the number of poor air quality days by county, with stars indicating the locations of MHS markets.

It should be noted that this report does not include air quality experienced by the roughly 173,000 Active Duty Service members stationed outside of the U.S. There are military installations located in countries outside of the U.S. that experience high numbers of poor air quality days, which are not depicted here.



COVID-19

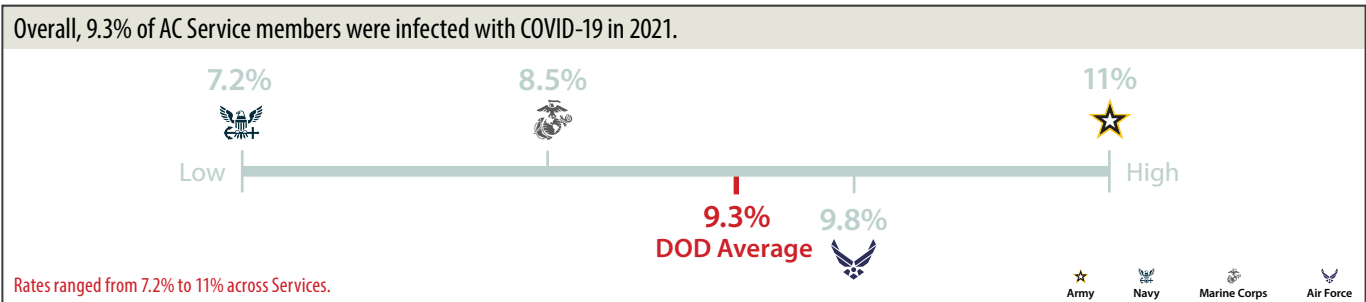
COVID-19 is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Continuous person-to-person spread of the virus has occurred worldwide since December 2019. COVID-19 spreads primarily through respiratory droplets produced when an infected person breathes, coughs or sneezes, and is more likely to infect people in close contact with one another. Infected individuals may be asymptomatic or experience mild to severe illness.³⁷ The COVID-19 pandemic has significantly affected military operations through movement restrictions, workspace capacity limits, and testing protocols for Service members.³⁸

The overall prevalence of reported or positive COVID-19 infection was 9.3% in 2021. This represents a 60% increase from 2020 when the prevalence was 5.8%. Female Service members (10.2%) had a higher prevalence of COVID-19 infection compared to male members (9.2%). Younger Service members had a

higher prevalence of COVID-19 infection than those in older age groups.

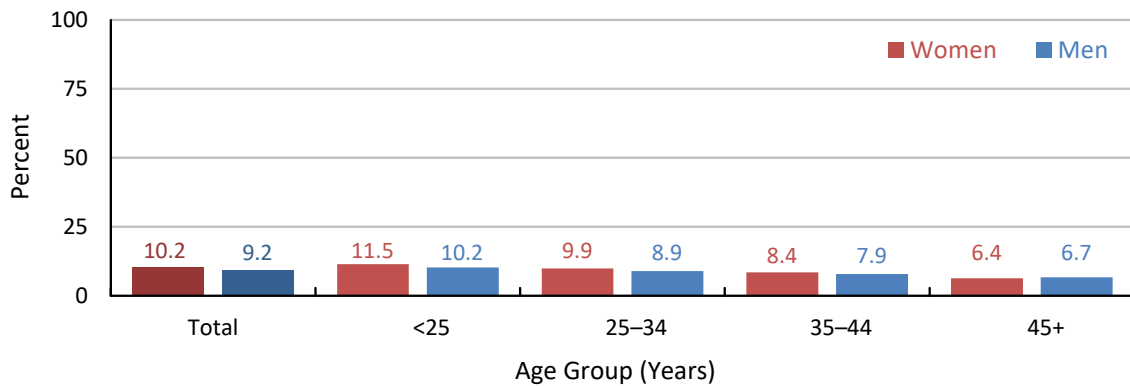
A total of 1,153 (0.9%) AC Service members with COVID-19 were hospitalized in 2021, resulting in 5,455 total bed days.

COVID-19 vaccines have been available to AC Service members since December 2020 and are highly effective at preventing severe illness, hospitalizations, and death. In particular, booster doses have been shown to be effective at protecting against illness even against more infectious variants of the virus. Full vaccination against COVID-19 has been a requirement for AC Service members since August 2021.³⁹ However, booster doses are optional. Currently, booster doses are recommended for all individuals aged 5 years and older who have completed their primary series.⁴⁰ Staying up to date on COVID-19 vaccination is recommended as the best way to prevent against COVID-19.



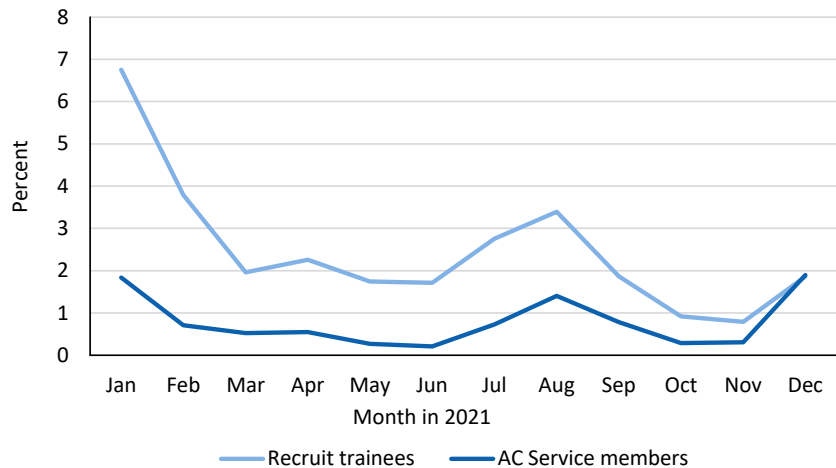
Prevalence of COVID-19 by Sex and Age Group, AC Service Members, 2021

Service members in the younger age groups had a higher prevalence of COVID-19 than those in the older age groups. Female service members (10%) had a higher prevalence compared to males (9.2%).



