

Hearing Protection Among the Services: Past, Present, Future

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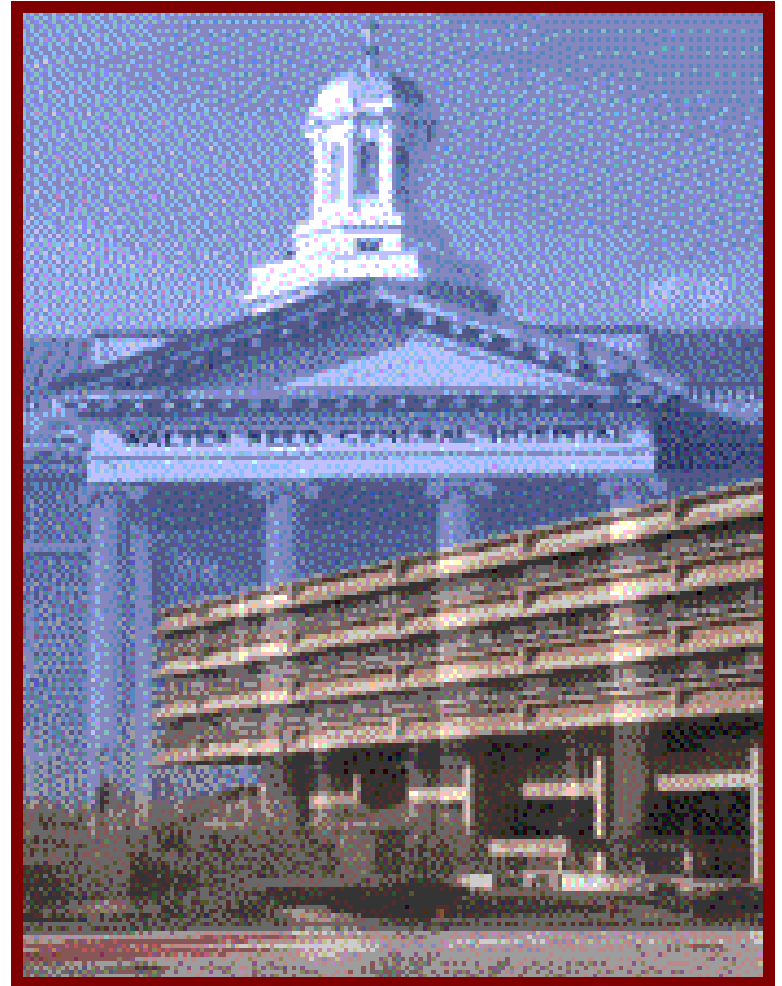
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Discussion Topics

- Challenges currently faced across military branches
- Differences between the services
- Progress and how HPDs may be improved in the future

Walter Reed Army Medical Center

The opinions and assertions presented are the private views of the author and are not to be construed as official or as necessarily reflecting the views of the Department of the Army or the Department of Defense.



United States Army & Hearing Protection Devices (HPDs)

PAST

PRESENT

FUTURE



THE FACTS

- 2005 – Auditory impairments became the most common compensated service connected disabilities
 - Since 2005 – the numbers continue to rise
- Fiscal Year 2008
 - VA purchased 382,000 hearing assistive devices
 - Expenditure of approximately \$154 million
- 2009 – 1.2 million claims (tinnitus or hearing loss): \$1.1 billion for compensation payments

OUTLINE

- Acceptance of hearing loss in the Army (Past)
- Army Hearing Program, current use of HPDs, and Research (Present)
- GAO Recommendations, Soldier compliance (Future)



THE PAST

- High prevalence of hearing loss
- Army = hearing loss
 - Widely accepted for years
- Army Hearing Conservation program



THE PRESENT

- Army Hearing Program (AHP)
- Profiling
- HPDs and Training
- Projects, Initiatives and Research



ARMY HEARING PROGRAM

- Hearing Readiness
- Operational Services
- Clinical Services
- Hearing Conservation



AR 40-501

Army Regulation 40-501 - Standards of Medical Fitness

“This regulation governs—

- a. Medical fitness standards for enlistment, induction, and appointment, including officer procurement programs.
- b. Medical fitness standards for retention and separation, including retirement.
- c. Medical fitness standards for diving, Special Forces, Airborne, Ranger, free fall parachute training and duty, and certain enlisted military occupational specialties (MOSs) and officer assignments.
- d. Medical standards and policies for aviation.
- e. Physical profiles.
- f. Medical examinations and periodic health assessments.”



