The views expressed in this presentation are those of the authors and do not reflect the official policy or position of the United States Air Force, Department of Defense, Department of Veterans Affairs, or the U.S. Government.
VISION:

To be the preeminent authority on, and champion for, the hearing and balance health of our Nation’s Heroes.

MISSION:

Heighten readiness and continuously improve the hearing health and quality of life of Service members and Veterans through advocacy and leadership in the development of initiatives focused on the prevention, diagnosis, mitigation, treatment, rehabilitation, and research of hearing loss and auditory-vestibular injury.

http://hearing.health.mil
MILITARY HEALTH SYSTEM (MHS)

• $48.5 billion FY 2015 Unified Medical Program budget
• TRICARE - DoD health care program serving 9.2 million Active Duty Service members, National Guard and Reserve members, retirees, their families, survivors, and certain former spouses worldwide
• DoD moving from “healthcare to health” with Operation Live Well as framework
• TRICARE:
  – Worldwide health care resources of the Uniformed Services (often referred to as “direct care,” usually in the 55 military treatment facilities, MTFs)
  – Supplements this capability with network and non-network participating civilian health care professionals, institutions, pharmacies, and suppliers (often referred to as “purchased care”)

RELEVANCE OF STUDY TO DEPARTMENT OF DEFENSE

• Why is this study important to the Department of Defense (DoD)?
• What is the state of hearing health within DoD?
• What are DoD’s expectations for this study?
IMPORTANCE OF STUDY TO DOD AND ITS BENEFICIARIES

• Hearing is a critical sense for Service members, important for survival and mission success.

• Military operations are chaotic and the ability to hear and communicate is:
  – Critical to safety (warrior and unit)
  – Central to effective command and control
  – A vital component for mission accomplishment
  – A key consideration in Force Management
    • Attrition, retrain, replace, recruit

• Service members are subject to various potential noise threats:
  – Ubiquitous, invisible hazardous noise
  – Unpredictable high intensity blast and impulse energy
  – Exposures may result in noise-induced hearing injury (NIHI)
In military environments, there are four critical components of situation awareness that may be impaired by NIHL or use of hearing protection devices:
Noise-induced hearing loss (NIHL) is one of the most common occupational injuries associated with military service; can occur gradually or from one, single high impulse noise exposure on or off duty.

Service members must be medically ready (auditory fitness) to deploy.

Self awareness/timely referral to hearing health care services are key.

DoD’s Military Health System (MHS) hearing health care providers implement components of hearing readiness, clinical/operational hearing services, and hearing conservation - contributing to survivability, lethality, mission effectiveness, and quality of life to the eligible 9.2 million MHS beneficiaries.

Beneficiaries: Active Duty Service members, National Guard and Reserve members, retirees, their families, survivors, and certain former spouses worldwide.
MHS CONTINUUM OF HEARING HEALTH CARE

- 2 million+ Total Force / 9.2 million eligible military beneficiaries
- Direct care providers (approx. 400 audiologists/ENTs; ENT technicians)/Purchased care network providers

<table>
<thead>
<tr>
<th>Surveillance/Screening</th>
<th>Prevention/Protection</th>
<th>Diagnosis</th>
<th>Treatment</th>
<th>Rehabilitation</th>
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<tbody>
<tr>
<td><strong>319,252:</strong></td>
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<tr>
<td># of AD/activated RC</td>
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<tr>
<td>receiving hearing loss/</td>
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<td>hearing damage diagnosis, CY09-13</td>
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<td><strong>18,359:</strong></td>
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<tr>
<td># of AD and RC new</td>
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<tr>
<td>diagnosis for tinnitus, FY13</td>
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<tr>
<td><strong>$7.7 million:</strong></td>
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<tr>
<td>Cost of hearing aids/accessories/batteries for AD/AD family members, FY14</td>
<td></td>
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<tr>
<td><strong>348:</strong></td>
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<tr>
<td># of implants provided to all DoD beneficiaries in FY13 ($7.7 million), FY14</td>
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</tbody>
</table>

Snapshot

AD – Active Duty
RC – Reserve Component (Reserves and National Guard)
**EARLY IDENTIFICATION - EARLY DIAGNOSIS - EARLY INTERVENTION**

DOD HEARING HEALTH TEAMS

- Hearing Conservation Audiologists
- Flight surgeons
- Physician Assistants
- General Medical Officers
- Audiology – ENT technicians
- Otolaryngologists
- Audiologists

TRAINING

- Hearing Conservation Audiologists
- - Independent duty technicians
- - Combat medics
- - Bioenvironmental Engineers

DEPLOYMENT

- Normal hearing
- Hearing Injury

CLINICAL CARE

HEARING CENTER OF EXCELLENCE
## DOD Audiology, Hearing Conservation, and ENT Services

