Cognitive Communications Disorders Guidance

Introduction

Cognitive communication disorders are varied and complex. However, the role of SLTs in supporting adults, young people and children with acquired cognitive communication disorders is increasingly well-recognised and descriptions of evidence-based assessment and intervention approaches are increasingly well-documented.

This guidance uses the available evidence to make clinical recommendations for speech and language therapists working in the UK. The guidance encompasses both adults and children with acquired cognitive communication disorders due to an acquired or progressive neurological condition. It does not cover people with developmental cognitive communication differences, such as those that may be experienced by people with neurodevelopmental conditions.

The current literature and evidence on cognitive communication disorders is predominantly based on the assessment and intervention of cognitive communication disorders in people with acquired brain injury (ABI) due to stroke or traumatic brain injury (TBI). However, this is changing and there is evolving evidence exploring cognitive communication disorders due to other causes.

Cognitive communication disorders is an evolving term in the literature currently available. It is not used universally across the globe and different terminology has been used in different studies, even though definitions and descriptions of these terms were recognisable as cognitive communication disorders. It is also the case that much of the literature is based on cohort studies, case series and expert opinion. However, both qualitative and quantitative methodologies are used, giving a rich field of information on which to formulate clinical recommendations. There is also a growing body of meta syntheses, systematic reviews and randomised control trials. Randomised control trials may have limitations in evaluating interventions for people with cognitive communication disorders as the heterogeneity of presentation and the need for individualised goals make standardised measurement difficult (MacDonald & Shumway, 2022).

Great strides have been made internationally to synthesise the best available evidence and develop clinical recommendations for the assessment and intervention of acquired cognitive communication disorders by SLTs. Examples of practice guidelines for SLTs working with cognitive communication disorders can be found in the following sources:

- **The INCOG 2.0 guidelines on the management of cognitive communication disorders and social cognition** (Togher et al, 2023), which will be referred to as the INCOG 2.0 guidelines (2023) in the guidance. These are practice guidelines created by a panel of experts.
- **The evidence- and consensus-based guidelines for the management of communication and swallowing disorders following paediatric traumatic brain injury** (Mei et al, 2018). These guidelines were developed by a multidisciplinary committee from a systematic review and a Delphi survey to reach consensus from experts in the field. They focus on communication and swallowing disorders but also include recommendations that are pertinent to children with cognitive communication disorders.
- **The cognitive communication evidence application for speech-language therapists/pathologists: Map of clinical recommendations for adults with acquired brain injuries (CCEAS-Map)** (MacDonald and Shumway, 2023), which will be referred to as the CCEAS-Map (2023) in the guidance. The CCEAS-Map (2023) is a knowledge translation tool generated from the synthesis of recommendations available in the literature and knowledge of clinicians and people with lived experience of ABI.
- **The Social Communication Implementable and Applicable Lens (SoCIAL)** (Keegan et al, 2025). SoCIAL is a framework that provides recommendations for assessing social communication in context. It was developed by an international working group and was based on current literature and the opinion and feedback from clinical and research experts at meetings and conferences.
- **The clinical practice guidelines for the management of communication and swallowing in children diagnosed with childhood brain tumour or leukaemia** (Docking et al, 2025). These guidelines were informed by a systematic review, a panel of experts and a survey of healthcare professionals and parents of children diagnosed with a brain tumour or leukaemia. They cover communication and swallowing disorders but also include recommendations that are pertinent to children with cognitive communication disorders.

These resources will be referred to throughout this guidance on cognitive communication disorders, along with other sources of evidence. See the resources page for details of these and other useful resources relating to working with cognitive communication disorders.

Please **contact us** if you have any suggestions or feedback on these pages.

Definition, symptoms and models

Definition

Cognitive communication disorders are defined as acquired deficits in communication that arise from an underlying cognitive impairment. The subsequent communication difficulties can be wide-ranging. These can affect auditory comprehension, verbal expression, reading, writing, non-verbal communication, pragmatics, discourse and social communication. They can result from acquired deficits in cognition including attention, memory, information processing, reasoning, problem-solving and executive functions or self-regulation (INCOG 2.0 Guidelines, 2023; MacDonald & Shumway, 2022; MacDonald, 2017; CASLPO Guidelines, 2015).

Additionally, it is being increasingly recognised that impairments of social cognition can contribute to cognitive communication disorders (INCOG 2.0 Guidelines, 2023). Social cognition refers to a set of processes, which enable the perception of social cues from the self and others, the interpretation and understanding of own and others' emotions, beliefs and behaviours and the generation of responses to these inferences to guide social behaviour (Allain et al, 2019).

Signs and symptoms

Signs and symptoms of cognitive communication disorders vary between individuals, according to their profile of underlying cognitive function. However, signs and symptoms may include (Christensen et al, 2023; INCOG 2.0 Guidelines, 2023; MacDonald, 2017; Turkstra et al, 2015):

- difficulty understanding complex or lengthy spoken or written information
- reduced recall of spoken and written information, personal stories, or personal information shared by their communication partner
- reduced initiation, elaboration, and maintenance of conversation or social interaction
- altered affect including blunt, flat, or inappropriate affect
- word-finding difficulties or difficulties learning new vocabulary
- verbosity
- tangential topic production
- reduced turn-taking in conversations
- unstructured or disorganised discourse production
- repetitiveness
- omission of details and information

- increased processing time for understanding spoken and written information and/or formulating what to say or write
- reduced inhibition of responses and personal disclosures that are considered less socially acceptable
- difficulty interpreting emotions and social cues
- difficulty using non-verbal communication that matches the topic and context
- reduced ability to monitor self, communication partners and conversation topic.

People with cognitive communication disorders may present with reduced self-awareness or insight, which can add challenges to engagement with speech and language therapy interventions (Kelly et al, 2023; Meulenbroek et al, 2019).

The list in **Table 1 shows the relationship between different cognitive impairments and their possible impact on the communication of people with cognitive communication disorders.**

It is acknowledged though that the relationship between cognitive impairment and subsequent communication difficulties is not linear. Communication is a complex process influenced by various interacting individual, cognitive, emotional, physical, self-regulatory and contextual factors. Communication success and characteristics can fluctuate depending on the communication partner, the environment, demands, priorities, fatigue, sensory and physical issues, psychosocial variables, behavioural control and emotional dynamics (INCOG 2.0 guidelines, 2023; MacDonald, 2017).

To add to the complexity of acquired cognitive communication disorders, some signs and symptoms can co-occur with, or be attributed to, other diagnoses, most notably neurodevelopmental conditions (such as autism, developmental language disorder) and mental health disorders (such as schizophrenia, depression). An added complication is that these conditions may themselves be undiagnosed or not formally diagnosed. Making a differential diagnosis between these overlapping, and potentially co-occurring, diagnoses, is important, especially when working with children and young adults.

Models and frameworks

There are models and frameworks that more accurately depict the interacting components of successful communication, albeit from different perspectives. Examples of some of these models and frameworks follow.

The model of cognitive communication competence (MacDonald, 2017)

This model shows the central role of communication comprehension and expression, the importance of the context in which the communication takes place, the influence of cognitive, linguistic, emotional, physical and self-regulatory abilities, and the necessary integration of all these factors to enable social competence within family, community, social, work, academic and problem-solving contexts (MacDonald, 2017).

The cup of competence (Snow & Douglas, 2017, cited in Douglas, 2017)

The cup of competence analogy focuses on pragmatic competence. It shows constituent functions of pragmatic competence conceptualised in the context of individual psychological characteristics and social–environmental influences.

The social communication (SoCom) model (Wiseman-Hakes et al, 2020)

The social communication model is a framework for understanding social communication in the context of paediatric brain injury. The model emphasises the interplay of language with cognitive and social cognitive constructs (arranged in hierarchical 'building blocks'), influenced by internal (sex and gender) and external (environmental, individual and cultural) factors.

The social communication implementable and applicable lens (SoCIAL) framework (Keegan et al, 2025)

The social communication implementable and applicable lens has a focus on social communication. It illustrates the personal, contextual, cognitive, communication, physical, emotional and environmental factors that evidence has shown can influence social communication competence.

Impact of cognitive communication disorders

Cognitive communication disorders can have a significant and debilitating impact on family, social, community, educational and vocational life for people with cognitive communication disorders and their families, friends and wider networks. These impacts are primarily related to increased communication challenges and breakdowns between the person with a cognitive communication disorder and their communication partners (INCOG 2.0 guidelines, 2023; Grayson et al, 2020a; Douglas, 2017). The likelihood of such challenges is increased when the person with a cognitive communication disorder lacks insight into their difficulties (Kelly et al, 2023; Grayson et al, 2020b; Douglas et al, 2016a).

Impact on relationships and participation

Cognitive communication disorders can lead to:

- difficulty acquiring and developing social skills in childhood due to impairments of cognition and social cognition (Greenham et al, 2018)
- difficulty building and maintaining relationships in all areas of life (INCOG 2.0 guidelines, 2023; Meulenbroek et al, 2019; MacDonald, 2017)
- loss or reduction of social networks and friendships (INCOG 2.0 guidelines, 2023; Douglas, 2020; Grayson et al, 2020a; Hewetson et al, 2018; Douglas, 2017; Ylvisaker & Feeney, 2007)
- reduced participation in leisure activities (Cummings, 2023b; Hewetson et al, 2018).

These factors often result in reduced social participation, isolation and loss of social connection for both the person with a cognitive communication disorder and their support network (Kelly et al, 2023; Swales et al, 2021; Grayson et al, 2020a; Douglas, 2020; Grayson et al, 2020b; Hewetson et al, 2018; Douglas, 2017; Ylvisaker & Feeney, 2007).

Reduced academic and vocational participation

Cognitive communication disorders can significantly affect:

- social communication skills required at work and school (Crook et al, 2023; Douglas et al, 2016a; Meulenbroek and Turkstra, 2016; Rietdijk et al, 2013)
- performance in spoken and written communication tasks in educational and work contexts (Crook et al, 2023; Meulenbroek et al, 2016)

- reintegration into school and work environments.

