A GUIDE TO REMOTE WORKING IN AUDIOLOGY SERVICES DURING COVID-19 AND BEYOND

Practical guidance for remote hearing care

1.   Introduction and scope

The current Joint Guidance from Audiology professional bodies requires services to decide for each individual patient whether care should be provided remotely or face-to-face (BAA, BSA, BSHAA and AIHHP, May 2020).

The decision to bring a patient into clinic for a procedure during COVID-19 requires consideration of the following factors:

1. Health risks to the patient and/or their family during COVID-19 (NHS, 2020a).
2. Benefit of the clinical procedure.
3. Accessibility of remote care for the patient.
4. Risks associated with delaying the procedure or from adjusting the procedure so care can be provided remotely in the short- to medium-term.

This document is intended for use by audiology professionals working in the UK in clinical practice during the Covid-19 pandemic. However, it contains useful guidance for the use of remote care going forward beyond Covid-19.

2.   Accessibility

This section includes information about accessibility for providers and patients. The options available to a service will vary depending on the IT packages and translation service contracts. However, by gathering resources and ideas locally and sharing this knowledge with colleagues, your service will improve accessibility to remote care for different patient groups. Local Communications/IT/Public Relations/ Patient Information teams may be able to guide you to what's available/working locally. As suggested in NHS guidance on remote working (NHS, 2020b), hearing-impaired adults may need adjustments to provision in order to access their care remotely (although access is likely to be better using video than telephone, as it allows lip-reading).

2.1 Captioning

- Many web-based teleconferencing programs can do real time captioning from within the program or use a website like https://webcaptioner.com/captioner or https://streamtext.net/. These programs will require access to your microphone.
- Use a 'screen share' function (if available) to show the caption screen to the patient alongside the video - so they can hear your voice, see your lips and read the captions.
- For more information on using captions see: https://chchearing.org/blog/zoom-captioning-hearing-loss/
- There are many apps available that may help patients through captioning: https://abilitynet.org.uk/news-blogs/9-useful-apps-people-who-are-deaf-or-have-hearing-loss
- For telephone calls, BT provide a free 'text-relay' service: https://btplc.com/inclusion/MakingCallingEasier/Textrelay/index.htm, the patient needs to download the 'NGT Lite app' which allows them to type their side of the conversation and converts the speaker's voice to text.

2.2 British Sign language

- If captioning is considered insufficient, try live messaging during your conversation instead. This can generally be facilitated by video conferencing packages.
- Many web-based teleconferencing programs allow a split screen multi-person conversation, of which a BSL Interpreters can be one. The patient can choose to focus their main view on the interpreter if required, known as Video Relay Interpreting (VRI).
- Video Relay Services (VRS) allow the patient and clinician to be connected via an interpreter. Examples include: https://signlive.co.uk/for-deaf-people/at-work/ and https://www.signvideo.co.uk/signvideo-at-work/
- During COVOD-19, there are number of free BSL translation services available for medical appointments: https://www.bslhealthaccess.co.uk/ and https://interpreternow.co.uk/.
- Speak to your BSL interpretation service for advice on what they can support and what might be working elsewhere.

2.3 English as a second language

- Split screen multi-person video conversation can be utilised with patients where English is not their first language. Speak with your local interpreter booking service to confirm the best process for this.

- Phone based interpretation services may be available. An interpreter can be included in a 3-way conference call. Phone services have interpreters available for interpreting a wide range of languages.
- Written hearing aid use and troubleshooting information in multiple languages might be available from the hearing aid manufacturer. If required, other local documents that support remote care can be translated into specific languages for patient groups. This is often organised via a Patient Information team.

2.4 Visual Impairment

- Written information can be made available in larger print and most websites allow viewing size to be increased.
- Remind patients to use their screen reader for accessing online written information.
- Hospital/Service websites may have a 'browsealoud' facility so that supporting information uploaded to the website can be listened to aloud, rather than read.
- Adults with a visual impairment may still benefit from a video appointment so always offer this option.

2.5 Digital proficiency

- Provide patients with resources, options and information for accessing video appointments. See 'checklist' document and Table 1 (Appendix 1).
- If needed, have family members help with technology set-up.
- Provide patient with a link to the Age UK website which has a useful guide for setting up video calling: https://www.ageuk.org.uk/information-advice/work-learning/technology-internet/video-calling/.
- If a patient is unable or unwilling to use video conferencing provide care via the telephone, email or postal service.
- Recent Ofcom data show that most patients have access to communication technologies and are comfortable using communication apps (see Table 2 in appendix).
- Ideally, we would use each patient's preferred method for contact/communication (Skype, Zoom, FaceTime), but NHS services may have with Information Governance rules that prohibits this from happening.