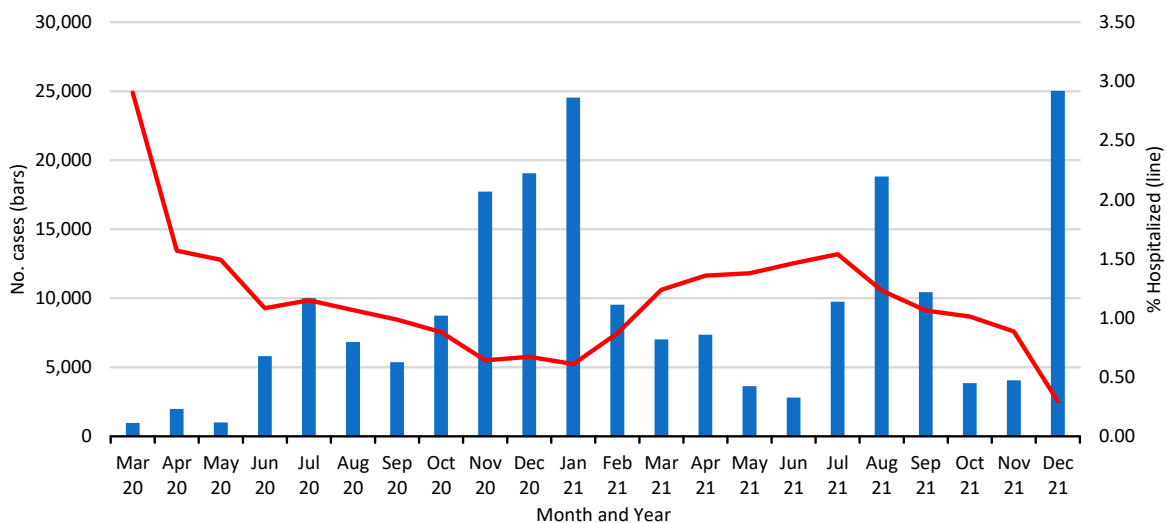
Incidence Reported or Tested Positive for COVID-19 by Month, AC Service Members, 2021

Monthly incidence of COVID-19 peaked in December 2021 for AC Service members and in January 2021 for recruits. Incidence was higher among recruits compared to overall AC Service members until December 2021.



Cases and % Hospitalized for COVID-19 by Month, AC Service Members, Mar 2020–Dec 2021

The number of AC Service member cases for COVID-19 was highest in December and January 2021. The percentage of cases that were hospitalized for COVID-19 decreased from a high of 3% at the beginning of the pandemic to 0.6% in January 2021. The percentage increased to 1.5% in July 2021 during the period of delta variant predominance, then decreased to a low of 0.3% in December 2021.



▶ ARMY



Service Profile (2021):^a

Population: Approximately 482,000 Army Service members
77% under 35 years old, 16% female

HEALTH INDEX MEASURES^b

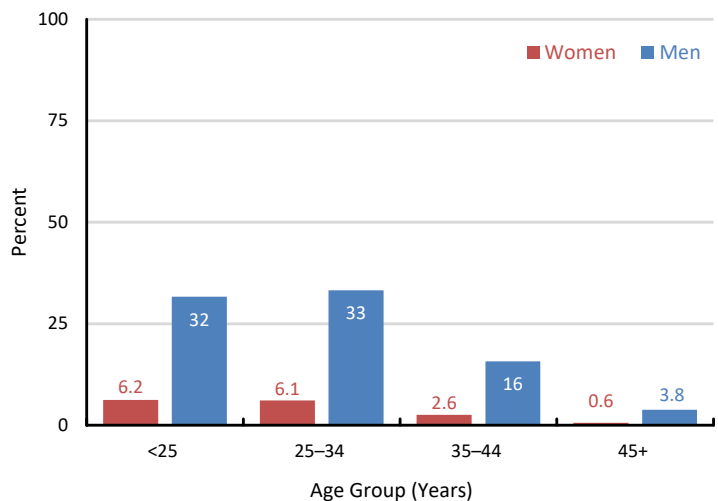
MEASURE	ARMY VALUE ^c	DOD AVERAGE	DOD RANGE
Acute Injury (rate per 1,000)	291	237	174–291
Cumulative Traumatic Injury (rate per 1,000)	1,069	825	552–1069
TBI (%)	2.3	1.5	0.8–2.3
Noise-induced Hearing Injury (%)	5.7	4.5	3.2–5.7
Heat Illness (%)	0.29	0.18	0.04–0.37
Behavioral Health 1-Year (%)	11	9.6	8.2–11
Behavioral Health Lifetime (%)	22	19	12–22
STIs (rate per 1,000)	28	23	17–28
Sleep Disorders (%)	17	14	7.8–17
Obesity (%)	21	22	11–27
Acute Respiratory Illness (average rate per 1,000 per month)	19	19	16–24
Respiratory Symptoms (average rate per 1,000 per month)	12	11	8.1–15
COVID-19 (%)	11	9.3	7.2–11



ADDITIONAL INFORMATION

Injury rates including TBI and noise-induced hearing were found to be higher in the Army than in the other Services. Mission-specific training and operational requirements likely contribute to the risk for injury among Soldiers. Rates of BH, STIs, sleep disorders, and COVID-19 infection were also higher among Soldiers than in Sailors, Airmen, and Marines. Given the potential for each of these conditions to contribute to decreased performance, disability, and separation, further exploration of potential causes and interventions is warranted.

