

Hearing Health Surveillance Data Review Military Hearing Conservation Calendar Year 2024

Department of War Hearing Conservation Working Group

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Definitions

Active duty (AD): Full-time duty in the active military service of the United States.

Audiogram: A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

Decibels Hearing Level (dB HL): A decibel scale used in audiometry that is referenced to the average hearing threshold of young adults with normal hearing – that is, the quietest sound level typically detectable at each frequency.

Defense Occupational and Environmental Health Readiness System – Hearing Conservation (DOEHRS-HC): The system of record for hearing conservation medical surveillance for the Military Services.

Department of Veterans Affairs (VA) hearing threshold disability criteria: Any reference or periodic test with a pure-tone average (PTA) of 26 dB HL or more at any three frequencies (500, 1000, 2000, 3000, or 4000 Hz), or a threshold of 40 dB HL or more at any one of those same individual frequencies per 38 CFR 3.385.

Hearing impairment: Any tested frequency exceeding 25 decibel hearing level (dB HL) in either ear.

Permanent Threshold Shift (PTS): A Significant Threshold Shift (STS) that fails to resolve on follow-up testing. An STS with no follow-up testing within the required time limit is considered a PTS once the window for follow-up testing closes (generally after 30 days for civilian personnel and 90 days for military).

Reserve Component (RC): A term referring to the Army, Navy, Marine Corps, Air Force, Space Force, and Coast Guard Reserves, as well as the Army National Guard of the United States and the Air National Guard of the United States. 38 USC § 101(27)

Significant Threshold Shift (STS): An average change of plus (decreased hearing) or minus (improved hearing) 10 dB at 2000, 3000, and 4000 Hertz (Hz) relative to the reference audiogram, in either ear, without age corrections.

STS Follow-up test compliance: Compliance with required follow-up testing as defined by Department of Defense Instruction (DoDI) 6055.12 or service specific regulations. Compliance is determined by the number of members who completed required follow-up hearing tests following a positive STS on their periodic hearing test. Follow-up period for active duty, civilians, and Reserve Components (Reserve and National Guard) is determined by each service.

Temporary Threshold Shift (TTS): An STS that resolves on follow-up testing.

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Executive Summary

The Hearing Health Surveillance Data Review is a required report to DOW leadership and stakeholders of the War Department's hearing conservation program (DODI 6055.12 para 2.2.c). This report includes data from all uniformed services and associated noise-exposed civilian personnel and reports on agreed upon measures of effectiveness.

This report and analysis excludes the DOW components outside of the military departments because these components do not currently use DOEHRS-HC for their surveillance audiometry.

DODI 6055.12, Hearing Conservation Program [HCP], Change 1, November 22, 2023, p. 3:

- “Protects all military personnel and noise-exposed civilian personnel from hearing loss resulting from hazardous occupational and operational noise exposure through a continuing, effective and comprehensive HCP, in accordance with Parts 1910 and 1960 of Title 29, Code of Federal Regulations (CFR).”
- “Reduces hazardous occupational and operational noise exposure to personnel to enhance mission readiness, communication, and safety.”
- “Considers hazardous noise control in military capabilities to support operational readiness and integrates noise control into the design and development of defense systems and equipment.”

Annually, the DOW Hearing Conservation Working Group (HCWG); Defense Centers for Public Health – Dayton (DCPH-D), Public Health and Preventive Medicine Department, Epidemiology Consult Service Division; and the Defense Health Agency (DHA) Hearing Center of Excellence (HCE) collaborate to provide information on the effectiveness of DOW HCPs. This report covers calendar year* (CY) 2015 through 2024 and includes DOW and service-level measures of effectiveness (MOEs) on HCP metrics. It consolidates the MOEs from all uniformed services components and DOW noise-exposed civilians and examines Service-level efforts to prevent hearing loss resulting from occupational and operational illness and injury (MOEs, June 2019).^{1,2}

*At the request of the Office of the Secretary of War, the format of this report returned to a CY reporting format beginning in 2023. As a result, do not compare the fiscal year (FY) metrics in the FY20, 21 and 22 Hearing Health Surveillance Data Reviews with the CY metrics in this report.

The MOEs include:

- MOE 1: Examines the potential hearing injuries/illnesses by calculating the percentages of tested individuals who had results of significant threshold shift (STS), permanent threshold shift (PTS), and temporary threshold shift (TTS).

1 Service components include Active Component (referred to as active duty (AD) in this report), and Reserve Component (RC) which includes Reserve and National Guard (NG). This data is from DOW Components that use the Defense Occupational and Environmental Health Readiness System – Hearing Conservation (DOEHRS-HC) to manage audiometric monitoring information. Although a Reserve Component, this report does not contain Coast Guard Reserve data due to it being part of the Department of Homeland Security, which does not use DOIEHRS-HC.

2 Herein, the term “civilians” will be used throughout the report when discussing noise-exposed civilians in DOW HCPs.

- MOE 2: Examines overall testing compliance and STS follow-up testing compliance for individuals with STS on the annual audiogram.
- MOE 3: Focuses on the proportion of individuals in the HCP population who have hearing impairment (thresholds above 25 dB HL) vs. the proportion of those with normal hearing (25 dB HL or below). The MOE also includes tracking the number of enlisted personnel entering the service with hearing impairment.
- MOE 4: Calculates the percentage of service members who might qualify for Department of Veterans Affairs (VA) disability due to impaired hearing, based only on hearing threshold disability criteria per 38 CFR §3.385.

Each DOW component establishes, maintains, and evaluates the effectiveness of their HCPs. Unique differences in mission execution, service member requirements, and expected exposure to hazardous noise vary among the services (e.g., only the Army and Marine Corps conduct annual hearing monitoring for all their service members, as part of their HCP). The data reported herein only represent service members and DOW civilians enrolled in an HCP. Service component HCP inclusion criteria result in considerable HCP size differences, therefore, it is important to note that a 1% magnitude of change for the Army compared to the other services is substantial due to the total number of soldiers tested ([Table 1](#)). For example, a 1% change in soldiers tested for the Army is 7,472 versus 2,156 for the combined service members tested for the Air and Space Forces.

Figure 1 shows the percentage of service members broken out by service and service component who received a hearing test in CY24 (i.e., a relative comparison of total service members tested). The largest number of service members tested is from the AD component.

Figure 1. Percent of Service Members Hearing Tested by Service and Service Component

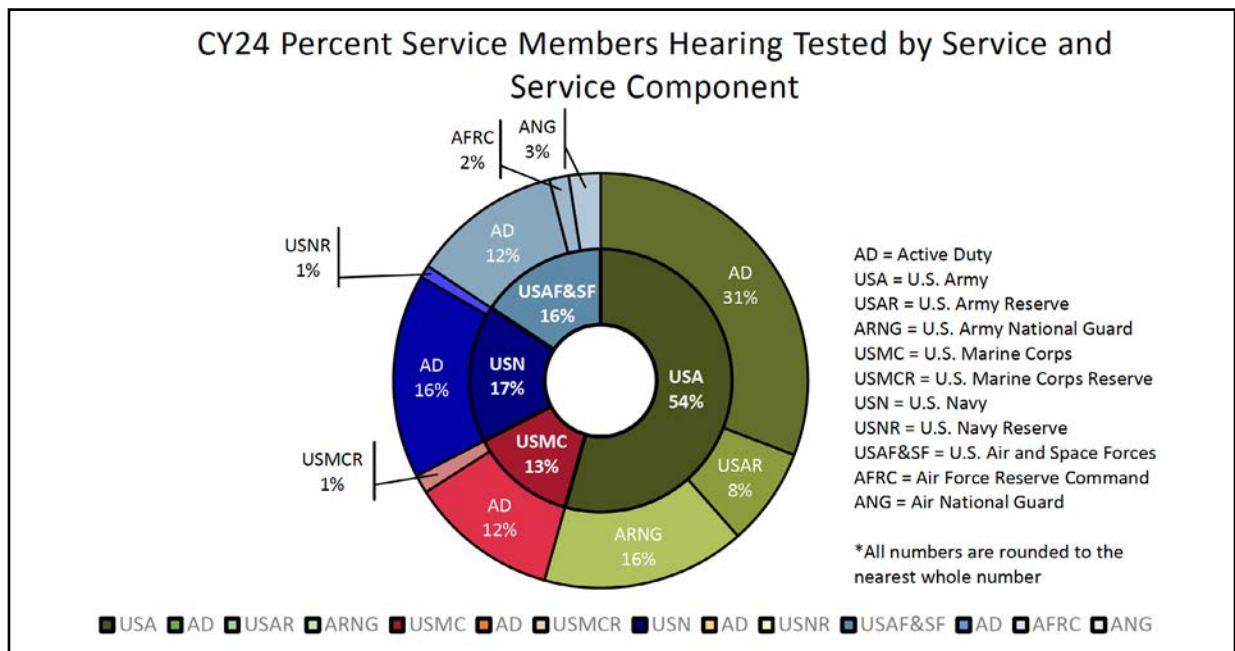


Table 1 includes the number of unique individuals tested in CY24 for each military service component as well as DOW civilians.

Table 1. CY24 Unique Individuals Tested

Calendar Year 2023 Unique Individuals Tested	Military	Active Duty	Reserve	National Guard	DOD Civilian
Army	747,236	423,810	105,028	218,398	19,691
Marine Corps	179,056	156,225	19,831	*	3,105
Navy	232,252	218,656	13,596	*	54,065
Air and Space Forces	215,620	160,881	20,772	33,967*	22,509
War Department (Total)	1,374,164	962,572	159,227	252,365	99,370
Source: Defense Occupational and Environmental Health Readiness System-Hearing Conservation Data Repository (DOEHRS-HC DR)					
*No National Guard Component in the Marine Corps, Navy, or Space Force					

Summary Findings for CY24

The sections below summarize the MOE findings from HCP hearing testing data related to military and civilians. [Table 2](#) identifies the percentages for all DOW military and civilian metrics discussed in this report.

This report introduces a 10-year average of data reported through the Hearing Health Surveillance Data Review. Averages are referenced throughout the report and can be found on Tables 2-6.

Unique Individuals Tested by Component (CY23 and CY24)

The number of unique individuals tested by military components across the DOW in CY24 showed a slight increase (1%) across all military and civilians compared to CY23. The largest increase in testing was 8% for the Reserve. The National Guard experienced a 4% decrease while DOW civilians showed a 1% decrease in the number tested compared with CY23 ([Graph 1](#)).

Significant Threshold Shift Rates by CY

Positive STS rates are the percentage of service members or civilians who have a decrease in hearing (an average change of +10dB HL or greater at 2000, 3000, and 4000 Hz, in either ear, on a surveillance audiogram compared to the individual's applicable baseline audiogram). Follow-up testing is required to determine if the STS is a TTS that resolves on follow-up testing or a PTS that is confirmed on follow-up testing or is due to a lack of follow-up testing completed within the required service's time limit.

For all DOW personnel (military and civilians) STS rates remained stable in CY24 at 11.4% for CY24 compared with 11.0% for CY23 and are below the 10-year average of 12.1%. PTS rates remained essentially the same at 7.9% in CY24 and 7.8% for CY23 and are lower than the 10-year average of 8.8%.

TTS rates are 3.6% for CY24 compared to 3.4% in CY23 and are just slightly higher than the 10-year average of 3.3%. (Graph 2) For all uniformed service members CY24 STS rates increased slightly (less than 1%) from 10.7% in CY23 to 11.1% in CY24. PTS rates stayed essentially the same with 7.8% for CY24 versus 7.7% for CY23 and were below the 10-year average of 8.8%. TTS rates were stable at 3.1% in CY24 compared to 3.0% for CY23 and are only slightly higher than the 10-year average of 2.8%. (Graph 3) Threshold shift rates for AD DOW service members are 9.2% for STS, 3.5% for TTS and 5.5% for PTS (Graph 4). CY24 threshold shift rates for the NG (Graph 5) are 14.2% STS, 11.4% PTS and 2.4% TTS. STS and PTS rates for the NG are below the 10-year average and TTS rates are slightly higher, indicating improvement in follow-up testing compliance as noted below. Reserve threshold shift rates for CY24 (Graph 6) were 17.1% STS, 15.0% PTS, and 1.8% TTS. STS and PTS rates were all below the 10-year average. STS and TTS rates are essentially unchanged for civilians with PTS rates down from 9.0% in CY23 to 8.2% in CY24 (Graph 7).

STS Follow-up Test Compliance

The purpose of STS follow-up testing is to determine whether an STS noted on the periodic exam is temporary or permanent. Previous hearing health reports show that STSs can resolve on follow-up testing or the next surveillance examination. When follow-up testing is not completed within the required service specific window (refer to service specific regulations in references) an STS on the periodic exam is automatically counted as a PTS. Without completing the required follow-up testing true STS rates across the DOW are unknown. Those who complete the follow-up testing process and still show an STS are referred for an audiological review and/or evaluation to better evaluate the change in hearing and make a work relatedness determination if necessary.

The 10-year average STS follow-up rate across the DOW, including both military and civilians, is 45.5% with the highest follow-up testing compliance completed for civilians (68.6%), closely followed by AD at 68.2%. The NG and Reserve show lower compliance at 21.8% and 12.7%, respectively. In CY24, both the NG and Reserve improved compliance significantly when compared to CY23. NG rose from 22.9% (CY23) to 30.2% (CY24) and the Reserve rose from 12.3% (CY23) to 21.9% (CY24). Graphs 8 and 9 provide follow-up testing compliance rates for all service members and civilians, respectively.

Hearing Impairment

The percentage of all hearing-impaired service members remained stable at 11.8% for CY24 compared with 12.0% in CY23 and below the 10-year average of 14.1%. The number of hearing-impaired civilians dropped to 33.8% in CY24 from 34.7% in CY23, well below the 10-year average of 38.7%. AD service members had the lowest hearing impairment rates in CY24 (10.8%) compared to the NG (14.7%) and Reserve (14.3%) see Table 2. Graphs 10 and 11 reflect hearing impaired rates for all service members and civilians, respectively.

The percentage of enlisted accessions with hearing impairment rose in CY24 to 8.4% compared with 7.8% for CY23. The Reserve component experienced the highest increase (1.4%) rising from 8.0% in CY23 to 9.4% in CY24. The 10-year average for all DOW sits at 8.9% (Graph 12).

VA Auditory Threshold Disability Criteria

The percentage of all service members (3.0%) who met established VA auditory threshold disability criteria in CY24 remained stable compared to CY23 (3.2%), see Graph 13. Component-specific rates fluctuated less than 1% with AD at 2.5%, NG at 4.4% and Reserve at 3.9%. The combined 10-year average for all components sits at 4.8%. VA auditory disability criteria include additional factors than just hearing thresholds in the actual determination of VA compensation due to impaired hearing.

Conclusions

Hearing test data from CY15 to CY24 indicates overall improved metrics *in terms of process (testing) and outcome (reduced rates of impairment)* for DOW service members and civilians enrolled in service component HCPs. In CY24, hearing testing increased for AD and particularly for the Reserve. Hearing testing decreased for the NG and less so for civilians. Data from CY15 to CY24 showed decreases in STS and PTS rates for all noise-exposed DOW personnel enrolled in HCPs with some increase in TTS for NG and Reserve particularly, consistent with increased follow-up hearing testing for those components. The DOW HCP follow-up hearing test goal of 70%, set by the DOW HCWG, was met for all DOW AD and civilians in CY24. Rates of hearing impairment decreased by 4% for all DOW service members, AD, and Reserve, 6% for NG and 10% for civilians from CY15 to CY24. Rates of enlisted personnel hearing impairment, from CY15 to CY24, decreased by 3% for all DOW service members and AD, 6% for NG, and .4% for Reserve. DOW service members meeting VA auditory threshold disability criteria decreased by 4% for all DOW service members and AD, 3% for NG and 5% for Reserve from CY15 to CY24.

These findings indicate hearing loss trends are moving in the desired direction, although significant room for improvement in all metrics remains and program diligence should be further supported. When delving deeper into the individual service component's metrics, be mindful of comparisons between the military groups as there are significant differences in their exposures, sizes, and contributions to the dataset including HCP inclusion criteria and participation.

Background

The annual report from the DOW HCWG, the DCPH-D, and the DHA HCE is a collaborative effort that covers DOW hearing health for CY 2015 through CY 2024. The report includes DOW and service-level MOEs for HCP metrics. It aggregates data from all service components and civilians and later examines service-level efforts to prevent hearing loss resulting from occupational and operational illness and injury (MOEs, June 2019).

All services use DOEHRS-HC common business practices and send hearing surveillance data to the DOEHRS-HC Data Repository (DR); however, each service varies in how hearing conservation data are gathered and reported. For example, STS and PTS rates are not always standardized and thus not always comparable due to different approaches at service-level HCPs (Batchelor et al., 2020). The Air Force, Space Force, and Navy provide annual monitoring audiometry only to service members routinely exposed to hazardous noise (at risk approach) and the Army and Marine Corps provide annual monitoring audiometry to all AD service members (total force approach).

In 2018, the DOW HCWG agreed to use standard HCP MOEs to resolve discrepancies among the services' HCP reports. The DOW HCWG approved MOEs include the following: STS rates, STS follow-up hearing test compliance, hearing impairment rates, and VA auditory threshold disability criteria. The metrics and data in this report are prepared and codified by the DCPH-D Epidemiology Consult Service Division and the DHA Armed Forces Health Surveillance Branch Air Force Satellite at Wright-Patterson AFB, Ohio. This report provides a standard method of reporting data on service HCPs using the MOEs described below:

- MOE 1 examines potential hearing injuries/illnesses by calculating STS, PTS, and TTS rates. This calculation is determined by using the number of unique individuals meeting each STS criteria on an annual audiogram per CY and dividing the total number of individuals who received an annual audiogram in the same CY.
- MOE 2 examines overall testing compliance and STS follow-up testing compliance. Overall testing compliance is the number of periodic and reference tests within a timeframe by unique individuals; each individual is counted once in the CY. Services are responsible for determining their own denominator. STS follow-up compliance is calculated by dividing the number of individuals with STS who did not obtain a follow-up audiogram within each service-specific required time limit by the total number of individuals with STS per CY.
- MOE 3a measures the rate of individuals in the HCP who have hearing impairment (thresholds above 25 dB HL) vs. individuals in the HCP with normal hearing (25 dB HL or below). The total is calculated by taking the number of individuals with hearing impairment on a periodic or reference audiogram per CY and dividing by the total number of individuals who received a periodic or reference audiogram in the same CY. MOE 3b, the percentage of enlisted accessions with hearing impairment, helps distinguish between service members accepted into the service with hearing impairment and those that develop hearing impairment because of service.

- MOE 4 calculates the percentage of service members who might qualify for VA disability benefits based only on auditory threshold disability criteria per 38 CFR §3.385, disability due to impaired hearing. This percentage is determined by the number of individuals who met the VA hearing threshold level criteria per CY divided by the total number of individuals who received an audiogram within that same CY.³

This report includes a graphic representation of unique individuals tested, by each service component, in CY23 vs. CY24 (Graph 1 below). The difference in total unique individuals tested from CY23 to CY24 was divided into the total number of unique individuals tested in CY23 to determine the percent change (increase or decrease) for CY24. [Figure 1](#) above, shows the CY24 ratio of service members tested by service and service component using the DOW total number of unique individuals tested in CY24 (Table 1).

Two important caveats for this report include:

1. The report is not intended to provide a comprehensive, descriptive, epidemiological analysis of exposed versus unexposed populations. Rather, this report is a summary of HCP participants' hearing health trends to assist HCP managers with identifying HCP performance gaps.
2. All data contained in this CY15-CY24 report reflect data validations and methodology run by the DHA Armed Forces Health Surveillance Branch Air Force Satellite at Wright-Patterson AFB and the leadership of each military services' HCP reviewed and approved the metrics and data in this report. For questions regarding the data presented in this report, contact the DHA Hearing Center of Excellence, Prevention and Surveillance Section at: dha.ncr.j-9.list.hce-office-owners@health.mil.

3 The award of VA service-connected disability benefits for hearing loss is made by Veterans Benefits Administration (VBA), Department of Veterans Affairs (VA) based on many factors - not only changes in hearing threshold levels during military service. For example, in granting service-connection for hearing loss VBA considers:

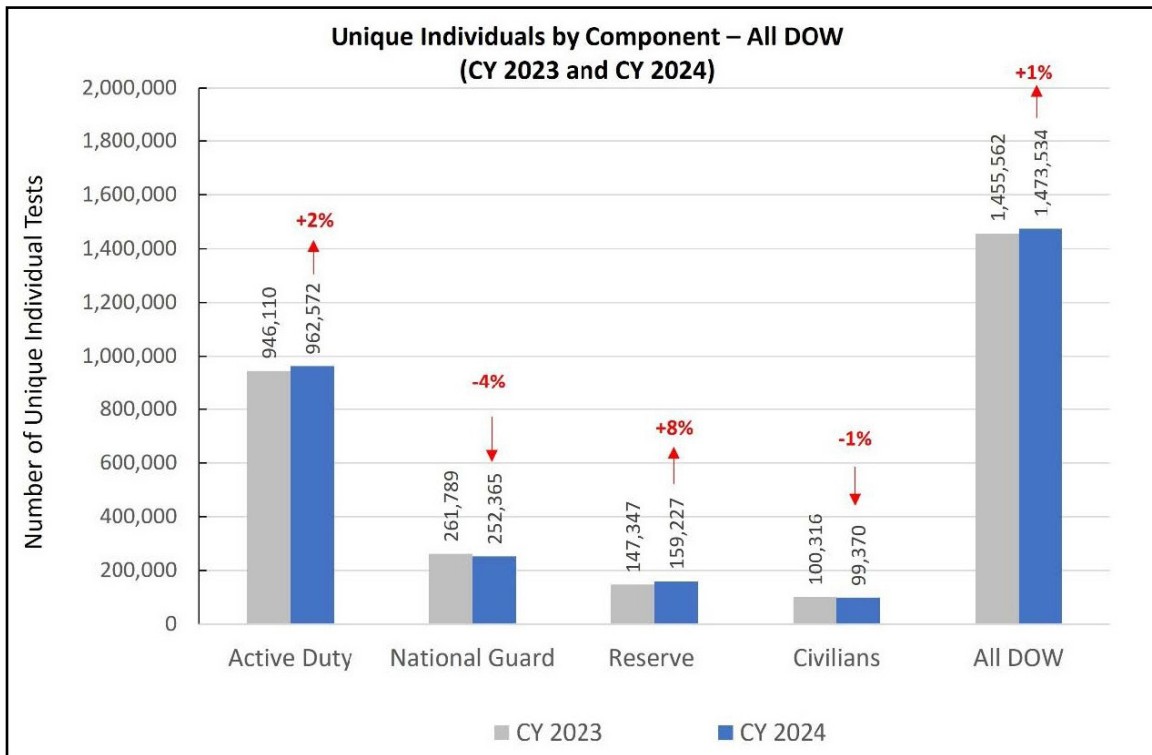
- Word Recognition Scores (determining the Veteran's optimum performance for word recognition under controlled and standardized listening conditions) less than 94%.
- A permanent positive threshold shift worse than the reference audiogram threshold "greater than normal measurement variability" at any frequency between 500 – 6000 Hz; and
- Determination of etiology affected by several facts, per court decisions and/or directed by VBA, for instance:
 - Instead of conceding noise exposure for a military occupational specialty (MOS) with moderate or high probability for noise exposure, veteran service representatives and rating veteran service representatives must now concede noise exposure for ALL MOSs (low, moderate, and high probability of noise exposure) for the purposes of establishing an event in service.
 - When hazardous noise exposure is conceded based on the veteran engaging in combat, accepting satisfactory lay or other evidence of service incurrence or aggravation of such injury or disease, if consistent with the circumstances, conditions, or hardships of such service, even if there is no official record of such incurrence or aggravation in such service. There is a requirement to resolve every reasonable doubt in favor of the Veteran unless there is clear and convincing evidence to the contrary. (Reeves v. Shinseki, 682 F.3d 988, Fed.Cir. 2012)

Hearing Health - DOW

Unique Individuals Tested by Component

The number of unique individuals tested for all service members and civilians showed an overall increase of 1% in CY24 compared to CY23 (Graph 1). Service component breakdown showed a 2% increase for AD, a 4% decrease for NG, an 8% increase for Reserve, and a 1% decrease for civilians in CY24 compared to CY23.

