



Division of Neuropsychology

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The following are interim guidelines to support colleagues and services in the context of the global Covid-19 pandemic. They are likely to be superseded by a consultation and a full position paper on tele-neuropsychology in due course.

Division of Neuropsychology Professional Standards Unit Guidelines to colleagues on the use of Tele-neuropsychology¹

Executive Summary

The Division of Neuropsychology (DoN) supports the appropriate use of remote technologies when undertaking clinical neuropsychology work in the context of the current COVID-19 pandemic.

Careful consideration on a case-by-case basis must be given as to whether use of tele-neuropsychology is necessary and will address the current need of the patient/client.

Guidance for those planning tele-neuropsychological assessment and rehabilitation/treatment during the

current public health situation is provided but should be interpreted in the context of local guidance from employers and other host organisations.

Published studies indicate that remote administration of some neuropsychological tests can produce reliable and valid results, though the evidence base is limited.

The assessment of young children, those with intellectual disability, and many older adults will require specific further consideration.

Background to this guideline

The following guidelines highlight issues to be considered when undertaking clinical neuropsychology work remotely. They are intended to assist clinicians in making rational balanced judgements about the strengths and weaknesses of adopting a tele-neuropsychology approach to their work. This guidance has been specifically written to support the work of neuropsychologists attempting to maintain continuity of services during the current COVID-19 pandemic.

Clinical neuropsychologists are well placed in terms of their knowledge and skills to consider the potential

differences and limitations of video and telephone delivery of services within the context of an ongoing public health situation. The scope of this document applies to the development of formulations and interventions appropriate to these contexts and, most pertinently, considerations for neuropsychological assessments at this time.

Tele-neuropsychology may be used in a variety of different circumstances, specifically within the context of COVID-19 in response to necessary restrictions upon contact with clients. Some services / clinicians

¹ We refer here to the delivery of neuropsychological services via web-based video conferencing formats.

may elect to defer appointments entirely during the current restrictions. However, we recognise that urgent requests requiring formal cognitive assessment will still arise and deferring appointments may not be an appropriate approach if restrictions extend for many months. Tele-neuropsychology may be a pragmatic solution for some services/clinicians after consideration of the guidance below.

The Division of Neuropsychology supports the appropriate use of remote technologies when undertaking clinical neuropsychology work but leaves the specific decision about this work to individual clinicians to judge on a case-by-case basis after considering the guidance below.

The information presented here is a resource for those planning tele-neuropsychological assessment and rehabilitation/treatment, but should be interpreted in the context of the local guidance of your employer and/or host organisation.

In many respects a well-conducted video-call shares the same qualities as a face-to-face meeting if the

client/patient can understand and engage via this medium. Information derived from such interaction can be considered comparable. However, many aspects of neuropsychological work require careful thought to establish whether tele-neuropsychology is a valid substitute for face-to-face interaction, for example when considering cognitive testing. Given specific developmental limitations, assessment of young children, adults with intellectual disabilities, and many older adults will require specific further consideration (see sections 6–8).

In many circumstances there are distinct advantages to undertaking neuropsychological work via video-call rather than telephone call because the comparability of face-to-face in person and face-to-face via video-link is much greater.

In order that the neuropsychological work conducted via video call is secure, reliable and valid we suggest the following considerations:

1. Technology

- 1.1 Telephone assessments are outside the scope and focus of these guidelines. However, it is acknowledged that such assessments are particularly applicable to groups or individuals without access to smartphone or internet enabled hardware. The validity of telephone-based administration of many auditory measures such as RAVLT, COWAT, and Digit Span appear relatively consistent with face-to-face and video-based administration.