PROFILING

Hearing (H): based on the better ear

- H1
- H2
- H3 – SPRINT required
- H3-aided
- “H4”

DA PAM 40-501

Department of the Army Pamphlet 40-501 Medical Services Hearing Conservation Programs

“Personnel may select the type of protector they desire, unless their selection is medically contraindicated or inappropriate for a particular noise-hazardous environment.”



Hearing Protection Devices

- Earplugs
 - Pre-formed
 - Handformed
 - “Employees may use custom earplugs ONLY if they cannot be properly fitted with approved hearing protectors or if a custom device is required for special circumstances.”
- Noise Muffs
- Helmets
- Tactical Communications and Protective Systems (TCAPS)



HPDs Used in the Army



Triple Flange Ear Plugs

www.highperformancesafetyproducts.com



Quad-flange Ear Plugs

www.ferret.com.au



QuietPro

www.marinecorpstimes.com



Ear Muffs

www.safety-one.co.uk



Combat Arms Ear Plugs

www.armytimes.com



Hand-Formed Ear Plugs

www.hasconsultants.com



QuietOps

images.gizmag.com



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Projects, Initiatives and Research

- Fitness for Duty effort – assessment of operational hearing and readiness
- Combat Arms Earplug (TRADOC) Initiative
 - Currently being carried out at FT Jackson (MAJ Curry-Mathis)
 - All Soldiers who enter at training installation fit with Combat Arms Earplugs



Projects, Initiatives and Research

- U.S Army Research Laboratory (ARL)
Aldephi, MD
- United States Army Aeromedical Research Lab (USAARL)
Fort Rucker, AL
- Walter Reed Army Medical Center
Army Audiology & Speech Center (WRAMC AA&SC)
Washington, DC



THE FUTURE

WHERE DO WE GO FROM HERE?



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THE FUTURE

- Education
 - Civilians, Providers, Staff
- Training for Soldiers
 - In Garrison, NTC, JRTC, CMTC, SMA
- HPDs
 - Improvement
 - Comfort, Communication, Personalization



TRAINING

National Training Center (NTC)

- Fort Irwin, CA



www.gointhebox.com/images/humand_helo_aj7g.jpg

Joint Readiness Training Center (JRTC)

- Fort Polk, LA



www.usmilitary.com/bases/images/polk1.jpg

THE FUTURE

- Survivability and Lethality
 - How hearing contributes?
- Mission Essential Task List (METL)
- Training Tracking Tool
- And more...



THE FUTURE

Government Accountability Office (GAO) Report to Congressional Committees

- “Hearing Loss Prevention: Improvements to DOD Hearing Conservation Programs Could Lead to Better Outcomes”
- Site Visits (9 Military Bases) –Hearing Programs and Consultant interviews



RECOMMENDATIONS

(Based on GAO Report)

1. Address issues with the type, timing, and tracking of training and education
2. Develop an appropriate set of performance indicators
3. Improve processes to collect and use performance data
4. Examine services' reviews to identify opportunities for program improvement



REFERENCES & ACKNOWLEDGEMENTS

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- VA, Rehabilitation Research and Development, National Center for Rehabilitative Auditory Research, Annual Report for Calendar Year 2009 (Portland, Ore.) p. 88

Websites:

- US Army Info: us-army-info.com/pages/mos/profile.html
- Joint Readiness Training Center: rtc-polk.army.mil/AboutJRTC.htm
- National Training Center: gointhebox.com/NTC_Mission.html
- AR 40-501: apd.army.mil/pdf/files/r40_501.pdf
- DA PAM 40-501: apd.army.mil/pdf/files/p40_501.pdf

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THANK YOU

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59 MEDICAL WING

Air Education and Training Command



Develop America's Medical Airmen Today ... for Tomorrow

HEARING PROTECTION DEVICES (HPDs) IN THE AIR FORCE

"This presentation constitutes the personal statements of Capt Quintin Hecht and is not intended to constitute an endorsement by the U.S. Air Force or any other Federal Government entity."

