Rehabilitation 2030

World Health Organization

Package of Interventions for Rehabilitation

Hearing impairment

Interventions identified from clinical practice guidelines

Rehabilitation domains*

Rehabilitation Domains		N°
A	Interventions for Mental cognitive functions	1
B	Interventions for Mental emotional functions	2
C	Interventions for Vision impairment	1
D	Interventions for Hearing impairment	9
E	Interventions for Speech, Language and Communication	3
F	Interventions for Dysphagia management	
G	Interventions for Nutrition	
H	Interventions for Pain management	
I	Interventions for Bowel and Bladder management and Toileting	
J	Interventions for Sexual functions and intimate relationships	
K	Interventions for Respiration functions	
L	Interventions for Skin care	
M	Interventions for Cardiovascular and hematological functions	
N	Interventions for Motor functions and Mobility	1
O	Interventions for Activities of daily living	
P	Interventions for Exercise and Fitness	
Q	Interventions for Fall prevention	
R	Interventions for Interactions and Relationships	
S	Interventions for Education and Vocation	
T	Interventions for Community and social life	4
U	Interventions for Carer/Family support	3
V	Interventions for Self-management	2
W	Interventions for Lifestyle modifications	
X	Interventions for personal factors	
Total		**26**

*Please note: This list is not exhaustive and might be supplemented by more domains along the development of the Package of Interventions for Rehabilitation.
For domains marked in blue letters, interventions have been identified for Hearing impairment.

Short information on the included guidelines

Title of the guideline	Short title	Target population	Topic of the guideline
National Institute for Health and Care Excellence (NICE): Hearing loss – Hearing loss in adults: Assessment and management; 2018	NICE	Adults (18 years and older) with hearing loss	Initial and further assessment and management of hearing difficulties
Guidelines for Best Practice in the audiological management of adults with severe and profound hearing loss. Turton L et al. 2020	AUDMAN	Adults with severe and profound degree of hearing loss	Audiological management (incl. rehabilitation)

Table 2: Classification of the Strength of recommendation in selected guidelines

	NICE		AUDMAN
Note:	GRADE system was used to inform the strength of the recommendations		
STRONG	**Strong** The vast majority of healthcare and other professionals and patients would choose a particular intervention if they considered the evidence in the same way that the committee has. This is generally the case if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective Words such as 'must' or 'must-not' are for recommendations that legally must be applied, whereas words like 'offer', 'refer' and 'advise' are to denote strong recommendation.		**A** Consistent level 1 or 2 studies
MODERATE			**B** Consistent level 3 or 4 studies or extrapolations from level 1 or 2 studies
WEAK/ CONDITIONAL	**Weak** There is often a closer balance between benefits and harms, and some patients would not choose an intervention whereas others would. This may happen, for example, if some patients are particularly averse to some side effect and others are not. Recommendations that are expected to do more good than harm for most people, but need to be considered by the healthcare provider on a case-to-case basis, use the word 'consider'.		**C** Level 5 studies or extrapolations from level 3 and 4 studies
EXPERT OPINION/NO RECOMMENDATION	-		**D** Level 6 evidence or troubling inconsistencies or inconclusive studies at any level

Table 3: Classification of the Quality of the evidence in selected guidelines

	NICE		AUDMAN
Note:	GRADE system was used to inform the strength of the recommendations		
High	**High** Further research is very unlikely to change our confidence in the estimate of effect		**Level 1** Systematic reviews and meta-analyses of randomized controlled trials **Level 2** Randomized controlled trials
Moderate	**Moderate** Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate		**Level 3** Moderate Non-randomized intervention studies
Low	**Low** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate		**Level 4** Descriptive studies (cross-sectional surveys, cohort studies, case-control designs)
Very Low	**Very low** Any estimate of effect is very uncertain		**Level 5** Case studies **Level 6** Expert opinion