Clients/patients should be advised to use a secure private domestic internet connection, rather than less secure public WiFi. An ethernet cable would facilitate more consistent connection for either party if available.
- 1.2 Most video conferencing applications require clients/patients to share information they may not normally have been required to share, for example an email address or mobile phone number.
- 1.3 A client/patient will need access to, and familiarity with, a computer/tablet that has a camera and microphone. It is recommended that the clinician assesses this in advance of the appointment. For any cognitive assessment activity involving visual stimulus presentation the device will need to be at least as large as a standard iPad (9”).
- 1.4 The above device will need to be connected via a reliable internet connection, with ideally broadband or 4G speeds. Lower speeds may work but quality may be compromised.
- 1.5 A client/patient may also need to have access to a mobile phone, or be supported by an adult or carer with the same, to be able to receive text messages for two-factor authentication codes used for some technologies.
- 1.6 There are a variety of different video-conferencing systems available and many offer a free service in addition to subscription services. Some NHS Trusts/Health Boards may only permit specific systems to be used for client work and so it is important to check available information governance guidance. Any system that is used would need to be secure and compliant with GDPR regulations related to the transmission and storage of sensitive personal data. Clinicians should review the privacy statement of any proposed system, and confirm the necessary requirements are met.

2 The Client / Patient

- 2.1 The person receiving the remote neuropsychology service needs to be familiar and comfortable with the technology they are using. Support to access technology may be required from family and/or carers as is the case with face-to-face appointments e.g. children attending appointments with parents.
- 2.2 A third party can facilitate the use of the technology, but this person should not be present while the psychometric testing is taking place, except in the case of children or adults with significant cognitive impairment or other additional needs (see sections 6–8).
- 2.3 The client/patient being assessed needs to have sufficient hearing, vision, communication ability and cognitive ability to be able to reliably interact via video conferencing.
- 2.4 The person being assessed needs to be able to manage their own personal care needs for the duration of the appointment or have readily available a third party who can be called upon to assist as required.
- 2.5 The client/patient needs to consent to receiving the service remotely in addition to the routine considerations covered in any consent (see additional guidance for children or adults with learning disability). An example of the information a client/patient will need to be made aware of in relation to receiving a teleneuropsychology service is noted at the end of this document. Clinicians are advised to share a privacy statement with clients/patients indicating how data will be stored, who will have access and the security measures in place. Potential threats to validity associated with conducting the work remotely will need to be made clear to the person consenting to, or commissioning, the service so that informed decisions can be made in relation to the assessment process.

3 The Setting

- 3.1 The video call needs to, as far as possible, mimic the experience of being in the same room as the person conducting the assessment.
- 3.2 It is important to ensure rooms used by both client/patient and clinician are quiet, without distractions and that the person receiving the service will not be disturbed for the duration of the appointment.
- 3.3 The clinician and client/patient should ensure all other apps/notifications are turned off to avoid distraction. Those with a short attention span or prone to fatigue may require multiple sessions, as is often the case, but particularly with this modality.
- 3.4 To improve eye contact, position the camera so that it is easy to address the camera and the client/patient on screen.
- 3.5 The clinician should consider the room background that will be visible to the client/patient. Specifically, the clinician should ensure that there is not any material in sight that may breach data governance guidelines, or if working from home, their personal location or identity of their family members. Similarly, clinicians must avoid interruptions by others in the household to maintain a professional and valid testing environment and to ensure patient confidentiality.
- 3.6 As with a face-to-face appointment, it is important to ensure psychometric test security is maintained. It is essential to obtain explicit agreement from the client/patient that they will not copy, store or record any of the psychometric assessment, as this is prohibited by test companies such as Pearson Assessment. Where the clinician considers that such risks are not appropriately managed, then testing should not continue.
- 3.7 It is further important to establish who is present in the room at the time of the appointment. A video-call will not offer a full field of view and so people can be present but not visible. It is good practice to ask the client/patient to indicate if others are present but not visible. As with a face-to-face appointment the clinician will need to manage to interaction and dynamics of the room and wider household setting.

3.8 Contact details for relatives and/or carers may be useful in the event of an emergency arising such as the client/patient having a seizure or being at risk. Such risks should be considered prior to

the session and discussed with those within the household such that provision can be made to mitigate such risks.

4 The Clinician

4.1 The clinician providing the service will need to be familiar with the technology they intend to use. They need to be competent in using any systems employed and familiar with any relevant settings to ensure a professional delivery of the service.

