

# Promising Practices within the Hearing Center of Excellence

Dr. Andrew Fallon, Au.D., ABA  
22 August 2019  
1535-1635



# Presenter



Dr. Andrew Fallon, Au.D., ABA  
Clinical Audiologist

Department of Defense (DoD) Hearing Center of Excellence (HCE)  
Joint Base San Antonio, Texas

# Dr. Andrew Fallon, Au.D., ABA



- Dr. Andrew Fallon is a Clinical Audiologist for the DoD Hearing Center of Excellence. Dr. Fallon serves as a subject matter expert, both leading and providing support for HCE research and clinical endeavors using his background knowledge in information technology.
- Projects currently underway include facilitating the use of online learning management systems, standardization of clinical coding, TeleAudiology standards, migration and merging of legacy and current day patient information data bases and the systematic evaluation and implementation of next-generation clinical testing software.
- Dr. Fallon earned his Doctorate in Audiology from the University of Florida at Gainesville. His undergraduate degree, a Bachelor of Science, in Communications Disorder is from Stockton University and his Master of Science, in Audiology is from Lamar University.
- Prior to coming to work for the DoD, Dr. Fallon has served previously as both a Clinical Audiologist with extensive experience in diagnostic studies and exams and as a program director for an adult cochlear implant program.

# Disclosure

- Dr. Andrew Fallon has no relevant financial or non-financial relationships to disclose relating to the content of this activity; or presenter(s) must disclose the type of affiliation/financial interest (e.g. employee, speaker, consultant, principal investigator, grant recipient) with company name(s) included.
- The views expressed in this presentation are those of the author and do not necessarily reflect the official policy or position of the Department of Defense (DoD), nor the U.S. Government.
- This continuing education activity is managed and accredited by the Defense Health Agency J-7 Continuing Education Program Office (DHA J-7 CEPO). DHA J-7 CEPO and all accrediting organizations do not support or endorse any product or service mentioned in this activity.
- DHA J-7 CEPO staff, as well as activity planners and reviewers have no relevant financial or non-financial interest to disclose.
- Commercial support was not received for this activity.

- The views expressed in this presentation are those of the authors and do not necessarily reflect the official policy of the Hearing Center of Excellence, Defense Health Agency, Department of Defense, or United States Government.
- This material is not cleared for public release. Do not distribute without express authorization from the author.

# Learning Objectives

1. Summarize the mission and goals of the Hearing Center of Excellence (HCE).
2. Identify how the HCE assist our Service Members.
3. Recognize areas the HCE help other medical professionals outside of the Military Health System (MHS).

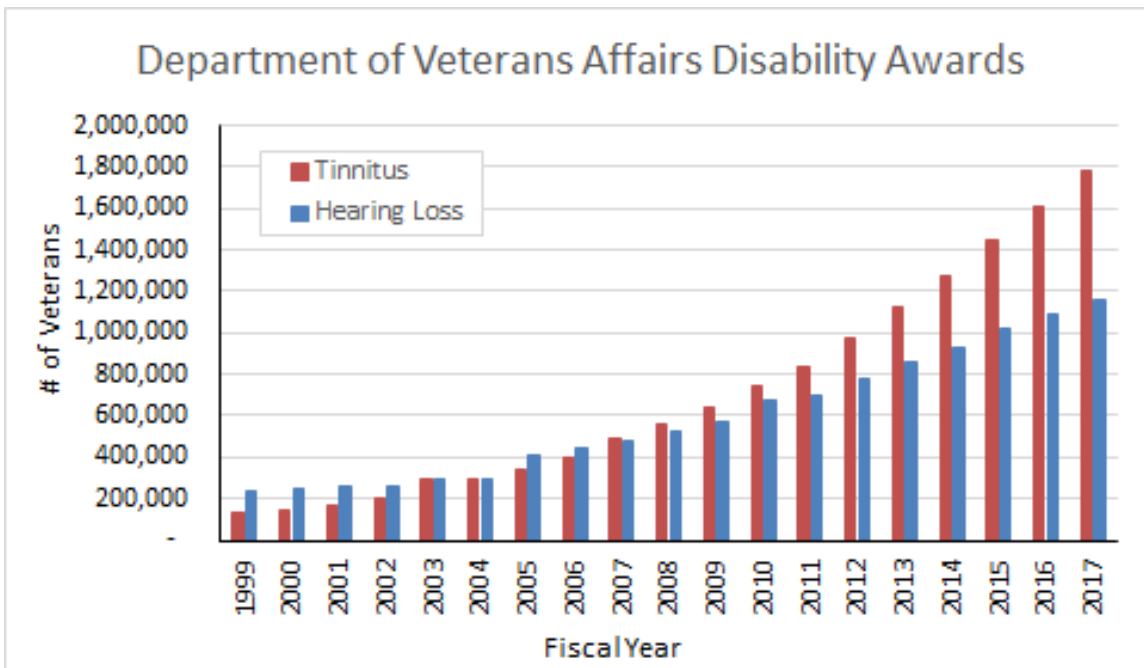
## **Vision**

*Trusted Source.  
Better hearing, Stronger force.*

## **Mission**

*Provide support to optimize operational performance, heighten medical readiness, and enhance quality of life through collaborative leadership and advocacy for auditory/vestibular health.*

Department of Veterans Affairs Disability Awards:  
Tinnitus and Hearing Loss are the Top Two  
Disabilities in Veterans



(VBA, 2018)