A) Interventions for MENTAL/COGNITIVE FUNCTIONS

N°	Intervention	Original recommendation	Specification of target population	SoR	QoE	Ref.
COGNITIVE FUNCTIONS						
A1	**Assessment of cognitive functions**	Information should be gathered on the following comorbidities and other relevant factors: See Table 2. **A. Cognitive ability.** B. Mental health status. C. Physical status (mobility and craniofacial status). D. General health. E. Dexterity. F. Visual status.		A	1	AUDMAN pg. 149; Rec 1
		13. Include and record the following as part of the audiological assessment for adults: a full history including relevant symptoms, comorbidities, **cognitive ability,** physical mobility and dexterity		Strong for	n.a.	NICE 9.2.4; Rec 13

B) Interventions for MENTAL/EMOTIONAL FUNCTIONS

N°	Intervention	Original recommendation	Specification of target population	SoR	QoE	Ref.
PSYCHOSOCIAL HEALTH						
B1	**Assessment of psychosocial health**	The hearing care professional should **explore and address the psychosocial impact of the hearing loss**, such as shame, guilt, anger, and embarrassment and acknowledge these in addition to providing strategies to reduce this. This should be delivered in a person-centered approach with the hearing care professional partnering the client, empowering them, and supporting them to adhere to the treatment interventions they have considered. See section 1.4.		B, D	3, 6	AUDMAN pg. 167; Rec 4
		13. Include and record the following as part of the audiological assessment for adults: **any psychosocial difficulties related to hearing**		Strong for	n.a.	NICE 9.2.4; Rec 13

DEPRESSION AND ANXIETY						
B2	**Assessment of depression and anxiety**	The incidence of **clinical depression and anxiety** in clients with severe and profound hearing loss is high. **Early consideration and onward referral where appropriate** are essential to ensure the client can derive maximum benefit from hearing devices and rehabilitation. See section 1.2.		B, C	4	AUDMAN pg. 167; Rec 8
		Information should be gathered on the following comorbidities and other relevant factors: See Table 2. A. Cognitive ability. **B. Mental health status.** C. Physical status (mobility and craniofacial status). D. General health. E. Dexterity. F. Visual status.		A	1	AUDMAN pg. 149; Rec 1

C) Interventions for VISION IMPAIRMENT

N°	Intervention	Original recommendation	Specification of target population	SoR	QoE	Ref.
SEEING FUNCTIONS						
C1	**Assessment of seeing functions**	Information should be gathered on the following comorbidities and other relevant factors: See Table 2. A. Cognitive ability. B. Mental health status. C. Physical status (mobility and craniofacial status). D. General health. E. Dexterity. **F. Visual status.**		A	1	AUDMAN pg. 149; Rec 1

D) Interventions for HEARING IMPAIRMENT

N°	Intervention	Original recommendation	Specification of target population	SoR	QoE	Ref.
HEARING FUNCTIONS						
D1	**Assessment of hearing needs**	13. Include and record the following as part of the audiological assessment for adults: · the person's **hearing** and communication **needs** at home, at work or in education, and in social situations		Strong for	n.a.	NICE 9.2.4; Rec 13
		Hearing care professionals should interview the client to get a thorough **assessment of their current hearing needs**. This will help determine any factors that could impact on the client's motivation, unrealistic expectations, appropriate amplification, and other treatment options. In particular, the client's current communication strategies should be assessed for their effectiveness.		B, C, D	3, 4, 6	AUDMAN pg. 152; Rec 1
D2	**Assessment of hearing functions**	13. Include and record the following as part of the audiological assessment for adults: · **pure tone audiometry**		Strong for	n.a.	NICE 9.2.4; Rec 13
		13. Include and record the following as part of the audiological assessment for adults: · **tympanometry if indicated.**		Strong for	n.a.	NICE 9.2.4; Rec 13
D3	**Referral to specialist assessment**	**Referral to an ear, nose, and throat specialist** may be indicated for a patient with conductive hearing loss if not previously investigated, or with any disease of the outer or middle ear that may hinder hearing aid use.		D	6	AUDMAN pg. 178; Rec 4
D4	**Referral to cochlear implant**	Consider **referral for a cochlear implant** long before the point of failure with hearing aids. Hearing aids need not be the final stop on their hearing journey.		C	3, 4	AUDMAN pg. 164; Rec 3
		Referral by the hearing care professional is in essence a suggestion that their client seeks additional information about cochlear implants. Candidacy will be determined by a multidisciplinary team.		indirect evidence	NA	AUDMAN pg. 164; Rec 6
D5	**Assessment of beliefs, motivation and expectations**	The hearing care professional should explore each client's individual **attitudes to the severe communication challenges** they face. These vary with personality, impact of the stigma of hearing loss, family and other circumstances, changes in their identity through hearing loss, sources of support, additional health issues, and hearing history		C, B	3, 4	AUDMAN pg. 167; Rec 3
		13. Include and record the following as part of the audiological assessment for adults: · the **person's expectations and motivations** with respect to their hearing loss and the listening and communication strategies available to them · any restrictions on activity, assessed using a self-report instrument such as the Glasgow Hearing Aid Benefit Profile or the Client-Orientated Scale of Improvement		Strong for	n.a.	NICE 9.2.4; Rec 13