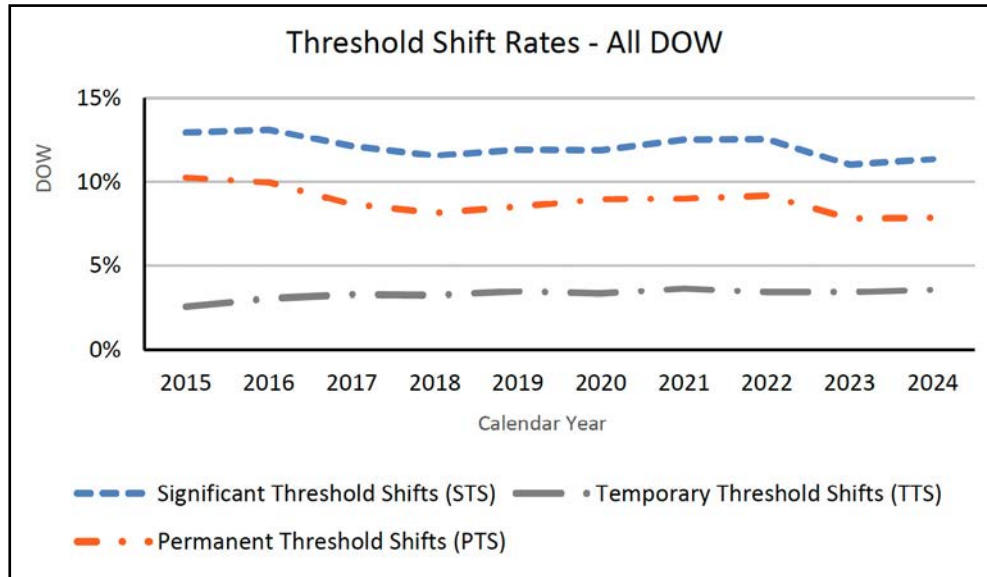
Graph 1. Unique Individuals Tested by Component – All DOW (CY23 and CY24)



Significant Threshold Shift Rates by CY

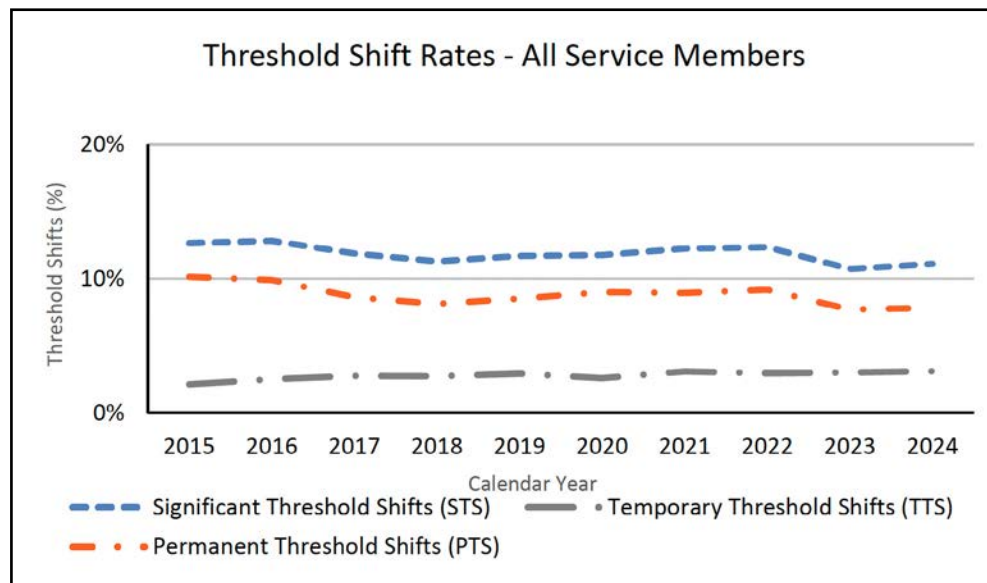
In CY24, all DOW (military and civilians) STS, PTS, and TTS rates showed less than 1% fluctuation from CY23 with rates of 11.4%, 7.9% and 3.6%, respectively. STS and PTS rates in CY24 were below the 10-year averages of 12.1% and 8.8%. TTS rates were higher in CY24 compared with the 10-year average of 3.3%. (Graph 2).

Graph 2. Threshold Shift Rates - All DOW



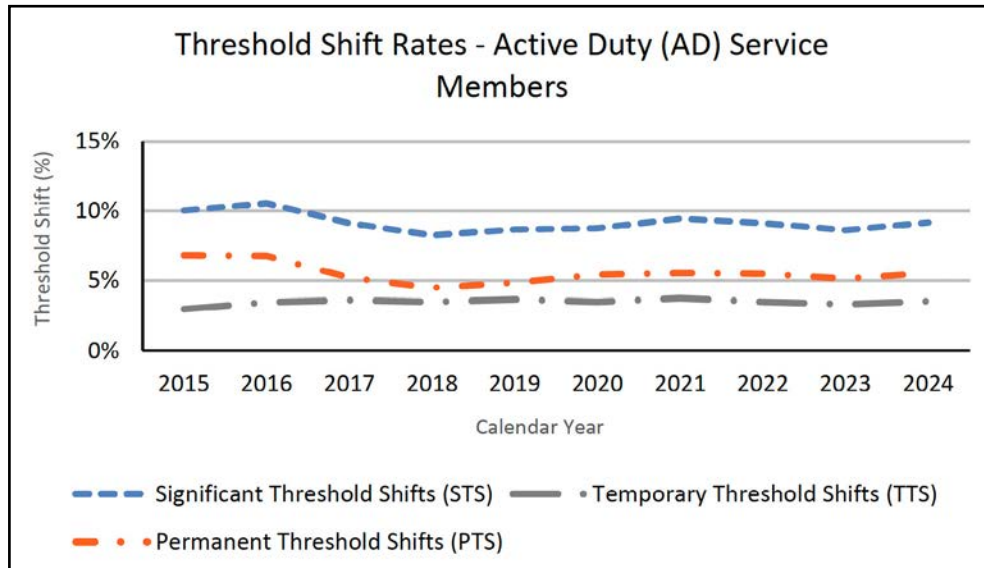
CY24 STS rates for all service members increased less than 1% from 10.7% in CY23 to 11.1% in CY24. PTS rates remained stable at 7.8% in CY24 versus 7.7% in CY23 (Graph 3). The CY24 PTS rate is 1% below the 10-year average of 8.8%. TTS rates remained essentially the same in CY24 (3.1%) compared with CY23 (3.0%) and are slightly above the 10-year average of 2.8%.

Graph 3. Threshold Shift Rates - All Service Members



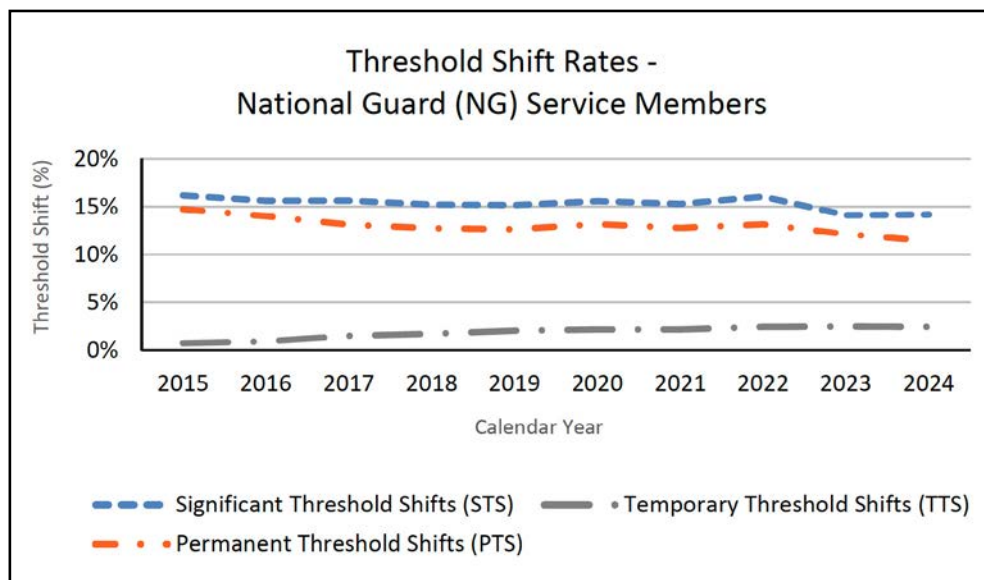
Threshold shift rates for all AD service members were 9.2% for STS, 5.5% for PTS, and 3.5% for TTS (Graph 4) and are stable from CY23 to CY24. STS, PTS, and TTS rates were equal to the 10-year average of 9.2%, 5.5%, and 3.5% respectively.

Graph 4. Threshold Shift Rates - Active Duty (AD) Service Members



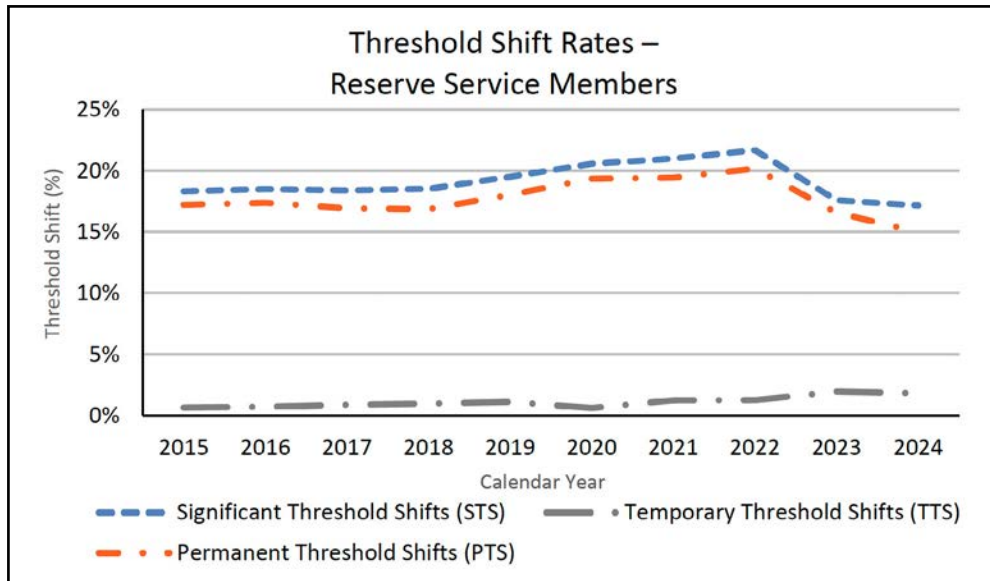
NG rates for CY24 were 14.2% STS, 11.4% PTS, and 2.4% TTS (Graph 5). Rates are essentially unchanged in all areas. STS and PTS rates are below the 10-year average of 15.3% and 13.0%, respectively. TTS rates were above the 10-year average of 1.9%, suggesting some improvement in follow-up compliance.

Graph 5. Threshold Shift Rates - National Guard (NG) Service Members



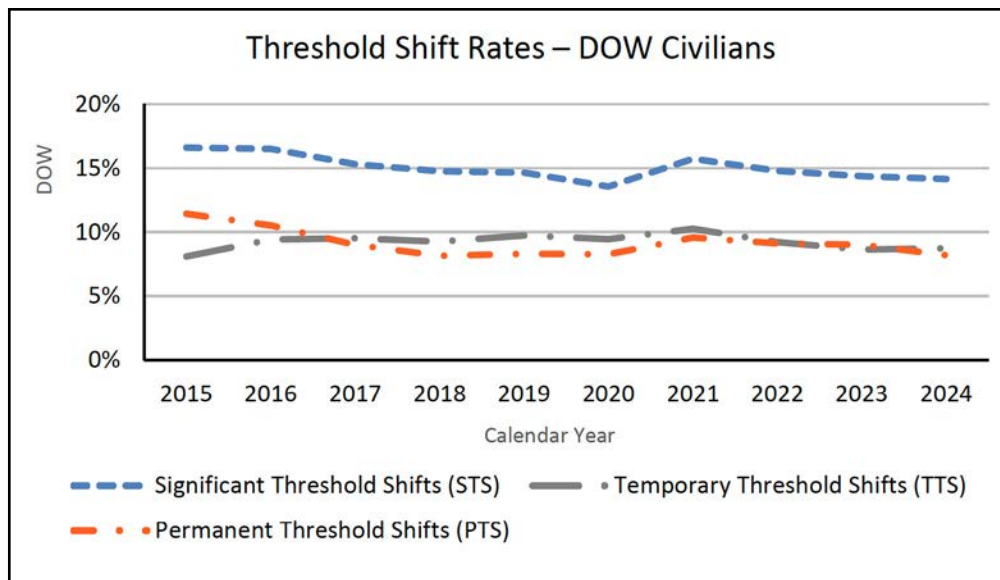
Reserve rates in CY24 were 17.1% STS, 15.0% PTS, and 1.8% TTS (Graph 6). STS and TTS rates remained stable from CY23. PTS rates decreased 1.6% from 16.6% in CY23 to 15.0% in CY24. CY24 STS and PTS rates were below the 10-year averages of 19.1% and 17.7% respectively. CY24 TTS rates were higher at 1.8% than the 10-year average of 1.1%, suggesting some improvement in follow-up compliance.

Graph 6. Threshold Shift Rates – Reserve Service Members



The DOW civilians STS rates for CY24 were 14.1% STS, 8.2% PTS, and 8.7% TTS (Graph 7). There was no meaningful change in STS, PTS, or TTS in CY24 compared to CY23 for DOW civilians. CY24 STS, PTS, and TTS rates were below their 10-year averages.

Graph 7. Threshold Shift Rates - DOW Civilians

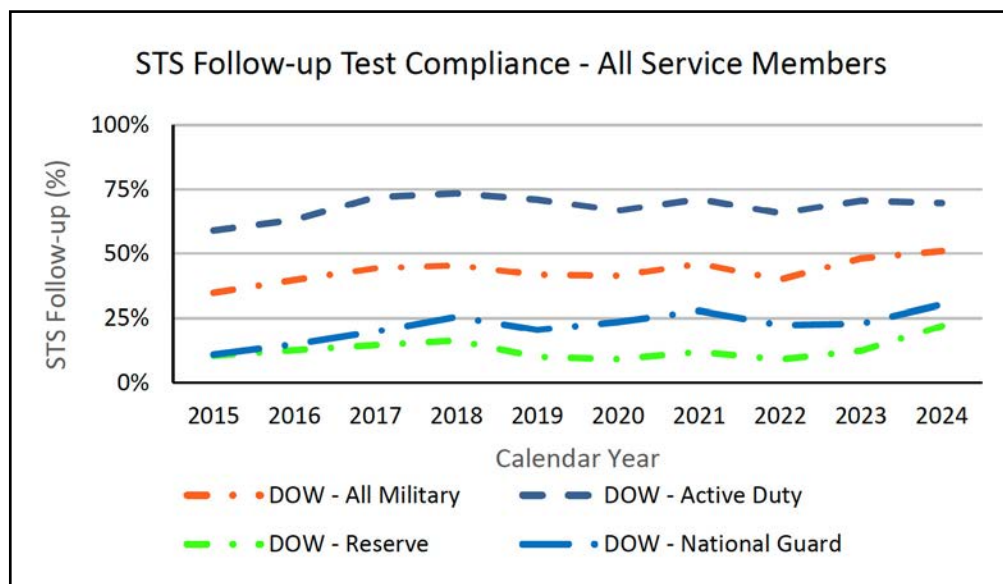


STS Follow-up Test Compliance

Positive STS follow-up hearing test compliance showed improvement in CY24 compared to CY23 for DOW service members (Graph 8). Overall compliance for military follow-up testing increased from 48.1% in CY23 to 50.9% in CY24 and was above the 10-year average of 43.1%. AD follow-up hearing test compliance was the highest at 69.7%, higher than the 10-year average of 68.2%. NG and Reserve follow-up hearing test compliance showed improvement with rates of 30.2% (NG) and 21.9% (Reserve) in CY24 compared to 22.9% (NG) and 12.3% (Reserve) in CY23, a notable 9.6% increase in follow-up hearing tests for the Reserve, in particular. These rates are well above the 10-year averages of 21.8 and 12.7% for the NG and Reserve, respectively.

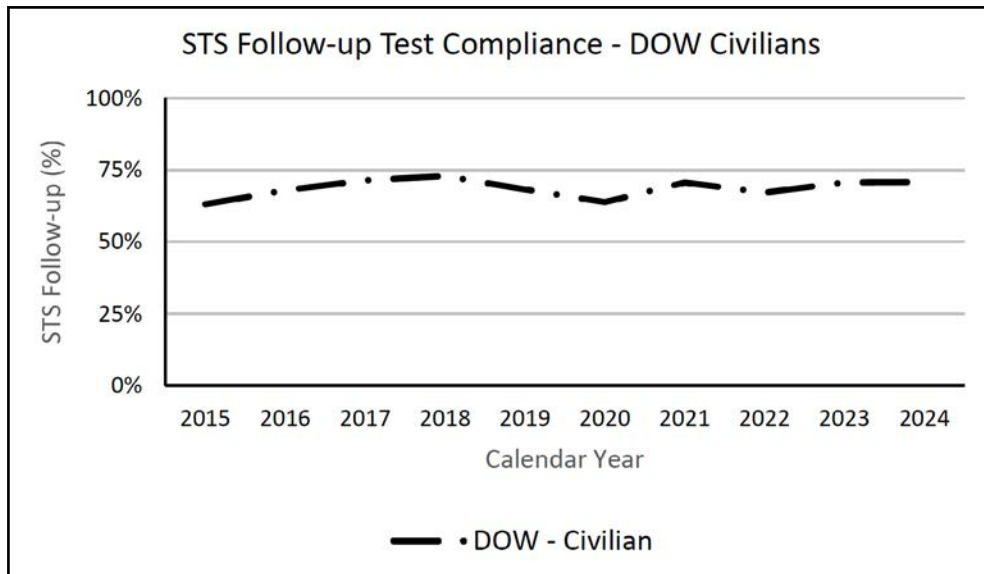
Failure to conduct STS follow-up testing will: 1) elevate STS rates, i.e., the initial STS may be identified every year until follow-up testing is performed, and a new baseline is established, if required, and 2) prevent accurate identification of PTS and TTS, i.e., STS with no follow-up hearing test defaults to a PTS when the service-specific follow-up test window has closed. This results in artificially high STS and PTS rates that do not reflect the true incidence of new military hearing injuries (McKenna et al., 2018).

Graph 8. STS Follow-up Test Compliance - All Service Members



DOW Civilians STS follow-up hearing test compliance (Graph 9) remained stable in CY24 at 70.8% compared to CY23 at 70.7%. The CY24 rate was above the 10-year average of 68.6% for follow-up hearing test compliance.

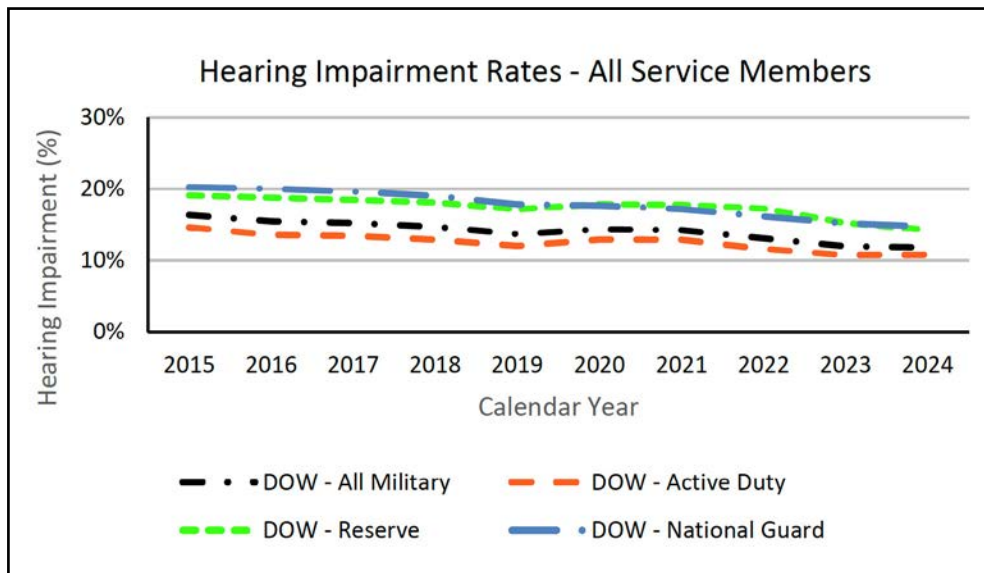
Graph 9. STS Follow-up Test Compliance - DOW Civilians



Hearing Impairment

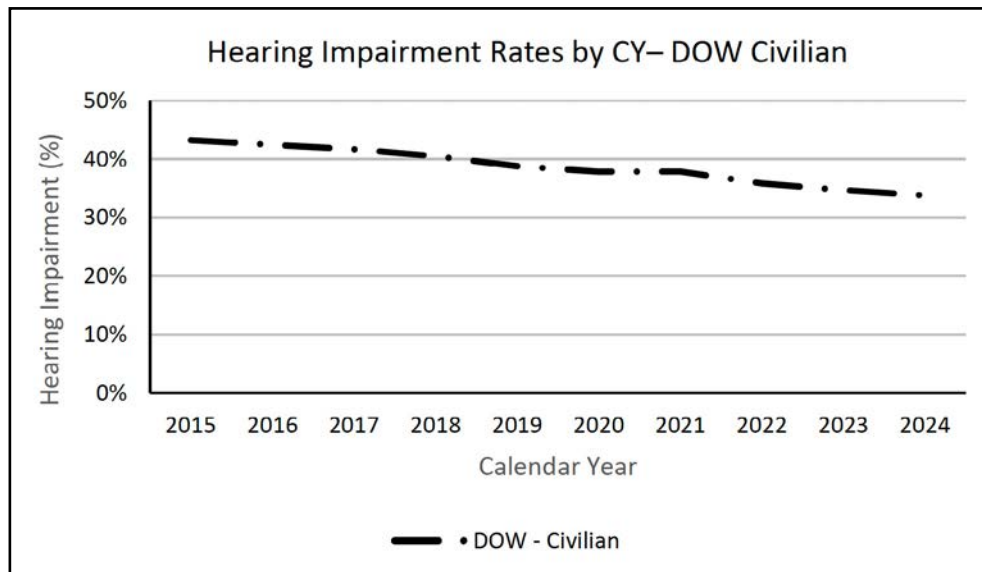
The percent of hearing impaired (hearing worse than 25 dB HL at any test frequency) DOW service members remained stable from 12% in CY23 to 11.8% in CY24 and were below the 10-year average of 14.1%. Hearing impaired rates in CY24 were 11.8% for all DOW service members, 10.8% for AD, 14.7% for NG, and 14.3% for Reserve (Graph 10).

Graph 10. Hearing Impairment Rates – All Service Members



The percentage of DOW civilians with hearing impairment decreased from 34.7% in CY23 to 33.8% in CY24 (Graph 11). FY24 rates were below the 10-year average of 38.7%. The high percentage of hearing-impaired civilians is believed to be, in part, due to differences in age and/or years of noise exposure compared to service member populations (Batchelor et al., 2020).

Graph 11. Hearing Impairment Rates – DOW Civilians

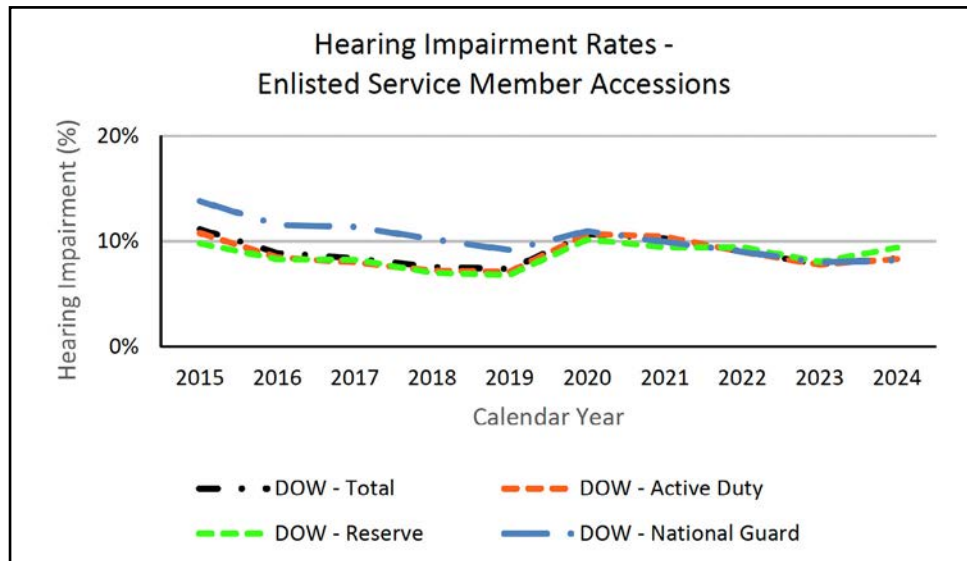


Hearing Impairment – Enlisted Accession Data

All service members receive a baseline (reference) hearing test as part of basic training⁴ at their entrance to military service. Baseline audiograms establish a record of hearing health at the time of basic training and are used to monitor hearing health from year to year. Baseline audiograms were used to determine the percentage of new recruits who came into the military with hearing impairment (hearing worse than 25 dB HL at any test frequency). The percentage of enlisted accessions with hearing impairment increased from 7.8% in CY23 to 8.4% in CY24 with the CY24 rates lower than the 10-year average of 8.9% (Graph 12). Individual service component rates were 8.3% (AD), 8.2% (NG), and 9.4% (Reserve) in CY24.