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Providing Great Care...Building Warrior Medics



OVERVIEW



Develop America's Medical Airmen Today ... for Tomorrow

- Introduction
- History
- Selection
- Current Hearing Protection Devices (HPDs)
- Advanced HPDs
- Conclusion

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INTRODUCTION



Develop America's Medical Airmen Today ... for Tomorrow

- Purpose:
 - Review AF contributions to hearing protection
 - Discuss available HPDs & new technology
 - Identify challenges with HPDs



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HISTORY OF AF HPD



Develop America's Medical Airmen Today ... for Tomorrow

- AFR 160-3 “Precautionary Measures Against Noise Hazards” 1948
 - 1st to provide guidance re: hearing conservation
 - Template for government & civilian agencies

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THE USAF HCP



Develop America's Medical Airmen Today ... for Tomorrow

AFOSH 48-20

- Implements policy, responsibilities & to prevent occupational illness & injuries
- Process for selection of adequate HPDs
- Defines Key Players
 - Public Health Officer (PH)*
 - Bioenvironmental Engineering (BE)*
 - Audiologists (HCDCs and HCCs)
 - Occupational Health Consultant



BASE LEVEL AF HCP



Develop America's Medical Airmen Today ... for Tomorrow

- PH Officer role
 - HCPM – overall responsibility of the AF HCP
- PH Technicians role
 - Perform & monitor DOEHRS audiograms
 - Select, fit & re-fit HPDs-stock variety
 - Follow-up testing & referral
 - Train & motivate
 - Inform workers & supervisors of STS
 - Advise base safety officer of OSHA reportable HL



BASE LEVEL AF HCP



Develop America's Medical Airmen Today ... for Tomorrow

- Bioenvironmental Engineering's role
 - Hazard identification & exposure control
 - Engineering & administrative controls
 - Personal protective equipment to include determination of appropriateness of HPDs



CURRENT HPDs



Develop America's Medical Airmen Today ... for Tomorrow

- E-A-R & Howard Leight formables
- Triple Flange
- Elvex Quattro
- Earmuffs
- Communication Headsets
- Helmets - pilots, flight deck personnel & crew
- Combat Arms Earplugs



ADVANCED HPDs



Develop America's Medical Airmen Today ... for Tomorrow

- Attenuating Custom Communications Earpiece System (ACCES)
- Other Technology
 - Special Operations Communications Extreme (SOCOM X)
 - David Clark Active Noise Reduction Headset
 - QuietPro by NACRE



ACCES



Develop America's Medical Airmen Today ... for Tomorrow

- Custom-mold, deep insertion earpiece with ruggedized coaxial communication cable & speaker assembly
- Affords necessary attenuation & comfort while preserving speech intelligibility & situational awareness
- Proven & patented by AFRL





CHALLENGES



Develop America's Medical Airmen Today ... for Tomorrow

- Training recall
- Situational awareness & localization
- Speech communication

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COMMUNICATION & SITUATIONAL AWARENESS



Develop America's Medical Airmen Today ... for Tomorrow

- DoDI 6055.12
 - Focus on facilitating communication, situational awareness & protection
 - Requires noise assessment & engineering controls if potential for impaired communication
 - Commander's discretion in combat



CONCLUSIONS



Develop America's Medical Airmen Today ... for Tomorrow

- The USAF HCP provides variety of HPDs to accommodate needs of airmen
- Key to success with HPDs is education & motivation
- Consider all options & exercise caution when considering active noise reduction technology
- Continue to research new technologies

Providing Great Care...Building Warrior Medics



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Develop America's Medical Airmen Today ... for Tomorrow