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique individuals receiving audiology services (FY13)</td>
<td>395,253</td>
</tr>
<tr>
<td>Audiology encounters (FY13)</td>
<td>491,971</td>
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<tr>
<td>Audiology procedures performed (FY13)</td>
<td>955,680</td>
</tr>
<tr>
<td>Unique AD individuals receiving HC hearing tests (FY14)</td>
<td>961,388</td>
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<tr>
<td>AD HC hearing tests conducted (FY14)</td>
<td>2,235,376</td>
</tr>
<tr>
<td>Unique individuals receiving ENT services – ear only (FY13)</td>
<td>70,358</td>
</tr>
<tr>
<td>ENT (ear only) encounters (FY13)</td>
<td>86,938</td>
</tr>
<tr>
<td>ENT (ear only) procedures performed (FY13)</td>
<td>93,791</td>
</tr>
</tbody>
</table>

AD – Active Duty  
RC – Reserve Component  
(Reserves and National Guard)  
HC – Hearing Conservation
DOD RETENTION & COST SAVINGS

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**EARLY IDENTIFICATION - EARLY DIAGNOSIS - EARLY INTERVENTION**

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### Training Costs:

- **Recruitment:** $13K
- **Entry Level:** $35K
- **MOS:** $20K - $2.6M
- **Advanced MOS:** $20K - $1.5M
- **Career School:** $50K +

*DoD / GAO reporting*

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**H1**

- **Basically Trained Cryptologic Linguist:** $160,000 savings
- **Nuclear Sub Sonar Technician:** $200,000 savings

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**H2**

- **Basically Trained Pilot:** $2,600,000 savings

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**H3**

- **Aviation Structural Mechanic NCO:** $100,000 savings

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**H4**

- **Senior Special Operations NCO:** $1,000,000+ savings

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MOS: Military Occupational Specialty

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HEARING CENTER OF EXCELLENCE
DOD EXPECTATIONS FOR STUDY

• IOM conclusions and recommendations have potential to impact MHS hearing health care services/technologies, hearing health care delivery, and access to hearing health care.

• The MHS is a microcosm of American medicine. DoD is a large consumer of hearing health care services through its direct care system (military treatment facilities) and network purchased care.

• Thus, expect that DoD health care beneficiaries will receive hearing health care consistent with strategic focus of the MHS Quadruple Aim: Increased Readiness, Better Care, Better Health, Lower Cost
DIRECT CARE AUDIOLOGY SERVICES

Audiologists are independent licensed providers – direct access (i.e., appointment without referral from another provider) dependent on local Service and local military treatment facility policy and access

• Audiologist perform the following services:
  – diagnose hearing and vestibular disorders
  – conduct auditory, tinnitus, and vestibular assessments
  – treat hearing disorders through a variety of modalities
  – provide adjunctive interventions for treatment of hearing, tinnitus, and vestibular disorders
  – provide hearing aid/other assistive listening devices services
  – conduct post-surgical rehabilitation for cochlear and other bioelectric auditory implants

• Audiology execute and manage hearing conservation services that may include:
  – monitoring audiometry
  – hearing protection fitting/guidance
  – hearing health education
  – noise hazard identification
  – engineering control guidance
The MHS Quadruple Aim

- **Increased Readiness**
  Readiness means ensuring that the total military force is medically ready to deploy and that the medical force is ready to deliver health care anytime, anywhere in support of the full range of military operations, including humanitarian missions.

- **Better Care**
  We are proud of our track record, but there is more to accomplish. We will provide a care experience that is safe, timely, effective, efficient, equitable, and patient- and family-centered.

- **Better Health**
  Our goal is to reduce the frequency of visits to our military hospitals and clinics by keeping the people we serve healthy. We are moving “from health care to health” by reducing the generators of ill health by encouraging healthy behaviors and decreasing the likelihood of illness through focused prevention and the development of increased resilience.

- **Lower Cost**
  To lower costs, we will create value by focusing on quality, eliminating waste, and reducing unwarranted variation; we will consider the total cost of care over time, not just the cost of an individual health care activity. There are both near-term opportunities to become more agile in our decision-making and longer-term opportunities to change the trajectory of cost growth through a healthier population.

Evaluation of the TRICARE Program: Accessibility, Cost, and Quality, Fiscal Year 2015
Report to Congress, 28 February 2015
• 20 – 23% hearing loss sufferers use **conventional amplification**
  - Good results for **mild to moderate hearing loss range**
• **Cochlear implants** offer speech perception to **severe to profound losses**
• **Bone conduction** systems benefit **conductive and mixed hearing loss**
• **GAP**: Hearing aids don’t maximize audibility for **moderately-severe losses**
  - **Incompatible** with military protective and communication equipment
DEFENSE HEARING CENTER OF EXCELLENCE: CONGRESSIONAL MANDATE

• 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
    • Utilize registry data to **encourage and facilitate** the conduct of research, development of best practices and clinical education