## Hearing is essential to military operations:

1) Communication



2) Detection and Identification



3) Localization



4) Acoustic Stealth

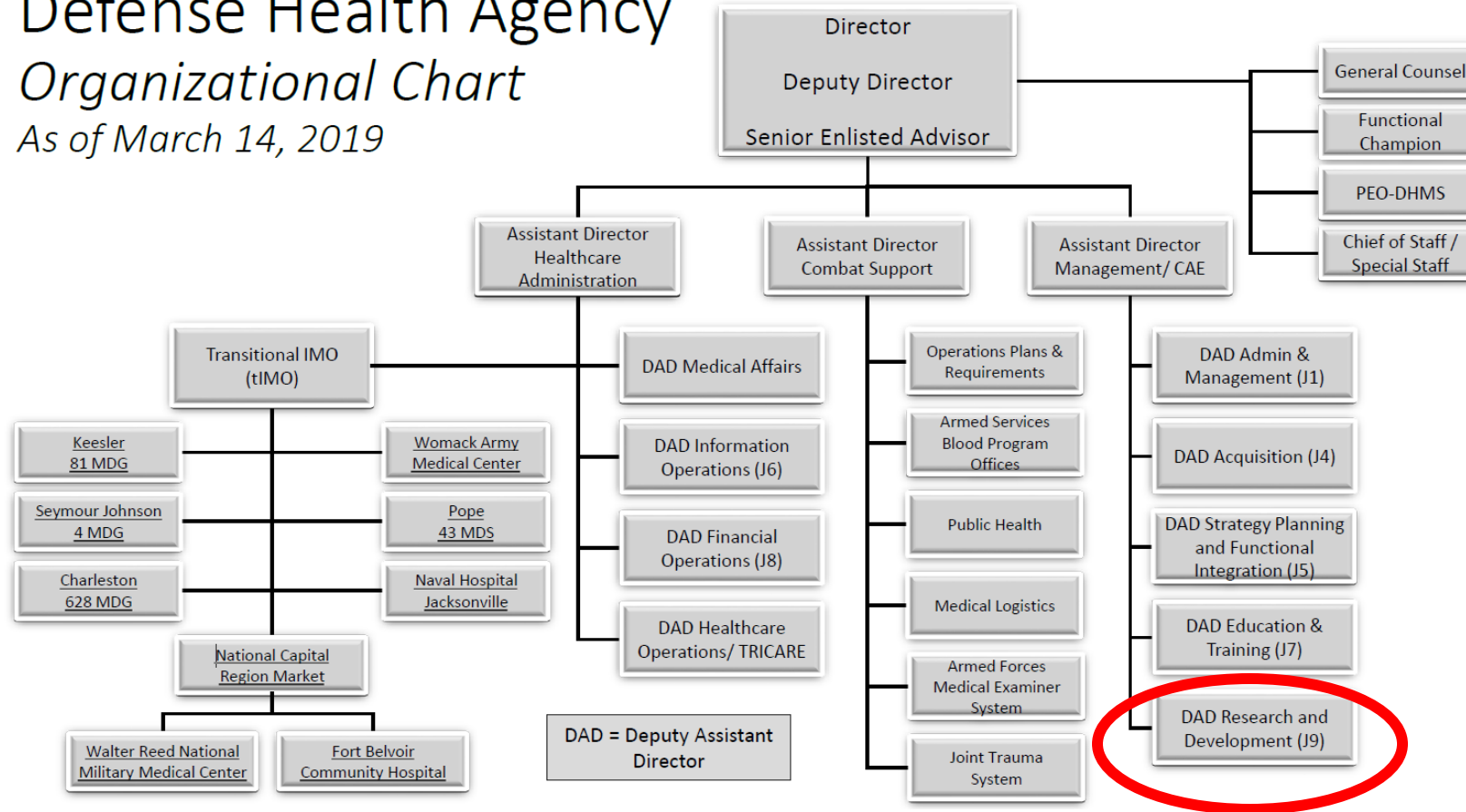




Public Law 110-417 Duncan Hunter National Defense Authorization Act (NDAA) for FY 2009, Section 721:

- “Secretary of Defense shall establish, within the DoD, centers of excellence (CoE) to include a CoE focused on the prevention, diagnosis, mitigation, treatment, and rehabilitation of hearing loss and auditory system injury....”
- The Secretary shall ensure that the center:
  - ❑ **Collaborates** to the maximum extent practicable with the Secretary of Veterans Affairs, institutions of higher education, and other appropriate public and private entities (including international entities)
  - ❑ Collaboratively **develops a registry** with bi-directional data exchange to identify and track incidence and care for hearing loss and auditory injury
  - ❑ Uses registry data to **encourage and facilitate the conduct of research, development of best practices and clinical education**

## Defense Health Agency Organizational Chart As of March 14, 2019



HCE, 2019

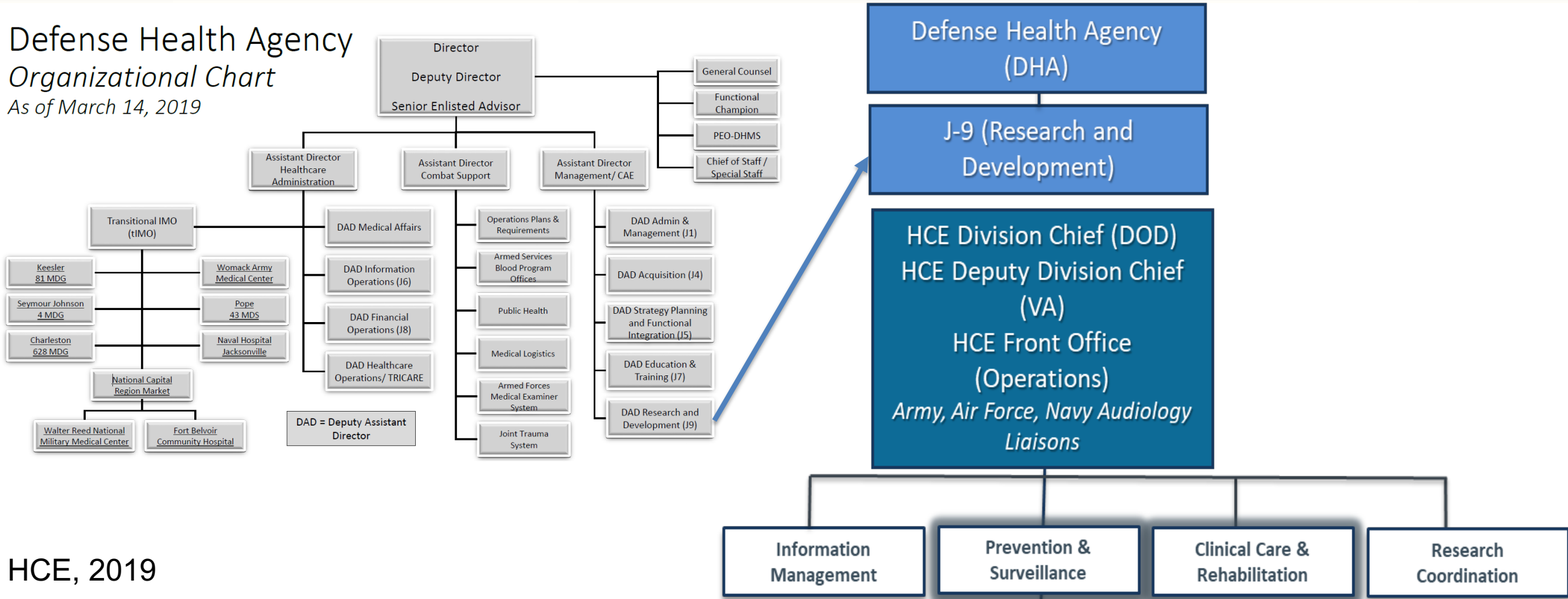


# J-9 (R&D Directorate), DHA Value Proposition



- As the Research and Development Directorate (R&D) of the Defense Health Agency, J-9 delivers value to the military and Veteran communities by **shepherding innovative materiel and knowledge products** from concept through final product development into the hands of providers and warfighters. We instill **best business practices** in the creation of these products with the aim to reduce practice variation, enhance pathways of care, improve health, and increase the lethality of a medically ready force.