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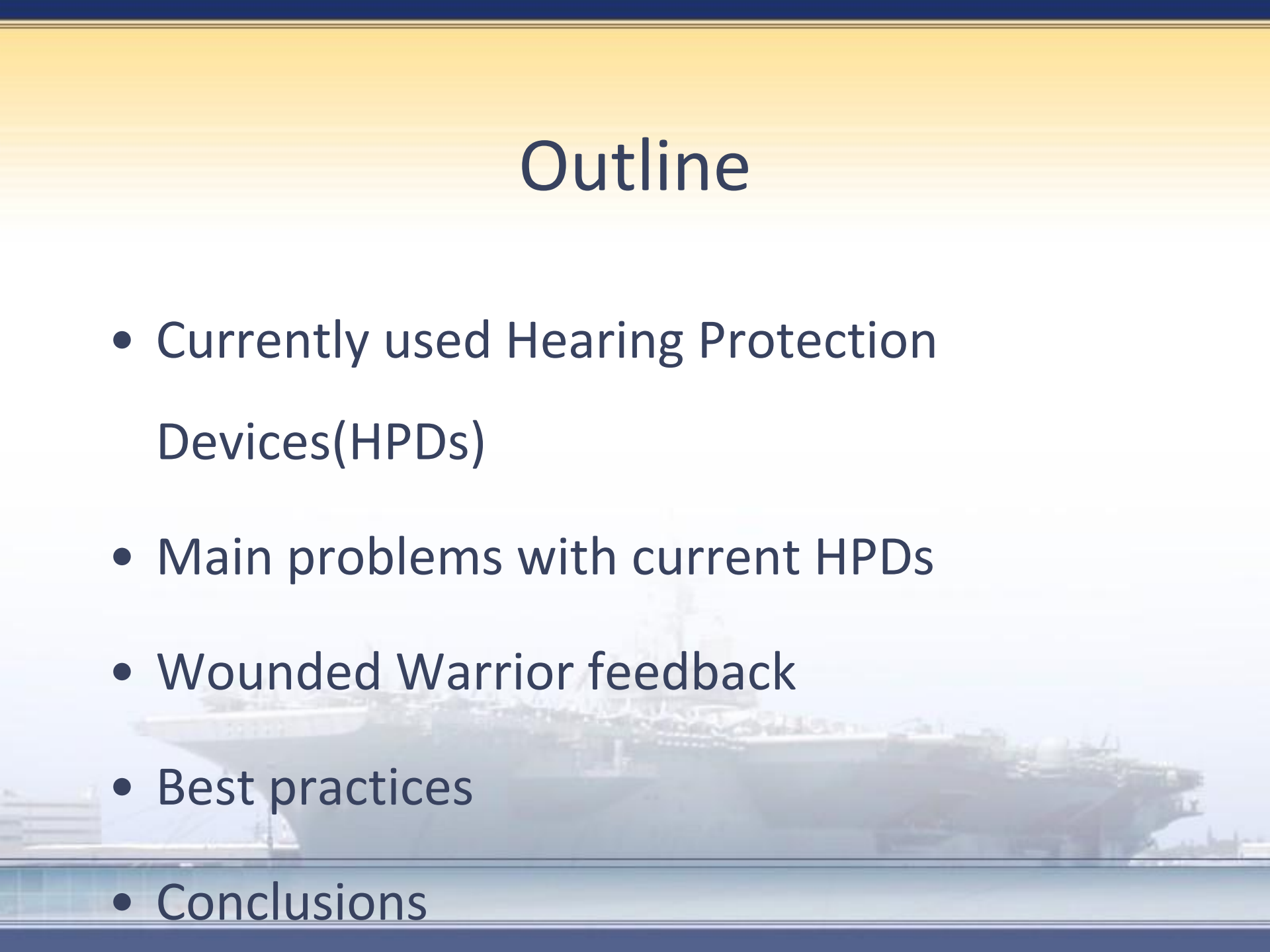
Hearing Protection in the Navy and Marine Corps



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OC1 Amanda Boudreaux

Outline

- Currently used Hearing Protection Devices(HPDs)
 - Main problems with current HPDs
 - Wounded Warrior feedback
 - Best practices
 - Conclusions
- 
- A faint, semi-transparent background image of an aircraft carrier at sea, positioned behind the text. The carrier is viewed from a distance, showing its full length and various structures on deck. The water is a light blue-grey color, and the sky is a pale, hazy blue.