		· otoscopy · pure tone audiometry · tympanometry if indicated.				
		More than any other client group, the hearing care professional should explore the **client's beliefs about their outcomes** with all the chosen interventions outlined in their individual management plan and help manage expectations at regular parts of their pathway. See sections 1.3 and 1.4.		C	3	AUDMAN pg. 167; Rec 7.
D6	**Motivational interviewing and goal setting**	34. Consider using **motivational interviewing or engagement strategies and goal setting** when discussing hearing aids with adults for the first time, to encourage acceptance and use of hearing aids.		Weak for	Very low to low	NICE 18.2.4; Rec 34
D7	**Education and advice on the use of hearing aids**	35. **Show the hearing aids** when they are first offered and discuss their suitability with the person.		Strong for	Very low	NICE 18.2.4; Rec 35
		Start the **conversation by introducing the cochlear implant** as a part of a continuum of care that starts with hearing aid use and ultimately progresses to cochlear implant use.		A, B, C	1, 2, 3, 4	AUDMAN pg. 164; Rec 4.
		Ensure your client's chances of achieving their maximum auditory potential by beginning the conversation about cochlear implant early in their audiological care. **The conversation can start well before your client reaches criteria levels**		B, C	2, 3, 4, 6	AUDMAN pg. 164; Rec 5.
		Encourage clients to **consider assessment for a cochlear implant** and help them recognize that they are agreeing only to an assessment and not consenting to implantation at that point.		indirect evidence	NA	AUDMAN pg. 164; Rec 7.
D8	**Provision and training in the use of assistive products for hearing (hearing aids)**	Unless contraindicated, the hearing care professional should **activate the t-coil where fitted and arrange for the client to experience a good working inductive loop**, as this remains the most widespread and effective way to hear well in public spaces. See section 2.0.		C, D	4, 6	NICE pg. 171; Rec 4.
		Clients with severe and profound hearing loss should be fitted using **multichannel wide-dynamic range compression (WDRC)** rather than linear amplification. This offers the greatest opportunity to maintain audibility and loudness comfort across a range of speech and sound levels in the environment.		Strong for	Very low	NICE 14.2.4; Rec 23
		25. **Offer hearing aids** to adults whose hearing loss affects their ability to communicate and **hear**, including awareness of warning sounds and the environment, and appreciation of music.		Strong for	Very low	NICE 16.2.4; Rec 28
		27. For adults with hearing loss in both ears who chose a single hearing aid, consider a **second hearing aid** at the follow-up appointment.		Weak for	Very low	NICE 15.3.4; Rec 27
		26. **Offer 2 hearing aids** to adults with aidable hearing loss in both ears. Explain that wearing 2 hearing aids can help to make speech easier to understand when there is background noise, make it easier to tell where sounds are coming from, and improve sound quality.		Strong for	Very low	NICE 15.3.4; Rec 26