2.6 Recording the appointment

Some platforms can record all/some of the appointment. This can be a valuable tool for patients to use to remind them of content that was addressed during the appointment. Patients can be instructed how to record the whole appointment. It might however, be more efficient for the provider to suggest which parts of the call it would be helpful to record e.g. "*you may want to record this next bit*." If you, the provider do not want the appointment to be recorded, make that clear at the start of the appointment.

3.   Assessing and managing risk

Services will need to perform risk assessments to ensure the possible risks of remote care are outweighed by the risks associated with a face-to-face consultation. Special consideration should be given to patients who cannot report on pain in their ears, asymmetry and/or sudden changes in symptoms. In some patients, pain might be reflected in behaviour changes, such as touching/hitting the ears/head or other signs of distress. Take this into consideration when determining whether there is a need for a face-to-face audiological assessment (with appropriate PPE). Each section below describes potential risk area for patients and suggests some tools to manage the risk. Examples of completed clinical risk assessments can be found in the Appendix 2 of this document.

4.1 The risk of no/delayed otoscopy in the assessment pathway

The Consumer Ear Disease Risk Assessment (CEDRA) tool is a partially validated questionnaire which aims to detect ear disease in adults. Patients can complete the CEDRA online in advance of the appointment at https://cedra.northwestern.edu/. It takes about 5 min to complete online and provides the patient and clinician with a score that indicates the need for a face-to face assessment. The 'Background and Evidence' document and the CEDRA website provide information about the background research, links to published papers and links to the tool itself. This tool could support detection and triage of ear disease when used in conjunction with standard history taking, in the absence of otoscopy.

4.2 The risk of no/delayed hearing assessment

An accurate remote hearing assessment approach has been developed in the US: https://www.hearxgroup.com/blog/hearX-self-test-kit.html. This technique requires specialist headphones which link to an app on the patient's smart phone (Swanepoel and Hall, 2020), and should be used in conjunction with the CEDRA tool to assess ear disease/red flags (as bone conduction, masking and otoscopy would not have been done). There is currently no UK equivalent of the 'hearX kit' but this kit can be purchased from the US.

Some hearing aids can perform in-situ audiometry. This gives a measure of the patient's hearing loss in dB SPL and allows a more accurate 'click and fit' start point. This approach does not replace a diagnostic assessment, as bone conduction and masking cannot be measured. This approach does not replace measures of probe microphone verification. Hearing aid make/model and frequency of stimulus have been shown to affect the accuracy of the threshold measurement (Kiessling et al., 2015). In-situ audiometry cannot be performed remotely (patient must be in a clinic).

For speech-in-noise testing at home, there are several websites offering the very simple digits-in-noise test (DIN) that also predicts PTA quite well. DIN has the other advantage that results are very similar across different accents and dialects of English and neither calibrated headphones nor a soundproof booth are needed. The World Health Organization has a smartphone or tablet DIN app called '*hearWHO*', available on Google Play or the App Store (https://www.who.int/health-topics/hearing-loss/hearwho). This tool could support an initial screen of hearing ability in adults and older children, although introduction into services will require careful planning and evaluation. Online speech in noise hearing assessments for paediatrics may result in unreliable data that could increase / decrease parental anxiety erroneously. The use of remote assessment would need to be weighed up carefully against the risk to the patient/family of a hospital visit. Any child that had an online hearing assessment would need a full face-to-face diagnostic assessment once COVID-19 is over.

Remote hearing assessment requires rapid research and innovation to develop reliable remote test methods for adults and children (of all ages), to limit face-to-face clinical interactions and maintain safety/limit spread during COVID-19. ManCAD is working with manufacturers and external organisations to develop useable remote assessment technologies, suitable for use in the UK and other countries.

4.3 Risk of no/delayed verification and accuracy of hearing aid fitting.

Remote fitting during COVID-19 does not allow for probe microphone measures (see the 'Adult hearing services' document, Table 1: programming hearing aids). It is therefore suggested that probe

microphone measures be performed once COVID-19 restrictions are lifted (especially on adults who cannot accurately report on sound quality and comfort, and on all children).