These challenges can result in reduced academic success (Cummings, 2023b; MacDonald, 2017; Turkstra et al, 2015) and a lower likelihood of a successful return to work (Cummings, 2023b; Hewetson et al, 2018; MacDonald, 2017). Murphy et al (2006) reviewed outcomes for 232 people with acquired brain injury in Rehab UK's Vocational Rehabilitation Programme and found that only 41% gained paid employment through open competition.

A cognitive communication disorder may be a significant predictor of employment outcomes after acquired brain injury (O'Neil-Pirozzi et al, 2021; Douglas et al, 2016a; Rietdijk et al, 2013). Three studies have identified that cognitive-communication assessments can differentiate individuals who do and do not return to work post-injury (MacDonald, 2017):

- Rietdijk et al (2013) found that performance in the functional assessment of verbal reasoning and executive skills (FAVRES), particularly in tasks involving complex written communication, sustained attention and independence, correlated with return to work in 14 adults with severe TBI.
- O'Neil-Pirozzi et al (2021) analysed data from 3,543 individuals with TBI and found that functional cognitive-communication skills (measured by FIM cognition), especially problem-solving, social interaction, memory and spoken language, predicted return to work at one, two and five years post-injury.
- Meulenbroek & Turkstra (2016) found that in 31 adults with moderate–severe TBI, performance in communication tasks, particularly tasks requiring verbal reasoning speed and social inference, predicted work stability in skilled roles.

Loss of autonomy and independence

Cognitive communication disorders can lead to:

- reduced ability to navigate interactions and activities independently (MacDonald, 2017)
- greater dependence on family and carers for support and contact (Howell et al, 2023; Douglas, 2020)
- risk of exclusion from decision-making about their own lives because of cognitive impairment and family taking the lead in decision-making (Knox et al, 2015).

These can lead to loss of agency for the person with a cognitive communication disorder (Knox et al, 2015).

Disruption to identity and roles

Cognitive communication disorders can cause a:

- loss of sense of self identity for the person with a cognitive communication disorder (Kelly et al, 2023; Knox et al, 2016) and their family members (Grayson et al, 2020a)
- shift in life roles (eg partner, parent, colleague, friend) for both the person with a cognitive communication disorder and their significant others (Cummings, 2023b; Kelly et al, 2023; Grayson et al, 2020b).

Impact on mental health and wellbeing

The consequences of a cognitive communication disorder can mean that individuals and their families may experience:

- loneliness (INCOG 2.0 guidelines, 2023; Kelly et al, 2023; Swales et al, 2021; Grayson et al, 2020b; MacDonald, 2017; Douglas, 2017; Hewetson et al, 2018)
- loss of confidence (Kelly et al, 2023; Swales et al, 2021)
- increased family and caregiver distress and burden (Grayson et al, 2020a; Grayson et al, 2020b; Turkstra et al, 2015)
- reduced quality of life (Cummings, 2023b; Douglas, 2020).

These emotional consequences can impact overall mental health and wellbeing (Kelly et al, 2023; Cummings, 2023b; Swales et al, 2021; Douglas, 2020; Douglas, 2017).

Long-term consequences

In the absence of effective diagnosis, intervention and support for their cognitive communication disorder, longer-term consequences can include:

- **Childhood development:** Children are likely to fall behind academically, struggle to maintain peer relationships and behave appropriately in the classroom. These may worsen over time as the individual falls further away from their developmental trajectory (Ciccia et al, 2021).
- **Early vulnerability:** Younger children are more vulnerable to long-term issues, which often grow in severity over developmental years (Cermark et al, 2019; Ylvisaker & Feeney, 2007). Age at injury is correlated with language development, with children injured at a younger age performing worse in narrative discourse, reading comprehension and high-level language tasks than those injured at an older age (Cermark et al, 2019). This supports the early

vulnerability hypothesis that developing, less consolidated skills are more prone to impairment (Cermark et al, 2019) with an impact on educational attainment and employment.

- **Risk of criminal behaviour:** There may be an increased risk of criminal behaviour (Hughes et al, 2015). Between 25% and 87% of imprisoned adults (Wiseman-Hakes et al, 2023) and between 45% and 72% of imprisoned young people (Hughes et al, 2015) have sustained a traumatic brain injury, and many of them are likely to have a cognitive communication disorder (Wiseman-Hakes et al, 2023). Cognitive communication disorders may be risk factors for criminal behaviour or susceptibility to manipulation by others because of the potential implications for social communication, impulse control, social cognition and educational and vocational outcomes (Wiseman-Hakes et al, 2023; Hughes et al, 2015).
- **Poor outcomes in the criminal justice system:** Poorer outcomes in the criminal justice system and beyond, due to the potential impact of cognitive communication disorders on understanding and navigating the complexities of legal processes, participating accurately in decision-making, understanding the outcomes of their actions in the legal context, community re-integration and understanding bail conditions, resulting in recall to court or prison and an increased risk of re-offending (Wiseman-Hakes, et al, 2023; Wszalek & Turkstra, 2019a; Wszalek & Turkstra, 2019b).

Causes

Cognitive communication disorders are a common consequence of acquired and progressive neurological conditions. The following list is not exhaustive but highlights a wide range of potential causes. Where available, incidence figures are provided.

Please note that functional neurological disorders (FND) have been omitted from this list of causes. Whilst FND is a clinically known cause of cognitive communication disorders, the principles and methods of intervention are different.

Acquired brain injury

Acquired brain injury is an umbrella term for brain injury that occurs after birth and is non-progressive (MacDonald & Shumway, 2022). It includes traumatic brain injury, stroke, aneurysm, infections, anoxia and brain tumours (MacDonald & Shumway, 2022). A much-cited figure is that cognitive communication disorders can be experienced by more than 75% of people with an acquired brain injury (MacDonald, 2017). On further examination, this figure arises predominantly from studies of people with right-sided brain pathology. Specific estimates vary due to severity, population and assessment measures (MacDonald and Wiseman-Hakes, 2010). The prevalence of cognitive communication disorders in children with an acquired brain injury has yet to attract much inquiry although many papers state is highly likely to occur (eg Crumlish et al, 2024).

Stroke

There are several studies describing the occurrence of cognitive communication disorders in people with stroke:

- Blake et al (2002) retrospectively reviewed charts of 123 adults with right hemisphere brain injury (mostly stroke) and found that at least 80% had cognitive communication disorders, with either a hyperresponsive (n=51) or hyporesponsive (n=48) profile.
- Ferre et al (2009) assessed 71 individuals with right hemisphere stroke using the Montreal Protocol of the Evaluation of Communication and found 63% showed signs of a cognitive communication disorder.
- Blake et al (2013) conducted a systematic review of communication treatments for people with right hemisphere brain injury. Most participants (n=25) in the included studies presented with cognitive communication disorders due to stroke (78%); others had arteriovenous malformations, cerebral haemorrhage and traumatic brain injury.

- Hewetson et al (2017) conducted a retrospective chart audit of 58 people admitted to hospital with first onset cortical stroke, identifying cognitive communication disorders in 66% of people with a right hemisphere stroke.

Whilst current research focuses on right hemisphere strokes, cognitive communication disorders are also identified in people with left hemisphere stroke in clinical practice.

Traumatic brain injury (TBI)

Studies of people with TBI document the occurrence of cognitive communication disorders. Examples include:

- Gauthier et al (2018) assessed 145 individuals with traumatic brain injury and found they performed more poorly than controls in confrontation naming, verbal reasoning, reading speed, conversational and procedural discourse, verbal fluency and comprehension. Lesion location impacted outcomes. Left temporal lesions were associated with poorer conversational discourse and auditory comprehension; left frontal lesions were associated with poorer verbal fluency; right parietal lesions were associated with decreased auditory comprehension and reasoning skills.
- Norman et al (2021) retrospectively analysed the diagnostic codes for 84,377 US veterans with TBI. Cognitive communication disorder was identified in 1,388 veterans (1.64%) and was the most common communication diagnosis in the cohort. It was associated with injury severity and with mental health, pain, sensory, sleep and substance use issues.

Mild TBI and concussion

Cognitive communication disorders are also documented in people with mild TBI and concussion. Example studies include:

- O'Brien et al (2022) administered the La Trobe Communication Questionnaire (LCQ) to 41 adolescents and adults at a concussion clinic. 29% reported communication problems at their first visit and 46% had difficulty with over half the LCQ items, especially regarding slow speaking, group conversations and needing time to think and repetition to understand others.
- Norman et al (2023) surveyed 30 individuals with mild TBI or concussion. Participants self-reported difficulties with expression (83%), comprehension (80%), thinking (63%), social skills (40%) and fatigue or stress affecting communication (77%).
- Lander & Roup (2024) found that individuals with mild TBI and hearing difficulties (n=26) reported significantly greater cognitive communication problems on the LCQ and cognitive difficulties scale than both controls (n=49) and those with TBI only (n=22).

Brain tumours and cancers

Cognitive communication disorders are observed clinically in adults and children with brain tumours, either due to tumour growth, surgical resection, or long-term effects of radiotherapy and chemotherapy. Whilst no specific prevalence rates are reported in the literature, it is acknowledged that brain tumours can result in cognitive communication disorders in both children (Docking et al, 2025) and adults (Ake et al, 2023).

Two systematic reviews examined communication outcomes in children and adolescents diagnosed with brain tumours. Hodges et al (2021) reviewed outcomes for children with brain tumour or leukaemia, with posterior fossa tumour as the most common diagnosis, and Svaldi et al (2024) focused on language outcomes in children who had undergone posterior fossa tumour resection. Although neither explicitly identified cognitive communication disorders, impairments in narrative skills, abstract comprehension, pragmatics, literacy, and verbal learning, were documented which may reflect acquired cognitive communication disorders (Hodges et al, 2021; Svaldi et al, 2024).