DEMOGRAPHICS



^aNumber of AC Service members, June 2021; see Appendix for details.

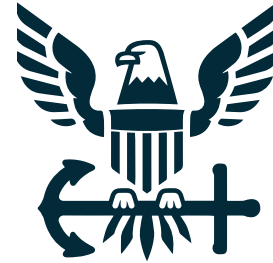
^bSee Appendix for details regarding measure computations.

^cValues ≥10 are rounded to the nearest integer. Bold values represent Service values above the DoD average.

▶ NAVY

Service Profile (2021):^a

Population: Approximately 345,000 Navy Service members
77% under 35 years old, 20% female



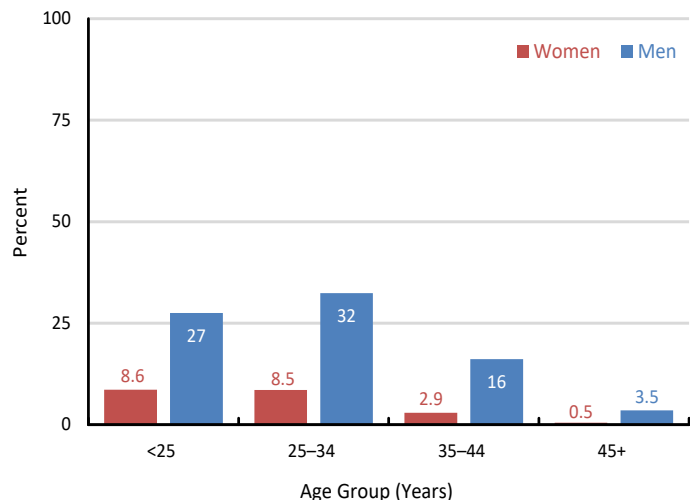
HEALTH INDEX MEASURES^b

MEASURE	NAVY VALUE ^c	DOD AVERAGE	DOD RANGE
Acute Injury (rate per 1,000)	174	237	174–291
Cumulative Traumatic Injury (rate per 1,000)	552	825	552–1069
TBI (%)	0.9	1.5	0.8–2.3
Noise-induced Hearing Injury (%)	3.2	4.5	3.2–5.7
Heat Illness (%)	0.04	0.18	0.04–0.37
Behavioral Health 1-Year (%)	9.7	9.6	8.2–11
Behavioral Health Lifetime (%)	19	19	12–22
STIs (rate per 1,000)	22	23	17–28
Sleep Disorders (%)	12	14	7.8–17
Obesity (%)	27	22	11–27
Acute Respiratory Illness (average rate per 1,000 per month)	16	19	16–24
Respiratory Symptoms (average rate per 1,000 per month)	8.2	11	8.1–15
COVID-19 (%)	7.2	9.3	7.2–11

ADDITIONAL INFORMATION

While BH conditions remain important threats to Navy readiness, this report also highlights obesity as an important health concern among Sailors. Obesity contributes to hypertension, diabetes, coronary heart disease, stroke, cancer, all-cause mortality, and increased healthcare costs. It also contributes to failure of Sailors to meet physical fitness standards.

DEMOGRAPHICS



^aNumber of AC Service members, June 2021; see Appendix for details.

^bSee Appendix for details regarding measure computations.

^cValues ≥10 are rounded to the nearest integer. Bold values represent Service values above the DoD average.

AIR FORCE



Service Profile (2021):^a

Population: Approximately 332,000 Air Force Service members
76% under 35 years old, 21% female

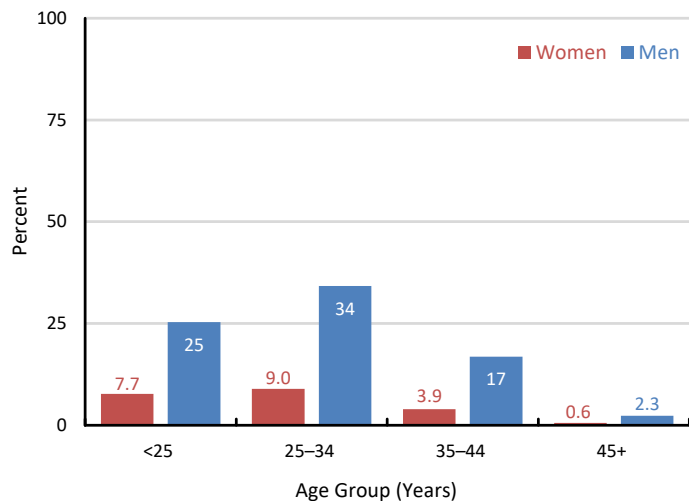
HEALTH INDEX MEASURES^b

MEASURE	AIR FORCE VALUE ^c	DOD AVERAGE	DOD RANGE
Acute Injury (rate per 1,000)	212	237	174–291
Cumulative Traumatic Injury (rate per 1,000)	764	825	552–1069
TBI (%)	0.8	1.5	0.8–2.3
Noise-induced Hearing Injury (%)	3.9	4.5	3.2–5.7
Heat Illness (%)	0.06	0.18	0.04–0.37
Behavioral Health 1-Year (%)	8.2	9.6	8.2–11
Behavioral Health Lifetime (%)	19	19	12–22
STIs (rate per 1,000)	17	23	17–28
Sleep Disorders (%)	13	14	7.8–17
Obesity (%)	23	22	11–27
Acute Respiratory Illness (average rate per 1,000 per month)	24	19	16–24
Respiratory Symptoms (average rate per 1,000 per month)	14	11	8.1–15
COVID-19 (%)	9.8	9.3	7.2–11

ADDITIONAL INFORMATION

In this analysis, acute respiratory illnesses, respiratory symptoms, obesity, COVID-19, and lifetime behavioral health disorders were found to affect Airmen at higher than average rates. Airmen should continue to take preventive measures to protect against respiratory infections. Future efforts to address obesity and efforts to better understand the interplay of obesity with other comorbidities also have the potential to improve the readiness of Airmen.