Australian guidance (Hearing services program, 2020) advises that verification must be performed within 12 months of COVID-19 restrictions being lifted. The timeframe and importance of bringing patients into clinic for probe microphone measures following COVID-19 is a decision to be made locally. Probe microphone measures are recommended in the UK to verify that amplification matches a prescription target (BSA, 2018), but the benefits in terms of outcomes are not clear (Munro et al., 2016). Enforced delayed Real Ear Measures during COVID-19, could represent an opportunity to evaluate the effectiveness of current 'click and fit' methods versus Real Ear Measures.

Services that have measured RECDs on adults could accurately verify hearing aid updates in the coupler prior to posting (assuming patient's middle ear status is the same). Paediatric services should consider the accuracy of using previously measured RECDs versus age-appropriate, predicated RECDs.

4.4 Delayed hearing assessment and rehabilitation for patients with additional support needs: LD, dementia, dual sensory loss.

Adults and children with complex needs can gain benefit from the services in these documents. Video appointments can be useful and rewarding (Hamblin et al., 2016) but patients might often need support from carers or family to facilitate communication. Providers can examine this on a case-by-case basis and share best-practice. Evidence shows that personalized easy-read documents supported by verbal information provided by a carer yields optimal outcomes (Chinn and Homeyard, 2016; Hurtado et al., 2014). Consultation with community learning disabilities teams is recommended.

For a useful summary of telemedicine research with adults who have an intellectual disability see: Vazquez, A., Jenaro, C., Flores, N., Bagnatto, M., Perez, M., Cruz, M (2018) E-health interventions for adult and aging population with intellectual disability: a review. Front. Psychol. https://doi.org/10.3389/fpsyg.2018.02323

4.   Measuring outcome and quality of the interaction

This pandemic brings opportunity to evaluate new ways of working. It is vital we implement and evaluate new service delivery methods in terms of overall satisfaction/patient experience, as well as specific hearing/tinnitus/dizziness related outcomes. **Remote working should lead to equivalent (or better) outcomes compared to conventional face-to-face services**. Sharing of clinical pathways, evaluations, feedback and audits by audiology professionals will be vital to support rapid development of high-quality standardised remote working audiology pathways, across the UK.

A short-standardised questionnaire to formally document outcomes in audiology services delivered remotely is currently being developed by ManCAD (G. Saunders). This will be discussed further during the planned webinars and in later version of this document.

5.   Confidentiality and consent

In general, the advice regarding patient confidentiality and data security is the same for online or telephone consultations as it is for consultations in person.

Clinical Commissioning Groups and Health Boards have relaxed their stance on the use of personal devices for work during the pandemic, but only where there is no other way of contacting a patient/colleague. The preference is for hospital owned equipment to be used.

Similarly, the preference is to use applications/software which are recommended by your local Information Governance/Data Protection team. However, in circumstances where there is no alternative, and the communication is important, other applications can be considered. If in doubt, contact your Information Governance/Data Protection team for advice.

In the unusual event that public/patient wellbeing is at stake from something you have heard during a consultation, exceptions to confidentiality laws exist. These can be read here: https://nwis.nhs.wales/coronavirus/coronavirus-content/coronavirus-documents/copi-qa/

5.1 Summary of confidentiality and consent

Staff must…

✓ Adhere to their usual professional and quality standards
✓ Work within a locally agreed system/policy for remote consultations – and within guidelines set by their local Data Protection Officer
✓ Provide consultations that are confidential (i.e. not overheard by other members of their household if working at home)
✓ Obtain patient permission to use a phone/online consultation and pre-arrange the appointment where possible
✓ Withhold or mask their caller ID if using a personal device
✓ Use strong passwords for encrypted documents and applications
✓ Check patient details in the usual way at the start of the consultation
✓ Ask who the patient is with, and whether they are happy for them to be present during the consultation
✓ Obtain agreement for individual management plans in the usual way
✓ Delete all patient information from personal devices as soon as possible
✓ Avoid keeping or transporting paper records
✓ Keep thorough records and ensure these are entered into the patient management system as soon as possible.

5.2 NHS guidance on technology for remote working

Technology guidance in England and Wales, to support remote working in NHS services:

NHS wales (2020) Information Governance. COVID-19 NHS Wales Information Governance Joint statement. Available at: https://nwis.nhs.wales/coronavirus/digital-support-updates-for-healthcare-professionals/information-governance/.

NHS England (2020) Clinical guide for the management of remote consultations and remote working in secondary care during the coronavirus pandemic. 27th March 2020. Version 2. Available at: https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/C0044-Specialty-Guide-Virtual-Working-and-Coronavirus-27-March-20.pdf

The home countries have each released information on home working and remote consultations during the pandemic. Much of the information in these resources is relevant to staff working across the UK, so readers are recommended to look at them all to gain a full overview.