⁴ The military services refer to training at the onset of military service as Basic Combat Training (Army), Basic Training (Navy), Recruit Training (Marine Corps), and Basic Military Training (Air Force). For the purposes of this report the initial training of service members at entry to military service will be referred to as basic training.

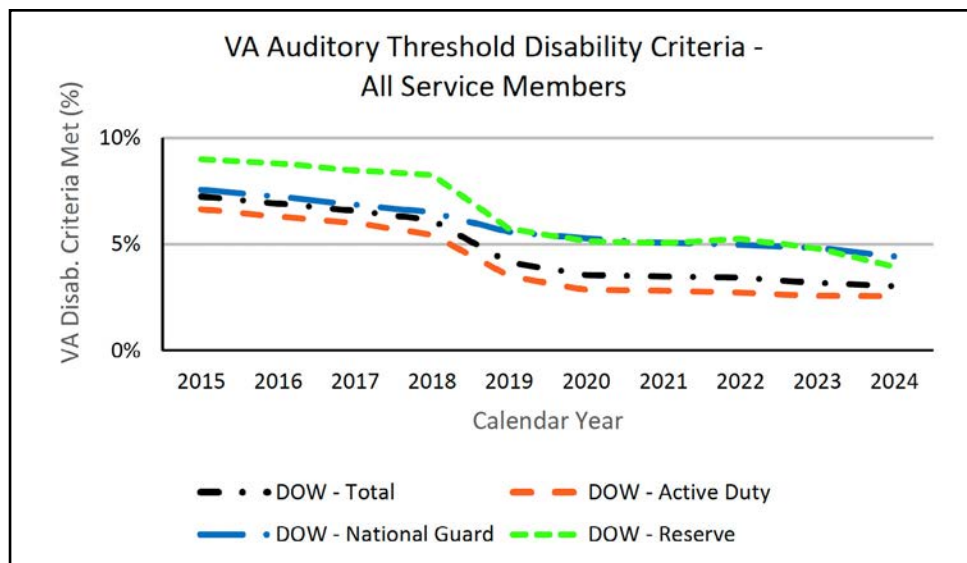
Graph 12. Hearing Impairment Rates - Enlisted Service Member Accessions



VA Auditory Threshold Disability Criteria

The percentage of all DOW service members meeting established VA auditory threshold disability criteria decreased for all DOW components in CY24. The percentage of DOW service members potentially eligible for VA service-connected disability compensation for hearing loss decreased from 3.2% in CY23 to 3.0% in CY24 and is below the 10-year average of 4.8% (Graph 13). Rates for individual service components were 2.5% (AD), 4.4% (NG), and 3.9% (Reserve) in CY24.

Graph 13. VA Auditory Threshold Disability Criteria – All Service Members



Summary and Conclusions

The hearing health of the DOW has remained stable or improved when compared across the years (2015 – 2024). Current CY24 rates of STS, PTS, and TTS are below 10-year averages with PTS rates for military and civilians at 7.9%. NIOSH has identified a PTS rate of 3% or less as an indicator of an effective hearing conservation program (NIOSH 1998). While significant improvement in follow-up compliance was seen for the NG and Reserve in CY24, follow-up compliance for those components remained low and below the DOW HCWG goal of 70%. A follow-up compliance rate of 75% or better is recommended to encourage continued upward progress in compliance in the AD and civilian populations and steady compliance improvement in the Reserve and NG. In CY24, 131,699 (11.8%) of service members and 14,190 (8.4%) of newly enlisted service members had hearing impairment. Of these, 33,471 (3%) meet the VA defined disability criteria. Good hearing is a combat multiplier and directly associated with survivability and lethality on the battlefield. (Sheffield, Brungart, Tufts, & Ness, 2016). Preserving good hearing health and preventing hearing injuries is critical to readiness in the DOW and quality of life for service members and civilians.

Table 2. Data Summary – DOW - Source: DOEHRS-HC DR, ad hoc MOE percentages

War Department - Total													
Chart Title	MOE	Category	Percent										
			CY15	CY16	CY17	CY18	CY19	CY20	CY21	CY22	CY23	CY24	10-yr AVG
Threshold Shift Rates All DOW	MOE 1	STS	13.0	13.1	12.1	11.6	11.9	11.9	12.5	12.5	11.0	11.4	12.1
		TTS	2.6	3.0	3.3	3.2	3.4	3.3	3.6	3.4	3.4	3.6	3.3
		PTS	10.2	10.0	8.7	8.1	8.5	9.0	9.0	9.2	7.8	7.9	8.8
Threshold Shift Rates All Service Members		STS	12.7	12.8	11.9	11.3	11.7	11.8	12.3	12.4	10.7	11.1	11.9
		TTS	2.1	2.5	2.8	2.7	2.9	2.9	3.1	3.0	3.0	3.1	2.8
		PTS	10.0	10.6	8.6	8.1	8.5	9.0	8.9	9.2	7.7	7.8	8.8
Threshold Shift Rates AD Service Members		STS	10.0	10.6	9.1	8.3	8.7	8.8	9.5	9.1	8.6	9.2	9.2
		TTS	3.0	3.5	3.6	3.5	3.7	3.5	3.8	3.5	3.3	3.5	3.5
		PTS	6.8	3.8	5.2	4.5	4.9	5.4	5.5	5.5	5.1	5.5	5.5
Threshold Shift Rates NG Service Members		STS	16.2	15.6	15.6	15.2	15.2	15.6	15.3	16.0	14.1	14.2	15.3
		TTS	0.7	0.9	1.5	1.7	2.0	2.2	2.2	2.4	2.5	2.4	1.9
		PTS	14.7	14.0	13.1	12.8	12.6	13.2	12.8	13.2	12.1	11.4	13.0
Threshold Shift Rates Reserve Service Members		STS	18.3	18.5	18.4	18.5	19.5	20.6	21.0	21.7	17.6	17.1	19.1
		TTS	0.7	0.7	0.9	1.0	1.1	1.1	1.3	1.3	2.0	1.8	1.2
	PTS	17.2	17.4	16.9	16.9	18.0	19.3	19.4	20.2	16.6	15.0	17.7	
Threshold Shift Rates DOW Civilian	STS	16.6	16.5	15.3	14.8	14.6	13.6	15.7	14.8	14.4	14.1	15.0	
	TTS	8.1	9.4	9.5	9.3	9.7	9.5	10.3	9.2	8.6	8.7	9.2	
	PTS	11.4	10.5	9.0	8.2	8.3	8.3	9.6	9.1	9.0	8.2	9.2	
STS Follow-Up Test Compliance	MOE 2	All	34.6	39.6	44.1	45.3	41.6	41.1	46.0	39.7	48.1	50.9	43.1
		Active Duty	58.9	62.9	71.9	73.4	71.0	66.6	71.2	65.6	70.5	69.7	68.2
		National Guard	10.8	14.8	19.7	25.5	20.4	23.6	27.8	22.3	22.9	30.2	21.8
		Reserve	10.4	12.5	14.5	16.2	9.9	9.0	11.8	8.9	12.3	21.9	12.7
		Civilian	63.0	67.9	71.4	72.9	68.2	63.8	70.6	67.1	70.7	70.8	68.6
Hearing Impaired Rates	MOE 3	All	16.3	15.5	15.2	14.7	13.7	14.4	14.2	13.1	12.0	11.8	14.1
		Active Duty	14.6	13.6	13.4	12.9	12.0	12.9	12.9	11.6	10.7	10.8	12.5
		National Guard	20.2	20.0	19.6	19.0	17.8	17.7	17.2	16.1	15.2	14.7	17.8
		Reserve	19.1	18.8	18.5	18.1	17.1	17.9	17.8	17.2	15.2	14.3	17.4
		Civilian	43.3	42.4	41.7	40.5	38.8	37.8	37.9	35.8	34.7	33.8	38.7
Hearing Impaired Rates - Enlisted Accessions	MOE 3	All	11.1	8.9	8.4	7.6	7.4	10.7	10.3	9.0	7.8	8.4	9.0
		Active Duty	10.8	8.5	8.0	7.2	7.1	10.7	10.4	9.0	7.8	8.3	8.8
		National Guard	13.8	11.6	11.4	10.2	9.2	11.0	9.9	9.0	8.0	8.2	10.2
		Reserve	9.8	8.3	8.2	7.0	6.8	10.1	9.4	9.4	8.0	9.4	8.6
VA Auditory Threshold Criteria	MOE 4	All	7.2	6.9	6.6	6.1	4.1	3.6	3.5	3.4	3.2	3.0	4.8
		Active Duty	6.6	6.3	6.0	5.4	3.5	2.8	2.8	2.7	2.6	2.5	4.1
		National Guard	7.6	7.2	6.9	6.5	5.6	5.3	5.1	5.0	4.8	4.4	5.8
		Reserve	9.0	8.8	8.5	8.3	5.7	5.1	5.1	5.3	4.8	3.9	6.5

Appendix A: Hearing Health - Army

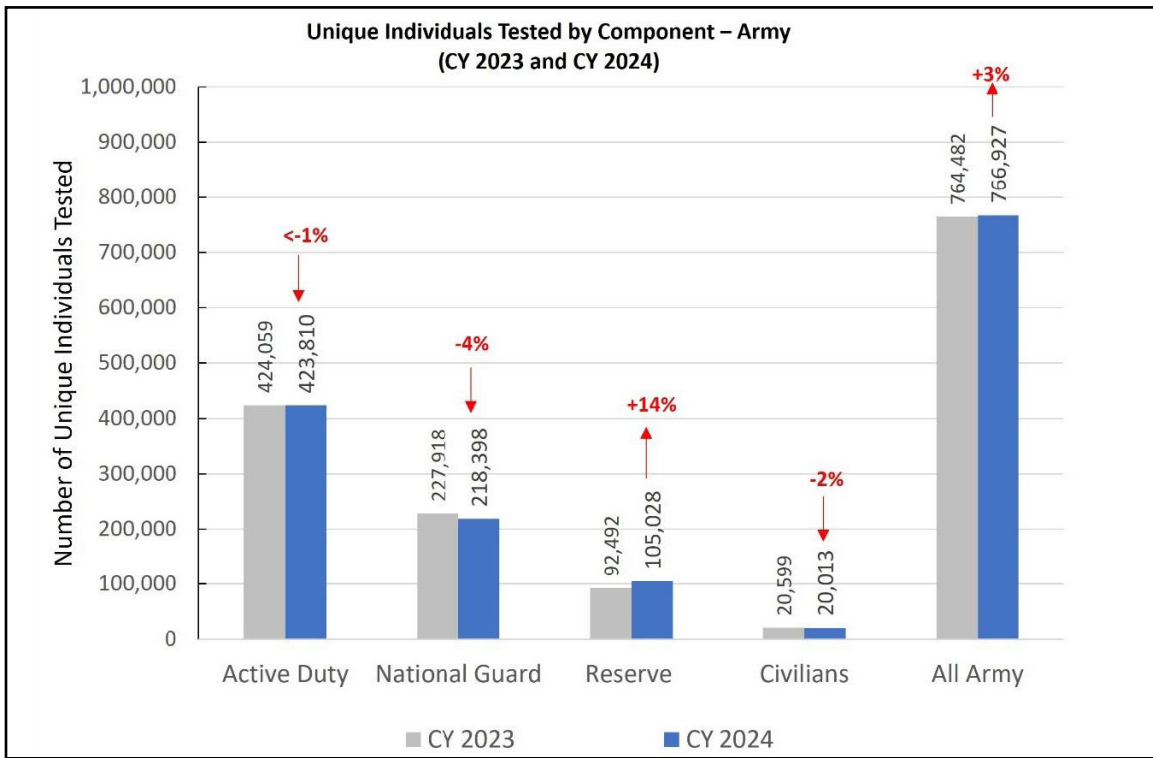
The mission of the Army Hearing Program (AHP) is to maximize Soldier and Department of the Army (DA) civilian hearing and communication abilities through implementation of the components of hearing readiness, clinical services, operational hearing services, and hearing conservation, thus contributing to survivability, lethality, mission effectiveness, and quality of life. All AD soldiers require an annual hearing readiness evaluation regardless of their noise-exposure risk. All Army National Guard (ARNG) and Army Reserve (USAR) soldiers assigned to Table of Organization and Equipment (TOE) units, or ARNG and USAR soldiers, routinely exposed to hazardous noise and assigned to Table of Distribution and Allowances (TDA) units, require annual hearing tests. Soldiers experiencing a change in hearing or other hearing-related issues, regardless of exposure, are treated as if they were at risk and receive follow-up testing, counseling, and referrals, as needed. DA civilians are also enrolled in the AHP when they meet HCP noise-exposure criteria.

The overall hearing health for all soldiers and DA civilians trended in the desired directions for almost all metrics from CY15 to CY24 (Graphs 14 – 25; Table 3). AD showed a decrease in follow-up hearing test compliance rates and an increase in PTS rates, not trending in their desired directions in CY24, compared to CY23. Historically, ARNG and USAR have had a larger need for HCP improvements and continued making strides in the desired directions from CY23 to CY24 for all metrics. An area to watch is the increased rates of hearing-impaired accessions, for all soldiers in CY24 compared to CY23. Plenty of room for continued improvements remain for all soldiers and DA civilians enrolled in the Army HCP.

Unique Individuals Tested by Component

The number of all soldiers and DA civilians tested in CY24 increased by 3% (Graph 14) compared to CY 23. In CY 24, testing remained stable for AD, decreased by 4% for ARNG, increased by 14% for USAR, and decreased by 2% for DA civilians, compared to CY23.

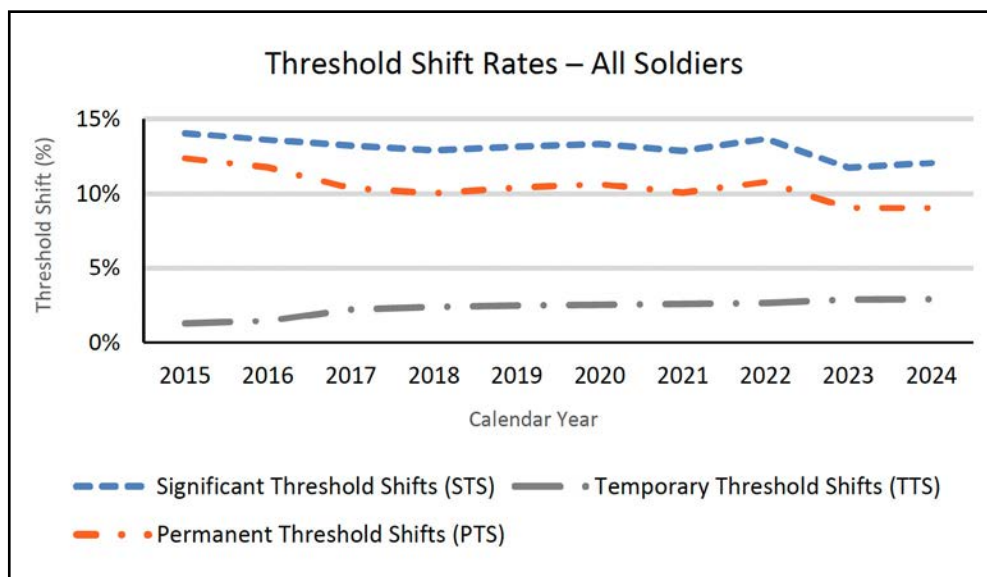
Graph 14. Unique Individuals Tested by Component - Army (CY23 and CY24)



Significant Threshold Shift Rates by CY

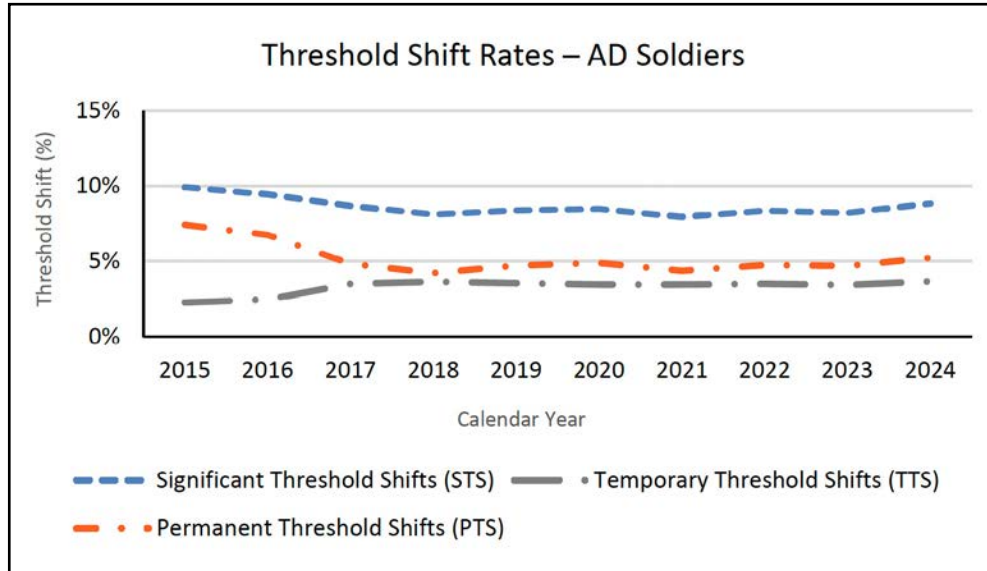
In CY24, threshold shift rates for all soldiers were 12.0% STS, 9.0% PTS, and 2.9% TTS (Graph 15). The 10-year average threshold shift rates were 13.1% STS, 10.4% PTS, and 2.3% TTS. The accuracy of PTS and TTS are influenced by STS follow-up test compliance (Graph 20).

Graph 15. Threshold Shift Rates – All Soldiers



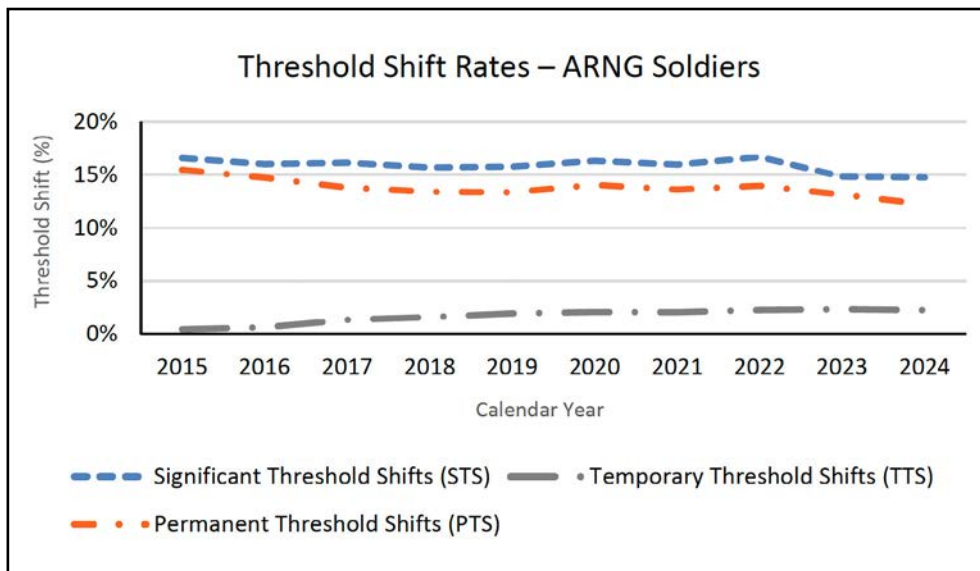
AD soldier threshold shift rates increased from 8.2% STS, 4.7% PTS, and 3.4% TTS in CY23 to 8.8% STS, 5.2% PTS, and 3.6% TTS (Graph 16) in CY24. The 10-year average STS and TTS rates were lower than CY24 rates at 8.6% STS and 3.3% TTS, and consistent with CY24 PTS rate at 5.2%.

Graph 16. Threshold Shift Rates – AD Soldiers



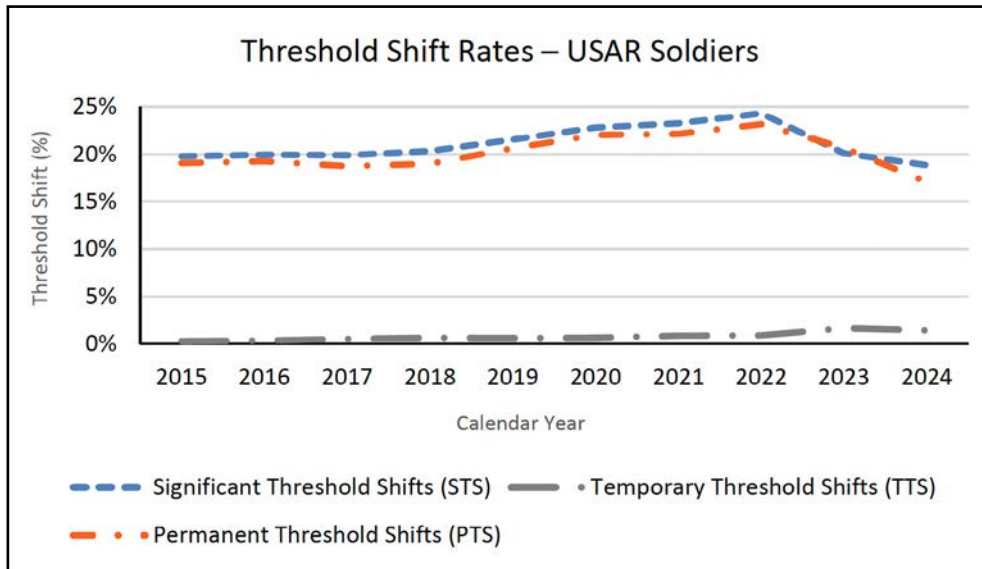
ARNG STS rates in CY24 remained stable at 14.8%. PTS rates decreased to 12.2% in CY24 compared with 13.1% in CY23. TTS rates remain stable at 2.2% (Graph 17). STS and PTS rates are below the 10-year averages of 15.9% and 13.8% respectively. TTS rates are slightly above the 10-year average of 1.7%.

Graph 17. Threshold Shift Rates - ARNG Soldiers



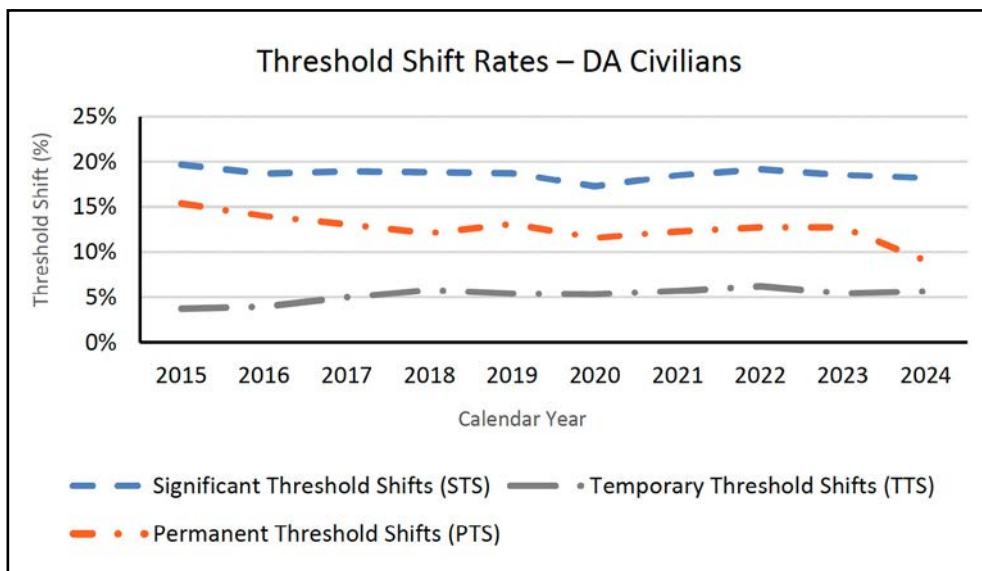
USAR soldier threshold shift rates in CY24 were 18.8% STS, 17.1% PTS, and 1.4% TTS (Graph 18). There was a 1.3% STS decrease in CY24, compared to CY23. While trending in the right direction since CY22, increased STS follow-up hearing test compliance is needed to better identify the true STS and PTS rates. The 10-year average rates are 21.1% (STS), 20.2% (PTS), and rate is 21.1%, PTS rate is 20.1%, and 0.8% (TTS).

Graph 18. Threshold Shift Rates by – USAR Soldiers



In CY24, DA civilian threshold shift rates were 18.2% STS, 9.0% PTS, and 5.6% TTS (Graph 19). Rates indicated a 0.3% decrease in STS and a notable 3.7% decrease in PTS from CY23. TTS rates increased 0.2% from CY23. 10-year averages are 18.6% (STS), 12.6% (PTS), and 5.2% (TTS).