		25. **Offer hearing aids** to adults whose hearing loss affects their ability to **communicate** and hear, including awareness of warning sounds and the environment, and appreciation of music.		Strong for	Very low, moder-ate	NICE 15.2.4; Rec 25
		Ensure that your client's hearing aid fitting is optimal and that additional technologies such as remote microphones and other assistive listening devices have been prescribed where ap-propriate.		B, C	3	AUDMAN pg. 164; Rec 1
		Ensure **hearing device provision is fully optimized** before cochlear implant referral. The client should be made aware of options for additional technology such as remote microphones that may aid speech intelligibility in complex listening environments. The opportunity to trial should be offered where possible and appropriate.		B	4	AUDMAN pg. 177; Rec 3.
		28. When prescribing and fitting hearing aids, **explain the features on the hearing aid** that can help the person to hear in background noise, such as directional microphone and noise reduc-tion settings.		Strong for	Very low	NICE 16.2.4; Rec 28
		37. Give adults with hearing aids **information about getting used to hearing aids, cleaning and caring for their hearing aids, and troubleshooting.**		Strong for	Very low, moder-ate	NICE 18.2.4; Rec 37
D9	**Provision and training in the use of assistive products for hearing (Assistive listening de-vices)**	The client should be provided with the opportunity to **try any potentially helpful assistive lis-tening devices**, ideally on location (e.g., their own home and a social club).		C, D	4, 6	AUDMAN pg. 171; Rec 4.
		23. Give adults with hearing loss **information about assistive listening devices** such as per-sonal loops, personal communicators, TV amplifiers, telephone devices, smoke alarms, door-bell sensors, and technologies such as streamers and apps.		Strong for	Very low	NICE; 14.2.4; Rec 23.
		29. **Advise adults with hearing aids about choosing microphone and noise reduction settings** that will meet their needs in different environments and ensure that they know how to use them.		Strong for	Very low	NICE; 16.2.4; Rec 28
		Ensure that your client's hearing aid fitting is optimal and that **additional technologies such as remote microphones and other assistive listening devices have been prescribed** where ap-propriate.		B, C	3	AUDMAN pg. 164; Rec 1
		Having the opportunity to **trial a remote microphone system** is an essential part of decision-making for clients and communication partners.		B	4	AUDMAN pg. 160; Rec 3
		Adults with severe and profound hearing loss can benefit from remote microphone systems in a range of situations and should be fully informed about them by hearing care profession-als. This should be reviewed proactively on an ongoing basis.		B	3, 4, 5	AUDMAN pg. 160; Rec 1
		Comprehensive instructions in a range of formats and **ongoing education and support about remote microphone systems** are needed for clients, communication partners, and hearing care professionals.		B	3, 4	AUDMAN pg. 160; Rec 5

E) Interventions for SPEECH, LANGUAGE AND COMMUNICATION

N°	Intervention	Original recommendation	Specification of target population	SoR	QoE	Ref.
SPEAKING						
E1	**Assessment of speaking**	**Aided speech performance should be regularly tested.** This enables monitoring of functional benefit of hearing aids over time and is key to assessing candidacy for cochlear implant referral.		B, C, D	3, 4, 6	AUDMAN pg. 177; Rec 2.
COMMUNICATION						
E2	**Assessment of Communication (restrictions, needs, strategies)**	13. Include and record the following as part of the audiological assessment for adults: - any restrictions on activity, assessed using a self-report instrument such as the Glasgow Hearing Aid Benefit Profile or the Client-Orientated Scale of Improvement		Strong for	n.a.	NICE 9.2.4; Rec 13.
		13. Include and record the following as part of the audiological assessment for adults: - the **person's hearing and communication needs** at home, at work or in education, and in social situations		Strong for	n.a.	NICE 9.2.4; Rec 13.
		Hearing care professionals should interview the client to get a thorough assessment of their current hearing needs. This will help determine any factors that could impact on the client's motivation, unrealistic expectations, appropriate amplification, and other treatment options. In particular, the client's current **communication strategies** should be assessed for their effectiveness.		B, C, D	3, 4, 6	AUDMAN pg. 152; Rec 1
E3	**Communication skills training**	Most clients with severe and profound hearing loss will need **communication skills training both on a one-to-one and on a group basis.** If severely maladaptive strategies are observed, onward signposting to an external agency is required. See Table 14.		A	1	AUDMAN pg. 169; Rec 4.
		The client should always be signposted to **communication training** and practice materials available online including synthetic avatars, DVD, and printed materials, either as a complement or as an alternative to attending a live course. See Table 14.		A	1	AUDMAN pg. 170; Rec 6.
		The client should be offered **training in how to bring about behavioral change in others** so that they can manage communication partners who are unwilling or unable to attend for direct training.		A	1	AUDMAN pg. 170; Rec 9.