- Noise-Induced Hearing Loss (NIHL) is the fleet's number one occupational health hazard.
- Hearing loss negatively affects job performance, productivity, efficiency and operational readiness.



All devices listed in this presentation are either on the list of Navy approved HPD found on the Navy & Marine Corps Public Health Center website or were reported to be used in the field either by a Navy audiologist or a service member.



Main Types of HPDs Used by USN & USMC

- Ear plugs
- Muffs/helmets
- Communication headsets
- Specialty communication devices



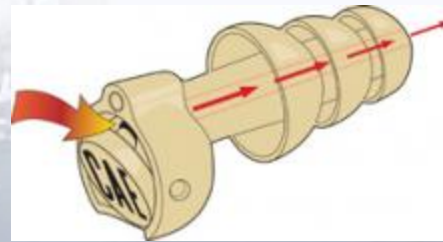
Ear Plugs

- Hand formed
 - EAR Classic
 - Sound Guard Disposable
 - Superfit 30
 - Superfit 33
- Noise Reduction Ratings
 - 29 NRR
 - 19 NRR
 - 30 NRR
 - 33 NRR



Ear Plugs Con't

- Pre-Formed
 - Single Flange
 - Triple Flange
 - Quattro
 - SureFire
 - Combat Arms
- 21 NRR
- 20 NRR
- 25 NRR
- 24 NRR
- 23 NRR



Ear Muffs

- USN has an open policy on ear muffs
 - Less variability of attenuation than ear plugs
- Any muff with the appropriate level of attenuation for the environment it will be used is acceptable

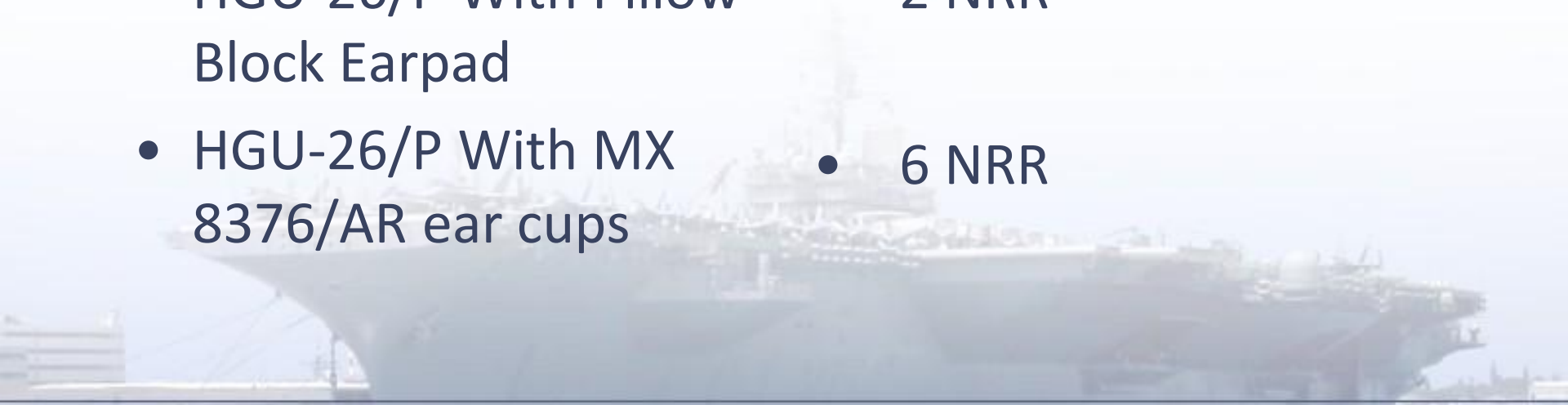


Some Acceptable Ear Muffs

- Tasco Golden Eagle 2950
 - Bilson Viking 29
 - Safety Direct USN-86
“Flight Deck”
 - Vallen Pro-Max 1
 - Blue Point GA 3000
 - Peltor H7A
 - 3M 1340
- 23 NRR
 - 22 NRR
 - 21 NRR
 - 21 NRR
 - 19 NRR
 - 19 NRR
 - 18 NRR