England

https://www.england.nhs.uk/coronavirus/publication/video-consultations-for-secondary-care/

https://www.nhsx.nhs.uk/COVID-19-response/data-and-information-governance/

Wales

https://nwis.nhs.wales/coronavirus/digital-support-updates-for-healthcare-professionals/information-governance/

Scotland

https://learn.nes.nhs.scot/28943/coronavirus-COVID-19/remote-consulting

https://tec.scot/

Northern Ireland (Signposting Document only)

https://www.health-ni.gov.uk/publications/COVID-19-information-and-resources-allied-health-professions-ahp-workforce-northern-ireland

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Swanepoel, D-W., Hall. J (2020) Making Audiology work during COVID-19 and beyond. Online only. https://journals.lww.com/thehearingjournal/blog/OnlineFirst/pages/post.aspx?PostID=59

APPENDIX 1: Technical requirements for remote working and technology use data

TABLE 1: A summary of technical requirements for remote consultations.

	Clinic needs…	Patient needs…
Internet access	Internet with enough bandwidth for functionality – try out and discuss with IT. Clinicians may have better quality internet at home (with appropriate consideration of confidentiality, see section above).	Chrome browser personal computer or Safari on Apple devices, standard household broadband speed usually enough.
Video conferencing platform	Adopted by trust, set-up by IT. See NHS guidance below and BAA resources: https://www.baaudiology.org/webinar-follow-up-documents/ (under 'remote programming').	
Device	Personal computer, laptop.	Smart phone (i.e. mobile with internet access), tablet, personal computer
Webcam	Built in or separate. Older webcams may be lower resolution and therefore not suitable for lip reading and visualising hearing aid controls/batteries (when device held up to camera).	Built in or separate. Quality of patient's webcam less important.
Microphone	High quality microphone to reduce distortion.	Standard device microphone usually enough.

Table 2: Technology use in the UK by older adults, 9th January-7th March (Ofcom, 2020)*.

Question	Response	% in each age group		
		55-64 years	**65-74 years**	**75+**
Does your household have any type of PC, laptop, netbook or tablet computer? (all respondents)	PC	31	27	21
	Lap-top	64	47	25
	Netbook/tablet	59	46	36
Do you personally use a smartphone? (all respondents)	Yes	83	69	45
	No	17	30	55
	Don't know	-	1	-
Do you use any of the following types of apps or applications on your smartphone? (those with a smart phone)	Messaging (WhatsApp etc)	60	52	32
	Social media	48	38	21
	Shopping	36	20	18
Do you have a 4G service? (those with a smart phone)	Yes	88	76	61
	No	7	6	18
	Don't know	5	18	21
Have you or anyone in your household ever used one of these services to make voice calls or video calls using the internet at home? (all respondents)	Yes	53	42	23
	No	44	57	74
	Don't know	3	1	3

*Ofcom (2020) Technology tracker. Available at:
https://www.ofcom.org.uk/__data/assets/pdf_file/0036/194877/technology-tracker-2020-subset-data-tables.pdf

APPENDIX 2: Example risk assessments

Description of risk	1 Example Risk assessment: absent otoscopic examination during remote appointments.
	
	Background: Otoscopic examination of patient ears is performed during Audiological appointments if possible. It allows the ear, ear canal and tympanic membrane to be observed thoroughly. During appointments that are carried out remotely standard otoscopy is usually not possible.
	
	Identified risks:
	
	o Unidentified need for medical intervention including ear infection, obstructive wax etc.
	    • This may delay appropriate treatment potentially exacerbating the condition [1].
	    • Unaddressed pain may cause distress. For some individuals this may lead to challenging behaviour affecting the patient and those that care for them[2].
	o Professional unawareness of blockages in the ear canal affecting hearing aid use
	    • Inaccurate advice during remote review appointments
	    • Overamplification if hearing aid gain is increased based on patient report of insufficient volume due to temporary blockage
	Who may be harmed or affected? Patient, Family / carers**,** Staff / Department.