N) Interventions for MOTOR FUNCTIONS AND MOBILITY

N°	Intervention	Original recommendation	Specification of target population	SoR	QoE	Ref.
MOBILITY						
N1	**Assessment of mobility**	Information should be gathered on the following comorbidities and other relevant factors: See Table 2. A. Cognitive ability. B. Mental health status. **C. Physical status (mobility and craniofacial status).** D. General health. E. Dexterity. F. Visual status.		A	1	AUDMAN pg. 149; Rec 1.
		13. Include and record the following as part of the audiological assessment for adults: · a full history including relevant symptoms, comorbidities, cognitive ability, **physical mobility** and dexterity		Strong for	n.a.	NICE 9.2.4; Rec 13.

T) Interventions for COMMUNITY AND SOCIAL LIFE

N°	Intervention	Original recommendation	Specification of target population	SoR	QoE	Ref.
PARTICIPATION IN COMMUNITY AND SOCIAL LIFE						
T1	**Assessment of participation in community and social life**	Hearing care professionals should **explore the situations that matter most for their clients.** This should include both current activities and places the client used to enjoy but stopped attending when their hearing deteriorated (**e.g., the theater, public meetings, and social gatherings)**. See sections 1.3 and 2.2 and Table 16.		B, C	4	AUDMAN pg. 170; Rec 1.
T2	**Structured group activities**	**Group experiences** may be offered in the clinic setting but are often available through external organizations such as local authorities and charities. The hearing care professional should maintain up-to-date knowledge of all such services and how to make referrals.		C	4	AUDMAN pg. 170; Rec 5.
T3	**Support groups**	**Referral into such a service** is an urgent priority if the client has had a sudden loss or appears to have largely withdrawn from family and social life. Many clients identify these experiences as a turning point in coming to terms with and actively managing their hearing loss.		B	4	AUDMAN pg. 170; Rec 6.
		Information should be provided on all local and national organizations that offer contact, information, and support beyond the clinic (e.g., hard of hearing clubs, self-help groups, lipreading classes, associations for people of specific professional backgrounds). **Help should be offered in identifying which organization or organizations are most relevant to each client** with severe and profound hearing loss given the client's location, circumstances, and preferences.		n.a.	n.a.	AUDMAN pg. 171; Rec 7.

T4	**Provision and training in the use of hearing dogs**	Where available, the client should be given **information about hearing dogs** and encouraged to explore their eligibility where interested.		A	1	AUDMAN pg. 173; Rec 7.

V) Interventions for SELF-MANAGEMENT

N°	Intervention	Original recommendation	Specification of target population	SoR	QoE	Ref.
SELF-MANAGEMENT						
V1	**Education and advice on self-management of health condition** (incl. knowledge on health condition, organisations, support and self-help groups, self-management strategies, speech reading classes and communica-tion strategy training op-portunities)	14. After the audiological assessment: · **discuss with the person**: i. the pure tone audiogram and the impact their hearing loss might have on communication ii. hearing deficits (such as listening in noisy environments) that are not obvious from the au-diogram iii. options for managing their hearing needs, such as acoustic or bone conduction hearing aids, assistive listening devices and communication strategies, and the potential benefits and limitations of each option. iv. options for managing single-sided deafness if needed v. referral for implantable devices such as cochlear implants, bone-anchored hearing aids, middle-ear implants or auditory brain stem implants, if these might be suitable (see NICE's technology appraisal guidance on cochlear implants for children and adults with severe to profound deafness and interventional procedure guidance on auditory brain stem implants) vi. referral for medical or surgical treatments, if these might be suitable · agree and record a personalised care plan, taking into account the person's preferences, in-cluding goals, and give the person a copy.		Strong for	n.a.	NICE 9.2.4; Rec 14.
		21. **Give the person and, if they wish, their family or carers, information** about: · the **causes of hearing loss, how hearing loss affects the ability to communicate and hear, and how it can be managed** · organisations and support groups for people with hearing loss.		Strong for	Low to moder-ate	NICE 12.2.4; Rec 21
		Where appropriate the hearing care professional should help **educate the client with self-management strategies, for example, on conversation repair strategies, lipreading, and adapting their environment.**		C	3	AUDMAN pg. 167; Rec 9
		Information should be provided on local speech reading classes, self-help groups, and other communication strategy training opportunities, together with some indication of how well suited such provision is for the client's personal situation. Assistance with establishing contact with suitable providers should be offered. This requires the hearing care professional to maintain up-to date knowledge of what is available in their local		B	3, 4	AUDMAN pg. 169; Rec 5