DEMOGRAPHICS



^aNumber of AC Service members, June 2021; see Appendix for details.

^bSee Appendix for details regarding measure computations.

^cValues ≥10 are rounded to the nearest integer. Bold values represent Service values above the DoD average.

► MARINE CORPS



Service Profile (2021):^a

Population: Approximately 180,000 Marine Corps Service members
88% under 35 years old, 9.0% female

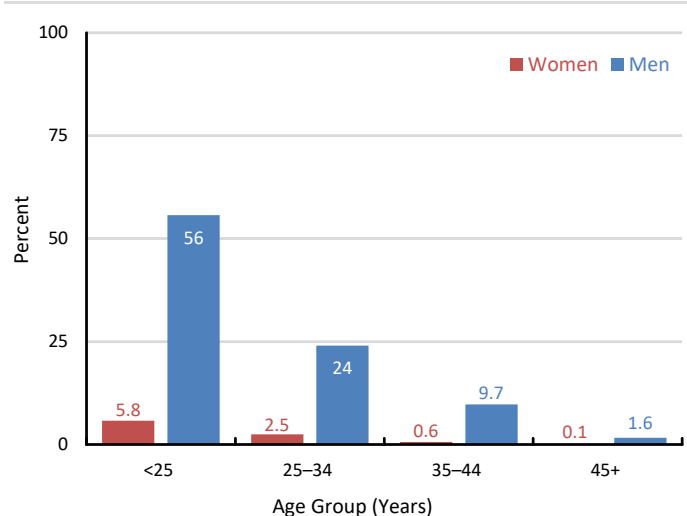
HEALTH INDEX MEASURES^b

MEASURE	MARINE CORPS VALUE ^c	DOD AVERAGE	DOD RANGE
Acute Injury (rate per 1,000)	257	237	174–291
Cumulative Traumatic Injury (rate per 1,000)	812	825	552–1069
TBI (%)	1.6	1.5	0.8–2.3
Noise-induced Hearing Injury (%)	4.4	4.5	3.2–5.7
Heat Illness (%)	0.37	0.18	0.04–0.37
Behavioral Health 1-Year (%)	8.2	9.6	8.2–11
Behavioral Health Lifetime (%)	12	19	12–22
STIs (rate per 1,000)	23	23	17–28
Sleep Disorders (%)	7.8	14	7.8–17
Obesity (%)	11	22	11–27
Acute Respiratory Illness (average rate per 1,000 per month)	18	19	16–24
Respiratory Symptoms (average rate per 1,000 per month)	8.4	11	8.1–15
COVID-19 (%)	8.5	9.3	7.2–11

ADDITIONAL INFORMATION

Marines have relatively low rates of BH diagnoses, sleep disorders, and obesity compared to the other Services. However, heat illnesses, TBI, and STIs emerge as important areas of focus for prevention efforts. Attention to reducing these injuries as well as acute injuries in the field and in recruit training has the potential to improve health and readiness of Marines.

DEMOGRAPHICS



^aNumber of AC Service members, June 2021; see Appendix for details.

^bSee Appendix for details regarding measure computations.

^cValues ≥10 are rounded to the nearest integer. Bold values represent Service values above the DoD average.

METHODS

Acute and Cumulative Traumatic Injury

Data were derived from records routinely maintained in the Defense Medical Surveillance System (DMSS). These records document ambulatory encounters and hospitalizations of AC Service members in fixed military and civilian (if reimbursed through the MHS) treatment facilities worldwide. Acute and cumulative traumatic injuries were identified using ICD-10-CM diagnosis codes from the U.S. Army Public Health Center's (APHC) 2021 Injury Taxonomy.⁷ Service members were identified as having an injury if they had a qualifying injury diagnosis in the first diagnostic position of an inpatient or outpatient medical encounter. A 60-day gap rule was used to identify incident injuries. To be counted as a new case, at least 60 days must have passed since the last qualifying injury for the same nature of injury and body region affected, as defined by the injury taxonomy. For all incident injuries, the frequency and percentage of the nature of injury and body region affected were described. The denominator used for rate calculations was all AC Service members during June of the year of interest.

Among those who were identified as an incident acute or cumulative traumatic injury case in 2021, hospitalization status and total number of hospital bed days were determined. An individual was counted as being hospitalized for an acute or cumulative traumatic injury if they had an inpatient encounter in 2021 with an injury diagnosis in the primary diagnostic position. Bed days were calculated among all inpatient encounters with an injury diagnosis in the primary diagnostic position in 2021.

Limitations:

1. The transition from International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) to ICD-10-CM in October 2015 presented a significant artifact for acute injury surveillance. ICD-10-CM has more than 15 times the number of acute injury codes than ICD-9-CM, and they are far more specific. It is not possible to directly compare rates of highly specific acute injuries captured in ICD-10-CM to the non-specific injuries captured in ICD-9-CM. For this reason, rates of acute injuries captured under ICD-9-CM were not reported here.
2. This report is meant to describe nondeployment-related injuries; however, some deployment-related injuries may have been captured.
3. Diagnosing an acute injury is subjective and provider-dependent. Incident and subsequent diagnoses rendered by different providers introduces error that can result in both undercounting and overcounting of injuries.
4. It is not always possible to differentiate incident injuries from reinjuries using surveillance data. The 60-day gap rule is sufficient for the vast majority of injuries, which are generally not severe, but may lead to overcounting of severe injuries if the subsequent encounters are erroneously coded as incident injuries.