4.2 The clinician will need to dress and behave just as they would in a face-to-face appointment.

4.3 Clinicians are encouraged to practice their interactions using the intended technology to ensure professional delivery.

5 Delivery of Treatment / Interventions

5.1 There are specific considerations for managing treatment or intervention sessions. These are largely beyond the scope of the document but there is preliminary evidence that cognitive rehabilitation interventions can be delivered using a telehealth approach (e.g. Lawson et al., 2020 for memory rehabilitation after stroke). With regard to psychotherapy it is recommended that the [BPS Division of Clinical Psychology Effective Therapy via Video: Top Tips](#) document is consulted. Whilst this guidance is not specific to conducting psychological therapy with people with neurological conditions, the general principles and points made are relevant. The document also contains links to a range of other useful resources.

5.2 It is clear that while tele-neuropsychology may have clear restrictions in this domain, there are also some particular advantages with regard to common interventions and client groups. For example:

5.2.1 There are likely to be particular benefits of delivery of treatment and intervention in a home environment and opportunities to engage in supporting individuals in this context.

5.2.2 Opportunities for recording may have advantages for the client to facilitate review and enhancement of treatment effects.

6 Administration of Psychometric Measures

6.1 Clinicians understandably have reservations about the equivalence of cognitive testing and other psychometric measures being administered remotely when compared with face-to-face.

6.2 The valid use of a psychometric tool in part rests on it being delivered in a way that is consistent with the standardised administration instructions. None of the common psychometric tools used clinically were normed using this modality. By way of perspective, however, neither were many of them normed in the specific face-to-face setting in which they are used by different people around the world, i.e. one person's office, versus another,

versus a hospital setting, versus a bedside setting and so on.

6.3 Where comparator research studies have been conducted these have typically shown that psychometric measures administered remotely result in comparable scores when those same measures are given to the same people face-to-face and any differences observed are very small and not consistently improved or worsened. By way of context the magnitude of the differences seen are much smaller than the magnitude of the differences seen when different clinicians score the exact same assessments.

- 6.4 The extent to which video conferencing affects the validity of a specific measure is likely to relate to a combination of the competence of the clinician in the administration of the measure remotely, the choice of measure, and the client/patient's ability to engage in the assessment remotely. Technological factors are unlikely to be a major contributor to validity if reliable broadband internet is available and the video system used is resilient to bandwidth fluctuations.
- 6.5 Wherever possible clinicians are encouraged to use specific tests and tools that have been shown to have comparability when administered remotely as with in-person assessment. Where specific data are not available, clinicians need to be thoughtful and consider whether an assessment can be conducted in a way that is directly comparable with a face-to-face administration. For example, there is evidence of equivalence of the NART, but the TOPF has not been subject to research. However, given the comparability of the measures it is reasonable to presume the validity would extend to the TOPF. Likewise, the CVLT-2 short form, HVL and RAVLT have all been shown to be equivalent, implying the CVLT-3, a comparable word list learning task, would likely also demonstrate equivalent validity, even though it has not been subject to research yet. Examples of other measures for which there has been some reliability studies indicating that tests give similar results delivered via video link include: the RBANS; Digit Span; Verbal and Category Fluency, Boston Naming Test; WAIS Vocabulary and Matrix Reasoning (WASI); Clock Drawing; VOSP silhouettes; and the MoCA. For some tests (e.g. Clock Drawing) there has been some heterogeneity in results from studies examining consistency between videoconference and in-person delivery though this may have been due to scoring inconsistencies unrelated to mode of delivery.
- 6.6 For certain measures, such as a complex figure task for example, consideration needs to be given to how the response of the client/patient is to be recorded and how to prevent relevant stimuli being seen during a delay period. One approach might be to ask a client/patient to hold up to their camera their drawing of the figure and then use the computer's 'screenshot' function to take a picture of what they produced. That way the clinician retains a record of what was produced, and this can be scored later off-line. To prevent a client/patient from reviewing their copy during the delay period they could be asked, after the screenshot has been taken, to rip up their drawing in front of the camera and put the resultant pieces of paper in the bin. The client/patient should be asked to destroy all copies at the end of the assessment to protect test materials. Screenshots of tests materials, taken by either party, are not permitted.
- 6.7 Other measures, i.e. those that are dependent on the client/patient being able to physically manipulate stimuli, cannot readily be delivered remotely. Where this has been undertaken in the research literature this was dependent on an assistant being present with the patient in the room who could supply the stimuli as required. This is *not* recommended in the current circumstance.
- 6.8 Many questionnaires can be administered remotely via different platforms. Clinicians are encouraged, wherever possible, to use the commercially available test company platforms to deliver relevant measures. For example, the Personality Assessment Inventory can be delivered remotely via PARiconnect, and Pearson's Q-Global offers a range of questionnaire measures that can be delivered remotely.
- 6.9 Clinicians are discouraged from sending any material to clients/patients that is likely to be in breach of test security.