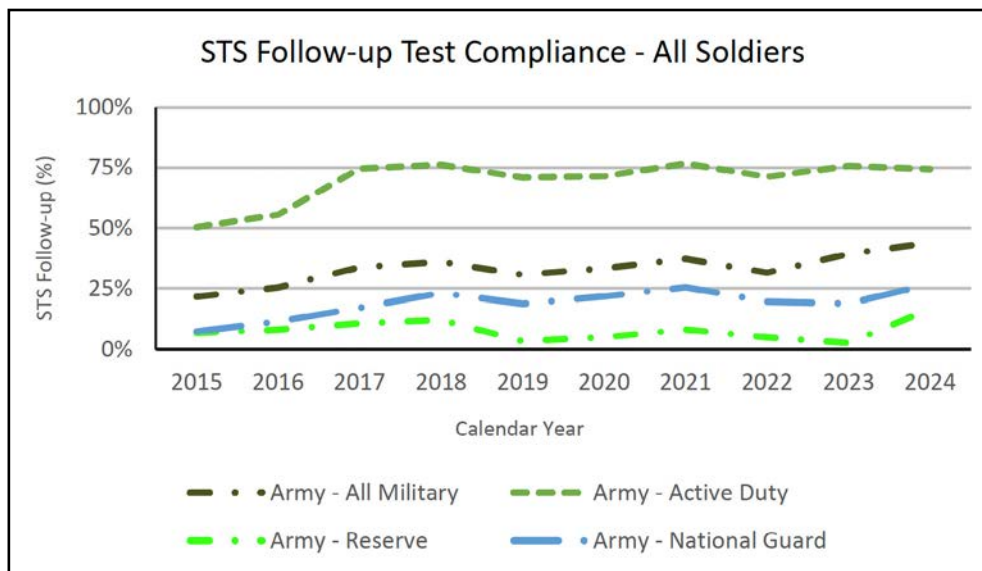
Graph 19. Threshold Shift Rates – DA Civilians



STS Follow-up Test Compliance

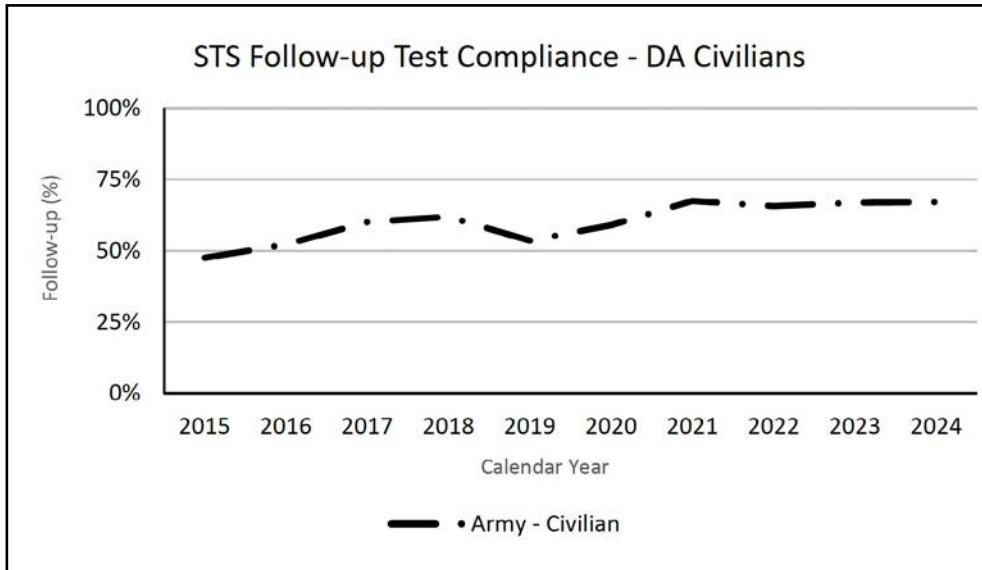
Positive STS follow-up hearing test compliance rates continued to improve for all soldiers from 39.2% in CY23 to 43.9% in CY24 (Graph 20). Follow-up hearing test compliance rates for AD soldiers showed a 1.3% decrease, still above the Army HCP goal of 70%, established in the Army's safety, occupational and environmental health strategy 2020-2028, in CY24 compared to CY23. ARNG follow-up hearing test compliance rates increased 8% from CY23 to 26.7% in CY24, still below the 70% Army HCP goal. USAR follow-up hearing testing increased 14% to 16.6% in CY24, compared to CY23. All soldiers CY24 follow-up hearing test compliance rates were above the 10-year average rates of: All soldiers 33.2%, AD 69.7%, ARNG 19%, and USAR 7.8%. Even so, there is plenty of room for continued improvement. Failure to conduct follow-up testing will: 1) Elevate STS rates as the initial STS will be identified every year until follow-up testing is performed and a new baseline is established, if required, and 2) Prevent accurate identification of PTS and TTS, i.e., increase PTS and decrease TTS rates.

Graph 20. STS Follow-up Test Compliance - All Soldiers



DA civilian follow-up hearing test compliance continued increased compliance rates from 66.9% in CY23 to 67.1% in CY24 (Graph 21). The CY24 DA civilian follow-up hearing test compliance rate trended higher than the 10-year average of 60.1% and is still below the Army HCP goal of 70% follow-up hearing test compliance.

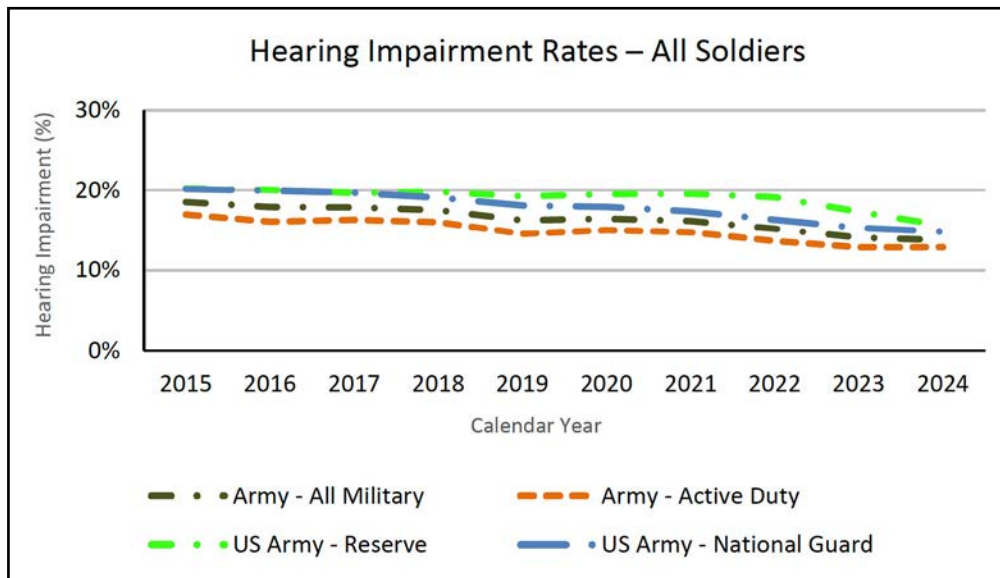
Graph 21. STS Follow-up Test Compliance - DA Civilians



Hearing Impairment

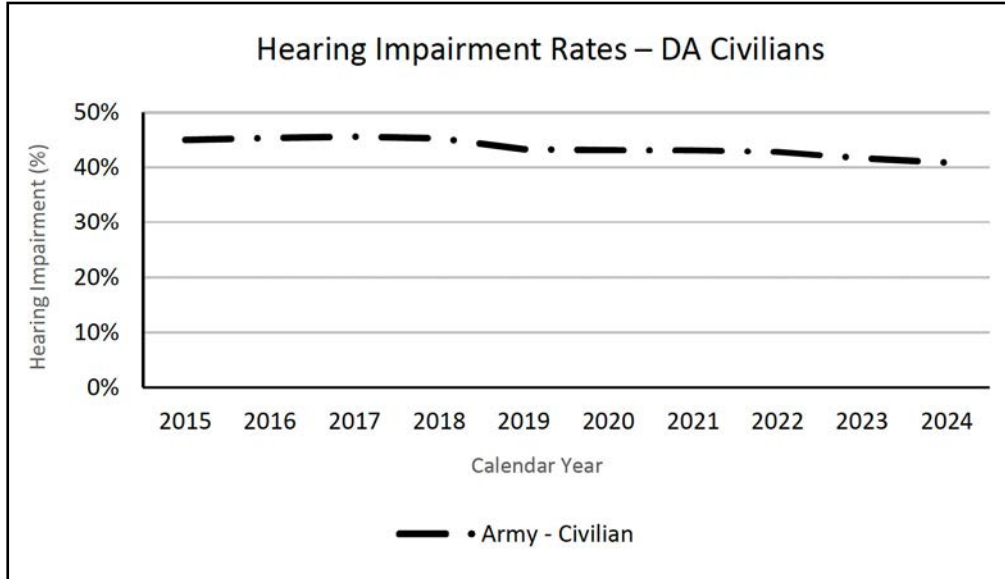
The rate of all soldiers with hearing impairment has decreased for all Army components combined, and individually, since CY15 (Graph 22). In CY 24, the rate of all soldiers with hearing impairment decreased to 13.8%, from 14.1% in CY23 and from the 10-year average of 16.4%. Rates of hearing impairment for AD remained stable from CY23 to CY24 and decreased for ARNG and USAR in CY24. All Army components showed a decrease in hearing impairment rates in CY24 compared to 10-year average hearing impairment rates: AD 14.9%, ARNG 17.9%, and USAR 19.0%.

Graph 22. Hearing Impairment Rates – All Soldiers



The rate of DA civilians with hearing impairment is 40.8%, a decrease in CY24 compared to 41.6% in CY23 (Graph 23). The CY24 DA civilians hearing impairment rate is lower than the 10-year average of 43.6%.

Graph 23. Hearing Impairment Rates – DA Civilians

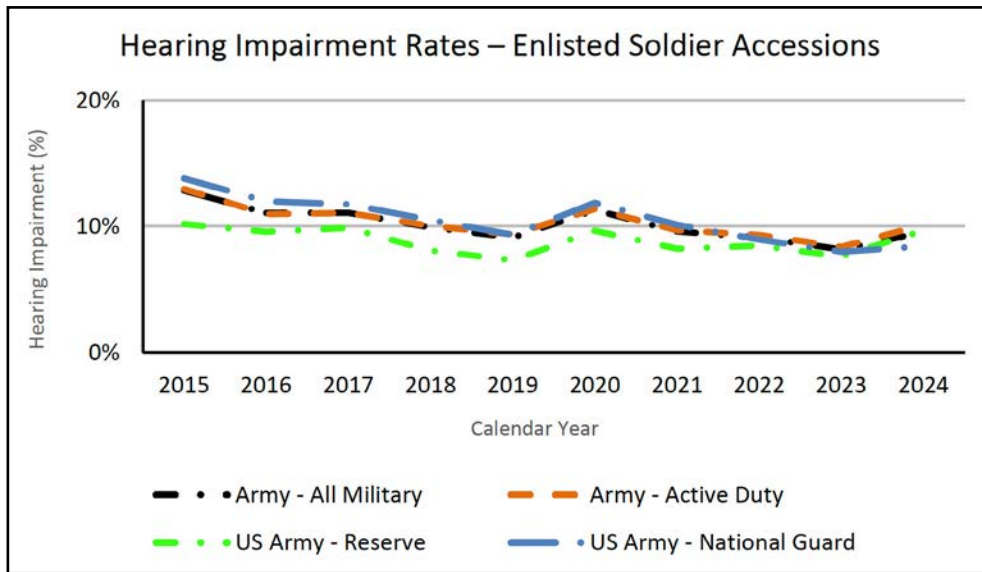


Hearing Impairment – Enlisted Accession Data

All soldiers receive a hearing test as part of basic training at their entrance to military service.⁵ These hearing tests provide baseline tests for reference throughout their military careers and determine the percentage of recruits who entered the Army with hearing impairment, i.e., hearing worse than 25 dB HL at any test frequency, each year. The rate of all enlisted soldier accessions with hearing impairment increased by 1.4%, from 8.1% in CY23 to 9.5% in CY24 (Graph 24). There was a 0.7% decrease in all enlisted soldier accessions hearing impairment rate in CY24 compared to the 10-year average rate of 10.2%.

⁵ The Military Services refer to training at the onset of military service as Basic Combat Training (Army), Basic Training (Navy), Recruit Training (Marine Corps), and Basic Military Training (Air Force). For the purposes of this report the initial training of Service members at entry to military service will be referred to as basic training.”

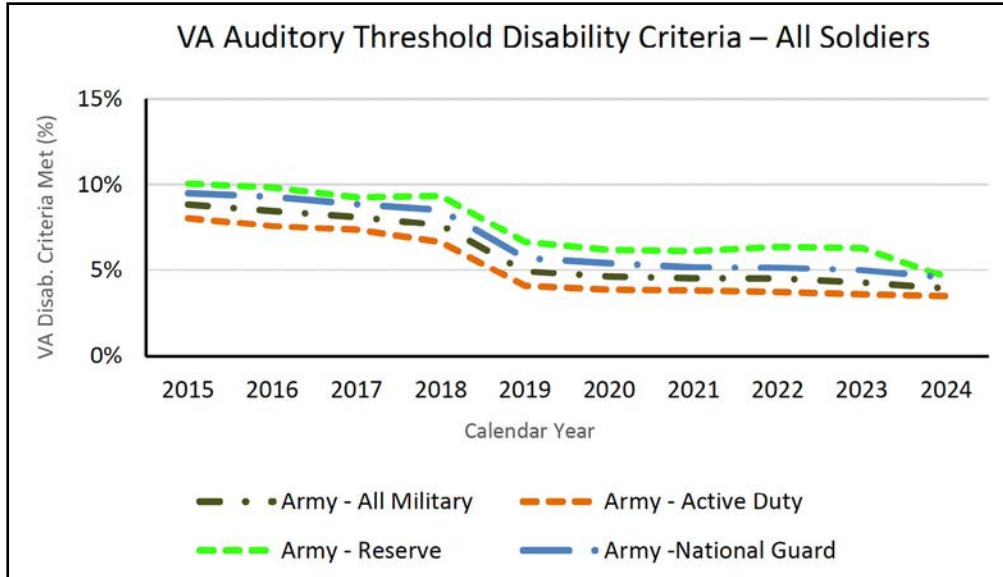
Graph 24. Hearing Impairment Rates - Enlisted Soldier Accessions



VA Auditory Threshold Disability Criteria

The rate of all soldiers meeting established VA hearing threshold disability criteria decreased from 4.3% in CY23 to 3.9% in CY24 (Graph 25). The rate of all soldiers VA hearing threshold disability criteria was below the 10-year average of 6.0%.

Graph 25. VA Auditory Threshold Disability Criteria - All Soldiers



Summary and Conclusions

The hearing health of the Army has generally remained stable or improved when compared across the years (2015 – 2024). The overall hearing health for all soldiers and DA civilians trended in the desired directions for most metrics from CY15 to CY24 (Graphs 14-25); Table 3). In CY24, AD showed a slight decrease in follow-up hearing test compliance rates and an increase in PTS rates when compared to CY23. Although CY24 follow-up rates decreased slightly, they are still above the benchmark of 70% and higher than the 10-year average.

Historically, ARNG and USAR have had a larger need for HCP improvements. They continue making strides in the desired directions from CY23 to CY24 for all metrics, although follow-up compliance for the two components remains low. An area to watch is the increased rates of hearing-impaired accessions for all soldiers in CY24 compared to CY23.

There is room for continued improvement for all soldiers and DA civilians enrolled in the Army HCP. Preserving good hearing health and preventing hearing injuries is critical to Army readiness.

Table 3. Data Summary – Army - Source: DOEHRS-HC DR, ad hoc MOE percentages

U.S. Army													
Chart Title	MOE	Category	Percent										
			CY15	CY16	CY17	CY18	CY19	CY20	CY21	CY22	CY23	CY24	10-yr AVG
Threshold Shift Rates All Army	MOE 1	STS	14.3	13.6	13.4	13.1	13.3	13.4	13.0	13.8	12.0	12.3	13.2
		TTS	1.4	1.5	2.3	2.5	2.6	2.6	2.7	2.8	2.9	3.0	2.4
		PTS	12.5	11.8	10.5	10.1	10.5	10.6	10.1	10.8	8.9	9.0	10.5
Threshold Shift Rates - All Soldiers		STS	14.0	13.6	13.2	12.9	13.1	13.3	12.9	13.7	11.7	12.0	13.0
		TTS	1.3	1.5	2.2	2.4	2.5	2.5	2.6	2.6	2.9	2.9	2.3
		PTS	12.4	11.8	10.4	10.0	10.4	10.6	10.1	10.8	9.0	9.0	10.5
Threshold Shift Rates AD Soldiers		STS	9.0	9.4	8.7	8.1	8.4	8.5	7.9	8.3	8.2	8.8	8.6
		TTS	2.3	2.5	3.5	3.6	3.5	3.4	3.4	3.5	3.4	3.6	3.3
		PTS	7.4	6.7	4.8	4.2	4.7	4.9	4.4	4.7	4.7	5.2	5.2
Threshold Shift Rates ARNG Soldiers		STS	16.6	16.0	16.2	15.7	15.8	16.3	16.0	16.7	14.8	14.8	15.9
		TTS	0.4	0.6	1.3	1.6	1.9	2.1	2.0	2.3	2.3	2.2	1.7
		PTS	15.5	14.7	13.8	13.4	13.4	14.1	13.6	14.0	13.1	12.2	13.8
Threshold Shift Rates USAR Soldiers		STS	19.8	19.9	19.9	20.3	21.5	22.8	23.2	24.3	20.1	18.8	21.1
	TTS	0.3	0.3	0.5	0.6	0.6	0.6	0.8	0.9	1.6	1.4	0.8	
	PTS	19.0	19.2	18.7	19.0	20.6	22.0	22.1	23.1	20.6	17.1	20.1	
Threshold Shift Rates DA Civilians	STS	19.6	18.7	18.9	18.8	18.7	17.3	18.5	19.2	18.5	18.2	18.6	
	TTS	3.7	4.0	5.0	5.8	5.4	5.3	5.7	6.2	5.4	5.6	5.2	
	PTS	15.4	14.0	13.0	12.1	13.1	11.6	12.3	12.7	12.7	9.0	12.6	
STS Follow-Up Test Compliance	MOE 2	All Soldiers	21.5	25.4	33.7	36.0	30.6	33.3	37.2	31.4	39.2	43.9	33.2
		Active Duty	50.4	50.5	74.6	76.2	70.9	71.5	76.7	71.3	75.7	74.4	69.7
		National Guard	7.4	11.5	17.1	23.1	18.7	21.7	25.5	19.6	18.7	26.7	19.0
		Reserve	6.6	8.2	10.7	12.1	3.3	5.0	8.1	4.9	2.6	16.6	7.8
		DA Civilians	47.5	52.2	60.1	61.9	53.6	59.0	67.5	65.6	66.9	67.1	60.1
Hearing Impaired	MOE 3	All Soldiers	18.5	17.9	17.9	17.5	16.2	16.4	16.1	15.2	14.1	13.8	16.4
		Active Duty	17.0	16.1	16.3	16.0	14.5	15.0	14.7	13.6	12.9	12.9	14.9
		National Guard	20.2	19.9	19.7	19.1	18.1	17.9	17.4	16.3	15.3	14.8	17.9
		Reserve	20.2	20.1	19.7	19.8	19.2	19.5	19.5	19.1	17.3	15.6	19.0
		DA Civilians	45.1	45.4	45.6	45.3	43.4	43.2	43.1	42.8	41.6	40.8	43.6
Hearing Impaired - Enlisted Soldier Accessions	MOE 3	All Soldiers	12.8	11.1	11.1	9.9	9.1	11.3	9.6	9.1	8.1	9.5	10.2
		Active Duty	12.9	11.0	11.1	10.0	9.4	11.4	9.7	9.3	8.4	10.1	10.3
		National Guard	13.8	12.0	11.7	10.5	9.3	11.9	10.1	8.9	8.0	8.4	10.5
		Reserve	10.2	9.6	9.9	8.1	7.3	9.6	8.2	8.5	7.6	9.7	8.9
VA Auditory Threshold Criteria	MOE 4	All Soldiers	8.8	8.5	8.1	7.6	4.9	4.6	4.5	4.5	4.3	3.9	6.0
		Active Duty	8.0	7.6	7.3	6.6	4.1	3.8	3.8	3.7	3.6	3.5	5.2
		National Guard	9.5	9.3	8.8	8.5	5.7	5.4	5.2	5.1	5.0	4.5	6.7
		Reserve	10.0	9.8	9.2	9.3	6.6	6.2	6.1	6.3	6.3	4.6	7.4

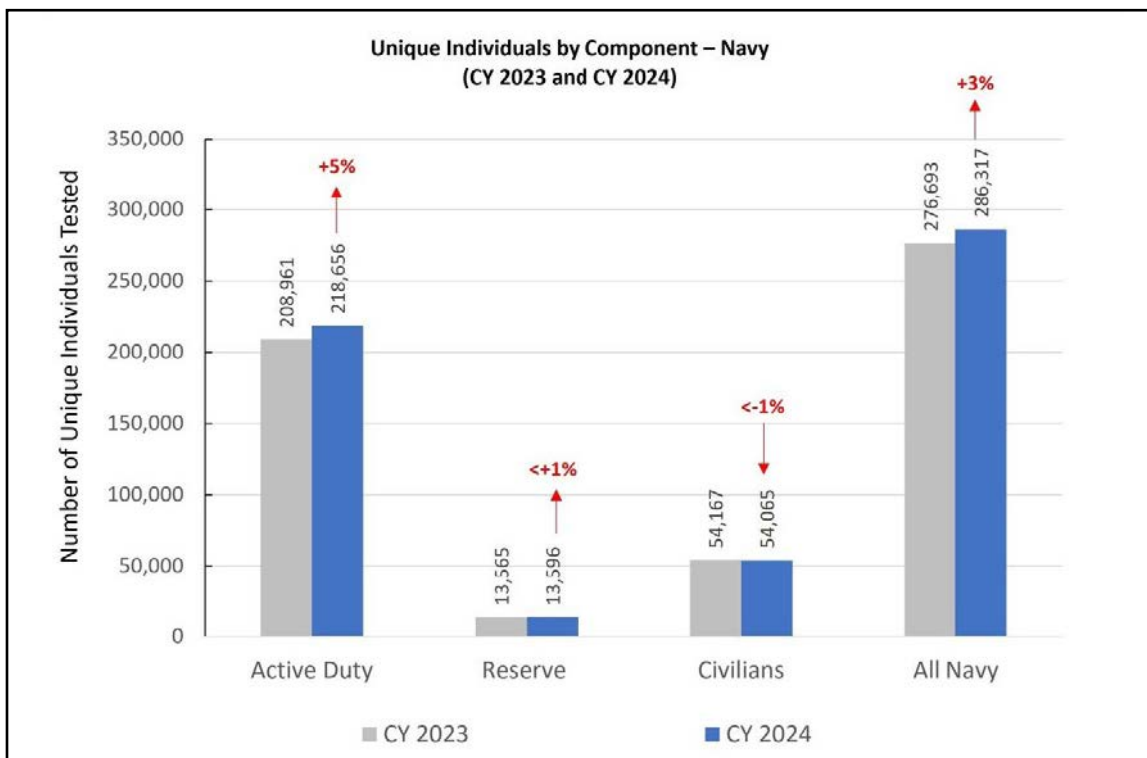
Appendix B: Hearing Health – Navy

The goal of the U.S Navy’s Hearing Conservation and Noise Abatement initiative is to proactively prevent noise-induced hearing loss and ensure optimal auditory readiness. This is achieved through the implementation of engineering and administrative controls, education and outreach, and preventive measures. The program also aims to preserve and improve hearing through adherence to regulatory standard, execution of program guidelines, and application of advancing technologies. Sailors and U.S. Navy (USN) civilians are enrolled in the HCP based on noise survey data. The following data represents the test results from all sailors and USN civilians who received audiometric testing.

Unique Individuals Tested by Component

The number of unique individuals tested in the Navy shows an overall increase of 3% in all Navy components in CY24, primarily due to a 5% increase in the largest population (AD) and minute changes in the other two (2) populations (Reserve and USN Civilians) tested, from CY23 to CY24 (Graph 26). Potential causes for the increase in testing among the AD component may be due to full implementation of MHS GENESIS, the DOW electronic health record, within AD MTFs (no reduced clinic schedules), increased emphasis on testing, changes in HCP inclusion based on impulsive noise exposure, and increased recruitment. A lack of meaningful change in the Reserve component could indicate that issues affecting CY23, such as difficulty with RHRP contracting and/or implementation of MHS GENESIS at Reserve locations, may still be affecting the Reserve forces. Conversely, the minute decrease in civilian testing could indicate attrition from noise-hazardous jobs or otherwise signal no significant reason for change.