Noise-Induced Hearing Injury

Data were derived from records routinely maintained in the DMSS. A case of noise-induced hearing injury was defined as having an inpatient, outpatient, or Theater Medical Data Store (TMDS) medical encounter with a diagnosis for sensorineural hearing loss (ICD-9: 389.10, 389.11, 389.15–389.18; ICD-10: H90.3, H90.41, H90.42, H90.5), noise-induced hearing loss (ICD-9: 388.10–388.12; ICD-10: H83.3*, S09.31*), tinnitus (ICD-9: 388.3, 388.30–388.32; ICD-10: H93.1*), or significant threshold shift (ICD-9: 794.15, ICD-10: R94.120) in any diagnostic position.⁴¹ It is important to note that because the TMDS has not fully transitioned to ICD-10-CM, ICD-9-CM codes appear in this analysis. A Service member could be counted as a case of noise-induced hearing injury once per calendar year for each of the specific types of injury, and could be counted as a case of noise-induced hearing injury (any type) once per year. The denominator was all AC Service members during June of the year of interest.

Limitations:

1. Data from audiometric testing were not included.
2. Hearing injuries associated with blasts or head injuries were not included, such as ear drum perforation.

TBI

Data were derived from records routinely maintained in the DMSS. A case of TBI was defined as having an inpatient, outpatient, or TMDS medical encounter with a diagnosis of TBI in any diagnostic position.⁴² For the full list of ICD-9 and ICD-10 codes used in the analysis, please refer to the Armed Forces Health Surveillance Division (AFHSD) surveillance case definition.⁴² Note that for this analysis, the “personal history of traumatic brain injury” codes were not included because the intent was to capture Service members who had an encounter for a prevalent TBI. However, the ICD-10 codes indicating “subsequent encounter” and “sequelae” for a TBI were included. A Service member could be counted as a case of TBI once per calendar year, with more severe cases being counted over mild cases (i.e., penetrating cases were counted over severe cases, which were counted over moderate cases, and moderate cases were counted over mild cases). The denominator was all AC Service members during June of the year of interest.

Among those who were identified as a TBI case in 2021, hospitalization status and total number of hospital bed days were determined. An individual was counted as being hospitalized for a TBI if they had an inpatient encounter in 2021 with a TBI diagnosis in the primary diagnostic position. Bed days were calculated among inpatient encounters with a TBI diagnosis in the primary diagnostic position in 2021.

Limitations:

1. Cases were identified using administrative records of medical care if reimbursed through the MHS. Records of care outside of this system would not be captured.
2. Ascertainment of the severity of the TBI relies on accurate coding and documentation by the medical provider.

Heat Illness

Data were derived from records routinely maintained in the DMSS. A case of heat illness was defined as having an inpatient or outpatient medical encounter with a diagnosis for heat stroke (ICD-10: T67.0*) or heat exhaustion (ICD-10: T67.3*–T67.5*) in the first or second diagnostic position or by having a reportable medical event report for heat illness. A service member could be counted as a case of heat illness once per calendar year. Heat stroke was prioritized over heat exhaustion if the individual had indication of both occurring in the same year. These methods are consistent with those applied in the annual *MSMR* reports on heat illness.²¹ The denominator was all AC Service members during June of the year of interest.

Among those who were identified as a heat illness case in 2021, hospitalization status and total number of hospital bed days were determined. An individual was counted as being hospitalized for a heat illness if they had an inpatient encounter in 2021 with a heat illness diagnosis in the primary diagnostic position. Bed days were calculated among inpatient encounters with a heat illness diagnosis in the primary diagnostic position in 2021.

Limitations:

1. Similar heat-related clinical illnesses are likely managed and reported differently at different locations and in different clinical settings.
2. Heat illness during deployment was not ascertained.
3. Reporting guidelines for heat illnesses were modified in the 2017 and 2020 revisions of the Armed Forces guidelines. In these updated guidelines, the heat injury category was removed, leaving only case classifications for heat stroke and heat exhaustion. This may cause some variations in reporting.

Heat Index

Land-based airport meteorology stations data were requested and obtained from the U.S. Air Force 14th Weather Squadron (WS) for zip codes corresponding to U.S. MHS markets. The 14th WS calculated the heat index using meteorological data and heat index algorithms that take into account the outdoor temperature and relative humidity hourly measurements from the nearest airport weather stations. Annual heat risk days were counted as the days during the calendar year that had one or more hours with the heat index being greater than or equal to 90 °F. This corresponds to an outdoor heat status of “Extreme Caution” as classified by the National Weather Service.⁴³ The annual number of heat risk days were categorized into five groups from low to high.

A total of 75 out of 120 MHS markets had at least one airport weather station located in a zip code corresponding to an MHS market. There were 2 MHS markets with no heat index data. For the remaining 43 MHS markets, average distance between the nearest weather station and the zip code centroid for that market was 4.9 miles.

Limitations:

1. An MHS market can be in more than one category for total number of extreme caution days as some MHS markets contain multiple zip codes with different categories.
2. Data prior to 2021 are not presented in this report; however, trend analyses are planned in future reports.
3. Heat index data outside of the United States are not presented.
4. Correlation between heat index and heat illness events is not assessed in this report.