Defense Health Agency  
*Organizational Chart*  
As of March 14, 2019



HCE, 2019



# HCE Priorities & Alignment



- 52 HCE initiatives with numerous tasks supporting HCE mission
- HCE initiatives determined by:
  - Congress
  - Department of Defense requirements: Combatant Commanders, Services, Office of the Assistant Secretary of Defense (Health Affairs), Defense Health Agency, and Service Surgeons General
  - Department of Veterans Affairs priorities
  - HCE Advisory Council
  - Veteran Affairs (VA)-DoD Joint Executive Committee (JEC)/Health Executive Committee (HEC)/Clinical Care & Operations Business Line
  - HCE leadership/staff
  - Collaborative Auditory & Vestibular Research Network (CAVRN) inputs

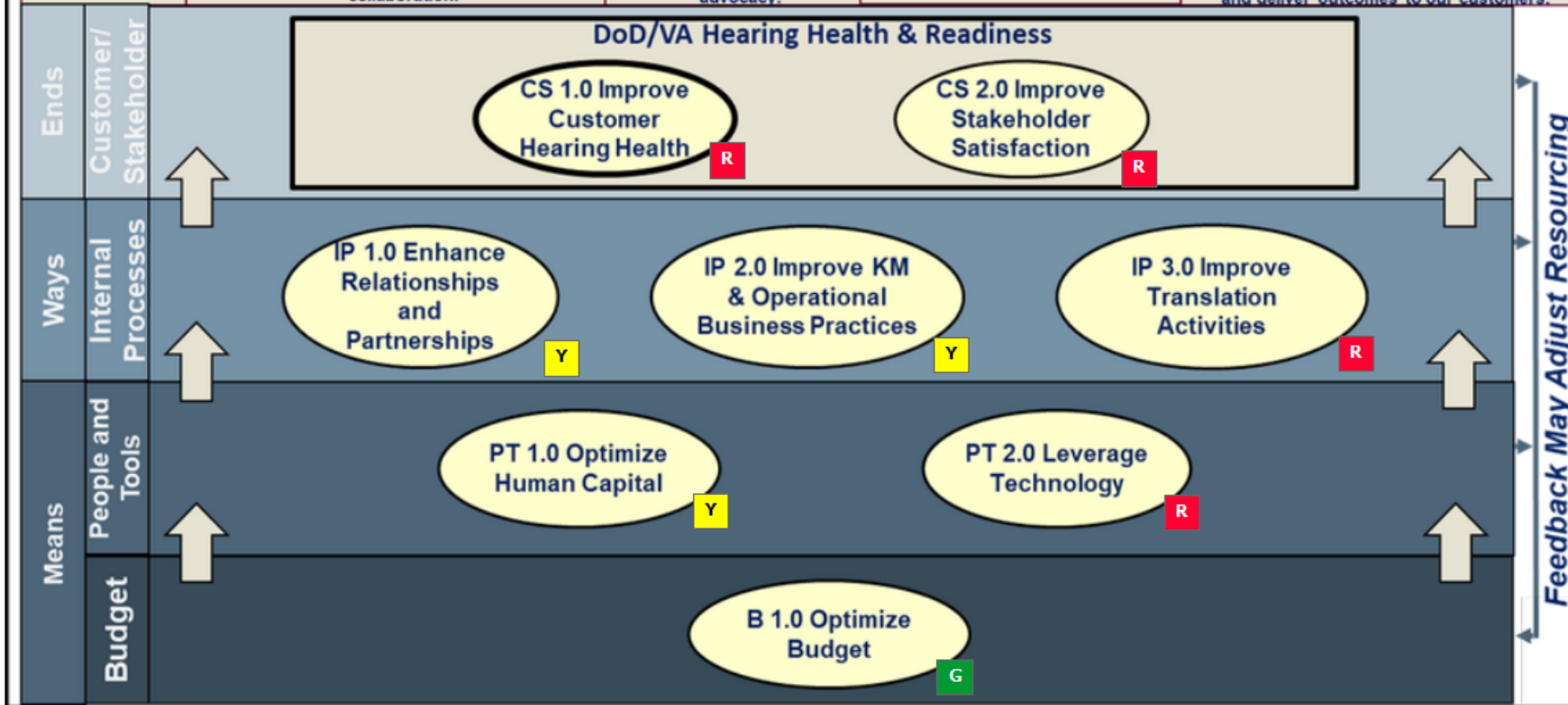
# Hearing Center of Excellence Strategy Map

**Vision:** Trusted Source. Better Hearing, Stronger Force.

**Mission:** Provide support to optimize operational performance, heighten medical readiness, and enhance quality of life through collaborative leadership and advocacy for auditory/vestibular health.

**Core Values:** Selfless Service ~ Integrity ~ Excellence ~ Advocacy ~ Commitment

<b>Strategic Themes:</b>	<b>Operational Excellence</b> Develop, update, and implement processes that lead to effective and efficient execution of programs capitalizing on opportunities and maximizing return on investment. Cultivate an enduring team that leverages human capital to foster joint interagency cohesiveness and collaboration.	<b>Effective Communications</b> The ability to clearly exchange information to allow for transparent decision making and productive collaboration and advocacy.	<b>Collaborative Relationships</b> Develop unbiased mutually beneficial relationships that synchronize efforts and optimize results while considering the needs of all customers and stakeholders.	<b>Balance Innovation with Standardization</b> Identify and standardize best recommendations and evidence-based practices across DoD and VA while fostering continuous feedback. Identify gaps, define requirements, develop innovative solutions, and deliver outcomes to our customers.





## Prevention & Surveillance

**Hearing Loss Prevention and Hearing Surveillance:** Advocate for/develop best practices in hearing readiness/hearing loss prevention/hearing preservation across DoD and VA.