Available preventative control measures when risk was identified	• Inclusion of questions during remote consultation to identify risk factors of required medical intervention. The accuracy of this will depend on the communication skills of the individual and/or level of support. • Work with visiting medical personnel to request otoscopy carried out on same occasion as other health checks. • For patients who cannot effectively self-report, ensure patient is supported by people who can identify when a patient is experiencing pain • Clear and effective channels of reporting to appropriate medical follow-up as required

Initial Risk Score i.e. with existing controls in place	Consequence (1-5)	3
	Likelihood (1–5)	4
	Risk Score (1 – 25)	12

Action Plan to reduce the risk to an acceptable level		
Description of actions	**Responsibility**	**Date**
Initiate use of evidence based ear disease risk questionnaire such as CEDRA [3] – free and available to use from http://cedra.northwestern.edu		

Target Risk Score i.e. after **full** implementation of action plan	Consequence (1-5)	3
	Likelihood (1–5)	2
	Risk Score (1 – 25)	6

Description of risk	**2. Example Risk assessment: delayed hearing assessment for patients with additional support needs.** **Background:** The relationship between increased prevalence and impact of unaddressed sensory needs in individuals with additional support needs is well documented; including those with dementia [1], learning disabilities [2] and other multi-morbidities [3]. Adjustments to audiological assessment for these populations are frequently required, most of which are not currently achievable remotely on a wide scale. For this reason it is likely during the current restrictions audiological assessment for this population is likely to be delayed for a significant period of time. **Identified risks:** Unidentified need for medical intervention • This may delay appropriate treatment potentially exacerbating the condition [4]. • Unaddressed pain may cause distress. For some individuals this may lead to challenging behaviour affecting the patient and those that care for them [5]. • Limited communication can increase challenges in providing wider care [6] • Lack of consideration of balance difficulties can miss the opportunity to address issues leading to falls [3] **Who may be harmed or affected?** Patient, Family / carers, Staff / Department.

Available preventative control measures when risk was identified	• Telephone or videocall review by suitably experienced member of staff with patient and, if required, a carer who knows them well to include:
	  o Risk identification of aspects that may need medical intervention
	  o Giving advice on maximising communication
	• Post or email easy read resources for maximising communication if appropriate
	• Ensure MDT involved with individual is aware of communication challenges and risks
	• Coordination with community learning disabilities team to ensure sufficient support
	• Discussion with SLT to consider appropriateness of alternative forms of communication support
	• For individuals with cognitive issues that may impact completion of behavioural hearing assessment, provide information on skills that could be practiced prior to the hearing assessment, such as waiting for sound etc.

Initial Risk Score i.e. with existing controls in place	Consequence (1-5)	3
	Likelihood (1–5)	5
	Risk Score (1 – 25)	15

Action Plan to reduce the risk to an acceptable level		
Description of actions	**Responsibility**	**Date**
Initiate use of evidence based ear disease risk questionnaire such as CEDRA [7] – free http://cedra.northwestern.edu		

Target Risk Score i.e. after **full** implementation of action plan	Consequence (1-5)	3
	Likelihood (1–5)	3
	Risk Score (1 – 25)	9

Description of risk	### 3. Example Risk assessment: hearing aid programming errors.
	
	Background: If remote hearing assessment is not available, any uncertainty or fluctuation of hearing thresholds cannot be checked. This can result in inaccuracy in hearing aid settings.
	
	Identified risks:
	
	o Overamplification
	   • Feedback
	   • Hearing could be damaged [1]
	   • Unpleasant sound may cause distress [2]. For some individuals this may lead to challenging behaviour affecting the patient and those that care for them [3].
	o Poor frequency-gain response
	   • Inadequate benefit from hearing aid increasing likelihood of rejection both of the current hearing aid and less willingness to try future hearing aids [4]
	
	Who may be harmed or affected?
	
	  o Patient
	  o Family / carers
	  o Staff / Department

Available preventative control measures when risk was identified	• Consider ability of patient and, if relevant, care team in adequately feeding back experiences of hearing aid use. • Volume control should be considered depending on the capacity of the patient to appropriately manage • Dynamic feedback manager if available on hearing aid issued • Consideration of appropriate compression and MPO settings • Use of coupler measurements prior to issue of hearing aids, with measured RECDs if available and suitable (i.e. deemed accurate).

Initial Risk Score i.e. with existing controls in place	Consequence (1-5)	3
	Likelihood (1–5)	4
	Risk Score (1 – 25)	9

Action Plan to reduce the risk to an acceptable level		
Description of actions	**Responsibility** **(Job title)**	**Completion** **Date**
Table 2		

Target Risk Score i.e. after **full** implementation of action plan	Consequence (1-5)	3
	Likelihood (1–5)	2
	Risk Score (1 – 25)	6

Appendix References

Risk assessment 1

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Risk assessment 2:

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Risk assessment 3

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