		community and a good network with other agencies offering rehabilitation programs. See Table 14.				
		The **self-management of the client should be supported** to enhance the motivation of the client and to achieve the best results.		A	1, 2	AUDMAN pg. 170; Rec 7
		36. At the follow-up audiology appointment for adults with hearing aids: · ask the person if they have any concerns or questions · address any difficulties with inserting, removing or maintaining their hearing aids · provide information on communication, social care or rehabilitation support services if needed · tell the person how to contact audiology services in the future for aftercare, including repairs and adjustments to accommodate changes in their hearing · ensure that the person's hearing aids and other devices meet their needs by checking: i. the comfort, sound quality and volume of hearing aids, including microphone and noise reduction settings, and fine-tuning them if needed ii. hearing aid cleaning, battery life and use with a telephone iii. use of assistive listening devices iv. hours the hearing aid has been used, if shown by automatic data-logging · review the goals identified in the personalised care plan and agree how to address any that have not been met (for information on the personalised care plan see recommendation 14). · update the personalised care plan and provide them with a copy.		Strong for	Very low	NICE 18.2.4; Rec 36
		24. **Tell adults with hearing loss about organisations that can demonstrate and provide advice on how to obtain assistive listening devices**, such as social services, the fire service, or the government through programmes such as Access to Work or Disabled Student Allowance.		Strong for	Very low	NICE 14.2.4; Rec 24
		21. **Give the person and, if they wish, their family or carers, information** about: · the causes of hearing loss, how hearing loss affects the ability to communicate and hear, and how it can be managed · **organisations and support groups** for people with hearing loss.		Strong for	Low to moderate	NICE 12.2.4; Rec 21
V2	**Peer support groups**	All clients with severe and profound hearing loss should be encouraged to **meet others who share a similar hearing history and degree of hearing loss,** but most importantly share an understanding of the problems they are facing. This can be achieved through recommending local support or communication groups and/or virtual channels, e.g., online forums. See Table 15.		B, C	4	AUDMAN pg. 170; Rec 1
		All clients with severe and profound hearing loss should be encouraged to meet others who share a similar hearing history and degree of hearing loss, but most importantly share an understanding of the problems they are facing. This can be achieved through **recommending local support or communication groups** and/or virtual channels, e.g., online forums. See Table 15.		B, C	4	AUDMAN pg. 170; Rec 1

		The most powerful way to achieve **peer support is through small-group experience**s in a carefully managed framework. These might be highly structured groups, or more self-directed; what matters is that clients can meet other people facing similar challenges to share experiences and solutions.		C	4	AUDMAN pg. 170; Rec 3
		It can be invaluable to **include communication partners in such groups.**		B	4	AUDMAN pg. 170; Rec 4.

U) Interventions for FAMILY AND CARER SUPPORT

N°	Intervention	Original recommendation	Specification of target population	SoR	QoE	Ref.
FAMILY AND CARER SUPPORT						
U1	**Assessment of family and carer needs**	Consideration of the **impact of the client's hearing loss on their close friends and family** (third-party disability) should also be considered as part of the needs assessment to develop effective intervention strategies.		B, D	3, 4, 6	AUDMAN pg. 152; Rec 4
U2	**Assessment of communication strategies of family and carers**	The role of communication partners should be examined to assess what **strategies they employ to communicate the level of emotional support they provide and if they are involved in any of the device management.**		B, D	3, 4, 6	AUDMAN pg. 154; Rec 5
U3	**Caregiver training**	**Communication partners** of adults with severe and profound hearing loss experience third-party disability. This can be reduced when their partner makes use of remote microphone systems and they should be **fully informed about them** by hearing care professionals.		B	4	AUDMAN pg. 160; Rec 2
		Attention should be given to the **communication strategies employed by the client's communication partners, with appropriate training** made available to them where necessary.		A, B	1, 4	AUDMAN pg. 170; Rec 8