## Clinical Support

**Clinical Care, Rehabilitation, & Restoration:** Determine and advocate for best practices/standards of care, and provide clinical skills education, training tools, and analyses to enable DoD/VA clinicians to improve access, quality, and timeliness of care.

## Information Management

**Information Management (IM):** Provide support across HCE for initiatives with IM/IT requirements; establish IM system to capture and centralize data about hearing health, hearing impairment, and the auditory-vestibular system; assure quality data regarding the outcomes of hearing loss and auditory injury interventions captured in JHASIR. Train JHASIR clinical and research users.

## Research Coordination

**Research Coordination:** Identify military-relevant gaps between function and performance of auditory-vestibular health and injury, unify goals and objectives with other research organizations, industry, and international groups. Support knowledge product translation and technology transfer requirements.

## Oversight & Advocacy

**DoD and VA Hearing/Balance Health Leadership, Oversight, & Advocacy:** Provide vision and advocacy, overseeing all aspects of HCE's congressionally-directed mission to optimize operational performance, heighten medical readiness, and enhance quality of life through collaborative leadership/advocacy for hearing/balance initiatives. Ensure academic, industry, and international collaborations



# Operational Protection Strategies



DEPARTMENT OF DEFENSE  
HEARING CENTER  
OF EXCELLENCE

1. Comprehensive Hearing Health Program (CHHP) – **Protect, Educate and Monitor**
  - Increasing individual knowledge, attitudes, beliefs, and behaviors (KABB) regarding hearing health and hearing loss prevention strategies
2. Best practices
  - Training DoD/VA hearing health technicians
    - Standardizing hearing health CAOHC course
  - Use of fit-check systems
3. Hearing protection
  - **Improve Hearing Protection Devices (HPD) capabilities, selection, and availability** throughout DoD ensuring the right HPD is available for the mission, job, or task
  - Working groups across Services and specialties



## EVALUATED PASSIVE HEARING PROTECTION DEVICES

• HEARING IS CRITICAL TO WARFIGHTER PERFORMANCE • WARFIGHTERS MUST BE ABLE TO UNDERSTAND COMMANDS AND BE AWARE OF SURROUNDINGS •

### CONTINUOUS NOISE ATTENUATION

**RATING VALUES, NRSa, 80%**

- BLUE - 30 dB OR GREATER
- GREEN - 20-30 dB
- YELLOW - 10-20 dB
- RED - 10 dB OR LESS

Continuous noise attenuation measurements are used to characterize how much protection a hearing protection device provides in an environment where the ambient noise levels are fairly stable (e.g. riding in a LAV or a transport, working in a machine shop). AKA 2-12-0-0000

UNPROTECTED EAR	3M EAR ULTRAFIT	EARPLUGZ PC	HEAR DEFENDERS DF	ETYMOTIC ER20 ETV
NSN: N/A	20 (Blue), 36 (Blue), 11 (Red)	17 (Blue), 16 (Blue), 35 (Blue), 11 (Red)	19 (Blue), 41 (Blue), 11 (Red)	14 (Blue), 25 (Blue), 6 (Green)

HEARING ARMOR	HOWARD LEIGHT MAX	MOLDEX BATTLEPLUGS	ALLEN SOUND SENSOR	SENSGARD 5G26	SENSGARD 5G31
NSN: N/A	29 (Blue), 41 (Blue), 12 (Red)	10 (Blue), 37 (Blue), 10 (Blue), 3 (Blue)	17 (Blue), 10 (Blue), 8 (Blue)	19 (Blue), 31 (Blue), 6 (Green)	33 (Blue), 28 (Blue), 7 (Yellow)

MOLDEX PURAFIT	SONIC DEFENDERS EP3	SONIC DEFENDERS EP4	SONIC DEFENDERS EP7	COMBAT ARMS GENERATOR 4
13 (Blue), 41 (Blue), 13 (Red)	18 (Blue), 28 (Blue), 6 (Green)	23 (Blue), 35 (Blue), 12 (Blue), 25 (Blue), 4 (Blue)	28 (Blue), 41 (Blue), 12 (Blue), 28 (Blue), 10 (Blue)	22 (Blue), 40 (Blue), 6 (Green)

### IMPULSIVE NOISE ATTENUATION

**RATING VALUES, IPIIL FOR 170 dBp**

- BLUE - 30 dB OR GREATER
- GREEN - 20-30 dB
- YELLOW - 10-20 dB
- RED - 10 dB OR LESS

Impulse noise attenuation measurements are used to characterize how much protection a hearing protection device provides against impulsive noise (e.g. gun shots, explosions). AKA 5-12-0

### SPATIAL AWARENESS

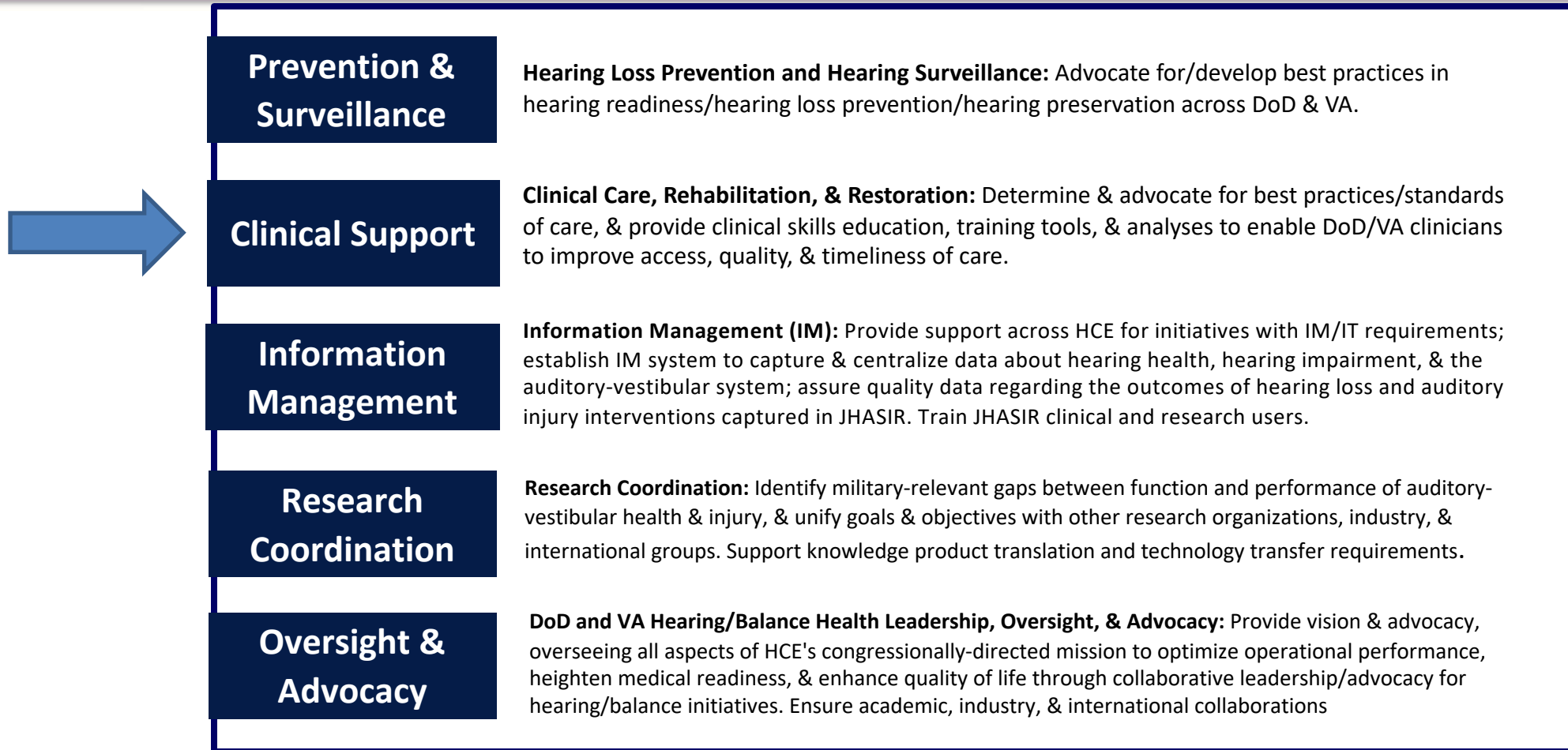
**RATING VALUES, AURALLY GUIDED VISUAL SEARCH TIME (40 dB)**