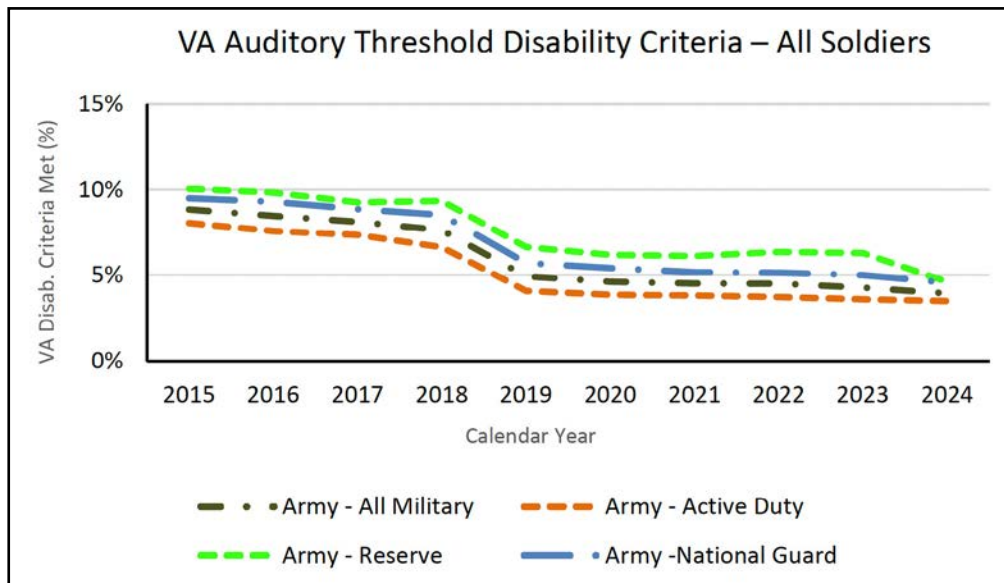
Graph 26. Unique Individuals Tested by Component - Navy (CY23 and CY24)



Significant Threshold Shift Rates by CY

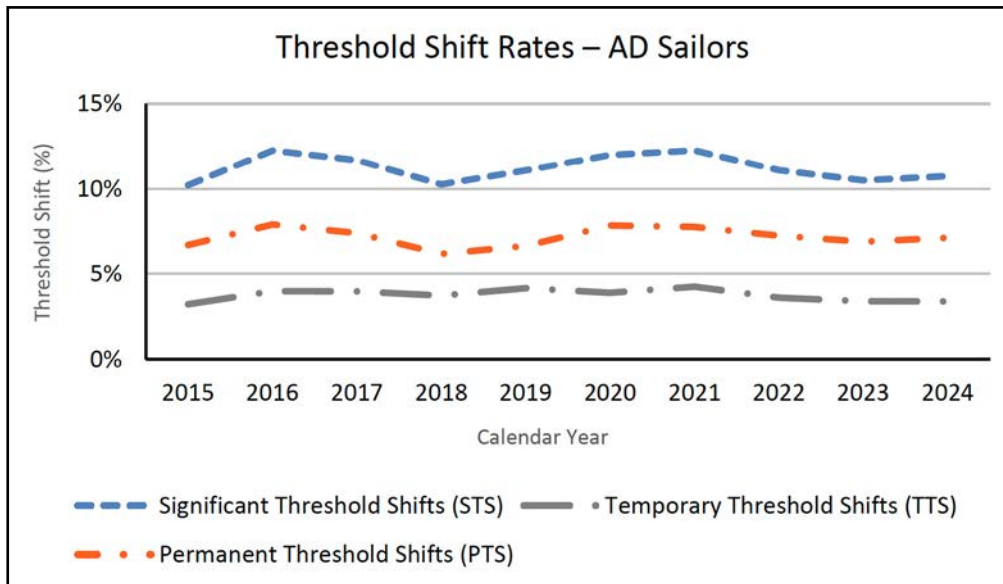
In CY24, sailor STS and PTS show a slight increase when compared to CY23 STS and PTS rates, while TTS rates remained constant. Threshold shift rates for all sailors indicate a minor increase in STS (10.7%), no change in TTS (3.4%), and a minor increase in PTS (7.1%) rates in CY24, in comparison to CY23 (Graph 27). When compared to the 10-year average for each measure (STS - 11.3%, TTS - 3.8%, PTS 7.2%), all CY24 threshold shift rates are slightly lower. Please note that these numbers are largely influenced by AD numbers, since The US Navy Reserve (USNR) testing population is only around 5-6% of the total sailor population. The threshold shift rates should also be examined by component for highest fidelity.

Graph 27. Threshold Shift Rates - All Sailors



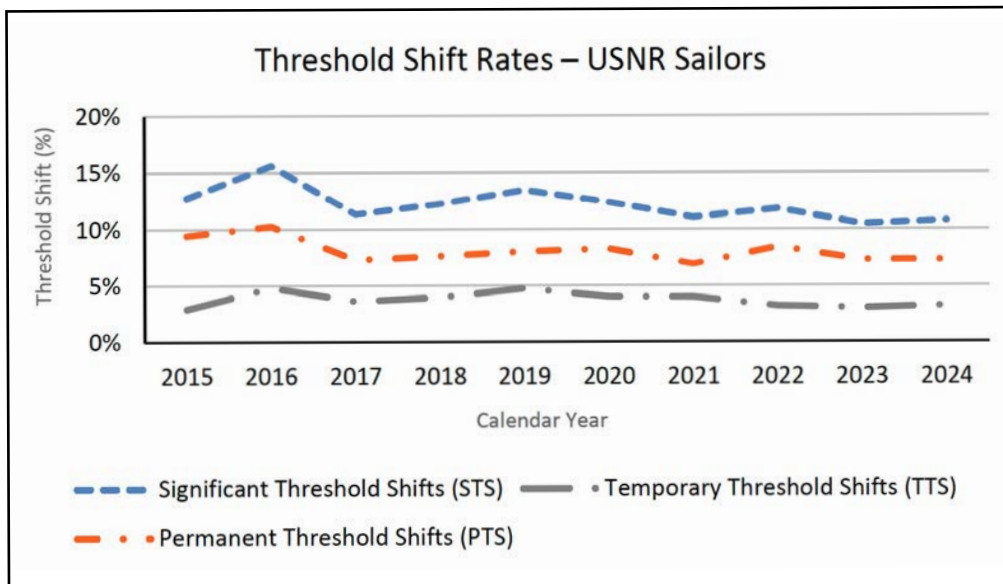
Threshold shift rates for AD sailors in CY24 indicate a minor increase in STS (10.7%) and PTS (7.1%) rates and no change in the TTS (3.4%) rate from CY23 (Graph 28). STS and PTS rates increased at the same rate, which may indicate a higher likelihood of an STS becoming a PTS during CY24 than during CY23. In comparison to the 10-year average for each measure (STS - 11.2%, TTS - 3.8%, PTS 7.2%), all threshold shift rates in the AD population are slightly lower.

Graph 28. Threshold Shift Rates - AD Sailors



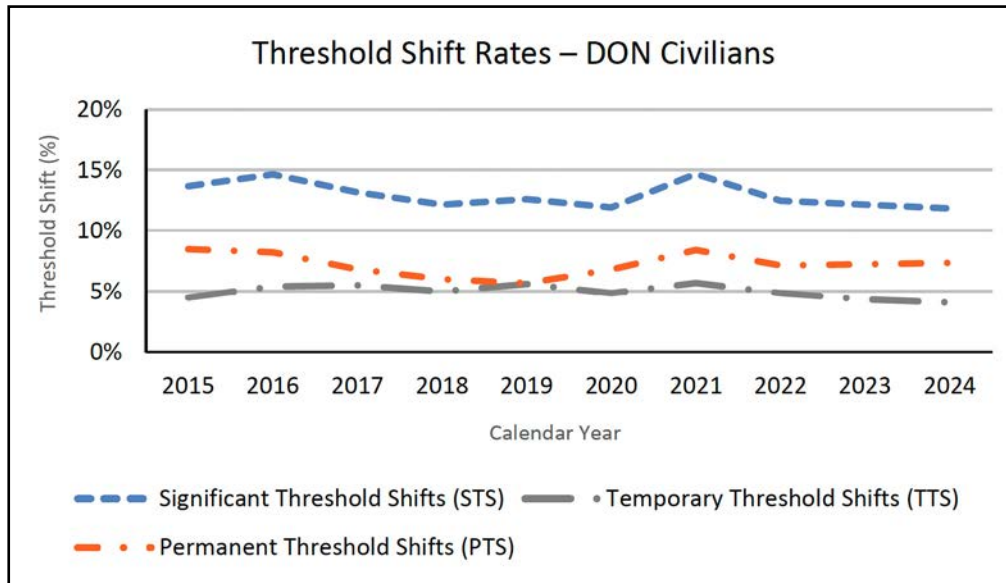
The USNR sailor STS rate (10.7%) shows a minor increase from CY23 to CY24, while the TTS rate decreased (3.2%) and PTS rate (7.3%) remained the same (Graph 29). In comparison to the 10-year average for each measure (STS - 12.2%, TTS - 3.7%, PTS 8.1%), all threshold shift rates in the USNR population are lower. Although the follow up rate (as discussed in the next section) increased slightly during CY24 (in comparison to CY23), it remains lower than the goal of 70%. STS follow-up testing is key to the accurate identification of TTS vs. PTS.

Graph 29. Threshold Shift Rates - USNR Sailors



The USN civilian STS (11.9%) and TTS (4.1%) rates show a decrease in CY24 compared to CY23, while PTS (7.4%) rates increased (Graph 30). In comparison to the 10-year average for each measure (STS - 13.0%, TTS - 5.0%, PTS 7.2%), PTS rates increased, while STS and TTS rates continue to decrease. Improvements made during CY23 to conduct follow-up testing among USN civilians seem to continue, with 62% of all STS identified found to be PTS (Graph 30).

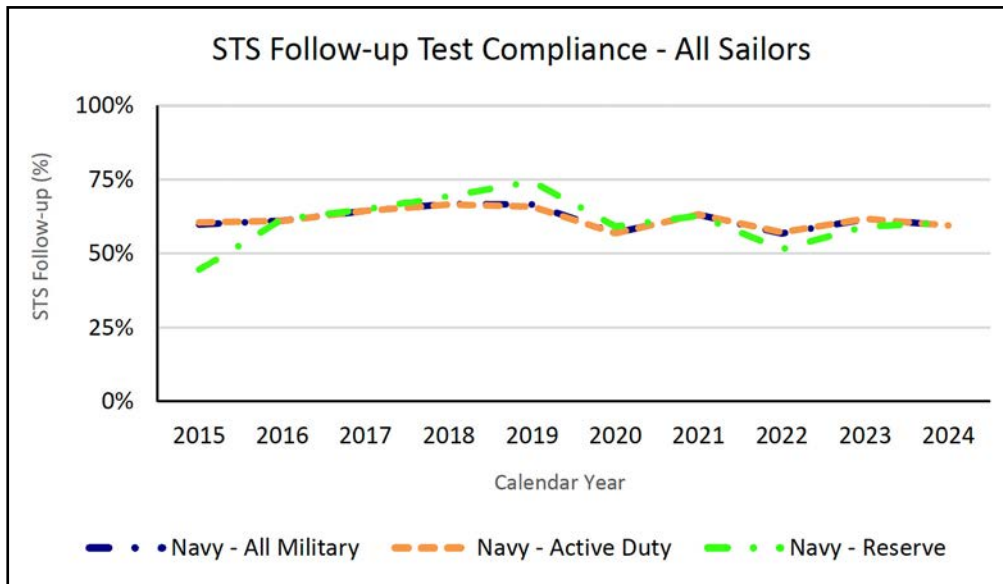
Graph 30. Threshold Shift Rates - USN Civilians



STS Follow-up Test Compliance

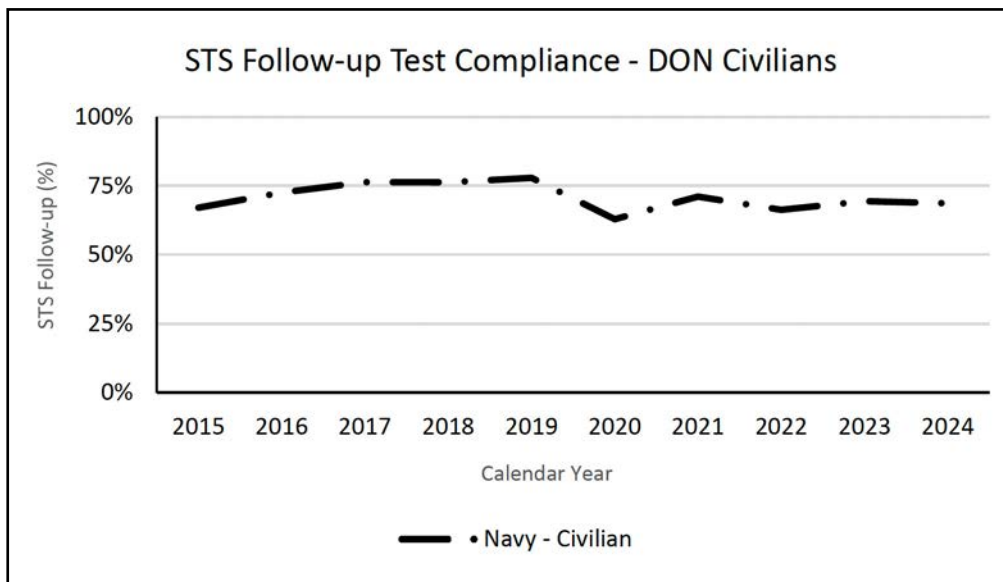
Overall STS follow-up testing compliance decreased across the USN in CY24 (59.5%) (Graph 31) when compared to CY23 (61.5%), with only the USNR showing slight improvement. By component, AD compliance decreased to 59.4% in CY24, while USNR compliance increased to 60.2%. Additionally, CY24 testing compliance is below the 10-year averages for AD (61.6%) and the USNR (60.7%).

Graph 31. STS Follow-up Test Compliance - All Sailors



The USN civilian STS follow-up test compliance shows a small decrease in CY24 (68.6%) compared to CY23 (69.4%) and is also lower than the 10-year average compliance rate of 71.6%, similar to sailors (Graph 32).

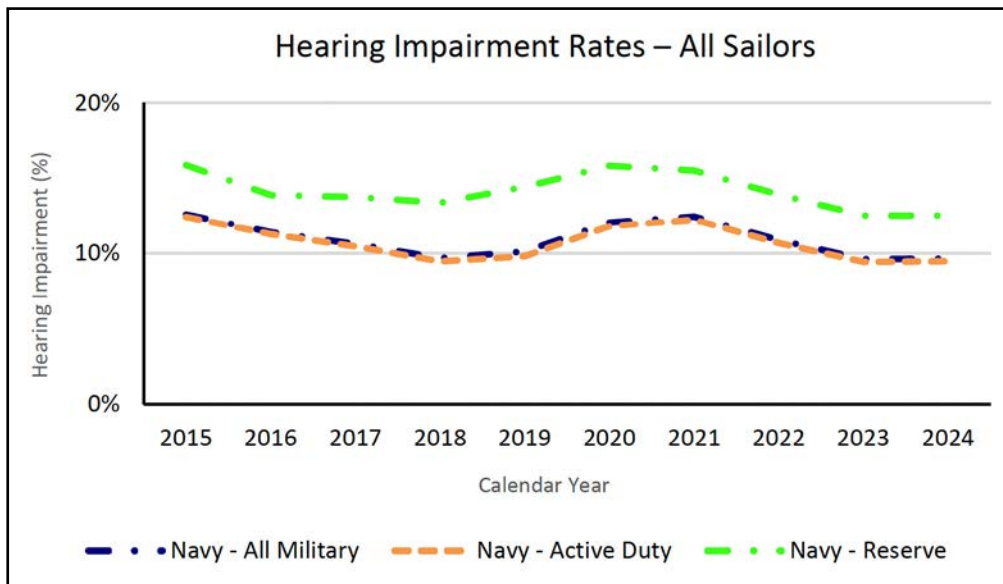
Graph 32. STS Follow-up Test Compliance - DON Civilians



Hearing Impairment

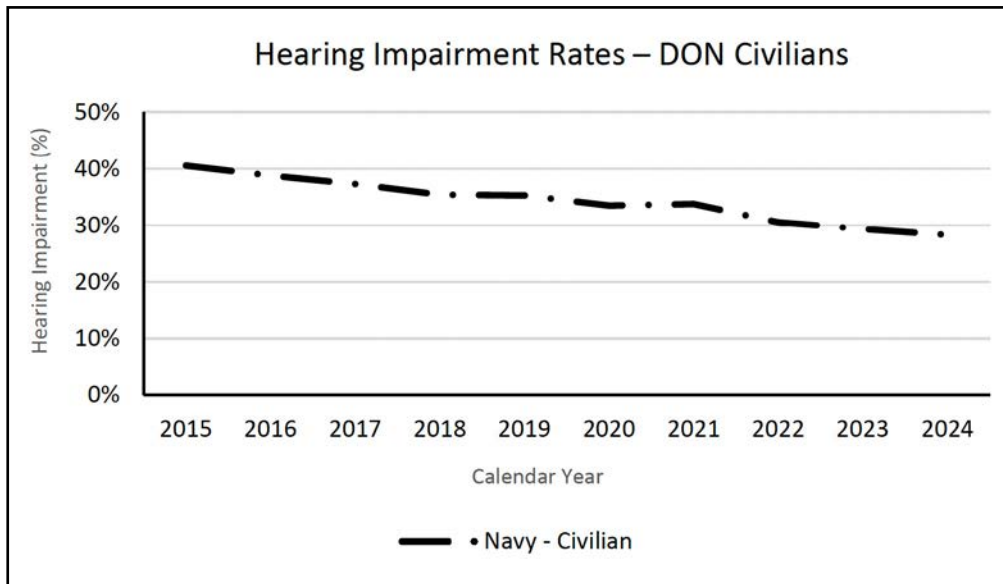
Sailor hearing impairment continues to decrease across all USN components from the combined 10-year high in CY15 (12.6%) (Graph 33). Overall, sailors with hearing impairment remained the same in CY24 (9.6%) compared with CY23, which is also below the 10-year average (10.7%). AD sailors demonstrated a slight increase in hearing impairment in CY24 (9.5%), from CY23 (9.4%), while remaining below the 10-year average of 10.7%. USNR sailors with hearing impairment in CY24 (12.5%) also remained constant from CY23, and below the 10-year average (14.1%). The significant difference in hearing impairment between AD and USNR sailors is likely due to differences in daily work settings, adherence to safety protocols in such settings, and lifestyle between AD and USNR sailors. The number of sailors with normal hearing thresholds in CY24 remains 90.4% overall.

Graph 33. Hearing Impairment Rates - All Sailors



The percentage of USN civilians with hearing impairment is higher than sailors but decreased in CY24 (28.3%) compared to CY23 (29.3%) and continues to fall in comparison to the 10-year average (34.3%) (Graph 34). Data indicate that 71.7% of USN civilians have normal hearing in CY24.

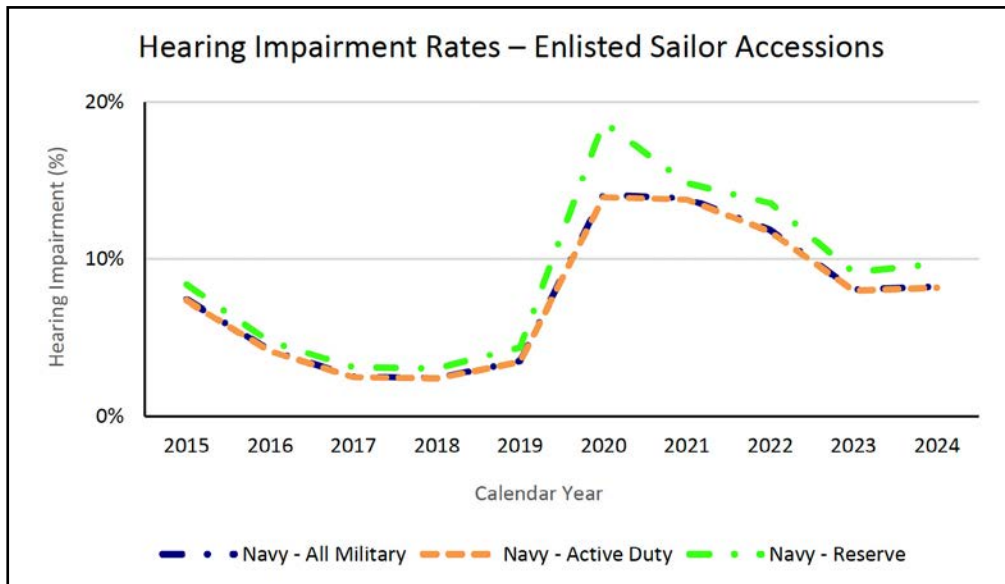
Graph 34. Hearing Impairment Rates - DON Civilians



Hearing Impairment – Enlisted Accession Data

USN enlisted accessions receive a hearing test as part of initial entry training. This test is used to determine the percentage of all new recruits who come into the USN with hearing impairment (hearing worse than 25 dB HL at any test frequency). Graph 35 highlights that the percentage of enlisted sailor accessions with hearing impairment for all Navy components in CY24 (8.2%) is only slightly higher than in CY23 (8.1%), and higher than the 10-year average (7.6%). Those accessed onto AD show a higher hearing impairment rate in CY24 (8.2%) than CY23 (8.0%), and higher than the 10-year average of 7.6%. Likewise, the percentage of UNSR enlisted accessions with hearing impairment increased in CY24 (9.7%) from CY23 (9.2%). This rate is also higher than the 10-year average (9.0%). In CY24, 91.8% of all enlisted sailor accessions had normal hearing, a slight decrease from CY23, and lower than the 10-year average of 92.4%.

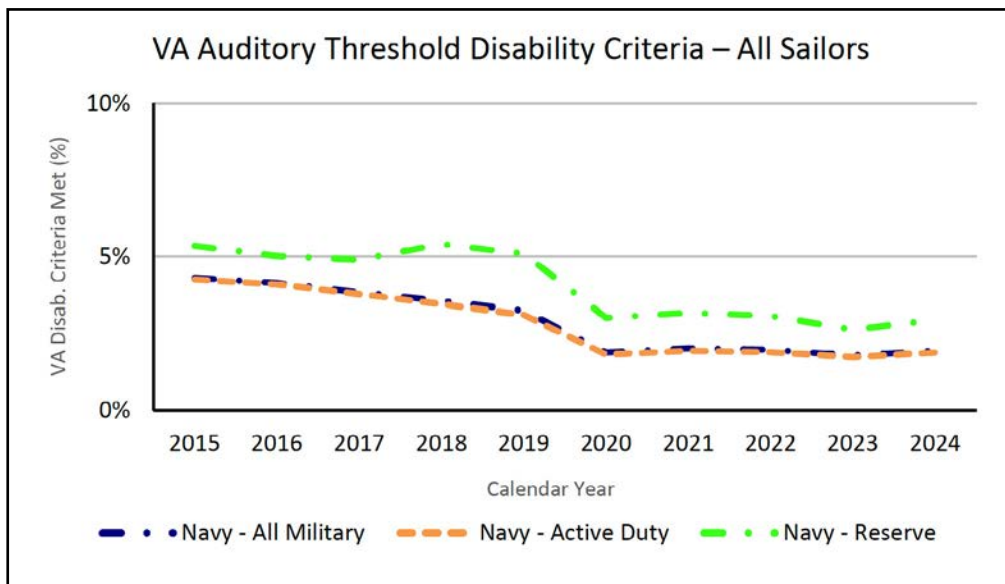
Graph 35. Hearing Impairment Rates - Enlisted Sailor Accessions



VA Auditory Threshold Disability Criteria

The 10-year average for the percentage for all sailors meeting established VA auditory threshold disability criteria is 2.9%, with the highest percentage occurring in CY15 (4.3%). In comparison, the percentage of AD (1.9%) and USAR (3.0%) Sailor’s meeting VA auditory threshold disability criteria in CY24 increased slightly from CY23 (1.7% and 2.6%, respectively) (Graph 36). Multiple factors influence the determination of VA Auditory Threshold Disability Criteria outside of the definition of hearing impairment used in the DOW.

Graph 36. VA Auditory Threshold Disability Criteria - All Sailors



Summary and Conclusions

Threshold shift rates in CY24 for all Navy and sailors across all components fluctuated only slightly in both positive and negative directions compared with CY23. In nearly all categories, the threshold shift rates are below the 10-year averages. STS Follow-up compliance decreased for every component except for the 1% increase in the USNR, but all components remain below the goal of 70% compliance. The number of hearing-impaired service members remained stable and showed a 1% decrease in the DON civilian population. Hearing impaired rates across all components and DON civilians are below the 10-year averages. The number of hearing-impaired enlisted sailors increased marginally in CY24 with the highest increase (0.5%) in the Reserve component compared with CY23. Hearing impaired enlisted accession rate remained above the 10-year average across all components. The number of sailors meeting the VA criteria for disability rose slightly across all components in CY24 compared with CY23 but are below the 10-year averages.