7 Assessment of Children

- 7.1 There will need to be additional considerations for the assessment of children dependent upon age, cognitive ability, attentional capacity and interpersonal skills.
- 7.2 The modality of tele-neuropsychology has strong potential to be used effectively to support the use of observation of children's behaviour and communicative interactions in a naturalistic setting. There are corresponding limitations on the extent to which the clinician will be able

use nonverbal and social interaction to promote the child's engagement. Formal cognitive or developmental assessment may not therefore be feasible with children at the lower end of the age or ability spectrum, and particularly those with attentional deficits, hyperactivity, anxiety or social difficulties. Similarly, it may be difficult for young children to engage in fluent conversation with the clinician via this modality.

- 7.3 In the case of those under 16 years old it will be necessary to seek parental consent and child assent and to adapt the process to suit the developmental status of the child/young person. Prior telephone discussion with a parent/guardian is recommended to assess feasibility and to discuss any safeguarding concerns or context, which is likely to sensitise the child to this modality of assessment. As always, it will be necessary to adapt the process to suit the age and ability of the

child or young person, or to ease any additional concerns.

- 7.4 It is recommended that a parent/guardian remain in the room in the case of younger children to provide reassurance and assist with technology. It will be important to explain to the accompanying adult that they must not assist or interfere with the assessment itself. Ideally, they should be asked to sit behind the child. For older children not accompanied by a parent/guardian it is recommended that noise interference from outside is kept to a minimum.
- 7.5 The use of commercially available test company platforms to deliver third party questionnaire measures is recommended, such as parent and teacher versions of the BASC-3 or Vineland-3 via QGlobal. For older children there are self-rated versions of some of these measures and additional online questionnaires such as the BYI-2.

8 Adults with Intellectual Disability

- 8.1 There will need to be additional considerations for the assessment of adults with significant cognitive impairment and reduced capacity to engage or consent.
- 8.2 Some patients/clients will be unable to participate in the process in a manner which is meaningful and produces valid results. Others will require adapted materials and support from a third-party carer for the assessment process, informed consent and operation of technology. It will be important to explain to the third party

the parameters of their assistance to avoid interference with the testing process.

- 8.3 Clinical judgement should be applied by clinicians skilled with these populations as would be the case in face to face assessment, with considerations of the additional complexities of this mode of service delivery.
- 8.4 The use of commercially available test platforms to delivery third part questionnaires is recommended such as the Vineland-3 via QGlobal.

9 Older Adults

- 9.1 As noted above, contact by phone may still be used for screening² and is recommended to assess for current risk and vulnerabilities.
- 9.2 If the assessment is for the differential diagnosis of dementia, we are reminded that a 'timely' diagnosis of dementia has always been considered to be more important than an 'early' diagnosis. In the current situation the majority of Memory Clinics have been closed with staff being redeployed. Any patients undergoing a neuropsychological assessment at this time may

not have access to the pre-diagnostic counselling, post-diagnostic support or pharmacological interventions which they would receive during normal service.