BH Disorders

Data were derived from records routinely maintained in the DMSS. Healthcare encounters of deployed Service members are documented in records that are maintained in the Theater Medical Data Store (TMDS), which is included in the DMSS. Because the TMDS has not fully transitioned to ICD-10-CM, ICD-9-CM codes appear in this analysis.

Service members were identified as having a BH disorder if they had at least two BH disorder diagnoses (ICD-9-CM: 290–319.; ICD-10-CM: F01–F99) within 365 days in any diagnostic position. However, diagnoses for post-concussion syndrome, intellectual disabilities, nicotine dependence, and pervasive and specific developmental disorders were excluded (ICD-9: 299.*, 305.1, 310.2, 315.*, 317.*–319.*; ICD-10-CM: F07.81, F70–F79, F17.*, F80.*–F82.*, F84.*, F88–F89).⁴⁴ Diagnoses could occur in inpatient, outpatient, or in-theater medical encounters. At least one of these diagnoses had to occur during of the year of interest. The denominator was all AC Service members during June of the year of interest.

For specific BH conditions (adjustment disorders, alcohol-related disorders, anxiety disorders, bipolar disorder, depressive disorders, psychoses, PTSD, and substance-related disorders), ICD-9-CM and ICD-10-CM codes from the AFHSD surveillance case definitions were used.⁴⁵ A Service member was considered to have a specific BH condition if they had two diagnoses for the same condition within 365 days of each other. At least one of these diagnoses had to occur during of the year of interest. The denominator was all AC Service members during June of the year of interest.

History (“lifetime” prevalence) of a BH disorder was also measured. Service members were considered to have a history of BH disorder if they had two BH disorder diagnoses within 365 days at any time between 2002 and 2021 and were in service during December 2021 (the last month of the surveillance period). The denominator was all AC Service members during December 2021.

Among those who were identified as a BH disorder case in 2021, hospitalization status and total number of hospital bed days were determined. An individual was counted as being hospitalized for a BH disorder if they had an inpatient encounter in 2021 with a BH disorder diagnosis in the primary diagnostic position. Bed days were calculated among inpatient encounters with a BH disorder diagnosis in the primary diagnostic position in 2021.

Limitations:

1. Service members do not always seek or receive care for a BH condition within the MHS, and BH disorders may be underestimated here.
2. Some diagnoses may be miscoded or incorrectly transcribed on centrally transmitted records.
3. Some encounters (e.g., screening visits) may have been erroneously diagnosed or miscoded as BH disorders.

STIs

Diagnoses of STIs were ascertained from medical administrative data and reports of notifiable medical events routinely maintained in the DMSS for surveillance purposes. STI cases were also derived from positive laboratory test results recorded in the Health Level 7 (HL7) chemistry and microbiology databases maintained by the Navy and Marine Corps Public Health Center at the EpiData Center.

An incident case of chlamydia or trichomoniasis was defined by any of the following: 1) a case defining diagnosis of chlamydia (ICD-9: 099.41, 099.5*; ICD-10: A56.*) or trichomoniasis (ICD-9: 131.*; ICD-10: A59.*) in the first or second diagnostic position of a record of an outpatient or in-theater medical encounter, 2) a confirmed notifiable disease report (for chlamydia only), or 3) a positive laboratory test for chlamydia or trichomoniasis. An incident case of gonorrhea was similarly defined by 1) a case-defining diagnosis (ICD-9: 098.*; ICD-10: A54.*) in the first or second diagnostic position of a record of an inpatient, outpatient, or in-theater encounter, 2) a confirmed notifiable disease report for gonorrhea, or 3) a positive laboratory test for gonorrhea. For each type of STI, an individual could be counted as having a subsequent case only if there were more than 30 days between the dates on which the case-defining diagnoses were recorded. These case definitions were derived from those used in the *MSMR* annual STI report.²⁶

The denominator was all AC Service members during June of the year of interest.

Limitations:

1. STI cases may not be captured if coded in the medical record using symptom codes (e.g., urethritis) rather than STI-specific codes.
2. Cases may be underestimated because some affected Service members may be diagnosed and treated through nonreimbursed, non-military care providers (e.g., county health departments or family planning centers). In addition, laboratory tests that are performed in a purchased care setting, a shipboard facility, a battalion aid station, or an in-theater facility are not captured.
3. Differences in rates between Services may be at least partially due to different practices regarding screening, testing, treatment, and reporting.

Sleep Disorders

Data were derived from records routinely maintained in the DMSS; TMDS data were included. Service members were identified as having a sleep disorder if they had a qualifying diagnosis (**Table 1**) in any diagnostic position during the year of interest. It is important to note that because the TMDS has not fully transitioned to ICD-10-CM, ICD-9-CM codes appear in this analysis. The denominator was all AC Service members during June of the year of interest.

Limitations:

1. Service members do not always seek care for sleep disorders, and sleep disorders may be underrepresented here.
2. Increased screening associated with required medical encounters such as retirement and separation physicals may result in an increased frequency of diagnoses of sleep disorders.

Table 1. ICD-9-CM/ICD-10-CM codes used to identify sleep disorders.

	ICD-9-CM	ICD-10-CM
Any sleep disorder	780.5*, 327.00–327.02, 327.09, 327.10–327.15, 327.19, 327.2*, 327.3*, 327.4*, 327.5*, 327.8, 347.*, 307.4*	G47*, F51*
Insomnia	780.52, 327.00, 327.01, 327.09	G47.0*
Hypersomnia	327.10–327.14, 327.19, 780.54	G47.1*
Circadian rhythm sleep disorders	327.30–327.37, 327.39, 780.55	G47.2*
Sleep apnea	327.20–327.27, 327.29, 780.51, 780.53, 780.57	G47.3*
Narcolepsy	347.00, 347.01, 347.10, 347.11	G47.4*
Parasomnia	327.40–327.44, 327.49	G47.5*
Sleep-related movement disorders	327.51–327.53, 327.59	G47.6*

*Represents any subsequent digit/character.

Obesity

The CDR vital sign table and Genesis vitals table within the MDR were used to identify all records for AC Service members with a height and weight measurement available on the same day. Female Service members with an ICD-9-CM or ICD-10-CM code for pregnancy during any inpatient or outpatient encounter in the same year were excluded. Height and weight data were then matched to the AFHSD DMSS to identify the date of birth, sex, and Service for all records. If the Service member could not be identified in the DMSS or any demographic information was missing from the DMSS, then the height and weight record was excluded. Only the latest height and weight record for each Service member per year was retained. BMI was then calculated from height and weight. Records with BMI measurements less than 12 and greater than 45 and records with erroneous heights or weights (e.g., a weight of 8 pounds) were excluded from the analysis. Cases of obesity were assigned using BMI greater than or equal to 30, according to the CDC definition of obesity.³¹

The CDR and Genesis vitals data were used to assess BMI because not all Services had complete height and weight records available from Service members' Physical Fitness Tests (PFTs). BMIs calculated from CDR data were reviewed by APHC and U.S. Air Force School of Aerospace Medicine (USAFSAM) in a previous analysis and found to be comparable to BMIs from PFTs. This method of estimating obesity is similar to the Defense Health Agency's Better Health Prevalence Measure of overweight and obesity.⁴⁶

Limitations:

1. Service members with higher lean body mass may be misclassified as obese based on their BMI.
2. Not all Service members had a height or weight measurement available in the CDR Vital sign data each year.
3. BMI measures should be interpreted with caution, as some of them can be based on self-reported height and weight.
4. BMI is useful as a population-level proxy for obesity, but BMI alone should not be used to diagnose obesity in individuals.

Respiratory Illness

Data were derived from records routinely maintained in the DMSS. Service members were identified as having an acute respiratory infection if they had an inpatient, outpatient, or TMDS encounter with a qualifying diagnosis (**Table 2**) in the first diagnostic position. For cases of respiratory symptoms, an individual was required to have an inpatient, outpatient, or TMDS encounter with a qualifying diagnosis (**Table 3**) in any diagnostic position. For both acute respiratory infections and respiratory symptoms, at least 14 days had to have passed between encounters to count as a new case. The denominator was AC Service members in service during the month and year of interest. To calculate rates among recruits, the denominator was the number of people with a recruit training period overlapping with the month and year of interest. To qualify as a case for a recruit, the qualifying encounter also needed to have occurred within the recruit training period.

Among those who were identified with an acute respiratory infection in 2021, hospitalization status and total number of hospital bed days were determined. An individual was counted as being hospitalized for an acute respiratory infection if they had an inpatient encounter in 2021 with an acute respiratory infection in the primary diagnostic position. Bed days were calculated among inpatient encounters with an acute respiratory infection diagnosis in the primary diagnostic position in 2021.

Limitations:

1. Laboratory confirmation of cases was not ascertained.
2. Rates could be overestimated if miscoded as screening encounters.
3. Rates could be underestimated because of service members not seeking care for mild illness.

Table 2. ICD-9-CM/ICD-10-CM codes used to identify acute respiratory infections.

	ICD-9-CM	ICD-10-CM
Nasopharyngitis	460*	J00*
Sinusitis	461*	J01*
Acute pharyngitis	462*	J02*
Acute laryngitis and tracheitis	464.0, 464.10, 464.20, 464.30, 464.50	J04*
Acute obstructive laryngitis and epiglottitis	464.01, 464.11, 464.21, 464.31, 464.4, 464.51	J05*
Acute upper respiratory infections of unspecified site	465*	J06*
Influenza due to certain identified flu viruses	488*	J09*
Influenza due to other identified flu virus	487*	J10*
Influenza due to unidentified flu virus	NA	J11*
Viral pneumonia not elsewhere classified	480*	J12*
Pneumonia due to Streptococcus pneumoniae	481*	J13*
Pneumonia due to Haemophilus influenzae	482.2	J14*
Bacterial pneumonia not elsewhere classified	482*	J15*
Pneumonia due to other infectious organisms	484*, 483.0, 483.1, 483.8	J16*
Pneumonia in diseases classified elsewhere	517.1, 484.8, 484.7, 115.95, 115.15, 073.0	J17*
Pneumonia unspecified organism	486, 485	J18*
Acute bronchitis	466	J20*
Acute bronchiolitis	466.1*	J21*
Unspecified acute lower respiratory tract infection	519.8	J22*
Acute tonsillitis	463, 034.0	J03*
Peritonsillar abscess	475	J36
Retropharyngeal and parapharyngeal abscess	478.22, 478.24	J39.0
Other abscess of pharynx	478.21	J39.1
Diphtheria	032.0, 032.1, 032.3, 032.9	A36.0, A36.1, A36.2, A36.9
Scarlet fever	34.1	A38*
Whooping cough	033.0, 033.9, 033.8	A37*
Adenovirus	NA	B34.0
Measles	055.0, 055.1, 055.2, 055.8, 055.9	B05*
Rubella	056.00, 056.01, 056.09, 056.79, 056.9	B06*
Streptococcus group A	41.01	B95.0
Streptococcus pneumoniae as the cause of disease classified elsewhere	41.09	B95.3
Mycoplasma pneumoniae	41.81	B96.0
Klebsiella pneumoniae	41.3	B96.1
Haemophilus influenzae	41.5	B96.3
Adenovirus	079.0	B97.0
Coronavirus	NA	B97.2*, B34.2, U07.1
Respiratory syncytial virus (RSV)	079.6	B97.4
Otitis media	381.0*, 382.00, 382.01	H65.0*, H65.1*, H66.00*, H66.01*

*Represents any subsequent digit/character.
NA, not applicable.