Table 4. Data Summary – Navy - Source: DOEHRS-HC DR, ad hoc MOE percentages

U.S. Navy													
Chart Title	MOE	Category	Percent										
			CY15	CY16	CY17	CY18	CY19	CY20	CY21	CY22	CY23	CY24	10-yr AVG
Threshold Shift Rates All Navy	MOE 1	STS	11.0	12.8	12.0	10.8	11.5	12.0	12.7	11.4	10.9	11.0	11.6
		TTS	3.5	4.3	4.3	4.0	4.5	4.1	4.5	3.9	3.6	3.5	4.0
		PTS	7.1	8.0	7.3	6.2	6.5	7.6	7.9	7.3	7.0	7.2	7.2
Threshold Shift Rates - All Sailors		STS	10.3	12.4	11.7	10.4	11.2	12.0	12.2	11.1	10.5	10.7	11.3
		TTS	3.2	4.0	4.0	3.7	4.2	3.9	4.2	3.6	3.4	3.4	3.8
		PTS	6.8	8.0	7.4	6.3	6.7	7.9	7.7	7.3	6.9	7.1	7.2
Threshold Shift Rates AD Sailors		STS	10.2	12.2	11.7	10.3	11.1	12.0	12.2	11.1	10.5	10.7	11.2
		TTS	3.2	4.0	4.0	3.7	4.2	3.9	4.2	3.6	3.4	3.4	3.8
		PTS	6.7	7.9	7.4	6.2	6.6	7.8	7.8	7.2	6.9	7.1	7.2
Threshold Shift Rates USNR Sailors		STS	12.7	15.6	11.3	12.2	13.4	12.4	11.0	11.8	10.4	10.7	12.2
		TTS	2.9	4.8	3.6	4.0	4.7	4.0	4.0	3.2	3.0	3.2	3.7
		PTS	9.4	10.3	7.3	7.6	8.0	8.3	6.9	8.4	7.3	7.3	8.1
Threshold Shift Rates DON Civilians		STS	13.7	14.6	13.2	12.2	12.6	11.9	14.7	12.5	12.2	11.9	13.0
	TTS	4.5	5.4	5.5	5.0	5.6	4.8	5.7	4.9	4.3	4.1	5.0	
	PTS	8.5	8.2	6.8	6.0	5.7	6.8	8.4	7.1	7.2	7.4	7.2	
STS Follow-Up Test Compliance	MOE 2	All Sailors	59.7	61.0	64.3	66.6	66.4	56.9	63.0	56.7	61.5	59.5	61.6
		Active Duty	60.4	60.9	64.3	66.4	65.7	56.8	63.0	57.1	61.6	59.4	61.6
		Reserve	44.4	61.5	64.8	69.4	74.4	59.0	62.7	51.5	59.0	60.2	60.7
		DON Civilians	67.1	72.5	76.3	76.2	77.8	62.9	71.0	66.3	69.4	68.6	70.8
Hearing Impaired	MOE 3	All Sailors	12.6	11.4	10.6	9.7	10.1	12.0	12.4	10.9	9.6	9.6	10.9
		Active Duty	12.4	11.3	10.4	9.5	9.8	11.8	12.2	10.7	9.4	9.5	10.7
		Reserve	15.8	13.9	13.7	13.4	14.4	15.8	15.5	13.9	12.5	12.5	14.1
		DON Civilians	40.5	38.8	37.3	35.4	35.3	33.5	33.8	30.5	29.3	28.3	34.3
Hearing Impaired - Enlisted Sailor Accessions	MOE 3	All Sailors	7.4	4.2	2.6	2.5	3.5	14.1	13.9	11.8	8.1	8.2	7.6
		Active Duty	7.4	4.2	2.5	2.4	3.5	13.9	13.8	11.7	8.0	8.2	7.6
		Reserve	8.4	4.8	3.2	3.1	4.4	18.7	14.8	13.6	9.2	9.7	9.0
VA Auditory Threshold Criteria	MOE 4	All Sailors	4.3	4.1	3.8	3.6	3.2	1.9	2.0	2.0	1.8	2.0	2.9
		Active Duty	4.1	4.1	3.8	3.4	3.1	1.8	1.9	1.9	1.7	1.9	2.8
		Reserve	5.3	5.0	4.9	5.4	5.1	3.0	3.2	3.1	2.6	3.0	4.1

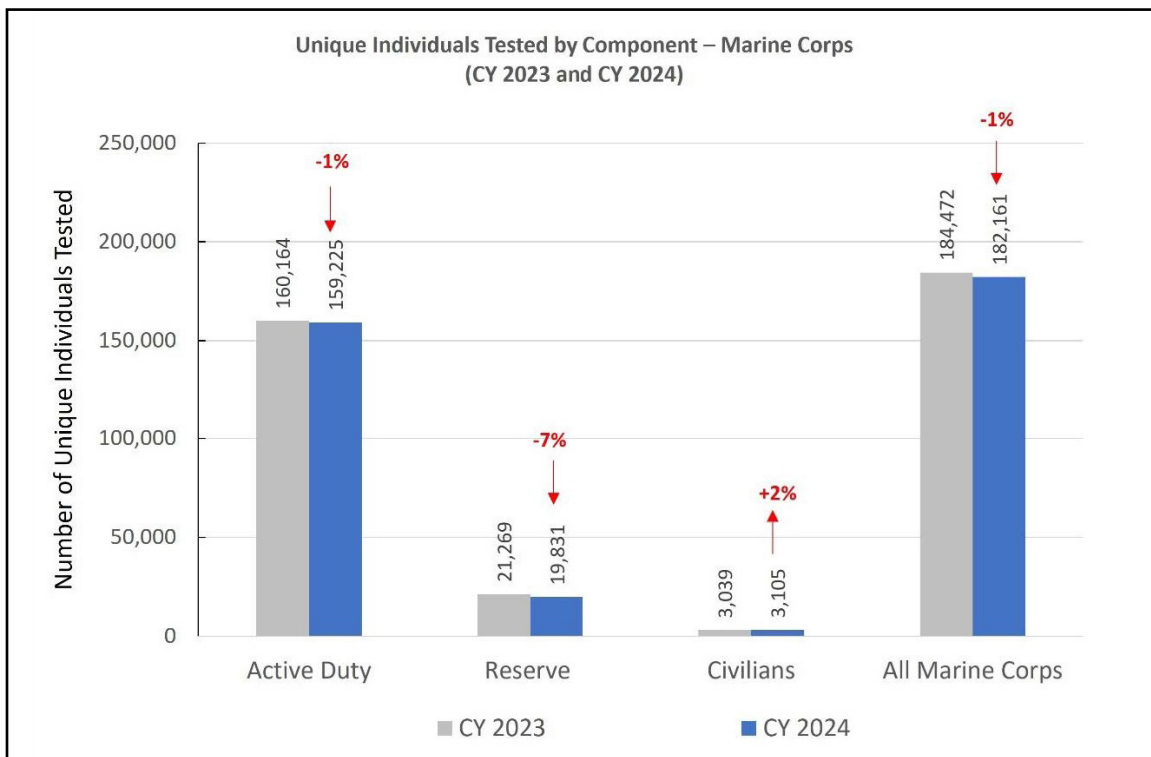
Appendix C: Hearing Health – Marine Corps

The goal of the United States Marine Corps' (USMC) Hearing Conservation and Noise Abatement initiative is like that of the USN; to proactively prevent noise-induced hearing loss and ensure optimal auditory readiness. This is achieved through the implementation of engineering and administrative controls, education and outreach, and preventive measures. The program also aims to preserve and improve hearing through adherence to regulatory standard, execution of program guidelines, and application of advancing technologies. The USMC does not have organic medical personnel; thus, the audiologists and hearing technicians who conduct testing for the USMC are organic to or employed with the USN/DON. Additionally, unlike the USN, the USMC enrolls all marines in the HCP. Assigned sailors and USMC civilians are enrolled in the HCP based on their individual noise exposure.

Unique Individuals Tested by Component

The number of unique individuals tested in the USMC shows an overall small decrease of 1% in CY24 (Graph 37). Like the USN, the AD population influences this number most significantly due to the small size of the USMCR and USMC civilian populations. The USMCR demonstrated the largest change, dropping 7% from CY23 to CY24, while the civilian testing population increased by 2%. Because the USMC does not have organic medical assets, issues impacting USN MTFs and other medical entities will impact the USMC as well.

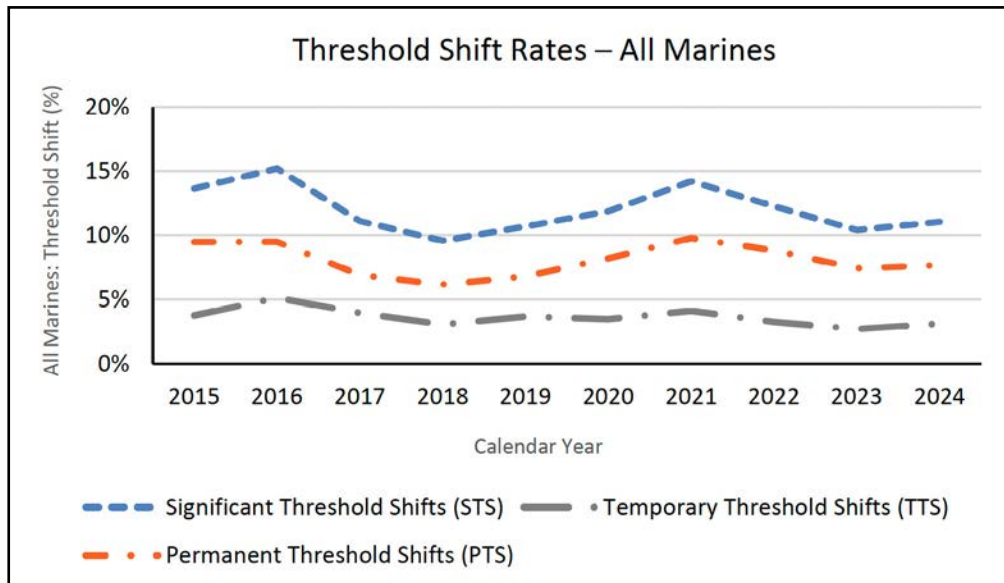
Graph 37. Unique Individuals Tested by Component - Marine Corps (CY 23 and CY 24)



Significant Threshold Shift Rates by CY

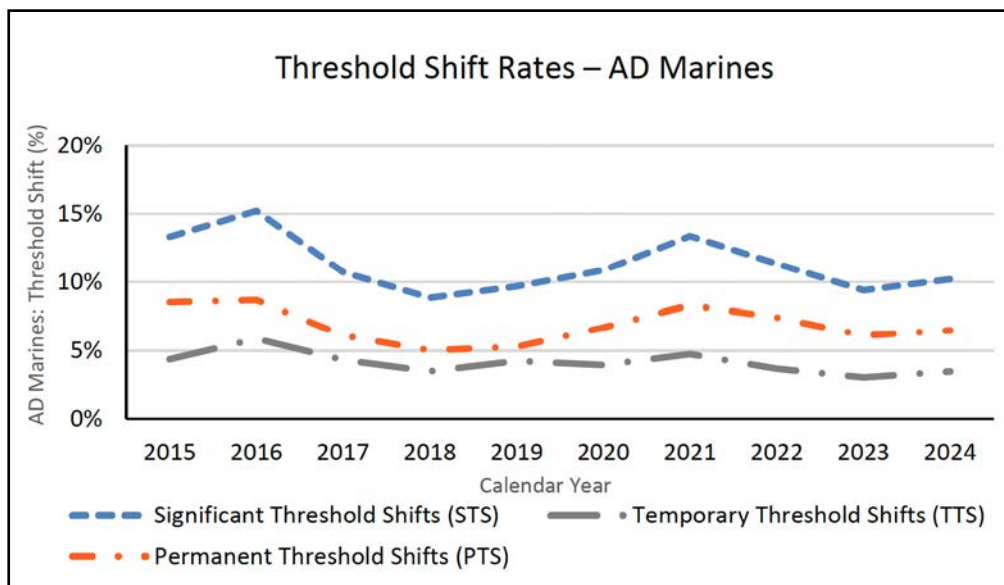
Threshold shift rates for all marines indicate a minor increase for all measures in CY 24 (STS – 11.0%; TTS - 3.1%; PTS - 7.7%) in comparison to CY23 (Graph 38). When compared to the 10-year average for each measure (STS – 12.0%, TTS – 3.6%, PTS 8.1%), all CY24 threshold shift rates are lower.

Graph 38. Threshold Shift Rates - All Marines



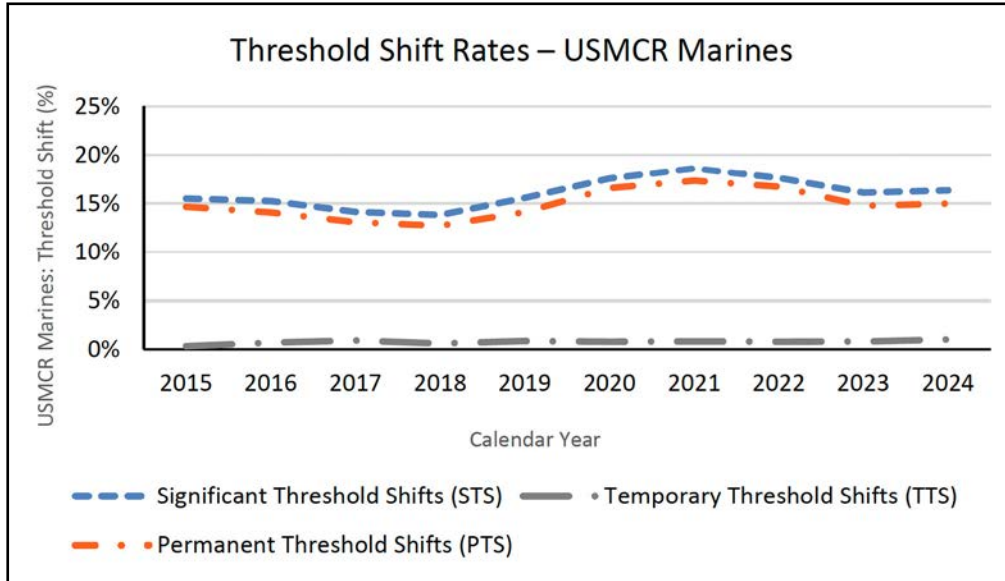
Threshold shift rates for AD marines in CY24 indicate a minor increase for all measures, with increases in STS (10.2%), TTS (3.5%), and PTS (6.5%) rates in comparison to CY23 (Graph 39). In comparison to the 10-year average for each measure (STS – 11.3%, TTS – 4.1%, PTS 6.9%), all threshold shift rates in the AD marine population are slightly lower.

Graph 39. Threshold Shift Rates - AD Marines



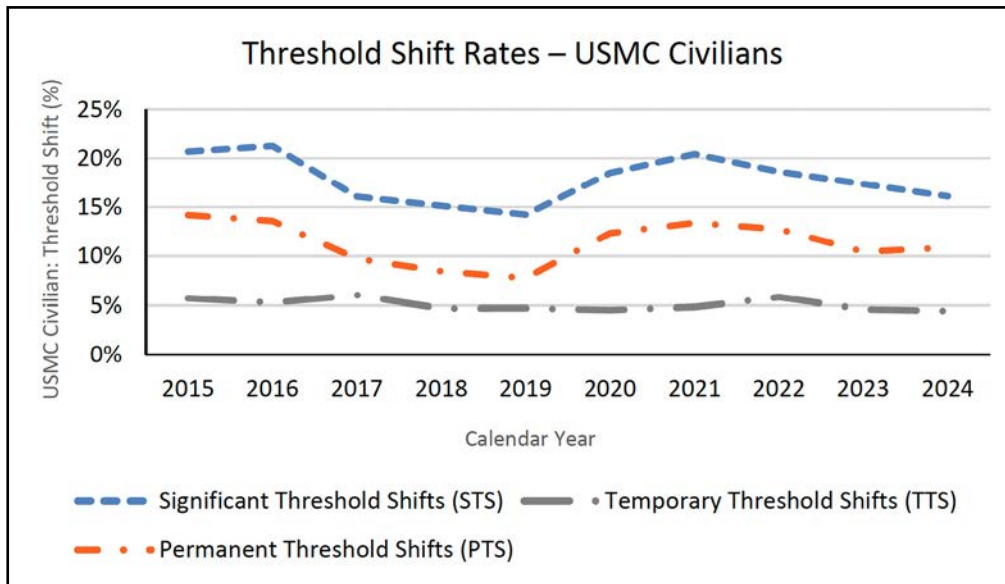
Threshold shift rates for the USMC Reserve (USMCR) in CY24 indicate a slight increase for all measures, with increases in STS (16.4%), TTS (1.0%), and PTS (15.0%) rates in comparison to CY23 (Graph 40). In comparison to the 10-year average for each measure (STS - 16.1%, TTS - 0.8%, PTS 14.9%), all threshold shift rates in the USMCR are slightly higher. Follow up rates (as discussed in the next section) also decreased during CY24 (in comparison to CY23). Failure to conduct STS follow-up testing prevents the accurate identification of TTS vs. PTS.

Graph 40. Threshold Shift Rates - USMCR Marines



The USMC civilian STS (16.1%) and TTS (4.4%) rates show a decrease in CY24 compared to CY23, while PTS (10.9%) rates increased (Graph 41), similar to USN civilians. In comparison to the 10-year average for each measure (STS - 17.8%, TTS - 5.1%, PTS - 11.4%), all threshold shift rates decreased. Fluctuations in threshold shift rates among USMC civilians over time make it difficult to speculate on a cause for rate increases or decreases.

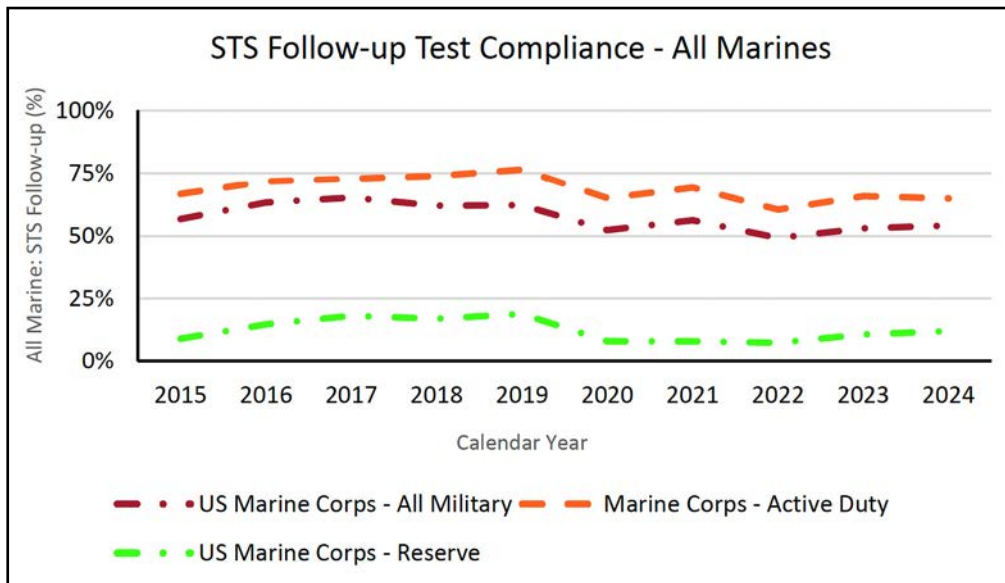
Graph 41. Threshold Shift Rates - USMC Civilians



STS Follow-up Test Compliance

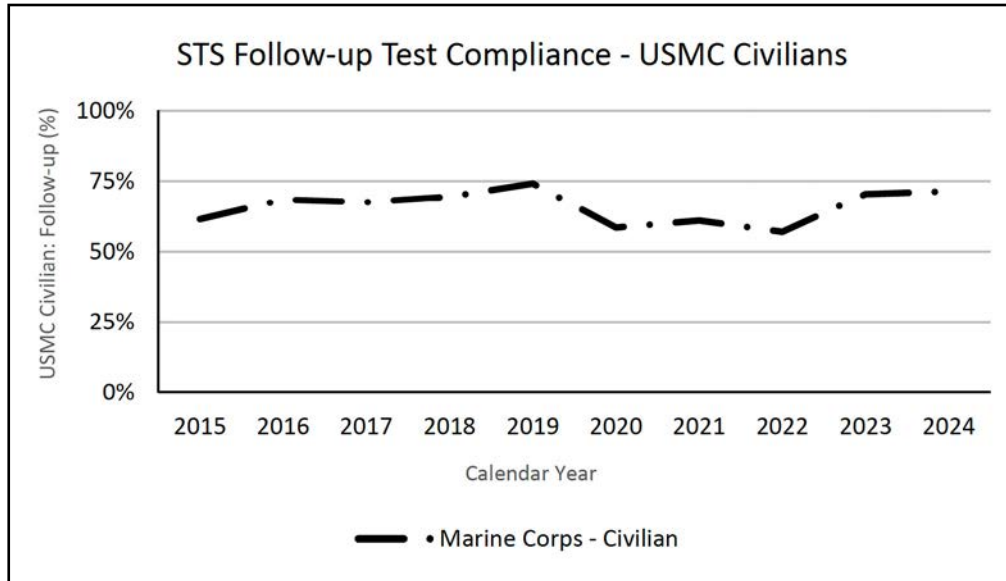
Overall STS follow-up testing compliance increased across the USMC in CY24 (54.2%) (Graph 42) when compared to CY23 (53.0%). By component, AD compliance decreased to 64.9% in CY24, while USMCR compliance increased to 12.0%. Additionally, CY24 testing compliance is below the 10-year averages for AD (68.7%) and the USNR (12.4%).

Graph 42. STS Follow-up Test Compliance - All Marines



The USMC civilian STS follow-up test compliance continues to increase in CY24 (71.4%) compared to CY23 (70.4%) and the 10-year average compliance rate of 65.9% (Graph 43).

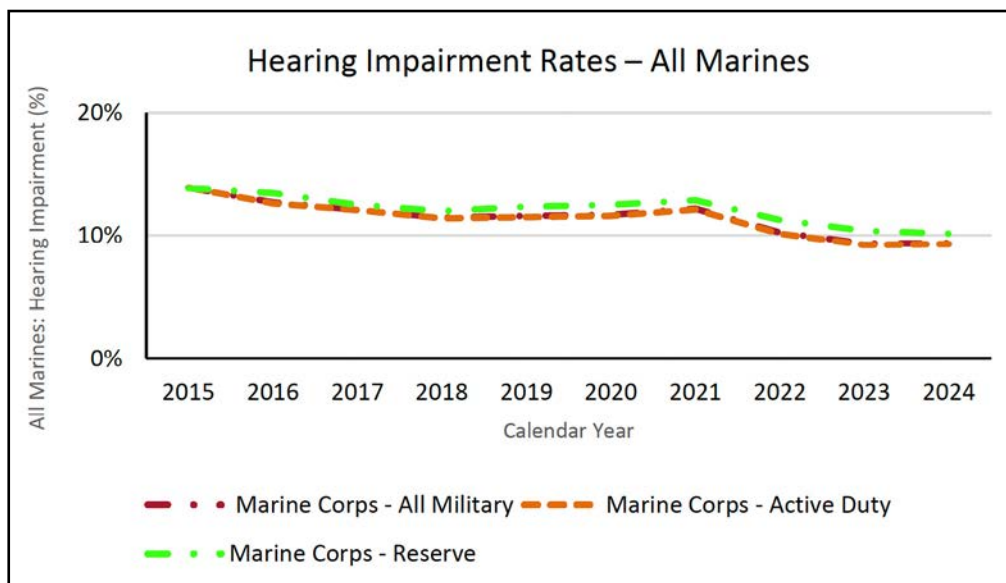
Graph 43. STS Follow-up Test Compliance - USMC Civilians



Hearing Impairment

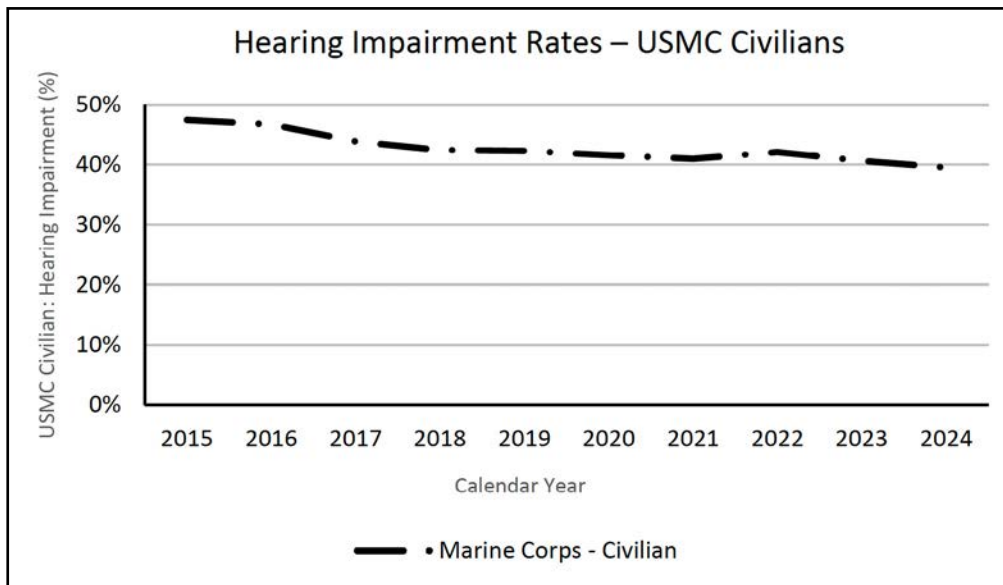
Marine hearing impairment remained nearly the same when combined across all components between CY24 (9.4%) and CY23 (9.3%), while also staying far below the 10-year average rate of 11.4% (Graph 44). Overall, AD marines with hearing impairment increased slightly in CY24 (9.3%) compared with CY23 (9.2%) but remains below the 10-year average (11.4%). USMCR marines with hearing impairment dropped slightly in CY24 (10.1%) from CY23 (10.4%) and remained below the 10-year average (12.1%). The number of marines with normal hearing thresholds in CY24 is 90.6% overall.

