



US DEPARTMENT OF DEFENSE

# BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

## Facial, Hearing, and Visual Injuries

### Evaluation of Hearing Deficits in Blast-Exposed Listeners with Normal Audiometric Thresholds

Researchers at WRNMMC, Wilford Hall/Brooke Army Medical Center, NMCSO, and USAPHC are actively collecting data in a USAMRMC-funded study to evaluate the relationship between hearing acuity in complex listening tasks and deployment-related blast exposure in service members with normal or near-normal audiometric thresholds. The study is being conducted at hearing conservation sites where active duty service members are required to go once per year to get their surveillance audiograms. Service members who have H1 hearing profiles and are willing to participate in the study are asked to use a tablet-based computer to complete a short series of audio tests that were determined to be especially sensitive to the hearing deficits experienced by blast-exposed listeners in an earlier CDMRP-sponsored study at WRNMMC. This series of tests, which takes about 10 minutes to complete, is comprised of 1) a speech-in-noise test with a time-compressed target talker in the presence of spatially-separated, reverberant speech babble; 2) a binaural tone detection task; and 3) a short survey of subjective hearing systems. Preliminary results suggest that listeners with normal hearing who have been close to an explosive blast during a deployment are almost four times as likely as non-blast-exposed listeners to have abnormally poor scores on either the objective audio tests or the audio symptom questionnaire. This blast-related hearing impairment seems to be independent of and additive with the effects of mild hearing loss. More than 1000 subjects were recruited into the study in FY15, and up to another 2000 are expected to be recruited in FY16.