Two qualitative studies explored the lived experience of adults with brain tumours. Edvardsson & Ahlstrom (2005) conducted semi-structured interviews with 39 adults with low grade gliomas and Ake et al (2023) interviewed 13 adults 3-5 years post-resection of low-grade or high-grade glioma. Whilst symptoms reflective of aphasia, e.g. anomia, paraphasias, were most frequently reported, participants also described difficulties consistent with cognitive communication disorders (Edvardsson & Ahlstrom, 2005; Ake et al, 2023). This included forgetting the topic of conversation, losing train of thought if not focused, reduced speed of processing for speaking and comprehension, greater comprehension difficulties in groups and lively environments, and reduced reading comprehension of complex texts (Edvardsson & Ahlstrom, 2005; Ake et al, 2023).

See RCSLT acquired brain injury guidance for further information.

Epilepsy

Cognitive communication disorders have been identified in people with epilepsy. For instance, Dutta et al (2020) assessed 12 adults with epilepsy and 11 matched controls with a battery of language assessments including FAVRES and a test of spoken discourse. No significant performance differences between people with epilepsy and healthy controls were noted on basic language tasks. However, differences were evident on more complex tasks. People with epilepsy demonstrated significantly lower FAVRES time and reasoning scores, slower processing times on a lexical decision task and lower spoken discourse organisation and total macrolinguistic scores compared to controls.

Progressive neurological conditions

Cognitive communication disorders are being increasingly identified in children and adults with progressive neurological conditions in clinical practice. This is matched by an increasing evidence-base described in the literature on adults. However, the evidence-base for cognitive communication disorders in children with progressive neurological conditions is very limited, even though it is seen clinically. More research is required.

Dementia

Cognitive communication disorders have been identified in people with dementia. For example:

- Hall et al (2018) analysed the conversations of three people with dementia with an everyday communication partner, identifying difficulties with recalling information, empty talk, or dysfluent, repetitive talk in the people with dementia.
- In a retrospective review of 47 referrals, Thompson et al (2003) reported that 64% of 11 people with right temporal variant of semantic dementia displayed instances of rude, tactless, awkward, uncomfortable, or disinhibited behaviour along with reduced insight and flat or bizarre affect.
- Morison et al. (2025) investigated speech, language, and non-verbal communication in 33 children with either of the two most common types of Batten disease, which causes childhood dementia. They identified a range of communication symptoms in their participants including declining pragmatic skills, notably relating to initiation, use of context and conversational interests (ie talking about topics that are age-appropriate, flexible, and socially reciprocal). These symptoms could reflect cognitive communication disorders.

See **RCSLT's dementia guidance** for further information.

Multiple sclerosis

Cognitive communication disorders have been identified in people with multiple sclerosis. Carotenuto et al (2018) tested pragmatic abilities, cognition, social cognition, depression and fatigue in 42 people with multiple sclerosis (MS) and 42 controls. They found that 55% of people with multiple sclerosis had pragmatic difficulties that were not related to a language impairment, including reduced informativeness of discourse and difficulty understanding non-literal language (Carotenuto et al, 2018). These symptoms are consistent with cognitive communication disorders.

Interestingly, Carotenuto et al (2018) identified that pragmatic abilities in MS were strongly associated with performance in their social cognition test and verbal fluency, but not with any other

cognitive function.

Parkinson's disease

Cognitive communication disorders have been identified in people with Parkinson's disease. For instance:

- Swales et al (2021) surveyed 78 people with Parkinson's disease. They described that 60% of people with Parkinson's disease self-identified slowness in generating conversational content; 57% reported difficulty joining a conversation; 42% reported difficulty following a group conversation; 42% reported difficulty remembering what people had said; and 35% reported slowness in understanding what people had said (Swales et al, 2021).
- Schalling et al (2017) surveyed 188 people with Parkinson's disease. Their participants identified a range of communication-related problems. The most common included going off topics in conversation, as reported by 50% of people with Parkinson's disease (Schalling et al, 2017).

Motor neurone disease

Cognitive communication disorders also occur in motor neurone disease (MND). Fisher et al (2017) employed the La Trobe Communication Questionnaire to explore self- and informant-reported social communication abilities in 32 people with clinically probable or confirmed MND and 25 controls. People with confirmed or suspected fronto-temporal dementia were excluded.

They concluded that people with MND have subtle yet statistically significantly more deficits in conversational initiation, flow, effectiveness and partner sensitivity when compared to controls. Interestingly, this conclusion was only supported by informant rating, suggesting that people with MND may lack insight into their cognitive communication difficulties.

Leukodystrophies

Leukodystrophies are a group of genetic neurogenerative disorders, including Alexander disease and metachromatic leukodystrophy. Onset can occur in childhood. Characteristics include cognitive decline (including impairments of processing speed, memory, attention, verbal fluency, and executive functions) and language impairments (including expressive and receptive difficulties) (Rush et al, 2023; Grol et al, 2025). One small study of five people with CSF1R-related leukoencephalopathy found expressive language impairments only on speeded tests, concluding these arose from slowed information processing speed rather than a direct language deficit (Rush et al, 2023). A survey of 59 children with metachromatic leukodystrophy suggested that problems in reading and writing followed cognitive and behavioural symptoms such as diminished attention, working speed, and

irritability (Kehrer et al, 2014). These studies suggest that cognitive communication disorders are possible in children and adults with a leukodystrophy.

Long COVID

Cummings (2023a) assessed 92 adults with long COVID using 12 language tasks. She found that people with long COVID had significantly poorer performance than healthy controls in verbal recall, informativeness of discourse and verbal fluency. She concluded this was reflective of a cognitive communication disorder as structural language skills were intact.

In a separate study, Cummings (2023b) surveyed 973 adults with long COVID. Eleven communication problems were explored, with nine identified as problematic by more than 50% of respondents. The most significant self-reported problems were word-finding difficulties, forgetting what they wanted to say and losing concentration when talking to others.

See RCSLT **long COVID guidance** for further information.

Risk factors

People with cognitive communication disorders are at risk of poorer outcomes due to missed or delayed diagnosis, lack of referral to speech and language therapy and gaps in speech and language therapy service provision. The consequences of unmet needs are wide-ranging.

Challenges in diagnosing cognitive communication disorders

Missed diagnosis of a cognitive communication disorder can occur for a range of reasons including:

- **Subtle presentation:** Cognitive communication disorders are less obvious and harder to describe than other communication or physical impairments (MacDonald, 2017; Turkstra et al, 2015).
- **Limited awareness among referrers:** There is limited awareness of cognitive communication disorders in potential referrers (Howell et al, 2023; MacDonald and Shumway, 2022; MacDonald, 2017; O'Rourke et al, 2018).
- **Under-recognition in clinical settings:** Cognitive communication disorders may be under-recognised in acute and rehab settings as severity may seem mild, physical recovery is prioritised and there are limited opportunities to observe communication in challenging and relevant contexts (Howell et al, 2023; Hewetson et al, 2017). Cognitive communication disorders may only become apparent when individuals return to more complex environments such as home, school, or work (Kelly et al, 2023).
- **Absence of specific and sensitive assessment processes for children and young people:** Current assessment practices mean that cognitive communication disorders in children and young people can be missed (Crumlish et al, 2024). SLTs may not routinely ask if a child has ever experienced a brain injury during case history interview, which may lead to missed diagnoses and inadequate assessment (Crumlish et al, 2024). There is an absence of specific and sensitive assessment protocols (Crumlish et al, 2024). Standardised language assessments are not sensitive in detecting cognitive communication disorders due to paediatric TBI (Ciccia et al, 2021; Hall et al, 2021; Cermark et al, 2019). While traditional assessment can differentiate between children with and without TBI and controls, children with TBI still perform within the normal range relative to norm-referenced values (Cermark et al, 2019). This can lead to discharge from services if assessment results are within the normal range (Ciccia et al, 2021).
- **Absence of specific and sensitive assessment processes for the acute setting:** As Morrow et al (2020) highlights, few cognitive communication assessments have been designed for the acute care setting. Consequently, informal assessments are used far more commonly that

formal measures in this environment (Morrow et al, 2020).

- **Misattribution of behaviours:** Behaviours associated with cognitive communication disorders are often misinterpreted as rudeness, non-compliance, teenage stereotypes, cultural stereotypes, or aggression (Howell et al, 2023; INCOG 2.0 guidelines, 2023, Wiseman-Hakes et al, 2023; O'Rourke et al, 2018; Snow et al, 2018; Turkstra et al, 2015). This is particularly prevalent in children and young people, whose cognitive communication disorders can emerge over time as cognitive processes and demands develop (known as latent onset). This latent onset of cognitive communication difficulties in children and young people can make it difficult to attribute later-presenting difficulties to a past brain injury, especially given the model of changing teaching staff as the child progresses through school (Crumlish et al, 2024; Turkstra et al, 2015; O'Rourke et al, 2018). Misattribution can also occur for people from different cultural and linguistic backgrounds. Healthcare professionals have difficulty differentiating symptoms of cognitive communication disorder from cultural linguistic factors, which is compounded by limited access to relevant training (INCOG 2.0 guidelines, 2023).
- **Misdiagnosis as other conditions:** Cognitive communication disorders may be confused with or masked by other conditions (eg developmental language disorder, ADHD, ASD, mental health diagnoses) (Wiseman-Hakes et al, 2023; Hughes et al, 2015). This risk can be exacerbated by latent onset of cognitive communication disorders.