Helmets

- Gentex SPH-4B
 - Gentex HGU-55/P
 - Gentex HGU-53/P
 - HGU-26/P With Pillow
Block Earpad
 - HGU-26/P With MX
8376/AR ear cups
- 20 NRR
 - 12 NRR
 - 10 NRR
 - 2 NRR
 - 6 NRR



Communication Headsets

- Wire-Com De-Icing
 - Peltor Lite-Com
 - Astrocom 81349-MIL-H-87819
 - David Clark H133C
 - Roanwell 81349-MIL-H-87819
- 20 NRR
 - 20 NRR
 - 19 NRR
 - 17 NRR
 - 14 NRR



Specialty Communication Devices

- SILYNX
- QuietPro

Both have a combination communication
device and hearing protection

A faint, blue-tinted background image of an aircraft carrier at sea, positioned behind the text.

SILYNX

- Reportedly used by SEALs and Marine Corps
- Several different styles
 - C4OPS Covert Config
 - C4OPS Maritime Config
 - C4OPS Tactical Headset System
 - Micro C4OPS
- Uses Active Noise Reduction (ANR)
 - Micro and Tactical Headset only



QuietPro

- Reportedly used by Marine Corps and SEALs
- Uses ANR
- Fully automatic



Largest Issues with Current HPDs

- Communication

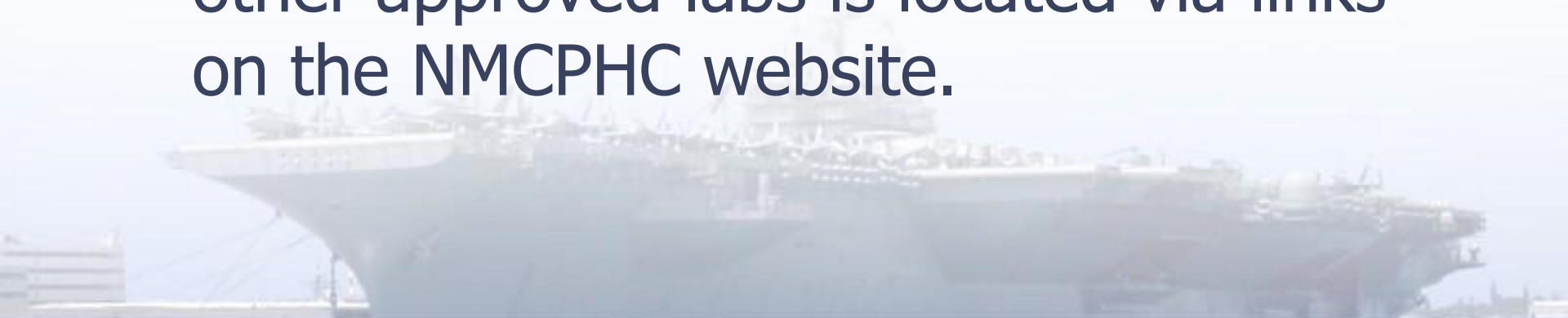
- Difficulty understanding speech while using HPDs
 - Especially in combat situations

- Training

- Surveyed Wounded Warriors reported little to no training
- Specialty Communication Devices need additional training
 - Reports of more successful integration of devices with proper training

Research

- The Navy does not have the ability to conduct routine testing of hearing protective devices, however, products that have been evaluated by DoD or other approved labs is located via links on the NMCPHC website.