- BLUE - 4 SECONDS OR LESS
- GREEN - 4 - 7 SECONDS
- YELLOW - 7 - 10 SECONDS
- RED - 10 SECONDS OF GREATER

Spatial Awareness measurements were collected to demonstrate the impact of hearing protector devices on the amount of time that is required to accurately locate the origin of a detected sound in any direction (can I hear the sound and determine the direction of the sound?).

DEPARTMENT OF DEFENSE  
HEARING CENTER  
OF EXCELLENCE

FOR FURTHER INFORMATION, REFER TO SELECTION OF PASSIVE HEARING PROTECTIVE DEVICES GUIDEBOOK  
Approved for Public Release





# Clinical Care Branch Goals



- **Optimize audiometry in military populations using state of the art technologies, targeted and validated measures for military populations, and optimized subjective and objective test battery protocols for the military health system.**
- Develop effective strategies for hearing loss rehabilitation in DoD populations.
- Develop and evaluate effective evidence-based early interventions or rescue treatments for acute sensorineural hearing loss, as well as hearing restoration treatments and therapies for chronic/permanent hearing loss in DoD populations.
- Improve care pathways and business practices in DoD auditory care.

## Best Practices and Advisory Functions

- VA-DoD Tinnitus Working Group (HCE/ National Center for Rehabilitation Auditory Research (NCRAR)/ Walter Reed National Military Medical Center (WRNMMC)) completed the first of four tinnitus educational modules for DoD and VA providers (led by VA Rehabilitation Research & Development (RR&D) NCRAR) featuring the VA RR&D NCRAR-developed **Progressive Tinnitus Management (PTM)** as a best practice; HCE funded and managed distribution of over 8,000 NCRAR PTM products
- Disseminated the **Audiology Clinical Coding Document** to all audiologists within the MHS; trainings provided to 96 audiologists (37% of active duty, civilian, and contract audiologists)
- Developed a **collection method for vestibular assessment and rehabilitation encounter data** with an implementation plan for the use of a previously unused Common Procedural Terminology code
- Developed the **guidance document for the diagnosis of vestibular disorders**

## Business Operations, Process Improvement, Quality Improvement

- Supported development of a proposal for **use of the VA national hearing aid/accessory contract** and VA's Remote Order Entry System to reduce the cost for TRICARE coverage of these devices
  - **Net cost savings is estimated to be \$59.0 million**
- Developed a pilot project with the Integrated Platform for Clinical Assessment and Monitoring **(IPCAM) tablet-based system** to introduce new technology **into the Otolaryngology Clinic** at Wilford Hall Ambulatory Surgical Center. This system is being evaluated to determine improved clinic efficiency through automated questionnaire scoring and standard data entry into the electronic medical record.

## Training

- The Military Vestibular Assessment and Rehabilitation (**MVAR**) course faculty conducted two regional courses this year. 27 providers from 4 specialties and sub-specialties were trained to the national standard, improving patient outcomes and reducing external referrals for vestibular disorders, which can arise secondary to mild TBI.
- 11 **continuing education webinars** for VA and DoD audiologists, audiologists in the general community, as well as a variety of specialty and sub-specialty care providers from across the MHS, covering such topics as
  - Ethics in clinical research
  - Overview of hearing conservation programs
  - Introduction into the management of tinnitus
  - Current standards/future directions for cochlear implants
  - Ototoxicity monitoring programs
  - Tools for outreach
  - Earlier identification of adult onset auditory disorders
  - Emerging research in accurate assessment of patient complaints of hearing impairment

# HCE Capabilities



# Joint Hearing Loss and Auditory System Injury Registry (JHASIR)

- **Combines** clinical episodes of care from both DoD and VA audiograms, demographic, deployment, and theatre trauma and non-trauma data
- All information is in **computable** fields to promote improvement, and continuity of care, analysis, research, and performance
- **Identifies and tracks** personnel with hearing loss and auditory/vestibular injury via clinical diagnosis (ICD9/ICD10 codes in a watch list)
- Supports **readiness** through monitoring
- Supports clinical providers with **longitudinal data**
- Provides **bidirectional data sharing** capability between DoD and VA
- **Outlines, monitors and reports** on critical measures of program effectiveness
- **Enables research** for the development of best practices



[https://i2.wp.com/blogs.perficient.com/files/2015/05/shutterstock\\_148215206.jpg?ssl=1](https://i2.wp.com/blogs.perficient.com/files/2015/05/shutterstock_148215206.jpg?ssl=1)





