Dear Sir,

Ross et al. [1] compared hearing loss in divers and offshore workers and concluded that current Health & Safety Executive (HSE) guidance on the assessment of audiograms is ‘in error’ and ‘inadequate’. Grading the sum of hearing thresholds at 1, 2, 3, 4 and 6 kHz using the HSE ‘age-adjusted norm’ values [2], they found that the HSE scheme missed referring roughly half of people thought to have severe noise-induced hearing loss (NIHL) on additional medical review of audiograms. Why is this not surprising? Hansen [3] went some way to explaining in a 2007 criticism of current guidance.

Hansen observed that the typical 4 kHz notch of noise damage may be masked when viewing the sum of thresholds (1–6 kHz) and also called into question the gender difference in the HSE scheme. Hansen expressed concern at the basis for the guidance and apparent reliance on a single piece of research.

The introduction of new guidance in 2005 was based [3,4] on Prof. Adrian Davis’ work on the National Survey of Hearing completed in 1989. His 1989 paper [5] described hearing impairment and hearing disability in adults randomly selected from the electoral register in four cities (Cardiff, Glasgow, Nottingham and Southampton). Defining ‘significant hearing impairment’ as ≥25 dB hearing loss averaged over 0.5, 1, 2 and 4 kHz, Davis found that one in four of his population (age 17–80 years) had significant impairment and this was bilateral in roughly two-thirds of cases.

The 2004 HSE proposal [4] to adopt the 80th and 95th centiles of summed thresholds (1–6 kHz) from National Survey of Hearing data as warning and referral levels for NIHL surveillance was largely based on estimated numbers of people referred or warned. It predicted that number of persons referred would fall by almost 40%. Sensitivity and specificity, or positive and negative predictive values, were not considered—except for one flawed statement referring to ‘problems’ with the pre-2005 scheme that ‘any scheme that warns almost 50% of an age group cannot be considered sensitive’. It is interesting to reflect that Ross et al. reported finding an indication of some degree of NIHL on audiogram assessment in ~50% of divers and offshore workers studied.

The HSE categorization scheme appears to provide a tool only for comparing the sum of hearing thresholds at 1–6 kHz against the hearing ability of an urban UK adult population including a substantial burden of significant hearing impairment from all causes. It has never been presented in a peer-reviewed journal as an appropriate method of detecting early or significant NIHL. Further work is required to determine whether a suitable and effective method for conducting meaningful health surveillance for NIHL exists.

Mark Cheesman
Specialist in Occupational Medicine,
Outlook Medical Ltd,
e-mail: mark@outlookmedical.com

Peter Steinberg
Occupational Physician

References