Barriers to speech and language therapy access

There can be several barriers to accessing speech and language therapy:

- **Limited understanding, appreciation or utilisation** of the role of SLTs in cognitive communication disorders (Howell et al, 2023; MacDonald and Shumway, 2022; Perrier et al, 2025; Snow et al, 2018). This means that speech and language therapy services may not be considered for people with cognitive communication disorders or social communication needs even when these deficits have been identified (Ciccia et al, 2021; Perrier et al, 2025).
- **Lack of knowledge** about suitable interventions or approaches (Snow et al, 2018; MacDonald, 2017).
- **Inadequate screening and unclear referral systems** (MacDonald, 2017; Perrier et al, 2025; Riccardi et al, 2024). Most assessments used by the multidisciplinary team (MDT) do not include tools or items that would highlight cognitive communication disorders; therefore, referrals to speech and language therapy may be missed (Ciccia et al, 2021).
- **De-prioritisation** of people with cognitive communication disorders, or of cognitive communication as a domain over others such as dysphagia or tracheostomy management, in the acute setting or in services with funding or staffing constraints (Morrow et al, 2020).

- **Lack of appreciation of ongoing impact.** For instance, Hewetson et al (2017) audited the records of 115 adults with new onset stroke, identifying that only 10% of people with known cognitive communication disorders on an acute stroke ward were referred for community rehabilitation and only 42% of those on an inpatient rehabilitation unit (Hewetson et al, 2017). Perceived mildness of severity by clinicians may have impacted this, along with a reduced appreciation of the impact a mild cognitive communication disorder can have on a person's life (Hewetson et al, 2017).

Gaps in speech and language therapy service provision

Even if a cognitive communication disorder is identified in an individual and a referral to speech and language therapy is made, there may be gaps in service provision due to:

- **insufficient speech and language therapy workforce and resources** to support people with cognitive communication disorders across the pathway but especially in acute care and community settings (Hewetson et al, 2017; MacDonald, 2017; MacDonald and Shumway, 2022; Morrow et al, 2020)
- **limited expertise or low confidence** among speech and language therapists in assessing and treating cognitive communication disorders (Crumlish et al, 2024; MacDonald and Shumway, 2022; Morrow et al, 2020)
- **lack of training for families and communication partners** (Howell et al, 2023; Grayson et al, 2020a). Grayson et al (2020a) demonstrated that more than 60% of family members were not satisfied that their needs relating to understanding and managing cognitive communication disorders, especially training needs, were fully met and high levels of unmet need remained evident at three years or more post-injury
- **inadequate specialist provision for specific groups**, including children in mainstream education, adults in the criminal justice system and people requiring vocational rehabilitation (Meulenbroek et al, 2022; Ciccia et al, 2021; Snow et al, 2018; Turkstra et al, 2015)
- **health inequities** for people from different social, economic, cultural, and linguistic backgrounds. This can be due to reduced access to rehabilitation, assessment by clinicians that have difficulty distinguishing symptoms associated with cognitive communication disorders from cultural and linguistic factors, lack of culturally appropriate resources to assist assessment and healthcare interactions and working with professionals that have poor access to relevant training. These factors can lead to inaccurate diagnoses and inappropriate interventions (INCOG 2.0 guidelines, 2023).

Risks of unmet needs

Without appropriate identification and intervention, people with cognitive communication disorders may experience poorer outcomes in a number of areas, including:

- **social** – due to activity and participation restrictions across social roles with potential negative outcomes related to social isolation, increased dependency on others and decreased quality of life (Hewetson et al, 2017)
- **family** – due to an adverse impact of cognitive communication disorders on everyday relationships, which can threaten family harmony (Grayson et al, 2023b)
- **developmental** – due to worsening cognitive and communication development as they fall off developmental trajectories (Ciccia et al, 2021)
- **healthcare** – due to reduced ability to engage in healthcare interaction, such as goal setting and decision-making, which are typically conducted verbally (Christensen et al, 2023; Howell et al, 2023)
- **educational** – due to difficulty engaging in the classroom curriculum, completing assignments or understanding exam materials (Turkstra et al, 2015)
- **vocational** – due to unmet vocational rehabilitation needs (O'Neil-Pirozzi et al, 2021; Douglas et al, 2016a; Rietdijk et al, 2013)
- **behavioural** – due to the possibility of developing maladaptive coping strategies that are misattributed to behavioural difficulties (Howell et al, 2023)
- **safety** – due to greater risk of exploitation, abuse, violence and crime, both online and off (Brunner et al, 2025; INCOG 2.0 Guidelines, 2023; Hughes et al, 2015)
- **legal** – due to difficulty processing, understanding and responding to complex written and spoken information and complex social interactions in the criminal justice system (Wiseman-Hakes, et al, 2023; Wszalek & Turkstra, 2019a; Wszalek & Turkstra, 2019b).

Role of speech and language therapy

SLTs are equipped to identify, assess and treat cognitive communication disorders. They have several key roles.

Advocacy and access

- Advocate for people with cognitive communication disorders to ensure their communication needs are recognised and respected (MacDonald, 2024; CCEAS-Map, 2023)
- Educate potential referrers and members of MDT to detect cognitive communication disorders and signpost to appropriate therapies and services (Turkstra et al, 2015; Perrier et al, 2025)
- Support standardised screening, monitoring and referral processes to enable early identification and referral of people with cognitive communication disorders, including for when needs change over time (Perrier et al, 2025; Riccardi et al, 2024)
- Promote equitable and timely access to communication assessments and interventions (MacDonald and Shumway, 2022; MacDonald, 2017)
- Assert the importance of the role of speech and language therapy in the multi-disciplinary rehabilitation of people with cognitive communication disorders (MacDonald, 2024; CCEAS-Map, 2023).

Assessment and differential diagnosis

- Conduct evidence-based assessments that consider cognitive, emotional, physical and environmental influences on communication (MacDonald, 2017)
- Work collaboratively in MDTs to identify, assess, and diagnose cognitive communication disorders
- Differentially diagnose cognitive communication disorders from other acquired and developmental communication disorders
- Build a holistic understanding of how cognitive communication disorders affect a person's everyday life, relationships and participation alongside the MDT (Kelly et al, 2023; Sohlberg et al, 2019).

Person-centred goal setting

- Work collaboratively with individuals, their support networks, and the MDT to develop meaningful, person-centred goals (INCOG 2.0 guidelines, 2023)
- Focus on what matters most to the individual in their real-life settings, including family, community, work, or school.

Tailored intervention and support

- Deliver evidence-based, contextualised therapy with the MDT that aligns with personal goals and maximises reintegration and participation in all areas of life (MacDonald, 2024; CCEAS-Map, 2023; Howell et al, 2023; MacDonald and Shumway, 2022)
- Support people with cognitive communication disorders to rebuild their identity, self-efficacy and independence (Howell et al, 2023; Knox et al, 2016)
- Help people with cognitive communication disorders and their support networks improve quality of life, emotional wellbeing and confidence (Howell et al, 2023).

Training and education

- Educate individuals and families about the nature and impact of cognitive communication disorders and how SLTs can support them now and in the future (INCOG 2.0 guidelines, 2023)
- Train and empower support networks and professionals, including professionals working in health and social care, education and the criminal justice system, to improve everyday conversations and support inclusive communication (Christensen et al, 2023; Howell et al, 2023).

Supported decision-making and mental capacity

- Support people with cognitive communication disorders, to participate successfully in decision-making about their lives, care and rehabilitation including mental capacity assessments (NICE, 2025).
- Work with other professionals to include and support people with cognitive communication disorders in decision-making and mental capacity assessments.

Monitoring, reporting and discharge:

- Measure and evaluate outcomes of therapy to guide ongoing intervention
- Report on diagnosis, impact, risks and progress, strategies and outcomes and share with the person with a cognitive communication disorder, family and the team
- Enable people with cognitive communication disorders and their support networks to monitor their own progress and re-access speech and language therapy when required.

Service and professional development

SLTs contribute, where possible, to the evidence in working with cognitive communication through participation in and dissemination of service development, quality improvements and research projects.

Overarching principles of working with people with cognitive communication disorders

The literature provides overarching principles for working with children, young people and adults with cognitive communication disorders:

- **Collaborate:** collaborate with the individual, their family and friends, the MDT, and other key stakeholders to develop goals, strategies, treatment plans and practice activities that are person-centred and meaningful to them (MacDonald, 2024; CCEAS-Map, 2023; Ciccia et al, 2021; Laane & Cooke, 2020; NICE, 2025).
- **Contextualise:** ensure that assessment and therapy are ecologically valid and contextually relevant and that they reflect the real-life communication demands of the individual (CCEAS-Map, 2023; INCOG 2.0 guidelines, 2023; Ciccia et al, 2021; Hall et al, 2021; Laane & Cooke, 2020; NICE, 2025).
- **Individualise:** assessment and intervention need to be tailored to the individual, taking into account personal, contextual and environmental factors, including their cultural context, previous communication style, and their stage of life (Laane & Cook, 2020).
- **Educate:** provide education to people with cognitive communication disorders and their family, friends and carers. This should include information on impairments, consequences, strategies and resources in an accessible format that has been adapted to meet the person's linguistic, cultural and literacy needs (CCEAS-Map, 2023; NICE, 2025).
- **Work as a team:** work within a multi-professional team to assess the individual and then formulate, implement and review management plans (CCEAS-Map, 2023).
- **Generalise:** provide interventions that promote long-term generalisation and enable the person to participate in home, social, online, school and/or work life (CCEAS-Map, 2023; MacDonald & Shumway, 2022; Laane & Cook, 2020).
- **Consider readiness and timing:** the timing and type of intervention should align with the individual's readiness for intervention, which may shift as insight, motivation and emotional adjustment evolve over time (MacDonald, 2024; Meulenbroek et al, 2019). Flexibility is essential to ensure opportunities for intervention are not missed once the individual becomes ready to engage.
- **Support long-term management:** ensure the person with a cognitive communication disorder and their support networks are involved in discharge planning and know when and how to seek further support (CCEAS-Map, 2023).

Supporting goal negotiation, engagement, self-awareness and decision-making

Negotiating goals and delivering cognitive communication interventions to people with a cognitive communication disorder can be challenging due to reduced self-awareness and motivation, limited caregiver awareness, other primary priorities (eg mobility) and limited understanding of therapy rationale (MacDonald, 2024; CCEAS-Map, 2023; Meulenbroek et al, 2019). SLTs need to give careful consideration to these factors to determine whether the individual can meaningfully participate in assessment and intervention (Meulenbroek et al, 2019). SLTs will need to use their clinical reasoning to know when to modify their approach or when the timing is not right. However, it is possible to overcome these barriers by employing collaboration and negotiation skills to facilitate engagement, support goal identification and build self-awareness.

Decision-making is often impaired in people with cognitive communication disorders due to cognitive and communication impairments. They may also be faced with new or unanticipated decisions related to health, finance, employment and accommodation (Knox et al, 2016). SLTs have a role in working with people with cognitive communication disorders and those involved in their care to consider how to support informed decision-making.

Facilitating engagement

Strategies to enhance therapeutic engagement include:

- building a strong therapeutic alliance by ensuring the person's views are heard, promoting self-efficacy and self-coaching and aligning interventions with their sense of self (MacDonald, 2024)
- ensuring that assessment, feedback and intervention are relevant to their life and focused on useful and motivating social contexts such as work, school, friendships, dating, family, etc (MacDonald, 2024; Meulenbroek et al, 2019)
- find out what would motivate them to engage in rehabilitation and what is most important to them (NICE, 2025)
- focusing on strengths rather than deficits, which can be perceived as demeaning and an attack on an individual's character (Meulenbroek et al, 2019)
- using approaches such as identity reconstruction and motivational interviewing to enhance engagement (MacDonald, 2024)
- supporting those with limited awareness by including education or knowledge goals to build insight (Hamilton et al, 2024).

Goal negotiation

The following strategies may help:

- collaborate with the person, family, friends and carers to set person-centred communication goals (CCEAS-Map, 2023; Behn et al, 2019; NICE, 2025)
- agree long-term goals that are broken down into short-term and achievable goals (NICE, 2025)
- involve families to provide insight and reminders about the person's difficulties (Behn et al, 2019)
- use video recordings to identify communication behaviours, set goals and plan intervention (Behn et al, 2019)
- employ visual supports (eg Talking Mats, identity mapping framework) to aid goal processing and recall (MacDonald, 2024)
- use frameworks like the Cognitive Communication Competence Goal Setting Framework (MacDonald, 2024)
- consider use of goal attainment scaling (GAS; Turner-Strokes, 2009) to support active engagement in goal setting, facilitate identification of personally relevant goals and enable self-monitoring of progress (INCOG 2.0 guidelines, 2023)
- write goals in the person's own words to increase agency, motivation and memory (MacDonald, 2024; Behn et al, 2019)
- support the individual to develop insight that informs goal formulation (Douglas et al, 2016a)
- use assistive technology or mobile devices to support goal recall, depending on familiarity and confidence with the technology (Behn et al, 2019).

Improving self-awareness

Reduced self-awareness, or insight, is a common co-occurring feature with a cognitive communication disorder. Impaired self-awareness can affect motivation to participate in cognitive communication interventions (MacDonald, 2024; Meulenbroek et al, 2019).

Awareness is a complex and multi-faceted construct, including multiple levels or interacting aspects that can change over time or depending on the context, as depicted in different models of awareness. Examples are:

- the Pyramid model of awareness (Crosson et al, 1989)
- the Dynamic Comprehensive Model of Awareness (Toglia & Kirk, 2000).

SLTs should acknowledge that self-awareness can have different underlying bases, including neurocognitive (ie a direct consequence of cognitive impairment), psychological (such as pre-morbid coping styles, denial, grief) or socio-environmental context (including opportunity to observe changes, impact of cultural values, and uncertainty how information will be used) (Fleming & Ownsworth, 2006).

Treatment of impaired self-awareness will require the MDT to consider the underlying nature and basis of impaired awareness. Techniques SLTs, with the MDT, can use to support people with cognitive communication disorders and their families to raise insight include:

- foster a safe, supportive therapeutic environment (Behn et al, 2019)
- provide individualised education about cognitive communication disorders to people with cognitive communication disorders and their families (Kelly et al, 2023)
- use every day and salient communication tasks, including roleplay, group therapy and real-world activities, to explore and identify communication changes (Kelly et al, 2023; Behn et al, 2019; Douglas et al, 2016a)
- create opportunities for self-evaluation and reflection (Behn et al, 2019)
- use video feedback to support self-evaluation and awareness (CCEAS-Map, 2023; Behn et al, 2019; Jeffay et al, 2023)
- provide metacognitive strategy training to improve an individual's ability to monitor, evaluate and regulate task performance (Copley et al, 2022; Behn et al, 2019; Jeffay et al, 2023)
- ensure clear, consistent and balanced feedback from trusted sources such as family, peers and professionals (Behn et al, 2019).

Supporting decision-making and capacity assessments

People with a cognitive communication disorder have the right to participate in decision-making about their lives (Knox et al, 2016; NICE, 2025). Depending on the decision, this may require an assessment of the mental capacity to make an informed decision.

Roles of SLT

SLTs have different roles in supporting people with cognitive communication disorders to make decisions, this may include providing cognitive and communication supports, direct assessment of capacity, advocacy in best interest decisions, and training others to support decision-making. These roles vary across the four nations of the UK.

See **RCSLT guidance on supported decision making and mental capacity** for more information.

Frontal lobe paradox

Supporting decision-making and capacity in some people with cognitive communication disorder can be complicated by the 'frontal lobe paradox', typically caused by pre-frontal cortex damage (George & Gilbert, 2018). People affected by frontal lobe paradox can successfully engage in interview-based capacity assessments but are unable to demonstrate the same level of understanding or implement their stated intention in the real world due to impairments of executive function, reduced insight, and/or increased cognitive demands of the real world (George & Gilbert, 2018; Essex Chambers, 2023). A reliance on interview-based capacity assessments will result in over-estimation of mental capacity and potentially place the individual and other people at risk (George & Gilbert, 2018). Guidance on conducting capacity assessments with people affected by frontal lobe paradox can be found in:

- **RCSLT acquired brain injury guidance**
- **Mental Capacity Act (2005) assessments: Why everyone needs to know about the frontal lobe paradox** (George & Gilbert, 2018)
- **Carrying out and recording capacity assessments** (Essex Chambers, 2023)

Supporting people in the criminal justice system

People with cognitive communication disorders may be considered as 'vulnerable' in the criminal justice system, defined as any factor that may adversely affect their participation in proceedings (Ministry of Justice, 2022). As such, they may be eligible for special measures such as questioning through an intermediary (Ministry of Justice, 2022). SLTs can choose to take the specific role of an 'intermediary' for people with cognitive communication disorders in the criminal justice system. See **His Majesties Court and Tribunal Service (HMCTS) intermediary service** for more information.

Assessment

Assessment aims

The aims of SLTs assessing children, young people and adults with cognitive communication disorders should include:

- **Identification:** supporting people with a brain injury or a neurological condition and/or key stakeholders to identify when a cognitive communication disorder may be present and when speech and language therapy intervention is warranted.
- **Analysis and diagnosis:** analysing assessment results to inform diagnoses, goal negotiation and intervention planning, along with the priorities of the individual and close others (Keegan et al, 2025; CCEAS-Map, 2023; Sohlberg et al, 2019).
- **Formulation:** integrate all sources of information (assessment data, observations, family input and other professionals' findings) to form a comprehensive understanding of impairments, activity limitations, participation restrictions and environmental barriers aligned with personal goals and preferences (CCEAS-Map, 2023).
- **Communication:** share assessment results in accessible verbal and written formats with the individual, close others, the MDT and other relevant services (where consent is gained to do so) (CCEAS-Map, 2023). This may need repeating multiple times along the pathway.
- **Monitoring:** assessment should form a basis for monitoring progress and measuring outcomes (Keegan et al, 2025; Sohlberg et al, 2019).

Assessment process

Regardless of setting and speciality, SLTs should aim to:

- ensure that individuals with potential cognitive communication disorders are identified and referred to speech and language therapy
- ensure that assessments are sensitive to cognitive communication disorders and valid to the individual's context and potential goals (Ciccia et al, 2021; Hall et al, 2021; Cermark et al, 2019; Sohlberg et al, 2019)
- ensure that assessment plans are individualised, considering factors such as stage of development, pre-morbid communication development, abilities and style, cultural and linguistic background, stage of recovery, primary concerns and relevant communication contexts, environments and goals (CCEAS-Map, 2023; INCOG 2.0 Guidelines, 2023; NICE, 2025)

- conduct comprehensive assessments that evaluate all relevant domains, including communication, cognitive functioning, physical and emotional influences and self-regulatory factors, prioritising evaluation of the influences of all domains on communication in line with the SLT's expertise and training (CCEAS-Map, 2023; Mei et al, 2018) and noting that insight into deficits should only be assessed after four years of age (Mei et al, 2018)
- ensure that quality of life and psychosocial constructs are assessed (Keegan et al, 2025; Crumlish et al, 2024)
- ensure that assessment is ongoing as ability profiles and contexts change (Laane & Cook, 2020; Sohlberg et al, 2019)
- use a mix of methods to ensure that assessment is comprehensive, structured, contextual and collaborative (ie gather the perspective of the person with a cognitive communication disorder and their significant others) (Sohlberg et al, 2019)
- evaluate aspects of social cognition including emotion perception, theory of mind and emotional empathy (INCOG 2.0 guidelines, 2023; CCEAS-Map, 2023).

Assessment can include a combination of (CCEAS-Map, 2023):

- thorough case history -for children and young people, this must include questions that help identify if a brain injury has occurred in the past (Crumlish et al., 2024) as the latent onset of a cognitive communication disorder can make it difficult to attribute to a past brain injury (Turkstra et al, 2015), increasing the risk of misdiagnosis
- clinical interview with the individual and their family, friends or carers
- standardised assessments (albeit with caution, especially with children and young people)
- rating scales
- patient and significant other-reported outcome measures
- communication partner evaluations
- real-world observation and dynamic assessment
- informal evaluation of daily communication demands (eg during solitary and peer play, in conversation, structured tasks on the ward, in the community, at work, preschool, school).

The specific assessment plan may be determined by:

- the developmental age of the child
- the priorities, preferences and goals of the person with a cognitive communication disorder
- timing and the readiness of the person with a cognitive communication disorder for assessment (NICE, 2025).
- setting and service constraints (such as time, training and availability of assessment tools).

If the person with cognitive communication disorder declines assessment, information should be provided to enable referral in the future (see section on monitoring and re-referral).

Screening tools

SLTs advocate for individuals with cognitive communication disorders to be referred to speech and language therapy (CCEAS-Map, 2023). There are evidence-based screening resources that SLTs and the MDT can use to ensure that people with a potential cognitive communication disorder are referred.

Examples include:

- the **Cognitive-Communication Checklist for Acquired Brain Injury (CCCABI) referral tool** (MacDonald, 2024; CCEAS-Map, 2023), which can be used with children and adults
- the traumatic brain injury checklist (Waaland & Bohannon, 1992), which is a screening checklist for cognitive communication, emotional regulation, social cognition and other sensory-motor functions in school age children and young people.

Assessment tools for adults

There are a variety of tools to assess cognitive communication skills which are available for purchase or in the public domain and which are considered sufficiently sensitive (Sohlberg et al, 2019).

However, there are known limitations to current assessments including lack of specificity to specific communication demands such as parenting or work, issues with inter-rater reliability and clinician bias on observational rating scales and time demands of discourse analysis (Sohlberg et al, 2019). Furthermore, most of the assessments were developed with individuals with ABI and/or people from Western backgrounds and so need to be applied to other populations with caution.

There are a number of assessment tools that are recommended for cognitive communication, social cognition and social communication. The list that follows is adapted from Sohlberg et al (2019) and Keegan et al (2025).

Performance-based measures

- **Discourse analysis** (see Togher et al, 2014): this includes a variety of methods for analysing and coding discourse features in transcribed conversational or monologic discourse samples. Norms are available for comparison. A standard discourse protocol is available online in the **TBIBank** (Elbourn et al, 2023).
- **Functional assessment of verbal reasoning and executive strategies (FAVRES)** (MacDonald, 2005): this assessment includes functional tasks simulating real-world scenarios

designed to assess verbal reasoning, complex comprehension, complex expression and discourse and executive function. Norm-referenced.

- **Functional assessment of verbal reasoning and executive strategies. Student version (S-FAVRES)** (MacDonald, 2013): this version of the FAVRES is designed for young people aged 12-19 to evaluate aspects of complex comprehension (sarcasm, humour, intent, gist or central theme) in discourse, social communication, verbal reasoning, problem solving, meta-cognition and executive functions. Norm-referenced.
- **Montreal evaluation of communication** (Joanette et al, 2015): a comprehensive assessment battery designed to assess higher order and pragmatic abilities. It includes the conversational discourse subtest and emotion recognition, repetition and production subtests. Norms are available.
- **The awareness of social inference test (TASIT)** (McDonald et al, 2017): this assessment uses video vignettes to assess emotional recognition and social inferencing skills. Norms are available. A shortened version is also available.

Self- or informant-reported measures

- **La Trobe communication questionnaire** (Douglas et al, 2007): a 30-item questionnaire that can be completed by the individual or a close other. It explores perceived communication abilities in areas like conversational tone, partner engagement and conversational flow. Norm-referenced.
- **Social communication skills questionnaire – adapted** (Dahlberg et al, 2006): a self- or proxy-reported tool to rate an individual's social communication behaviours on a five-point Likert scale.
- **Social skills questionnaire for traumatic brain injury** (Francis et al, 2017): this 41-item informant-reported scale assesses aspects of social functioning such as empathy, emotional recognition and language skills. Ratings range from 'not at all' to 'very often'.

Clinician-rated measures

- **Adapted Kagan Scales** (Togher et al, 2010): this includes two rating scales – the Measure of Participation in Conversation (MPC), which evaluates the participation of a person with traumatic brain injury in conversation, including interaction and transaction, and the Measure of Support in Conversation (MSC), which assesses the communication partner's ability to support the person, specifically in acknowledging and revealing competence.
- **Profile of Pragmatic Impairments in Communication** (Linscott et al, 2003): a structured rating tool assessing ten pragmatic subscales. Each scale is rated on a six-point feature summary scale (FSS) ranging from 'normal' to 'very severely impaired'.

- **Modified Pragmatic Rating Scale** (Iwashita & Sohlberg, 2019): this tool categorises pragmatic behaviours into non-verbal, propositional and interactional communication. It uses a frequency of occurrence scale to evaluate how often specific behaviours are observed.

These assessments typically focus on communication skills and abilities. Other areas of a person's communicative context, such as participation, quality of life, identity and awareness, may also be relevant to assess. Keegan et al (2025) make recommendations for assessment tools in these areas.

Participation

- **Participation assessment and recombined tools (PART-O)** (Bogner, 2013): the PART-O is a 17-item measure of participation at societal level, using an interview format. It was developed to examine long-term outcomes and evaluate the effectiveness of interventions to improve social/societal functioning.
- **Sydney psychosocial reintegration scale (SPRS-2)** (Tate, 2011): the SPRS-2 is a 12-item self-rating scale that measures participation in the community and the extent to which a person's lifestyle may have changed following brain injury.
- **Communication item participation bank (CPIB)** (Baylor et al, 2013): the CPIB is a 10-item self-rating scale designed for community-dwelling adults across different communication disorders and life situations. The items ask about the extent to which the respondent's condition interferes with participation in a wide range of speaking situations.

Quality of life

- **Quality of life after brain injury (QOLIBRI) questionnaire** (von Steinbüchel et al, 2010): the QOLIBRI comprises 37 items associated with six scales (cognition, self, daily life and autonomy, social relationships, emotions and physical problems).

Identity

- **Life interest and values (LIV) cards** (Haley et al, 2010): LIV cards enable a card sort of personal interests and participation. They are designed for individuals with aphasia (eg Haley et al, 2010).
- **Personal values sort cards** (Miller et al, 2001): these cards enable a sort of personal values and ideals.
- **Talking mats** (Murphy et al, 2013): this visual card-sorting tool facilitates exploration of personal values, interests and participation. Multiple versions exist for different ages, disorders and contexts.

Awareness

- **Awareness questionnaire (AQ)** (Sherer, 2004): the AQ is an 18-item measure of self-awareness after brain injury. There are three versions, for self-, relative- and clinician-rating, to enable evaluation of awareness.
- **Patient competency rating scale (PCRS)** (Kolakowsky-Hayner, 2010): the PCRS is a 30-item instrument designed to evaluate self-awareness following TBI. There are three versions, for self-, relative- and clinician-rating, to enable evaluation of awareness.
- **Self-awareness of deficit interview (SADI)** (Fleming et al, 1996): a semi-structured interview format designed for the clinician to assess both quantitative and qualitative aspects of the person's awareness of their deficits, based on their responses.

Mental health

Neither Sohlberg et al (2019) nor Keegan et al (2025) make recommendations for assessment of mental health in people with cognitive communication disorders. However, the following approaches may be useful:

- **Discussion** with the person with a cognitive communication disorder
- **Behavioural observations** of low mood, distress, or anxiety, across settings and activities (not only those associated with communication)
- **MDT collaboration and formulation**
- **Self-reported measures** such as the depression scale of the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) or the Generalized Anxiety Disorder scale (GAD-7; Spitzer et al, 2006)
- **Proxy-rated measures** such as the Behavioral outcome of anxiety (BOA; Linley-Adams, Morris, & Kneebone, 2014) or the Stroke Aphasic Depression Questionnaire (SADQ-10; Sutcliffe & Lincoln,1998)
- **Visual scales**, including informal rating and mood scales and formal measures such as the Depression Intensity Scale Circles (DISCs; Turner-Stokes et al, 2005) and Anxiety Intensity Scale circles (AISCs; currently being validated)**.**

Assessment tools for children and young people

It is more challenging to recommend specific assessment tools for children and young people. There are currently no standardised or validated assessment protocols for cognitive communication disorders in the paediatric population (Crumlish et al, 2022; Ciccia et al, 2021; Mei et al, 2018).

There are also warnings issued in the literature about the use of traditional standardised language assessments including:

- Standardised language assessments were not designed to detect cognitive communication disorders (Cermark et al, 2019).
- Standardised language assessments lack sensitivity to cognitive communication disorders and impairments of social cognition (Cermark et al, 2019; Turkstra et al, 2015).
- Children with cognitive communication disorders may perform within normal range, leading to missed diagnosis and unmet needs (Ciccia et al, 2021; Cermark et al, 2019).
- Standardised language assessments are not normed for children with brain injuries (Mei et al, 2018).
- SLTs must be cautious about relying on adult assessment due to differences between children and adults, including development disruption (Crumlish et al, 2022).

Consequently, clinicians may need to rely on informal evaluation. Hall et al (2021) identified that non-standardised assessments can provide valuable insights that standardised assessments often miss. Those with the greatest sensitivity or utility may be:

- **Discourse analysis** (Crumlish et al, 2024; Ciccia et al, 2021; Hall et al, 2021; Cermark et al, 2019): story retell tasks seem particularly sensitive (Cermark et al, 2019) but it is advised to assess other types of discourse as well as these will be needed socially and to progress through education (Crumlish et al, 2024).
- **Measures of complex language skills** (Ciccia et al, 2021; Turkstra et al, 2015): these skills include pragmatics, reading comprehension, inference-making, rapid comprehension and expression and adjustment of communication to a given social context.
- **Curriculum assessment** (Ciccia et al, 2021) or **structured cognitive tasks** (Hall et al, 2021): dynamic assessment during curriculum-based or cognitive tasks.
- **Measures of quality of life** (Crumlish et al, 2024)
- **Functional rating scales** (Hall et al, 2021): these can help identify needs but lack specificity on impairment.

However, some standardised assessments are appropriate to use, depending on age and diagnosis. These are:

- **Functional assessment of verbal reasoning and executive strategies – student version (S-FAVRES)** (MacDonald, 2013): this version of the FAVRES is focussed on adolescents (aged 12-19) and is designed specifically to evaluate aspects of complex comprehension (sarcasm, humour, intent, gist or central theme) in discourse, social communication, verbal reasoning, problem solving, meta-cognition and executive functions. Norm-referenced.
- **Discourse analysis** using tools such as the Renfrew Bus Story (Pankratz et al, 2007): the Renfrew Bus Story is an assessment of story retell for children aged 3-8 which may be sensitive to cognitive communication disorders according to conclusions made by Cermark et

al (2019).

- **The awareness of social inference test (TASIT)** (McDonald et al, 2017): this assessment uses video vignettes to assess emotional recognition and social inferencing skills. A shortened version is also available. The assessment is designed and norm-referenced for adults but there is some evidence to support its use in adolescents, although the number of study participants was small and the study was not conducted in the UK (McDonald et al, 2013).

Standardised language assessments that include complex languages tasks can be used to explore potential cognitive communication disorders and to identify specific challenges for individuals. However, they should be used with caution. For children and young adults, standardised language assessments may be most useful for establishing baselines and measuring outcomes, rather than determining need through normative comparisons. Suitable options in this context may be:

- **Preschool language scale – fifth edition (PLS-5 UK)** (Zimmerman, Pond, & Steiner, 2011): the PLS-5 is a developmental language assessment in infants and young childre, from birth to 7 years 11 months. It's assessment tasks cover preverbal and early play skills up to emerging language and early literacy.
- **Clinical evaluation of language fundamentals preschool – third edition (CELF-P3)** (Wiig, Secord, and Semel, 2020): the CELF-P3 is standardised assessment for children aged 3-6 years. It assesses receptive and expressive language skills, pragmatics, and pre-literacy skills.
- **Clinical evaluation of language fundamentals – fifth edition (CELF-5)** (Semel et al, 2017): the CELF-5 is a standardised assessment tool used to evaluate language and communication skills in individuals aged 5-21. It evaluates receptive and expressive language skills, language structure and pragmatic language abilities.
- **Clinical evaluation of language fundamentals – metalinguistics** (CELF-metalinguistics) (Wig & Secord, 2014): the CELF-5 metalinguistics assessment is a clinical tool designed to evaluate higher-level language skills in students aged 9-21. It focuses on metalinguistic awareness and examines skills such as making inferences, understanding multiple meanings, interpreting figurative language and using language appropriately in social contexts.
- **Test of problem solving (TOPS)** (two versions):
- **Test of problem solving 2: adolescent (TOPS-2: A)** (Bowers et al, 2007): this test assesses critical thinking abilities in adolescents, using language strategies and problem-solving situations relevant to their experiences.
- **Test of problem solving, elementary – third edition: normative update (TOPS-3E:NU)** (Bowers et al, 2018): this test is designed for children aged from 6 to 12 years 11 months and assesses a range of language-based thinking skills.
- **Comprehensive assessment of spoken language – second edition (CASL-2)** (Carrow-Woolfolk, 2017): the CASL-2 measures spoken language across four categories: lexical/semantic, syntactic, supralinguistic and pragmatic.

Interventions

SLTs should ensure that interventions are tailored to an individual's goals, abilities and contexts (CCEAS-Map, 2023; INCOG 2.0 guidelines, 2023; Laane & Cook, 2020; Meulenbroek et al, 2019). This should take into account:

- pre-injury or expected life demands
- pre-existing and current communication style, abilities and preferences
- developmental age and skills
- current cognitive communication profile and severity
- any influences on performance, including physical, emotional and contextual
- available support systems including family and friends
- real-world cognitive communication demands in target life roles.

Intervention approaches

Current evidence-based and context-sensitive methods of intervention for cognitive communication disorders are listed below. Many of these overlap or contribute to each other. Most of the evidence comes from studies of adults or adolescents, although the principles of most interventions can be applied to children in contexts relevant to their development stage, eg. play, friends, or curriculum. Each intervention approach is categorised using the International Classification of Functioning, Disability and Health (World Health Organisation, 2001).

Metacognitive strategy instruction

A common intervention approach is training people with cognitive communication disorders to use compensatory strategies to optimise any aspect of their communication in any context. To increase the likelihood of strategy adoption and improve generalisation, it is generally recommended to employ metacognitive approaches such as goal-setting, self-monitoring and self-regulation when training use of strategies, thus the term 'metacognitive strategy instruction'.

An example of metacognitive strategy training is outlined in research from the University of Queensland, which has culminated in a manualised intervention programme called IMPACT (Intervention for Metacognition and Social Participation: an Acquired Cognitive-communication Disorder Treatment) (Copley et al, 2022; Finch et al, 2017; Copley et al, 2015).

Another example is the self-coaching approach, described by Ylvisaker (2006) as an individualised, context-sensitive intervention that utilises self-talk scripts, personally compelling metaphors and support from everyday communication partners within a 'goal-obstacle-plan-do-review' framework. Ylvisaker & Feeney (2007) applied a similar approach to children and young people within a framework of positive behavioural supports and Cook et al (2014) describe gist reasoning training, which teaches strategies to adolescents with chronic TBI so they can process and recall the gist of classroom teaching and reading. Given the focus on use of strategies in context, this approach targets the level of activity and participation.

Communication coping intervention

The Communication-specific Coping Intervention (CommCope-I) helps individuals with cognitive communication disorders increase their use of existing productive strategies and diminish non-productive ones through enhancing self-awareness of coping strategies, practising productive strategies in relevant scenarios and performance evaluation through video review. The evidence is based on one small study with adults, but results were positive, as described in Douglas et al (2016b). The approach targets the level of activity and participation.

Modifying the communication environment

This approach involves changing the surroundings, interactions and supports around a child, young person or adult with a cognitive communication disorder to create a more supportive and responsive environment that helps them participate fully in everyday life (CCEAS-Map, 2023; Laane and Cook, 2020; Mei et al, 2018; Turkstra et al, 2015). This includes adapting the physical environment (eg reducing distractions, using visual supports, providing reminders), adjusting assessments and expectations, and training communication partners, including family, teachers, colleagues and peers. This approach is recommended by expert opinion and focuses on the level of activity and participation.

Communication partner training

Communication partner training (CPT) involves training everyday communication partners, with or without the person with cognitive communication disorder, to provide support and structure that facilitate collaborative interactions with people with cognitive communication disorders (Behn et al, 2021; INCOG 2.0 guidelines, 2023). CPT is recommended in the INCOG 2.0 guidelines (2023) with supporting randomised-control trials (Rietdijk et al, 2020; Togher et al, 2016) and a systematic review (Behn et al, 2021). It is recommended for children and young people in the Evidence- and Consensus-Based Guidelines for paediatric brain injury (Mei et al, 2018), including those with childhood dementias (Morison et al, 2025).

Manualised CPT programmes for adults are available as outlined in Togher et al (2016) (TBI express) and Rietdijk et al (2020) (TBI ConneCT). CPT targets the level of activity and participation. A free online self-guided CPT training program called 'interact-ABI-lity' can be found in the Social Brain Toolkit for anyone seeking CPT, including healthcare professionals and families.

Discourse interventions

There is limited but emerging evidence for direct discourse-based interventions for adults with cognitive communication disorders. Discourse intervention typically involves metacognitive strategy training, structured cues and functional practice to guide the production of organised and complete discourse. Detailed therapy protocols for adults are available for discourse processing treatment (Kintz et al, 2018) and for a modified-NARNIA (Novel Approach to Real-life communication: Narrative Intervention in Aphasia; Whitworth et al, 2020). Discourse frameworks are routinely used in education so could also be applied to children with cognitive communication disorders. It is one of the few intervention approaches that purports to target impairment, activity and participation.

Vocabulary building

SLTs working with children and young people are recommended to include direct remediation of communication impairments in their treatment plans, including vocabulary building (Mei et al, 2018; Turkstra et al, 2015). There is no specific evidence for this approach in children with cognitive communication disorders so knowledge and techniques from other conditions and populations will need to be applied, according to the clinician's clinical reasoning. This intervention approach targets the level of impairment.

Project-based intervention

Project-based intervention engages people with cognitive communication disorders in self-identified, meaningful, goal-focussed projects, such as creating videos, art, or information leaflets (Behn et al, 2024). Project-based intervention aims to utilise cognitive and social interaction skills to complete the project. It can improve communication skills, quality of life and sense of self (Behn et al, 2024). The approach is flexible and individualised, with core components including group work, communication goals, communication partner involvement and support for cognitive challenges. Key ingredients and examples are described in Behn et al (2024). Project-based intervention targets the level of participation.

Social cognition

The INCOG 2.0 guidelines (2023) recommend that SLTs provide social cognition interventions that aim to improve emotion perception, perspective-taking, theory of mind and social behaviour. This

encompasses a range of potential treatment approaches, many of which have their basis in psychiatry interventions or those for people with autistic spectrum disorders. Vallat-Azouvi et al (2019) provide an overview of the evidence for different social cognition interventions in TBI in their critical review. One of their conclusions was that intervention should address all aspects of social cognition (Vallat-Azouvi et al, 2019). Westerhof-Evers et al (2019) describe the theoretical underpinnings and content of one such multi-faceted programme for adults, their treatment of social cognition and emotion regulation (T-ScEmo), which is based on evidence from randomised controlled trials. There is no specific evidence for this approach in children with cognitive communication disorders, but knowledge and techniques from other conditions could be applied. Social cognition interventions can target impairment, activity or participation.