Graph 44. Hearing Impairment Rates - All Marines



The percentage of USMC civilians with hearing impairment continues to decrease, dropping between CY24 (39.5%) and CY23 (40.6%), showing a downward trend from the 10-year average of 42.8%, and far lower than the 10-year high of 47.5% in CY15 (Graph 45). Still, data indicate that only 60.5% of USMC civilians have normal hearing in CY24.

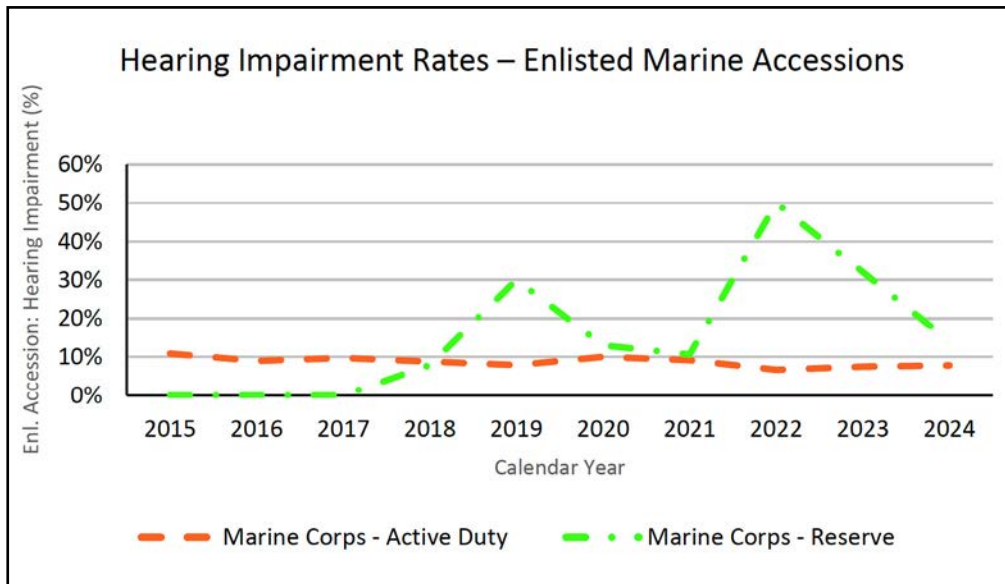
Graph 45. Hearing Impairment Rates - USMC Civilians



Hearing Impairment – Enlisted Accession Data

Marine enlisted accessions receive a hearing test as part of initial entry training. This test is used to determine the percentage of all new recruits who come into the USMC with hearing impairment (hearing worse than 25 dB HL at any test frequency). Graph 46 highlights that the percentage of enlisted accessions with hearing impairment for all USMC components in CY24 (7.8%) is slightly higher than in CY23 (7.5%), but lower than the 10-year average (8.7%). Marines accessed onto AD show a higher hearing impairment rate in CY24 (7.8%) than CY23 (7.5%), which is lower than the 10-year average of 8.7%. The USMCR experienced large fluctuations between CY24 and CY23, likely due to the substantial change in numbers tested between CY24 (14.1%, 128 total tests) and CY23 (32.0%, 25 total tests). The CY24 rate (14.1%) is lower than the 10-year average (15.8%) for the USMCR. In CY24, 92.2% of all enlisted marine accessions had normal hearing, a slight increase from CY23, and higher than the 10-year average of 91.3%.

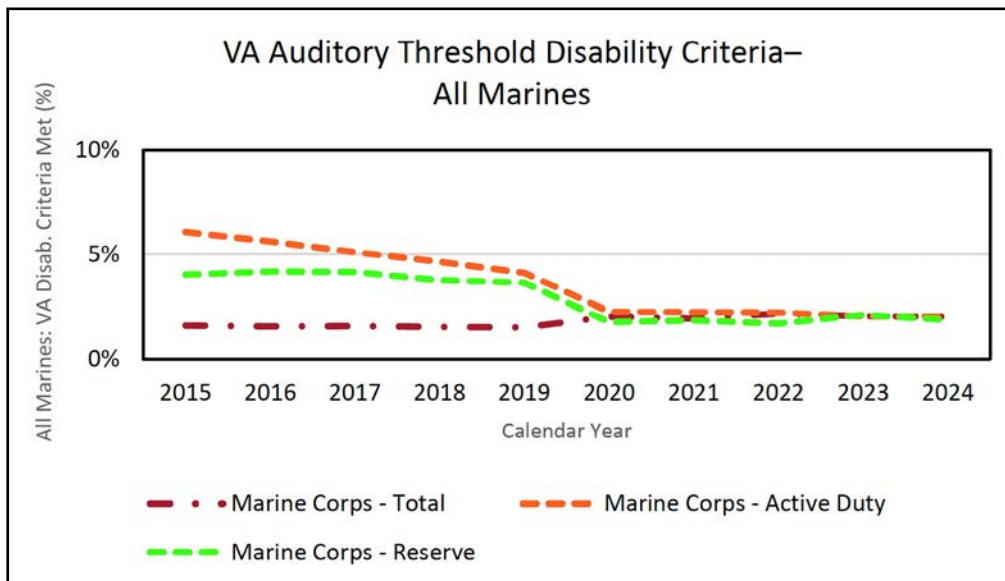
Graph 46. Hearing Impairment Rates - Enlisted Marine Accessions



VA Auditory Threshold Disability Criteria

The 10-year average for the percentage for all marines meeting established VA auditory threshold disability criteria is 1.8%, with the highest percentage occurring in CY22 (2.2%). In comparison, the percentage of AD (2.0%) and USAR (1.9%) marines meeting VA auditory threshold disability criteria in CY24 decreased slightly from CY23 (2.1% and 2.1%, respectively), demonstrated in Graph 47. Multiple factors influence the determination of VA auditory threshold disability criteria outside of the definition of hearing impairment used in the DOW.

Graph 47. VA Auditory Threshold Disability Criteria - All Marines



Summary and Conclusions

USMC threshold shift rates increased slightly for STS, PTS, and TTS across all categories except for STS and TTS rates in the USMC civilian population. Overall USMC AD and USMC civilian rates are below 10-year averages. USMCR STS, PTS and TTS rates are slightly higher than the 10-year averages. Overall STS follow-up compliance increased in the USMC; however, AD follow-up compliance fell 0.9% and is below the 10-year average of 68.7%. STS follow-up compliance remains poor in the USMCR at 12%. All components remain below the goal of 70%. The number of hearing-impaired marines remained essentially stable with fluctuation of less than 0.2% in the AD and USMCR populations. USMC Civilian rates increased 1% compared with CY23. Rates across all components are below 10-year averages. The number of enlisted marines with hearing impairment at accession increased 0.3% in the AD population and decreased 17.9% in the Reserves. The number of marines meeting the VA disability criteria remained essentially stable across all components with only 0.1% to 0.2% fluctuations.

Table 5. Data Summary – Marine Corps - Source: DOEHRS-HC DR, ad hoc MOE percentages

U.S. Marine Corps													
Chart Title	MOE	Category	Percent										
			CY15	CY16	CY17	CY18	CY19	CY20	CY21	CY22	CY23	CY24	10-yr AVG
Threshold Shift Rates All Marine Corps	MOE 1	STS	13.8	15.3	11.2	9.7	10.7	12.0	14.3	12.4	10.5	11.1	12.1
		TTS	3.8	5.1	4.0	3.1	3.7	3.5	4.2	3.3	2.8	3.2	3.7
		PTS	9.6	9.6	6.9	6.2	6.8	8.3	9.8	8.9	7.5	7.7	8.1
Threshold Shift Rates - All Marines		STS	13.6	15.2	11.1	9.6	10.7	11.9	14.2	12.3	10.4	11.0	12.0
		TTS	3.8	5.1	4.0	3.1	3.7	3.5	4.1	3.3	2.7	3.1	3.6
		PTS	9.5	9.5	6.9	6.1	6.8	8.2	9.8	8.8	7.4	7.7	8.1
Threshold Shift Rates AD Marines		STS	13.3	15.2	10.7	8.8	9.7	10.9	13.4	11.3	9.4	10.2	11.3
		TTS	4.4	5.9	4.3	3.5	4.3	4.0	4.7	3.7	3.1	3.5	4.1
		PTS	8.5	8.7	6.1	5.0	5.3	6.7	8.3	7.4	6.1	6.5	6.9
Threshold Shift Rates USMCR Marines		STS	15.5	15.3	14.1	13.8	15.6	17.6	18.6	17.6	16.1	16.4	16.1
		TTS	0.3	0.7	0.9	0.6	0.9	0.8	0.8	0.8	0.8	1.0	0.8
		PTS	14.7	14.1	13.1	12.7	14.1	16.6	17.4	16.7	14.8	15.0	14.9
Threshold Shift Rates USMC Civilians		STS	20.7	21.3	16.1	15.1	14.2	18.5	20.4	18.6	17.4	16.1	17.8
		TTS	5.7	5.2	6.0	4.7	4.7	4.5	4.8	5.8	4.6	4.4	5.0
	PTS	14.2	13.6	9.7	8.4	7.8	12.4	13.4	12.8	10.4	10.9	11.4	
STS Follow-Up Test Compliance	MOE 2	All Marines	56.7	63.3	65.2	62.0	62.2	52.3	56.3	49.3	53.0	54.2	57.2
		Active Duty	66.7	71.7	72.8	73.9	76.4	65.0	69.2	60.5	65.8	64.9	68.7
		Reserve	9.1	14.7	18.1	16.9	18.8	8.1	8.0	7.4	10.8	12.0	12.4
		USMC Civilians	61.5	68.4	67.5	69.5	74.1	58.5	61.0	57.0	70.4	71.4	65.9
Hearing Impaired	MOE 3	All Marines	13.9	12.7	12.1	11.4	11.6	11.7	12.2	10.2	9.3	9.4	11.4
		Active Duty	13.9	12.6	12.1	11.4	11.5	11.6	12.1	10.1	9.2	9.3	11.4
		Reserve	13.8	13.4	12.5	12.0	12.3	12.5	12.8	11.3	10.4	10.1	12.1
		USMC Civilians	47.5	46.7	43.9	42.5	42.3	41.6	41.0	42.1	40.6	39.5	42.8
Hearing Impaired - Enlisted Marine Accessions	MOE 3	All Marines	10.9	9.0	9.7	8.8	7.9	10.1	9.2	6.7	7.5	7.8	8.7
		Active Duty	10.9	8.9	9.7	8.8	7.9	10.0	9.1	6.6	7.5	7.8	8.7
		Reserve	-	-	-	7.9	30.0	13.0	10.6	50.0	32.0	14.1	15.8
VA Auditory Threshold Criteria	MOE 4	All Marines	1.6	1.6	1.6	1.6	1.5	2.0	1.9	2.2	2.1	2.0	1.8
		Active Duty	6.1	5.6	5.1	4.6	4.1	2.3	2.2	2.2	2.1	2.0	3.6
		Reserve	4.0	4.2	4.1	3.8	3.6	1.8	1.9	1.7	2.1	1.9	2.9

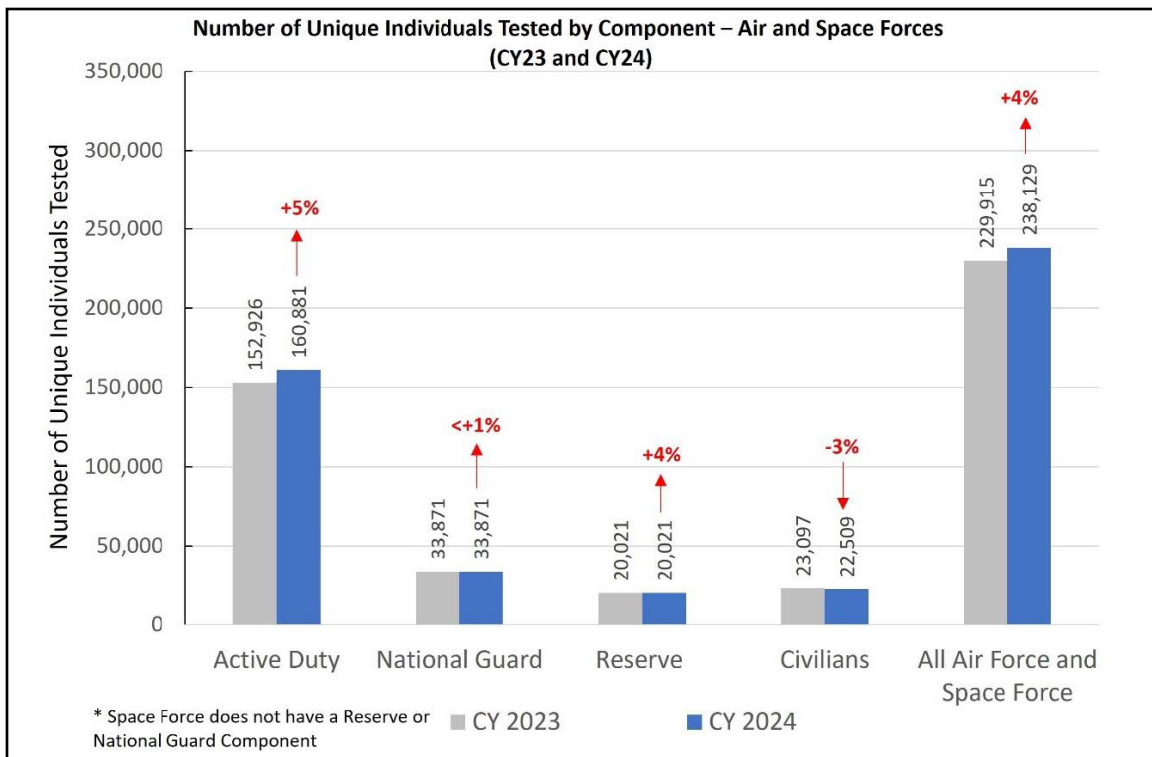
Appendix D: Hearing Health - Air and Space Force

The Air Force (AF) and Space Force (SF) HCPs are risk-based programs, enrolling airmen, guardians, and AF and SF civilians based on occupational exposure to hazardous noise. In 2015, the AF started hearing testing at basic training for all enlisted airmen, guardians, and officers, regardless of noise exposure risk. Likewise, the AF completes separation health physical exams (SHPE) for all airmen and guardians, using the DOEHRS-HC system, regardless of HCP enrollment. As a result, hearing tests completed at the beginning and end of military service, regardless of HCP enrollment, shown in the graphs below, are not completely reflective of actual HCP effectiveness or hearing health of the total AF and SF populations.

Unique Individuals Tested by Component

The number of unique individuals tested in the AF and SF shows an increase in all components during CY24 compared to CY23. There was a 4% increase in testing for all airmen and guardians and a 3% decrease for AF/SF civilian personnel in CY24 compared to CY23 (Graph 48). The slight increase in all airmen and guardians may reflect improved use of testing capabilities as the AF/SF are in the process of transitioning to a 100% monitoring program. It should be noted that the SF does not contain a Reserve or NG component.

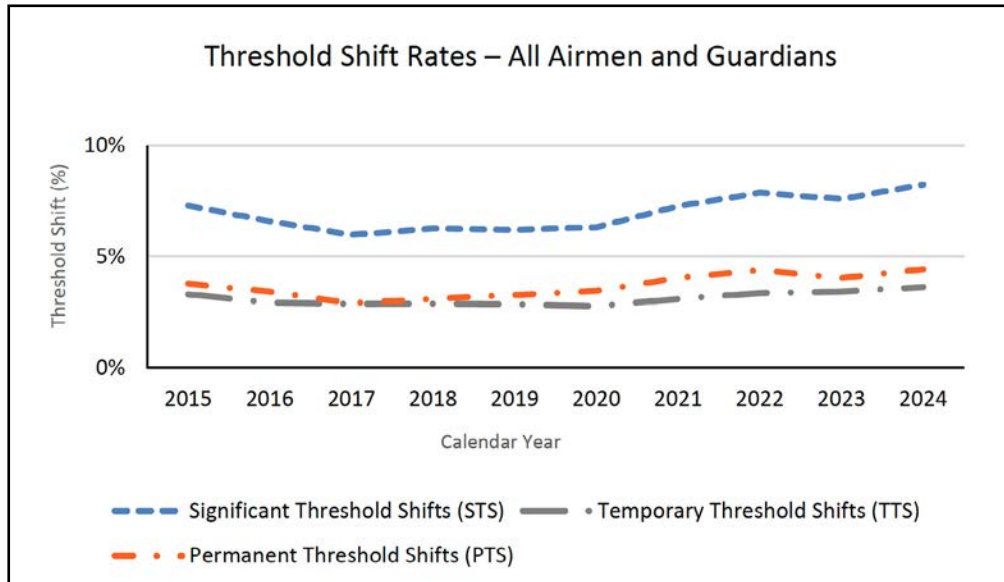
Graph 48. Unique Individuals Tested by Component - Air and Space Forces (CY 23 and CY 24)



Significant Threshold Shift Rates by CY

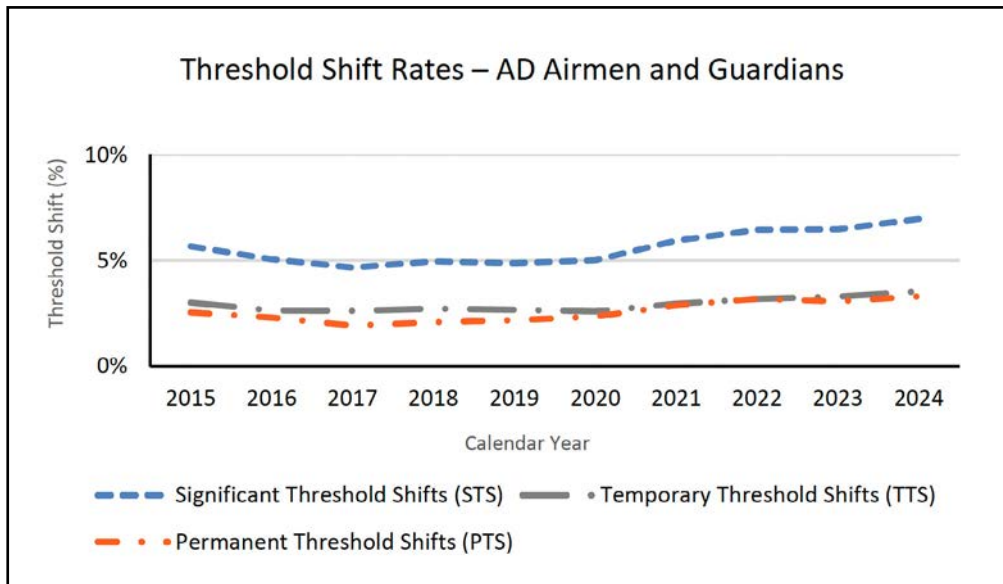
In CY24, all airmen and guardians (all AF and SF components combined) STS, TTS, and PTS rates show a slight increase compared to CY23. Threshold shift rates for all airmen and guardians indicate 8.2% STS, 3.6% TTS, and 4.4% PTS rates in CY24 compared to CY23 rates of 7.6% STS, 3.4% TTS, and 4.0% PTS rates (Graph 49). Additionally, the CY24 rates are higher than the 10-year average rates of 7.0% STS, 3.1% TTS, and 3.7% PTS.

Graph 49. Threshold Shift Rates - All Airmen and Guardians



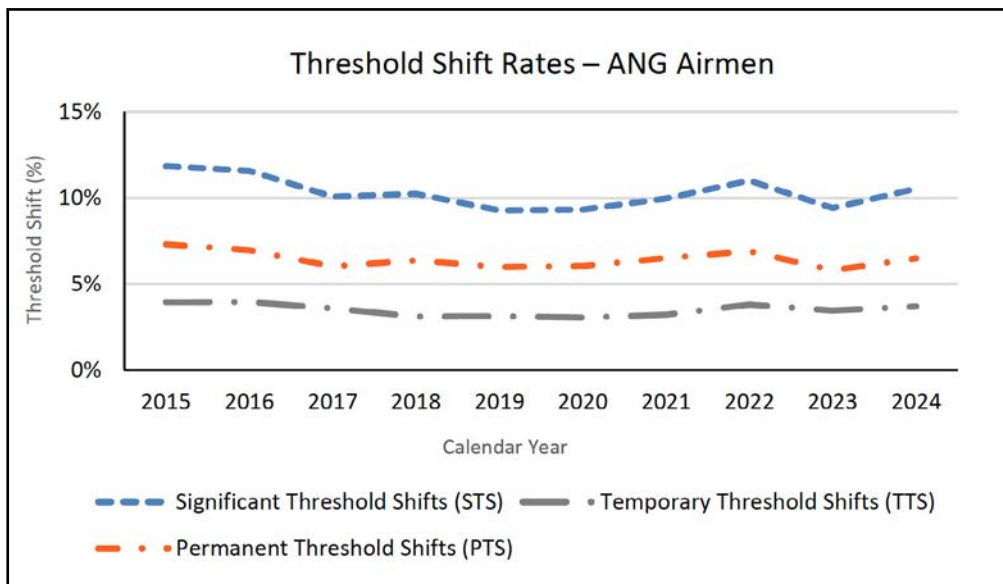
The AD airmen and guardians have the lowest PTS rates of all AF and SF components during CY15 - CY24. This may be due to improved STS follow-up testing compliance resulting in accurate identification of PTS and TTS as seen in Graph 54. Threshold shift rates for AD airmen and guardians indicate 7.0% STS, 3.5% TTS, and 3.3% PTS rate in CY24 (Graph 50). These rates are slightly higher than the CY23 rates of 6.5% STS, 3.3% TTS, and 3.1% PTS for AD airmen and guardians and higher than the 10-year average of 5.6% STS, 2.9% TTS, and 2.6% PTS rates.

Graph 50. Threshold Shift Rates - AD Airmen and Guardians



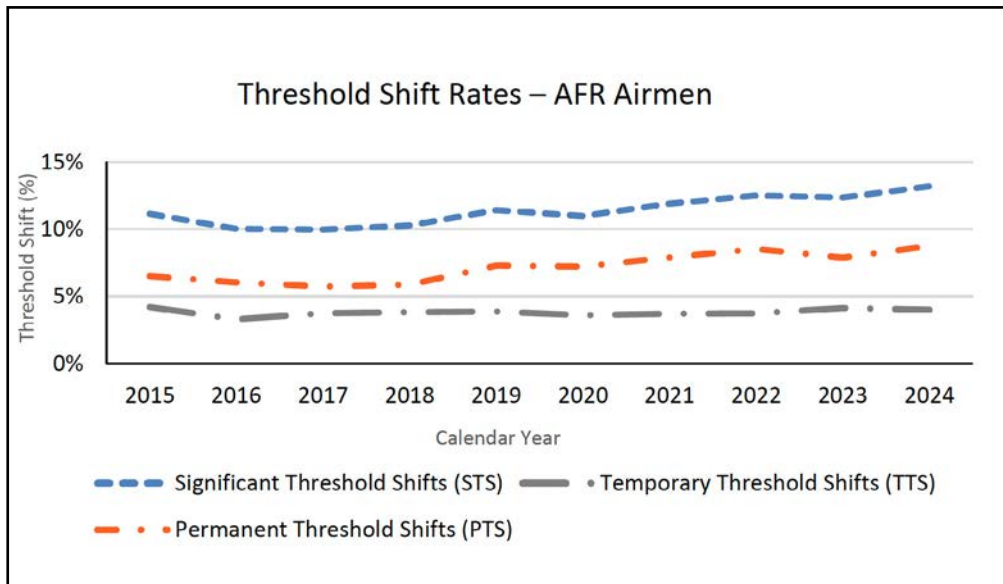
ANG threshold shift rates for CY24 are 10.5% STS, 3.7% TTS, and 6.5% PTS, all higher than the CY23 thresholds rates of 9.4% STS, 3.5% TTS, and 5.8% PTS (Graph 51). The CY24 STS, TTS, and PTS rates are also higher than the 10-year average (10.3% STS, 3.5% TTS, and 6.4% PTS) for ANG airmen.