Data Source Acronym	Definition
DOEHRS-HC	Defense Occupational & Environmental Health Readiness System-Hearing Conservation
ECAA	Enterprise Clinical Audiology Application
DMDC	Defense Manpower Data Center
DoDTR	Department of Defense Trauma Registry
TMDS	Theater Medical Data Store
VA CDW	Veteran Affairs Corporate Data Warehouse
VA NAR	Veteran Affairs National Audiometric Registry

\*VA data sources are incorporated through DoD & Veteran Affairs Infrastructure for Clinical Intelligence (DAVINCI)



# Computable Audiograms



- Enterprise Clinical Audiology Application (ECAA)
  - ❑ Standardizes clinical audiogram capture and reporting across the MHS
  - ❑ Serves JHASIR needs for digital, computable, bidirectional data
  - ❑ Forwards data to a centralized, regional server for storage and reporting
  - ❑ Potentiates efficiency through HL7 messaging capability into HAIMS & potentially MHS Genesis
- Defense Occupational and Environmental Health Readiness System – Hearing Conservation (DOEHRS-HC)
  - ❑ Collects, manages and reports occupational audiograms and environmental exposures
  - ❑ Occupational audiograms are in computable format (values in unique data fields)
- Veteran Affairs National Audiometric Registry
  - ❑ Approximately 4 million VA Audiograms incorporated through DoD & Veteran Affairs Infrastructure for Clinical Intelligence (DAVINCI) in digital/computable format

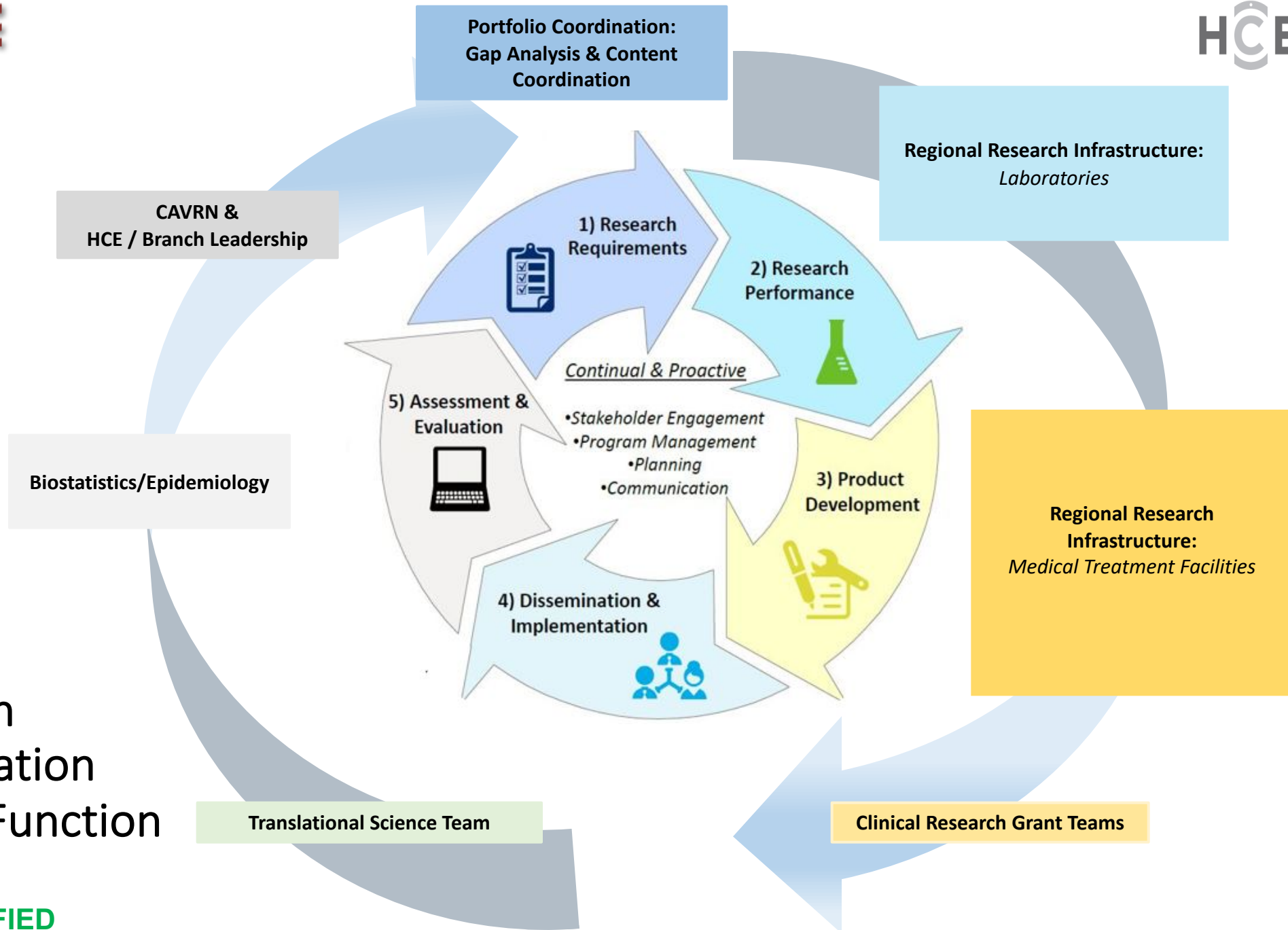
# Tablet -Based Boothless Audiometry

- Clinical audiology settings
- Hearing conservation education delivery and knowledge assessments
- Validated clinical or custom research questionnaire deployment
- Hearing readiness and wellness evaluations
- Evaluated HPD products assessments
- Information management oversight
- Pilot deployments underway