- 9.3 Some older adults may not have sufficient familiarity with or access to required technology and may find the process anxiety provoking or aversive. In a brief survey of the acceptability of tele-neuropsychology to older adults, 10 people who were on a neuropsychology waiting list at a community Memory Clinic, at the time of the

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Covid-19 were offered tele-neuropsychology in lieu of postponement. Of these the vast majority declined the offer, often citing lack of confidence or familiarity with the internet. The remainder considered tele-neuropsychology to be acceptable, but only if their relative remained in the room throughout.

- 9.4 Those with degenerative conditions may have reduced capacity to engage and consent. Neuropsychology is typically offered to those

patients with a differential diagnosis of a rarer dementia. In these cases, visuospatial misperception and visual hallucinations may be more common, which may make the virtual interface particularly challenging.

- 9.5 If it is considered that the patient/client has sufficient ability to engage and is happy to do so third-party assistance may be required (see sections 7.2 and 7.3).

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KEY REFERENCES AND RESOURCES

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6. A presentation on virtual and tele-neuropsychology by Dr. Munro Cullum – presentation slides are posted on the National Academy of Neuropsychology (NAN) website: http://www.nanonline.org/nan/Professional_Resources/Telehealth_Resources/NAN/Professional_Resources/Telehealth_Resources.aspx?hkey=7414d46d-46f2-4cd2-a4a6-29096996f802
7. Recent interview regarding COVID-19 and Tele-neuropsychology on Nav Neuro with Dr. Munro Cullum: <https://www.navneuro.com/41-teleneuropsychology-with-dr-munro-cullum/>
8. A 2-hour CE credit APA course on Best Practices in Tele-psychology 101: <https://apa.contentonline/catalog/product.xhtml?eid=15132>
9. A 3-part YouTube series on ethics and best practices in telehealth, recently updated by Dr. C. Karol https://www.youtube.com/playlist?list=PLFmT332_Jx4u18qpVfo5B95uWJgEnvd7A
10. <https://www.parinc.com/Using-PAR-digital-assessments-during-the-COVID-19-crisis>
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Example Consent Form Contents for Tele-Neuropsychology

The following example reflects those aspects of consent specifically related to the delivery of tele-neuropsychology services and is in addition to the information conveyed as part of any normal consenting process.

By consenting to receive my neuropsychology service remotely, i.e. tele-neuropsychology, I understand:

1. That I will receive my neuropsychology service remotely, via video-link, rather than in person.
2. How my data will be processed, stored and secured in line with the relevant GDPR legislation, see Privacy Notice.
3. That, to protect my own privacy, I need to choose a private location to receive my tele-neuropsychology service.
4. In order to provide the best call environment, I should reduce background light from windows or light emanating from behind me. I understand that my camera should be placed on a secure, stable platform to avoid wobbling and shaking during the consultation. To the extent possible, my camera should be placed at the same elevation as my eyes with my face clearly visible to the other person.
5. I will not share or distribute the log in details or assessment access details to any other parties.
6. The materials are subject to copyright and professional restriction. I will not copy, store or distribute, or permit to be copied, stored or distributed, any element of the assessment, including but not limited to, physical or electronic copying, storage or distribution of test items, the assessment format or any responses made.
7. I will be informed whether there are other people present in the consultation with the clinician that I cannot see on camera.
8. That I will be asked, and will inform the clinician, if there are other people in the consultation that they cannot see.
9. I understand the potential risks of receiving a tele-neuropsychology service, i.e. delay in my receiving a service should there be problems with the technology, a potential lack of access to the clinician of all relevant information, i.e. some cognitive tests cannot be delivered remotely, or a security breach allowing unauthorised access to my confidential information.
10. I understand that the clinician or I may terminate the tele-neuropsychology consultation at any time, including if the clinician or I feel that an in-person visit is necessary for any reason.
11. I have had the alternative to tele-neuropsychology explained to me and I choose to continue with tele-neuropsychology.
12. I am able to end my tele-neuropsychology service at any time by asking the clinician or ending the call.
13. I have read and understood the information above.
14. I have had the opportunity to ask any questions about the tele-neuropsychology service.

Signed & Dated: