BIAP Recommendation 02/2:

Audiometric classification of the degree of hearing loss and considerations regarding its impact on functioning

General foreword

This document presents a Recommendation by the International Bureau for Audiophonology BIAP. A BIAP Recommendation provides a reference standard for the conduct of an audiological or phonological intervention that represents, to the best knowledge of BIAP, the evidence base and good practice concerning the stated methodology and scope of the document at the time of publication.

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Introduction

Hearing loss - defined as a temporary or permanent increase in auditory thresholds - reduces the ability to detect sounds at standard intensity levels and is commonly associated with poorer perception of speech and environmental sounds. Nevertheless, the relationship between audiometric threshold and communication disability must be interpreted with caution. The degree of difficulty in perceiving speech or its impact on communication skills cannot be fully captured by taking an average of thresholds across selected test frequencies. From an acoustic perspective, speech consists of sounds with varying pitch and intensity, whose physical properties (frequency, amplitude, and duration) enable their identification and analysis, while speech perception is also influenced by individual, environmental and pathological factors beyond pure-tone sensitivity. Therefore, while pure-tone audiometry can provide valuable data, it only represents one dimension of hearing function and is unable adequately to characterise an individual's health status or the everyday difficulties they experience.

This document aligns the BIAP classification system with the 2019 WHO framework. Like the classification by the WHO, this kind of classification is intended for epidemiological purposes and is primarily targeted at adult populations. However, the BIAP affirms that a classification based solely on the average pure-tone threshold across four frequencies has several limitations. This approach does not consider the full audiometric profile, including the shape of the hearing threshold profile, the type of hearing loss (e.g. sensorineural, conductive, mixed or complex auditory disorders) and the progression of the hearing loss. It also excludes complementary assessments, such as speech audiometry, and it cannot predict the functional and social consequences of hearing impairment in individual cases.

To address the limitations of a purely pure-tone threshold-based approach, the BIAP will supplement this basic classification with a more comprehensive framework incorporating additional audiological and hearing-related conditions in further recommendations.

When applied beyond its original epidemiological purpose - for example, in clinical or medical administrative contexts - the BIAP recommends a conceptual and methodological reframing. Specifically, it proposes an ear-specific audiometric classification, with thresholds assessed separately for each ear rather than relying solely on the better-hearing ear. This reflects the view that interaural asymmetries are clinically meaningful and that functional hearing, rehabilitation strategies and medico-administrative decisions depend on ear-specific profiles, not just on the better ear.

Moreover, the BIAP recommends not using categorical labels such as “hearing loss” or “deafness” but rather a graded continuum (Grades 0 - 6) to capture better the progressive nature of auditory impairment and to avoid deterministic interpretations of communication ability. Importantly, although greater hearing thresholds are generally associated with greater disability, this relationship is not one-to-one: individuals with similar audiometric thresholds may experience markedly different functional limitations. The designation of “within normal” audiometry for pure-tone thresholds below 20 dB HL further acknowledges that clinically normal hearing thresholds do not necessarily preclude real-world listening difficulties.

At higher levels of hearing threshold severity, the BIAP retains the WHO-boundaries corresponding to severe, profound and total hearing loss, but reframes them to emphasise that even very elevated thresholds do not necessarily imply the absence of usable auditory function, particularly in the context of modern hearing technologies and rehabilitative strategies.

It is important to note that this classification applies exclusively to unaided conditions (i.e. without hearing devices), based on ear-specific pure-tone thresholds measured with air-conduction transducers with calibrated equipment in a soundproof room, in accordance with ISO 8253-1:2010.

Recommendation

Audiometric assessment is a key component of clinical hearing evaluation and must be conducted under appropriate acoustic conditions. It is important to note that this classification applies to unaided, ear-specific pure-tone thresholds measured with calibrated equipment in a sound-treated environment (ISO 8253-1:2010).

Pure-tone audiometry provides thresholds for each ear in decibels hearing level (dB HL), obtained via air conduction (AC) and bone conduction (BC), with classifications based primarily on AC thresholds. The pure-tone average (PTA) is calculated as the mean of thresholds at 500, 1000, 2000 and 4000 Hz; when no response is measurable, a value of 120 dB HL is assigned.

Ear-specific thresholds provide the basis for the assessment of binaural auditory function, which is essential for sound localisation, spatial hearing and speech understanding in noise. These binaural processes may be progressively impaired in the presence of interaural asymmetry, leading to increased listening effort and reduced communicative efficiency in everyday listening situations.

The classification is ear-specific and presented in a table linking PTA-based grades to expected functional impacts on speech and environmental sound perception in quiet and noise. The audiometric grade describes hearing sensitivity and should be interpreted as a descriptive indicator, not a measure of disability.

Functional descriptors reflect population-level trends only. Individuals with similar PTA values may show substantial variability due to auditory and cognitive factors, medical and environmental conditions, communicative demands and access to rehabilitation. Audiometric findings should therefore be integrated with other clinical information, including speech

perception and patient-reported difficulties.

Unilateral and asymmetric hearing loss are clinically relevant conditions characterised by interaural differences in auditory sensitivity, which may significantly affect binaural processing and functional hearing beyond pure-tone averages. After the main classification table, specific guidance is provided on the interpretation and calculation of unilateral and asymmetric hearing loss conditions.

This classification is intended primarily for epidemiological use. In clinical or medico-administrative contexts, it serves as a supportive guide and is not intended to quantify disability, determine eligibility for services, evaluate outcomes or guide hearing-aid fitting decisions.

Finally, hearing conditions not fully captured by pure-tone classification - such as combined sensory impairments, congenital or prelingual hearing loss, and other complex auditory profiles - require individualised clinical interpretation beyond the present grading system.

Classification

Ear-Specific Audiometric Grades and Expected Functional Impact on Speech and Environmental Sound Perception

Audiometric Grade (Pure-Tone Average, ear-specific)[1]	Hearing Threshold Range[2]	Expected Impact on Speech & Environmental Sound Perception[3]	
		In quiet listening conditions	In noisy listening conditions
Grade 0: **Within Normal Range**	< 20 dB HL	based on audiometric classification alone; no expected limitations and no adaptation required	based on audiometric classification alone; no expected limitations and no adaptation required
Grade 1: **Mild impairment**	20–<35 dB HL	Slight reduction in perception of soft or distant speech and very low-intensity environmental sounds No adaptation typically required	No relevant additional impact in most situations but at risk for increased difficulties[4]
Grade 2: **Moderate impairment**	35–<50 dB HL	Conversational speech[5] perceived with reduced clarity Reduced perception of moderate intensity environmental sounds Occasional need for repetition or slight vocal effort from the interlocutor	Difficulty in multi-speaker conversations Increased susceptibility to masking effects Recurrent need for repetition or vocal effort from the interlocutor

Grade 3: **Moderate-to-Severe impairment**	50–<65 dB HL	Speech perception becomes incomplete without visual cues[6] Increased listening effort Requires raised vocal effort from interlocutor Possible reduced auditory feedback of own voice	Difficulty perceiving most part of multi-speaker conversations Increased reliance on visual cues Greater impact of masking on speech and environmental sound cues
Audiometric Grade (Pure-Tone Average, ear-specific)[1]	Hearing Threshold Range[2]	Expected Impact on Speech & Environmental Sound Perception[3]	
		In quiet listening conditions	In noisy listening conditions
Grade 4: **Severe impairment**	65–<80 dB HL	Conversational speech not reliably perceived Only loud speech partially accessible Even with raised voice, communication remains limited Environmental and warning sounds often not perceived Limited perception of own voice	Severe additional limitation in speech understanding despite increased vocal effort Interlocutor adaptation becomes insufficient Strong masking effects persist
Grade 5: **Severe-to-Profound impairment**	80–<95 dB HL	Speech perception is not possible Voice adaptation is insufficient for oral communication Environmental sound awareness is severely limited	Oral communication and conversation are impossible Vocal adaptation from the interlocutor no longer effective (functionally useless)
Grade 6: **Profound-to-Total impairment**	≥ 95 dB HL	No perception of speech and almost all environmental sounds	No auditory access in noise due to the absence of both speech and environmental sound perception

[1]**Audiometric Grade (Pure-Tone Average, ear-specific**) refers to a categorial classification of hearing sensitivity derived from the ear-specific pure-tone average (PTA), calculated from air-conduction thresholds at standard speech frequencies (500, 1000, 2000 and 4000 Hz), and expressed in decibels hearing level (dB HL).

Note: The labels (e.g. 'Moderate-to-Severe', 'Severe-to-Profound') refer to PTA-based classification ranges and do not describe frequency-specific variation within an ear.

[2]**Hearing Threshold Range** refers to the interval of pure-tone hearing levels, expressed in decibels hearing level (dB HL), within which an ear-specific audiometric grade is defined on the basis of the pure-tone average (PTA).

[3] **Expected Impact on Speech & Environmental Sound Perception** refers to the anticipated functional effects of an audiometric grade on speech and environmental sound perception in quiet and noise, including typical communicative adaptations and the additional burden of background noise (e.g masking effects).

[4]**In noise**, hearing performance is disproportionately reduced in the presence of high-frequency hearing loss, owing to upward spread of masking from low-frequency-dominant environmental noise, with greatest impact observed in Grades 2–4.

[5]**Conversational level** refers to speech produced at a typical interpersonal communication distance (approximately 1–2 metres), with an average vocal intensity of about 60–65 dB SPL at the listener's ear in quiet environments.

[6]**Visual cues** refer to non-auditory information used to support speech perception, including visual observation of the speaker's articulatory movements (e.g. lip-reading), facial expressions and gestures, which help disambiguate and enhance spoken communication.

Binaural and functional considerations of an Unilateral/Asymmetric Hearing Loss

Unilateral and asymmetric hearing loss primarily affect binaural auditory functions. As interaural asymmetry increases, binaural processing becomes progressively more impaired. This may result in reduced sound localisation and directional hearing, as well as poorer speech understanding in noise and reverberant environments, where binaural cues are essential. These conditions are often associated with increased listening effort and reduced communicative efficiency in everyday situations. Their functional impact should therefore be considered in clinical evaluation and rehabilitation planning.

Unilateral hearing loss:

Unilateral hearing loss is defined as a PTA <20 dB HL in the better ear and a confirmed loss in the worse ear (see classification table). Regarding rehabilitation options, it can be helpful to characterise unilateral hearing loss in the worse ear as either "usable" or "limited usable hearing unilaterally" (LUHU).

Asymmetric hearing loss:

Asymmetric hearing loss is defined as an ear difference of more than 15dB on average or at three consecutive frequencies. To estimate the overall grade of an asymmetric hearing loss for both ears, the BIAP retains the calculation from its former recommendation and recommends calculating the average hearing loss in dB (HL) by multiplying the hearing loss of the better hearing ear by 7 and the hearing loss of the worse ear by 3. The sum is then divided by 10.

BIAP classification supplement on special conditions

In addition to the categories aligned with both the BIAP and WHO classification systems, it is important to recognise hearing conditions that are not captured by standard grading, such as:

- Combined sensory impairments (e.g. dual sensory loss, as in deafblindness)
- Congenital and prelingual hearing loss in children
- Other complex or atypical auditory profiles not reducible to pure-tone thresholds alone

These conditions require individualised clinical interpretation beyond audiometric categoristion, particularly for rehabilitation and functional assessment.
These special conditions will be covered in a supplement to this recommendation.

Document history

The former BIAP Recommendation n° 02/1 bis AUDIOMETRIC CLASSIFICATION OF HEARING IMPAIRMENTS, was accepted and published in English on October 26th, 1996, and in Spanish, Flemish, French, and German in Lisbon in 1997. The recommendation was withdrawn upon publication of BIAP Recommendation 02/2.

This BIAP Recommendation 02/2 is an entirely new document that takes into account the "Grades of Hearing Loss and Related Hearing Experience" published by the WHO in the "World Report on Hearing 2021" (page 38, Table 1.3).

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This recommendation was created and approved in a multidisciplinary cooperation between professionals of all audiophonologic disciplines, which are medicine, audiology, pedagogy, speech therapy, psychology and hearing instrument audiology.

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