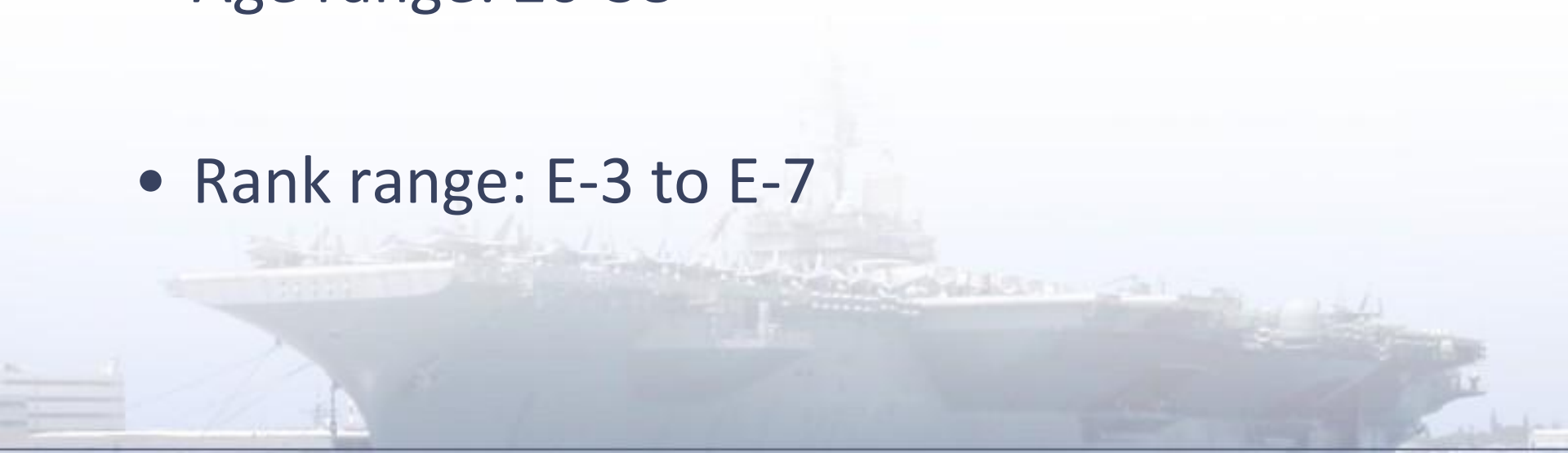


Wounded Warrior Feedback



Demographics

- All USMC
- Age range: 20-38
- Rank range: E-3 to E-7



- All with TM perforations were not wearing HPDs
 - Not all who did not use HPDs had TM perfs
- Most HL was Conductive
 - Some had NIHL or small Noise Notch
- Most reported remembering little to no HPD training
 - “The instructions were on the box”
 - “They talked about ‘em for about 5 seconds in boot camp”

Reported HPDs Available

- Foamable
- Triple Flange
- Quattro
- SureFire
- Headsets



Complaints of HPDs

- Communication
- Losing Them
- Hard to use with gloves on



Best Practices

- Education and Training
 - Proper Fit and Insertion
 - Training for both the service member and the HCP Tech
 - Educate why Hearing Conservation is Important
 - In both military and civilian (home) settings
- Consistent use
 - Educate when HPDs should be used
 - Ultimately up to the service member to comply

Conclusion

- The need for standard issued HPDs is great
 - Too much variability between units
- HCP Techs must be monitored for proper protocol
- HPD training needs to become more memorable
 - In hopes to motivate better HPD use and prevent NIHL

Special Thanks

To all in the Navy Audiology Community who were so welcoming to me and shared their knowledge of where Navy Audiology is now and the direction it needs to go



References

Data/Information

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 - http://www-nehc.med.navy.mil/Occupational_Health/Audiology/hearing_protection.aspx
- OPNAVINST 5100.19E
- NEHC TM6260.51.99-2
- Silynx
 - <http://www.silynxcom.com/>
- QuietPro
 - <http://www.nacre.no/>
- Feedback from Various members of the Navy Audiology Community

Pictures

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- EAR Classic -<http://www.coopersafety.com/product/e-a-r-classic-earplugs-1319.aspx>
- Silynx - <http://airsoftpacific.com/viewtopic.php?p=523395>
- SoundGuard -http://www.buyoccupations.com/store/product_twocolor.html
- Quattro - <http://www.elvex.com/news1.htm>
- QuietPro - <http://www.gizmag.com/quietpro-intelligent-hearing-system/15886/picture/118613/>

Conclusions

- Similar challenges are being faced in all the branches
- There is a need for better communication and access to information among the services
- Further research is necessary in order better serve all of our troops

Wrap Up

All branches have come a long way in hearing conservation, but there is still a long way to go.

With the increase in Joint Commands, communication between the services can facilitate a better standard of care.

Thank You



Questions?