Graph 51. Threshold Shift Rates - ANG Airmen



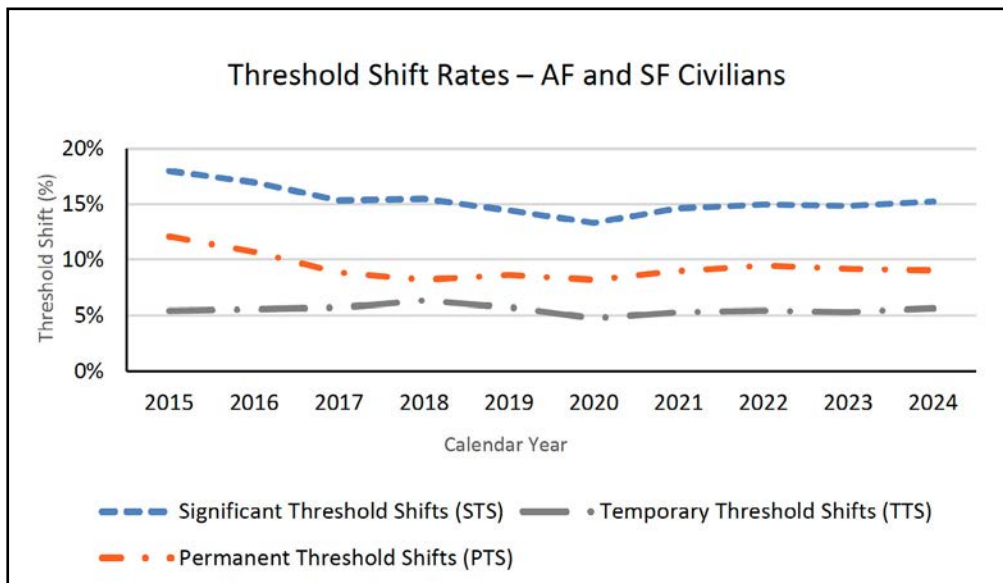
AFR threshold shift rates show an STS rate of 13.2% and PTS rate of 8.7% which is an increase from CY23 which showed 12.4% STS and 7.9% PTS rates (Graph 52). The TTS rate in CY24 decreased slightly from 4.1% in CY23 to 4.0% in CY24. When compared to the 10-year average rate (11.4% STS, 3.8% TTS, and 7.2% PTS), the CY24 threshold rates were all higher for the AFR.

Graph 52. Threshold Shift Rates - AFR Airmen



AF civilian PTS rates decreased from 9.2% CY23 to 9.0% CY24. STS and TTS rates increased from 14.8% CY23 to 15.2% CY24 and 5.3% CY23 to 5.6% CY24, respectively (Graph 53). CY24 STS and PTS averages were slightly lower than the 10-year average of 15.3% and 9.3%, respectively. TTS rates were essentially the same when compared to the 10-year average of 5.5%. The AF civilian STS rates are higher than AF military components.

Graph 53. Threshold Shift Rates - AF and SF Civilians

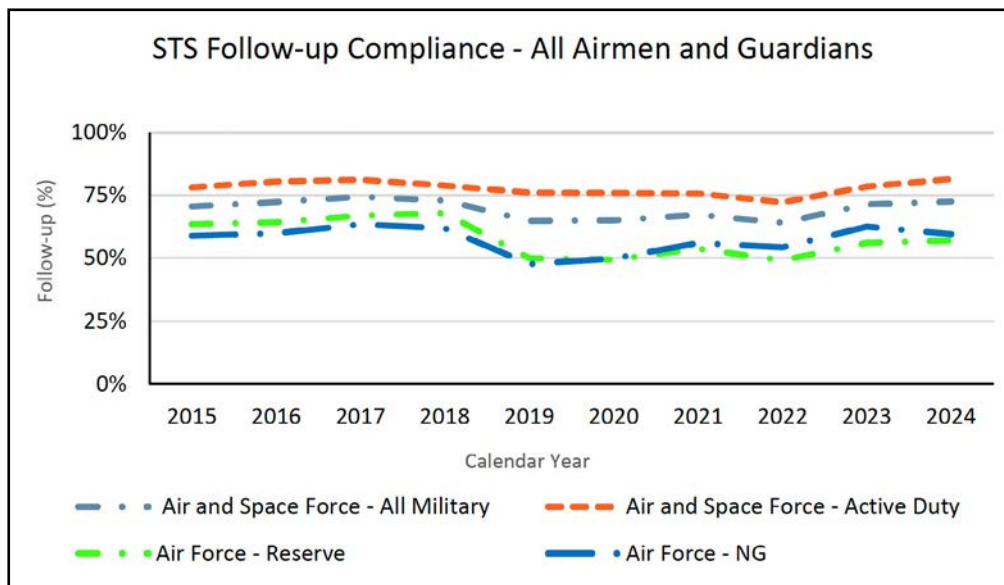


STS Follow-up Test Compliance

There is an increase in STS follow-up testing compliance in CY24 for airmen and guardians when compared to CY23 except for the ANG which show a slight decrease (Graph 54). Overall compliance for STS follow-up testing (all airmen and guardians) increased from 71.4% in CY23 to 72.5% in CY24. There was an increase in CY24 when compared to the 10-year average of 69.5% for all airmen and guardians.

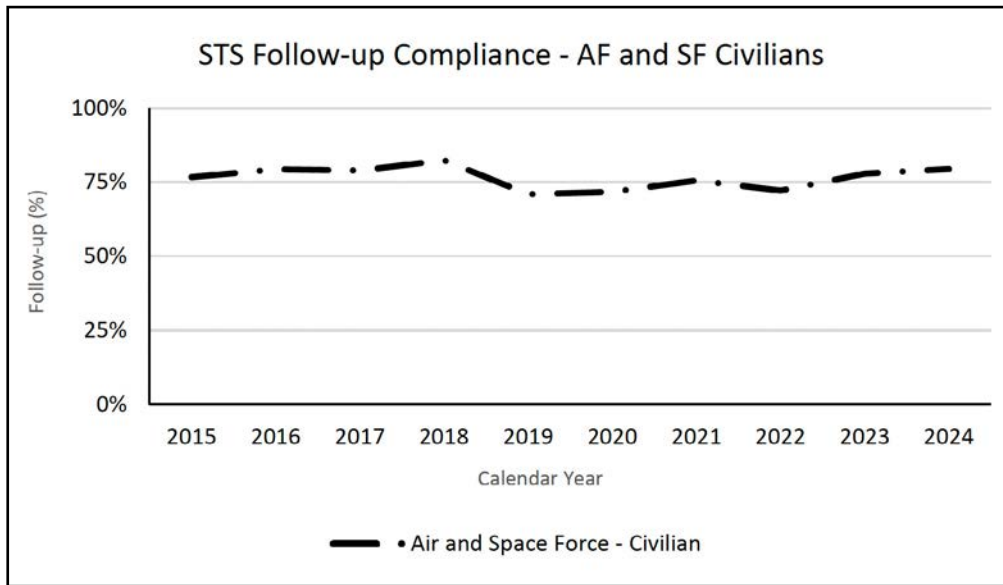
Compliance for STS follow-up testing for AD airmen and guardians increase slightly from CY23 to CY24 (78.5% and 81.5% respectively) with a similar slight increase in compliance from the 10-year average (77.8%). Compliance in the ANG decreased from 62.5% in CY23 to 59.6% in CY24, although the CY24 follow-up testing rate for the ANG was higher than the 10-year average of 57.4%. Compliance in the AFR increased from 56% in CY23 to 57% in CY24 but was below the 10-year average of 57.8%.

Graph 54. STS Follow-up Test Compliance - All Airmen and Guardians



The AF civilian STS follow-up testing continues to show increased compliance from 77.9% in CY23 to 79.4% in CY24 (Graph 55). The follow-up testing rate for CY24 is also higher than the 10-year average of 76.5%.

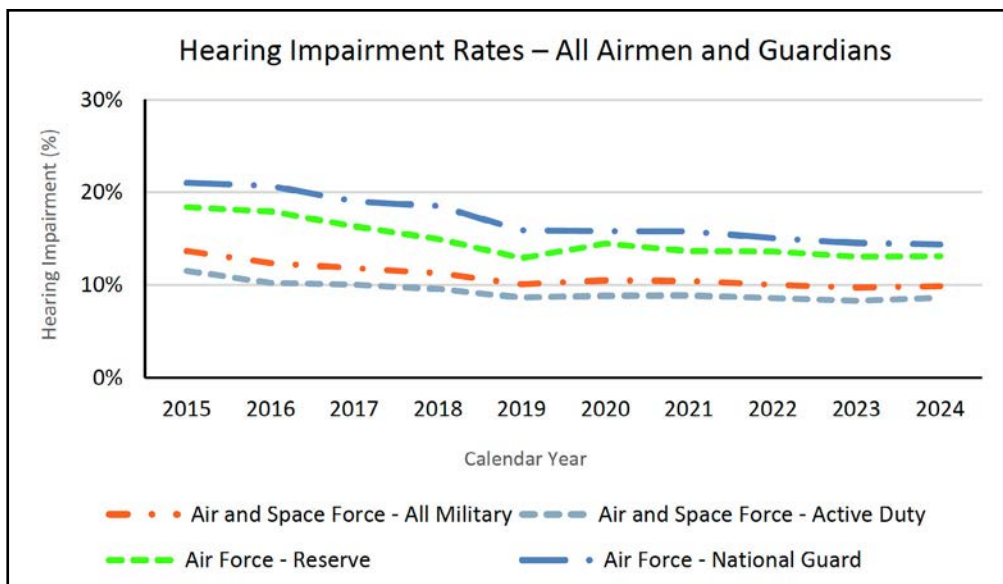
Graph 55. STS Follow-up Test Compliance - AF and SF Civilians



Hearing Impairment

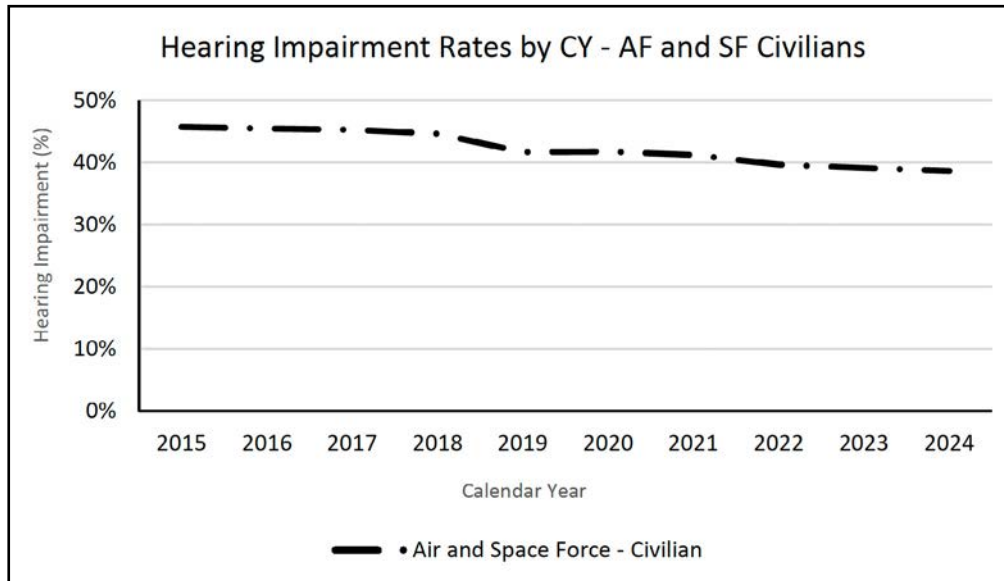
The percent of airmen and guardians with hearing impairment increased slightly for all military and AD components. All airmen and guardians with hearing impairment increased from 9.7% in CY23 to 9.9% in CY24 and for AD it increased from 8.3% in CY23 to 8.6% in CY24 (Graph 56). The ANG hearing impairment rates decreased slightly from 14.5% in CY23 to 14.3% in CY24. The AFR rate of hearing impairment remained stable from CY23 to CY24 at 13.1%. Finally, the CY24 rates of hearing impairments were all lower than the 10-year averages of 11.0% for all airmen and guardians, 9.3% for AD, 17.1% for ANG, and 14.8% for AFR.

Graph 56. Hearing Impairment Rates - All Airmen and Guardians



The percentage of AF civilians with hearing impairment shows a marginal decrease from CY23 to CY24 from 39.1% to 38.7% (Graph 57). Additionally, the percentage of AF civilians with hearing impairment decreased from the 10-year average of 42.3%. In CY24, 61.3% of civilians had normal hearing.

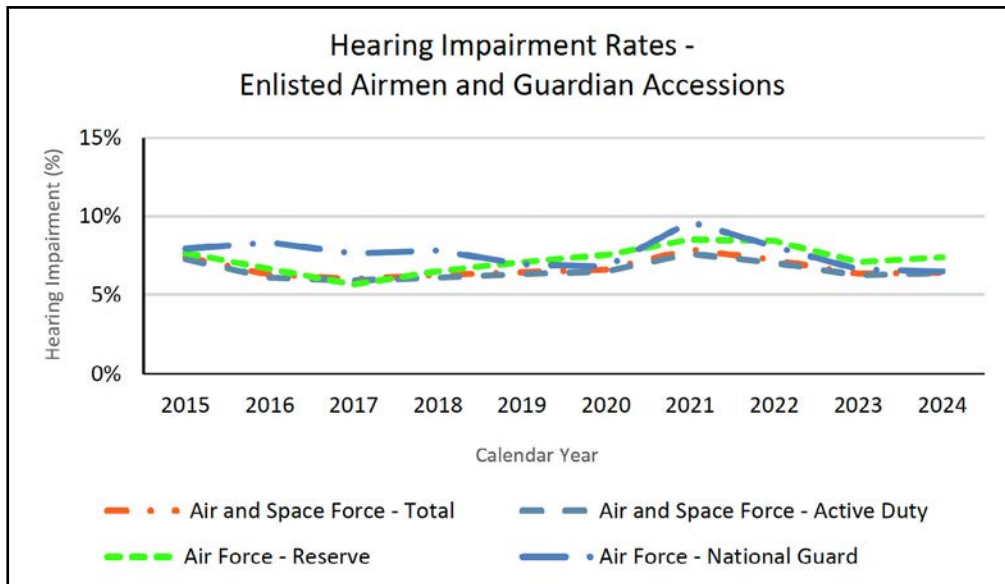
Graph 57. Hearing Impairment Rates - AF and SF Civilians



Hearing Impairment – Enlisted Accession Data

Airmen and guardians receive a hearing test as part of basic training when they enter military service. These tests are used to determine the percentage of all new recruits who enter the AF and SF with hearing impairment (hearing worse than 25 dB HL at any test frequency). For all enlisted airmen and guardians, accessions hearing impairment show an increased rate from CY23 (6.3%) to CY24 (6.4%). The percentage of enlisted AD airmen and guardians accessions with hearing impairment increased from 6.2% in CY23 to 6.4% in CY24. The percentage of enlisted ANG airmen accessions with hearing impairment decreased from 6.6% in CY23 to 6.5% in CY24. An increase in hearing impairment is seen for enlisted AFR airmen accessions from CY23 (7.1%) to CY24 (7.4%) in (Graph 58). All categories of accession hearing impairment for airmen and guardians show a decrease in CY24 except AFR, when compared to the 10-year rates of all enlisted (6.7%), AD (6.5%), and ANG (7.6%). AFR 10-year average accession hearing impairment rates were slightly lower at 7.2% compared to the CY24 rate of 7.4%.

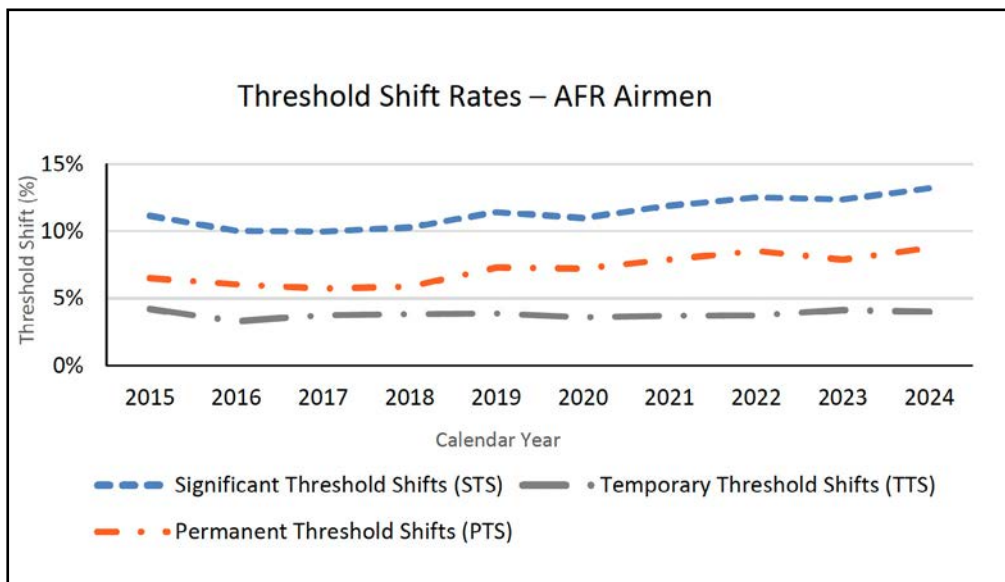
Graph 58. Hearing Impairment Rates - Enlisted Airmen and Guardian Accessions



VA Auditory Threshold Disability Criteria

The percentage of all airmen and guardians potentially eligible for VA service-connected disability compensation for hearing loss remains stable from CY23 to CY24 (Graph 59). For all AF component airmen and guardians and AD the rates remained stable at 2.0% and 1.5%, respectively, based on VA auditory threshold disability criteria. A slight decrease is found from CY23 (3.8%) to CY24 (3.7%) for ANG VA auditory threshold disability criteria while a slight increase is noted for the AFR from CY23 (3.3%) to CY24 (3.4%). All categories show a decrease from the 10-year average for eligible VA service-connected disability criteria (all military at 3.2%, AD at 3.6%, ANG 4.2%, and AFR 5.4%). The VA includes other factors in the determination of VA compensation due to impaired hearing.

Graph 59. VA Auditory Threshold Disability Criteria - All Airmen and Guardians



Summary and Conclusions

The hearing health of the AF and SF shows mixed outcomes when compared across the years (2015 – 2024). The AF and SF show a 4% increase in hearing testing when compared to CY23. The CY24 rates of STS, PTS, and TTS for airmen and guardians are slightly higher than CY23 rates and the 10-year averages whereas the AF and SF civilian STS, PTS, and TTS rates are essentially unchanged when compared to CY23 and the 10-year averages.

Enlisted airmen and guardians showed a slight increase in hearing impairment at accession in CY24 when compared to CY23, although the current rate is below the 10-year average.

Finally, the CY24 follow-up hearing tests compliance rate showed improvement across the AF and SF and remain above the benchmark of 70% and above the 10-year average.

As the AF and SF HCPs transition from risk-based programs to 100% monitoring programs for uniformed personnel, there is room for continued improvement to maximize good hearing health, promote hearing readiness, and reduce hearing injuries for airmen and guardians.

Table 6. Data Summary – Air and Space Forces - Source: DOEHS-HC DR, ad hoc MOE percentages

U.S. Air and Space Forces													
Chart Title	MOE	Category	Percent										
			CY15	CY16	CY17	CY18	CY19	CY20	CY21	CY22	CY23	CY24	10-yr AVG
Threshold Shift Rates All Air and Space Forces	MOE 1	STS	8.8	8.1	7.3	7.6	7.3	7.2	8.2	8.7	8.4	9.0	8.1
		TTS	3.6	3.3	3.3	3.4	3.2	3.0	3.4	3.6	3.6	3.8	3.4
		PTS	5.0	4.5	3.7	3.8	4.0	4.0	4.6	5.0	4.6	4.9	4.4
Threshold Shift Rates - All Airmen / Guardians		STS	7.3	6.6	6.0	6.2	6.2	6.3	7.3	7.9	7.6	8.2	7.0
		TTS	3.3	2.9	2.9	2.9	2.9	2.8	3.1	3.3	3.4	3.6	3.1
		PTS	3.8	3.4	2.9	3.1	3.3	3.4	4.0	4.4	4.0	4.4	3.7
Threshold Shift Rates AD Airmen/ Guardians		STS	5.7	5.1	4.7	5.0	4.9	5.0	5.9	6.5	6.5	7.0	5.6
		TTS	3.0	2.6	2.6	2.7	2.7	2.6	3.0	3.2	3.3	3.5	2.9
		PTS	2.5	2.3	1.9	2.1	2.2	2.3	2.9	3.2	3.1	3.3	2.6
Threshold Shift Rates ANG Airmen		STS	11.8	11.6	10.1	10.2	9.3	9.3	10.0	11.0	9.4	10.5	10.3
		TTS	3.9	3.9	3.6	3.1	3.1	3.0	3.2	3.8	3.5	3.7	3.5
		PTS	7.3	7.0	6.0	6.4	6.0	6.0	6.5	6.9	5.8	6.5	6.4
Threshold Shift Rates AFR Airmen		STS	11.1	10.0	10.0	10.3	11.4	11.0	11.9	12.5	12.4	13.2	11.4
		TTS	4.2	3.3	3.8	3.8	3.9	3.6	3.7	3.7	4.1	4.0	3.8
	PTS	6.5	6.0	5.7	5.9	7.3	7.2	7.9	8.5	7.9	8.7	7.2	
Threshold Shift Rates AF Civilians	STS	18.0	17.0	15.3	15.5	14.4	13.3	14.6	15.0	14.8	15.2	15.3	
	TTS	5.4	5.5	5.7	6.3	5.7	4.8	5.3	5.4	5.3	5.6	5.5	
	PTS	12.1	10.7	8.8	8.2	8.6	8.2	9.0	9.4	9.2	9.0	9.3	
STS Follow-Up Test Compliance	MOE 2	All Airmen/ Guardians	58.8	59.9	63.4	61.9	47.6	49.8	56.0	54.3	62.5	72.5	58.7
		Active Duty	78.1	80.4	81.2	78.8	76.1	76.0	75.7	72.2	78.5	81.5	77.9
		National Guard	58.8	59.9	63.4	61.9	47.6	49.8	56.0	54.3	62.5	59.6	57.4
		Reserve	63.5	63.3	66.9	67.9	49.9	49.3	53.7	49.1	56.0	57.0	57.7
		AF Civilian	76.7	79.3	78.9	82.4	70.9	71.7	75.5	72.1	77.9	79.4	76.5
Hearing Impaired	MOE 3	All Airmen/ Guardians	13.6	12.3	11.8	11.3	10.0	10.5	10.4	10.0	9.7	9.9	11.0
		Active Duty	11.5	10.2	10.0	9.5	8.6	8.8	8.8	8.5	8.3	8.6	9.3
		National Guard	21.0	20.7	19.0	18.5	19.9	15.8	15.8	15.0	14.5	14.3	17.5
		Reserve	18.4	17.9	16.3	15.0	12.9	14.4	13.7	13.6	13.1	13.1	14.8
		AF Civilian	45.7	45.5	45.3	44.6	41.7	41.8	41.2	39.7	39.1	38.7	42.3
Hearing Impaired - Enlisted Marine Accessions	MOE 3	All Airmen/ Guardians	7.4	6.4	6.2	6.1	6.3	6.7	8.3	7.1	6.3	6.4	6.7
		Active Duty	7.4	6.2	6.2	5.9	6.2	6.5	8.0	6.9	6.2	6.4	6.6
		National Guard	7.5	8.7	7.9	7.5	7.1	6.9	9.9	8.2	6.6	6.5	7.7
		Reserve	7.7	6.5	5.5	7.1	6.8	7.5	8.4	8.3	7.1	7.4	7.2
VA Auditory Threshold Criteria	MOE 4	All Airmen/ Guardians	5.5	5.2	4.8	4.4	2.2	2.2	2.1	2.0	2.0	2.0	3.2
		Active Duty	7.2	7.1	6.3	5.7	1.6	1.6	1.5	1.5	1.5	1.5	3.6
		National Guard	4.8	4.5	4.1	3.8	4.6	4.2	4.4	3.8	3.8	3.7	4.2
		Reserve	9.1	8.9	8.3	7.6	3.3	3.6	3.4	3.4	3.3	3.4	5.4

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