Table 3. ICD-9-CM/ICD-10-CM codes used to identify respiratory symptoms.

	ICD-9-CM	ICD-10-CM
Cough	786.2	R05
Dyspnea	786.02, 786.05, 786.09	R06.0*
Wheezing	786.07	R06.2
Sneezing	NA	R06.7
Sore throat	784.1	R07.0
Pleurodynia	786.52	R07.81
Pleurisy	511.*	R09.1
Abnormal sputum	786.4	R09.3
Nasal congestion	NA	R09.81
Postnasal drip	784.91	R09.82
Fever	780.60	R50.9

*Represents any subsequent digit/character
NA, not applicable.

Air Quality

AQI data were obtained from the U.S. Environmental Protection Agency (EPA).⁴⁷ AQI is based on national ambient air quality standards that is categorized into 6 groups; good, moderate, unhealthy for sensitive groups, unhealthy, very unhealthy, and hazardous. An AQI ranges from 0–500 and the higher the AQI, the greater the level of air pollution leading to increased health concern. There is an AQI for the five major air pollutants regulated by the Clean Air Act; ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide.⁴⁷ Pollutant concentrations are reported as an hourly average and aggregated into intervals (e.g., 8 hours, 24 hours) that correspond to the relevant National Ambient Air Quality Standards (NAAQS).⁴⁸ An AQI greater than 100 indicates that air pollution levels are higher than the corresponding NAAQS, and that air quality is considered unhealthy for some or all of the general public.⁴⁹ The air pollutant with the highest concentration determines the AQI score of the day and if more than one air pollutant exceeds a short term NAAQS, that day is counted only once when determining the total number of poor air quality days in a calendar year. EPA county-level data for air quality were used to determine the number of days per year when the air quality was unhealthy. Air quality status for each county was organized into three categories representing progressively worse air quality from <5, 5–20, and >20 poor air quality days per year. County level U.S. air quality data was then mapped and MHS markets were overlaid to show the total number of poor air quality days per year in each MHS market.

Limitations:

1. Poor air quality days are based on any AQI >100, so the severity of the poor air quality is not reflected in the map.
2. Data prior to 2021 are not presented in this report; however, trend analyses are planned in future reports.
3. Air quality data outside of the United States are not presented.
4. Correlation between air quality and respiratory conditions is not assessed in this report.

COVID-19

Cases of COVID-19 were identified using the AFHSD surveillance case list of MHS beneficiaries with COVID-19. This list is updated daily and comprises Composite Health Care System (CHCS) Health Level 7 (HL7)-formatted and MHS Genesis laboratory positive antigen and PCR positive test results extracted by the Navy and Marine Corps Public Health Center EpiData Center, as well as medical event reports of laboratory confirmed and probable COVID-19 infections reported to the Disease Reporting System Internet (DRSi), and validated by the U.S. Army Public Health Center and the U.S. Air Force School of Aerospace Medicine. The COVID-19 incident date is defined as the date of onset reported in DRSi, or the earliest positive PCR or antigen test specimen collection date. For this analysis, cases were included if they occurred within 90 days of an active component Service member demographic record maintained in the DMSS. The denominator was AC Service members in service during June of 2021. To calculate rates among recruits, the denominator was the number of people with a recruit training period overlapping with 2021. To qualify as a case for a recruit, the COVID-19 incident date needed to have occurred within the recruit training period.

Among those who were identified as a case of COVID-19, hospitalization status and total number of hospital bed days were determined. An individual was counted as being hospitalized for COVID-19 if they had an inpatient encounter for a COVID-like illness (**Table 4**) in the first or second diagnostic position within 30 days after becoming a case. Bed days were calculated among these inpatient encounters in 2021.

Limitations:

1. Services members tested for COVID-19 outside of the MHS system were not captured and the number of infections was likely underestimated in this report.

Table 4. ICD-10-CM codes used to identify COVID-like illness

	ICD-10-CM
Coronavirus, unspecified	B34.2
SARS-associated coronavirus as the cause of disease classified elsewhere	B97.21
Other coronavirus as the cause of diseases classified elsewhere	B97.29
Acute nasopharyngitis; common cold	J00
Acute upper respiratory infection, unspecified	J06.9
Pneumonia due to SARS-associated coronavirus	J12.81
Other viral pneumonia	J12.89
Viral pneumonia unspecified	J12.9
Pneumonia due to other specified infectious organism	J16.8
Pneumonia in diseases classified elsewhere	J17
Bronchopneumonia, unspecified organism	J18.0
Lobar pneumonia, unspecified organism	J18.1
Other pneumonia, unspecified organism	J18.8
Pneumonia, unspecified organism	J18.9
Acute bronchitis due to other specified organisms	J20.8
Acute bronchitis, unspecified	J20.9
Unspecified acute lower respiratory infection	J22
Bronchitis, not specified as acute or chronic	J40
Acute Respiratory Distress Syndrome	J80
Idiopathic interstitial pneumonia not otherwise specified	J84.111
Cough	R05
Dyspnea	R06.0
Dyspnea, unspecified	R06.00
Shortness of Breath	R06.02
Acute Respiratory Distress	R06.03
Other forms of dyspnea	R06.09
Anosmia	R43.0
Ageusia	R43.2
Fever, unspecified	R50.9
2019-nCoV acute respiratory disease, COVID-19, virus identified	U07.1

*Represents any subsequent digit/character

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