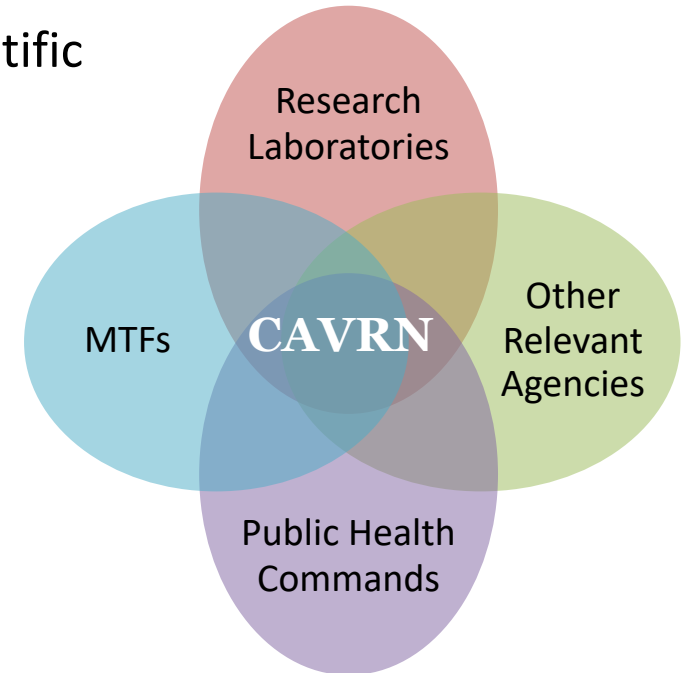
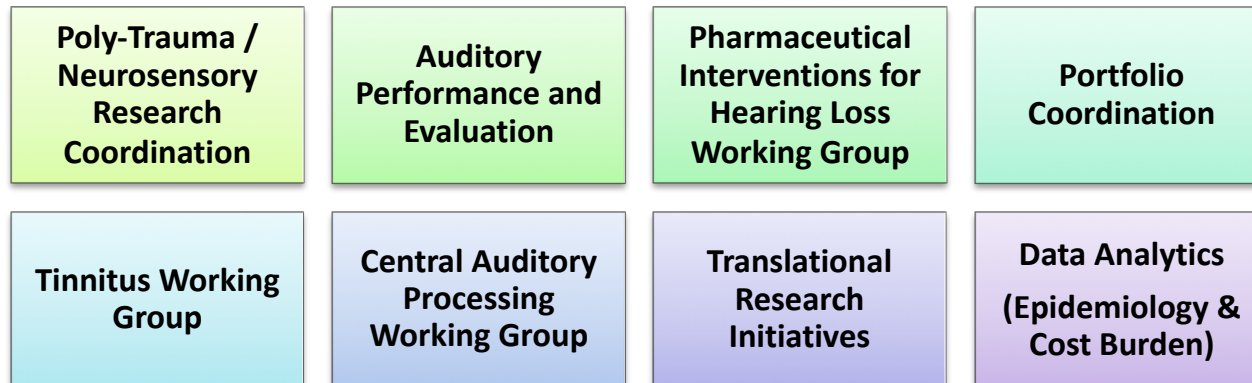
# HCE Capabilities





HCE  
Research  
Coordination  
Branch Function

- ❑ Annual meeting of approx. 100 attendees with strategy discussions, scientific presentations and posters, as well as tours of local research facilities
- ❑ Focus on networking, collaboration, synergy and progress
- ❑ Comprised of over 225 federal stakeholders
- ❑ Develops and manages targeted working groups:





# 2019 CAVRN DoD Participating Sites

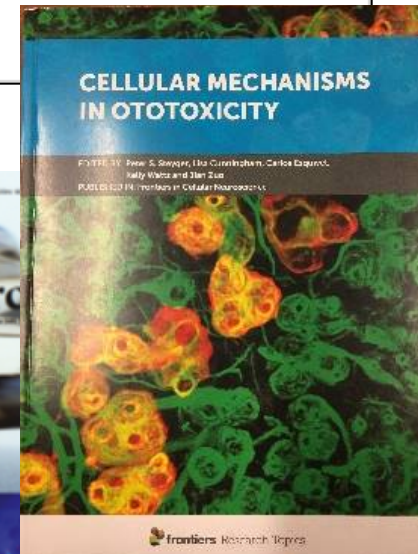
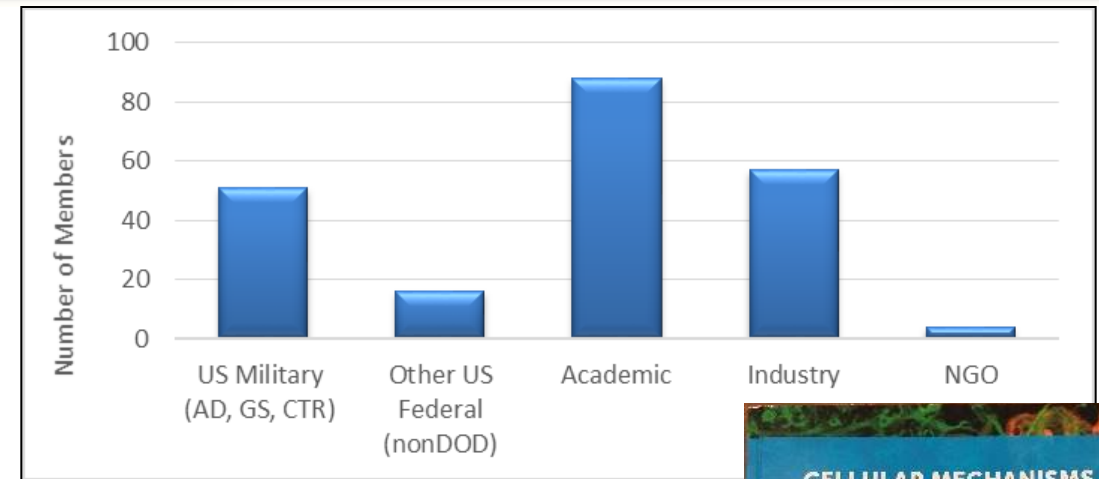


Hearing Center of Excellence	Air Force Research Laboratory	AF Office Of Scientific Research
59 <sup>th</sup> MDW	Army Public Health Command	Blast PCO/MITRE
Army, Office of the Surgeon General	Defense Health Headquarters	U.S. Army Aeromedical Research Laboratory
Medical Research & Material Command	Naval Air Station Pensacola	Naval Medical Research Division-Dayton/San Antonio
Naval Air Systems Command	Navel Health Research Center	Navy Surface Warfare Center
Naval Health Clinic-Quantico	Navy Medicine West	Naval Medical Center-Portsmouth
Naval Medical Center-San Diego	Office of Naval Research	Naval Research Lab
Navy Submarine Research Laboratory	San Antonio Military Medical Center	Public Health Division, Combat Support, DHA
RAF Lakenheath	U.S. Army Medical Material Development Activity	US Army Natick Soldier RD & E Center
U.S. Air Force School of Aerospace Medicine	Air Force Office of Scientific Research	
Walter Reed National Military Medical Center	West Point	

# Working Groups: “PIHL”

## Pharmaceutical Interventions for Hearing Loss (PIHL) Group

- ❑ > 200 DoD personnel (military, civilian, and contract support); other federal agency representatives (National Institute of Health (NIH), Food Drug Administration (FDA) and National Institute for Occupational Safety and Health/ Center of Disease Control (NIOSH/CDC)); academic investigators; industry representatives; and non-profit or NGO representatives
- ❑ Published 8 newsletters (HCE website, conference distribution)
- ❑ 67 papers published in special issues
- ❑ Two additional special issues in progress (Frontiers, Journal of the Acoustical Society of America (JASA))
- ❑ Support USAMRMC Advanced Development Integrated Product Team (IPT) for PI-Noise-Induced-HL (PINIHL) acquisition activity and Hearing Restoration Research Program (HRRP)
- ❑ Project outlined to create a centralized repository for ototoxicity and othotherapy evidence (discovery to clinical practice)





# Working Groups: Clinical Focus

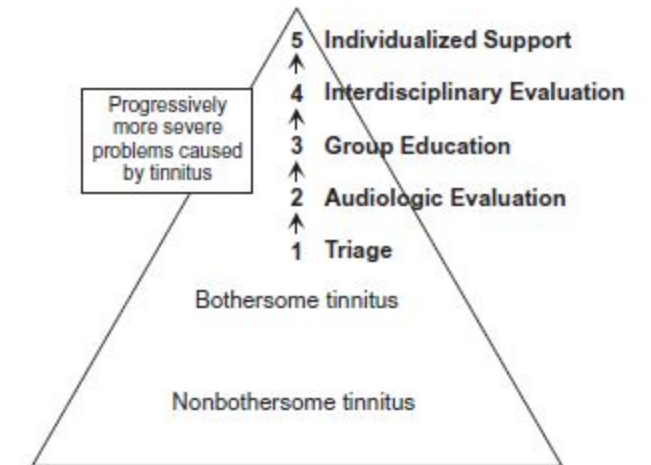
## ☐ Tinnitus Working Group (WG):

- Support tinnitus CLINICAL PRACTICE by partnering with, providing best practices and tools for, and training other healthcare providers
- EDUCATE stakeholders about tinnitus management strategies
- ADVOCATE for Service members and Veterans with tinnitus
- Identify tinnitus care research gaps and explore opportunities for future RESEARCH

## ☐ Central Auditory Processing Disorders WG:

- Diagnostics
- Rehabilitation

## ☐ Audiology & Vestibular Coding Standardization



Progressive Tinnitus Management (PTM) Progression. Henry J., et al., (2012). *Progressive Tinnitus Management Clinical Handbook for Audiologists*. VA RR&D NCRAR. VA Employee Education System. Avail at: <https://hearing.health.mil/For-Providers/Progressive-Tinnitus-Management/PTM-Provider-Resources/PTM-Guides-and-Handbooks>



# Working Groups: Prevention Focus



## Working Group Collaborations

- Collaborative Hearing Health Education Network (**CHHEN**) is discussing ways to promote and increase awareness of hearing health and hearing loss prevention and opportunities for increased collaboration among the federal organizations.
- Cross-Organization Prevention Working Group (**COPWG**) continues to work with DoD hearing health partners in the two areas of focus:
  - The Fit Check Working Group focuses on creating a fit check best practice for DoD and is moving into the draft stage.
  - The HPD Working Group focuses on centralized procurement of HPDs including specialized HPDs.
- DoD **Hearing Conservation Readiness Working Group** is working in collaboration with the Services; LTC Robinette put together the Military Hearing Health review, showing annual hearing test results for the military (AD, Reserve and National Guard) as a whole and broken down by each Service.

# Key Takeaway

- The HCE is tasked with providing the DoD, both our medical professionals and our Service members with the most relevant and up-to-date hearing healthcare information.
- The HCE helps develop collaborative relationships that considers the needs of all customers and stakeholders.
- We strive to identify and standardize best recommendations and evidence-based practices across DoD and VA and deliver outcomes to our customers.

# References

Hearing Center of Excellence. (2018). Evaluated Passive Hearing Protection Devices. Retrieved from:

<https://hearing.health.mil/-/media/Images/HCE/Materials/Posters/Passive-Device-Poster.ashx>

Hearing Center of Excellence. (2019). Retrieved from: <https://hearing.health.mil/About-HCE/Mission>

Henry, J., Zaugg, T., Myers, P., Kendall, C. (2018). *Progressive tinnitus management: Clinical handbook for audiologists*. Long Beach,

CA: VA Employee Education System. Retrieved from:

[https://www.ncrar.research.va.gov/Education/Documents/TinnitusDocuments/00\\_HenryPTM-HB\\_i-xviFM-LK.pdf](https://www.ncrar.research.va.gov/Education/Documents/TinnitusDocuments/00_HenryPTM-HB_i-xviFM-LK.pdf)

Veterans Benefits Administration, & Office of Performance Analysis and Integrity. (2019). Veterans Benefits Administration Reports.

Retrieved from: <https://www.benefits.va.gov/REPORTS/abr/>

For more information,  
<https://hearing.health.mil/>

or

**(210) 292-4100**



[https://nationalinterest.org/sites/default/files/styles/desktop\\_1260\\_/public/main\\_images/army\\_3.jpg?itok=FqQZczNa](https://nationalinterest.org/sites/default/files/styles/desktop_1260_/public/main_images/army_3.jpg?itok=FqQZczNa)



<http://bakerwellnesscenter.com/3-ways-veterans-can-thrive-in-adult-day-health-centers/>

# How to Obtain CE Credits



To receive continuing education credit (CE), you must complete the program posttest and evaluation for each session of the event. The posttests and evaluations will be available through 3 October 2019 at 2359 ET. Please complete the following steps to obtain CE credit:

1. Go to URL <https://www.dhaj7-cepo.com/content/august-2019-dha-clinical-communities-speaker-series>
2. Click on the REGISTER/TAKE COURSE tab.
  - a. If you have previously used the CEPO LMS, click login.
  - b. If you have not previously used the CEPO LMS click register to create a new account.
3. Verify, correct, or add your profile information.
4. Follow the onscreen prompts to complete the post-activity assessments:
  - a. Read the Accreditation Statement
  - b. Complete the Evaluation
  - c. Take the Posttest
5. After completing the posttest at 80% or above, your credits will be recorded in the LMS. In addition, you will be able to print or download your certificate. Repeat this process for each session you wish to claim CE Credit.
6. You can return to the site at any time in the future to print your certificate and transcripts at <https://www.dhaj7-cepo.com/>
7. If you require further support, please contact us at [dha.ncr.j7.mbx.cepo-lms-support@mail.mil](mailto:dha.ncr.j7.mbx.cepo-lms-support@mail.mil)