Group therapy

Group therapy is not typically identified as a standalone intervention method. It usually forms part of a treatment plan or hierarchy in which other intervention methods and approaches are delivered or practised. Benefits of group therapy include: practising strategies or positive communication alternatives in realistic conversational environments and contexts (especially if they occur outside the therapy room); an opportunity for peer learning and feedback; and facilitating generalisation (Copley et al, 2022; Keegan et al, 2020). Use of group therapy is recommended by the INCOG 2.0 guidelines (2023) due to the level of evidence. To learn about different applications of group therapy, see: Copley et al (2022), where group therapy was used to practise metacognitive strategy instruction; Behn et al (2024), who delivered online project-based intervention; and Keegan et al (2020), who aimed to improve social interaction in context-sensitive environments. Group therapy targets the level of activity and participation.

Social connection and community participation

There are some approaches that aim to increase social activity, develop social relationships and support community participation to directly reduce social isolation. These approaches typically focus on supporting interactions in community contexts. Two examples for adults are Multi-Component Community Connection Program (M-ComConnect), outlined in Leeson et al (2021) and Improving Natural Social Interaction: Group reHabilitation after Traumatic Brain Injury (INSIGHT), described in Keegan et al (2020). A social connection approach targets the level of activity and participation.

Identity reconstruction

Identity, or sense of self, is often negatively impacted by changes to abilities and roles, including those caused by cognitive communication disorders. Identity reconstruction can help people with cognitive communication disorders understand their new profile of abilities, build self-awareness

and therapeutic engagement and negotiate personally relevant goals with therapists (Ylvisaker et al, 2008). Metaphoric identity mapping, based on theory and applied to young people, is one technique to support identity reconstruction via creation of a visual identity map (Ylvisaker et al, 2008). The model of self-concept, based on qualitative research of the lived experience of a small group of adults with brain injury, is another approach that could be used to explore different components and functions of self, set goals and track outcomes (Douglas, 2013). Identity reconstruction targets the level of activity and participation.

Social media training

Social media offers opportunities to people with cognitive communication disorders to maintain existing social connections and create new support networks (Brunner et al, 2019). However, they may benefit from support on how to manage the cognitive communication demands of social media (Brunner et al, 2019) and how to stay safe (Brunner et al, 2025; Brunner et al, 2019). The Social Brain Tool Kit offers 'social-ABI-lity', an online self-guided course developed for people with cognitive communication disorders to learn skills in using social media safely and meaningfully (Brunner et al, 2023). Social media training targets the level of activity and participation.

Alternative and augmentative communication (AAC)

Individuals with severe cognitive communication disorders should be considered for the appropriate augmentative and alternative communication intervention (INCOG 2.0 guidelines, 2023; Mei et al, 2018). People with cognitive communication disorders (with or without concomitant aphasia or motor speech disorders) of sufficient severity to warrant use of AAC face the challenge of having to master new communication strategies, techniques and devices in the presence of cognitive impairments that may hamper learning (Diehl & Wallace, 2018; Fried-Oken et al, 2012). Brunner et al (2017) give an overview of the factors influencing successful use of AAC in cognitive communication disorders, including identifying an appropriate support person to use and maintain the AAC device (Diehl and Wallace, 2018; Brunner et al, 2017; Fried-Oken, et al, 2012). AAC targets the level of participation.

See also the RCSLT's **augmentative and alternative communication guidance** for more information.

Assistive technology

Emerging evidence suggests that assistive technology (eg smartphones, apps, paging systems, portable devices) can help individuals manage symptoms and impacts of cognitive impairment. Although limited research specifically addresses cognitive communication disorders (Brunner et al, 2017), the INCOG 2.0 guidelines (2023) recommend assessing the suitability of such tools for

individuals with severe impairments, as they may enhance independence.

Assistive technology can support memory (calendars, reminders, notes), processing (text-to-speech) and communication (calls, texts, emails, social media) and provide entertainment (Beaulieu-Bonneau et al, 2024; Brunner et al, 2017; Wong et al, 2017; Leopold et al, 2015). Brunner et al (2017) outline factors influencing successful use, emphasising that direct instruction is often necessary (Beaulieu-Bonneau et al, 2024; Brunner et al, 2017; Wong et al, 2017). Where technology use is not feasible, non-electronic alternatives (eg memory books, diaries, lists) may be appropriate. Assistive technology targets the level of participation.

Literacy interventions

SLTs can support people with cognitive communication disorders to compensate for reading and writing difficulties, typically using a metacognitive strategy approach (Mei et al, 2018; MacDonald, 2017). Watter et al (2022) described a multi-strategy reading intervention for three individuals with cognitive communication disorders and reading comprehension difficulties. Wright and Sohlberg (2021) developed a personalised, flexible approach for a young person with prolonged concussion syndrome and reading difficulties. Literacy interventions could improve impairment, activity and participation.

Therapy techniques

SLTs can help a person with a cognitive communication disorder and their support network to attain their goals, within the selected therapy approach, by:

- providing opportunities to practise to mastery in a graded hierarchy of personally relevant scenarios (simulated or actual) (Crook et al, 2023; Le et al, 2022; Meulenbroek et al, 2019; MacDonald, 2017; Douglas et al, 2016b; MacDonald & Wiseman-Hakes, 2010; Ylvisaker, 2006)
- providing modelling, instruction and cues (Hamilton et al, 2024; Crook et al, 2023; Meulenbroek et al, 2019; Copley et al, 2015; MacDonald & Wiseman-Hakes, 2010; Ylvisaker & Feeney, 2007)
- giving feedback (verbal, video or from peers) (Hamilton et al, 2024; CCEAS-Map, 2023; Crook et al, 2023; INCOG 2.0 guidelines, 2023; Le et al, 2022; Meulenbroek et al, 2019; Finch et al, 2017; MacDonald & Wiseman-Hakes, 2010; Ylvisaker & Feeney, 2007)
- providing collaborative problem-solving of challenges (Behn et al, 2024; Crook et al, 2023; Copley et al, 2015)
- giving positive reinforcement and encouragement (Hamilton et al, 2024; Meulenbroek et al, 2019)

- supporting and acknowledging difficulties (Behn et al, 2024)
- encouraging self-monitoring through self-reflection and evaluation (Hamilton et al, 2024; Crook et al, 2023; Copley et al, 2022; Laane & Cook, 2020; Finch et al, 2017; Douglas et al, 2016b; Copley et al, 2015; Ylvisaker, 2006)
- promoting acceptance of intervention (Behn et al, 2024)
- supporting identity renegotiation (Behn et al, 2024)
- adapting and modifying the task based on the assessment outcome, including use of environmental supports such as whiteboards, signs, reminders, notebooks and technology or modification of the environment (CCEAS-Map, 2023; INCOG 2.0 guidelines, 2023; Copley et al, 2022; Copley et al, 2015; Ylvisaker & Feeney, 2007; Ylvisaker, 2006).

Supporting generalisation

The aim of intervention should always be generalisation to functional communication contexts, which can be promoted through:

- leading collaborative planning and creating opportunities for transfer, generalisation and application of what is learned (Laane & Cook, 2020)
- providing interventions tailored to and embedded within the person's everyday routines, to equip them with the skills to participate in and contribute to family, community and a wider social life (Howell et al, 2023; Meulenbroek et al, 2019)
- providing home practice and the means to self-monitor (eg through self-reflection or daily record) (Laane & Cook, 2020; Leulenbroek et al, 2019)
- signposting to relevant tertiary support services and community groups
- promoting self-management
- working with and educating family, friends and carers.

Recommendations for long-term support

SLTs will consider what each person needs to support maintenance of goals and provide long-term support. This may include referrals or signposting to community or third sector services (NICE, 2025). This will be based on the individual's ongoing communication goals, priorities and impairments and will be developed collaboratively with the person and their support network. It is recommended that engagement and participation with onward services are integrated into the treatment plan to support successful integration and generalisation of therapy interventions (NICE, 2025).

NHS social prescribing services can help connect people with long-term conditions to activities, groups and services in their community to meet the practical, social and emotional needs that affect their health and wellbeing.

Options for long-term support and maintenance could fall into several categories, including third sector services, informal community groups and monitoring/re-referral.

Third sector services

The third sector in rehabilitation refers to charities, voluntary organisations and community groups that provide supportive and complementary services outside the statutory health and social care system. They often focus on providing information, advocacy and emotional and social support.

Examples relevant to people with cognitive communication disorders (typically diagnosis-specific) are:

- for social and emotional support: Headway, Stroke Association, Child Brain Injury Trust, Meningitis Now, The Children's Trust, PDUK, Multiple Sclerosis Society, MNDA, Silverlining
- for employment support: Attend ABI, Remploy.

These services may not be available in all areas and may require access to a computer and the internet to access them.

Community groups

These can be provided by the third sector, community services or members of the local community. They often have an activity, social or leisure focus.

Examples relevant to people with a cognitive communication disorder are book clubs, walking groups and University of the Third Age. Note that these groups are not set up specifically for people with a neurological condition. Whilst they are unlikely to be excluded on this basis, people with significant cognitive communication disorders may eventually be rejected if they do not have support from people who know them and who can help manage their interactions within groups such as these.

Monitoring and re-referral

People with cognitive communication disorders and their support networks should be given information that will enable them to monitor their situation and seek referral to speech and language therapy as required. This may be particularly salient for children (where latent onset is possible), adults with limited insight and who decline any form of assessment and/or intervention (as insight may emerge as challenges increase) and people whose cognitive communication disorder

was not identified at the time of injury.

Everyone who is discharged from speech and language therapy should be told how to re-refer if issues arise (NICE, 2025).

Suggestions for outcome measures

The choice of outcome measures should be guided by the individual's goals, the focus of the intervention and the people and contexts involved. The primary purpose of outcome measurement is to evaluate the effectiveness of the intervention in a real-world environment, whether at home, in the community, at school, at work, or in social settings (Le et al, 2022).

It is recommended to use multiple outcome measures, tailored to the person's goals and treatment plan, to capture progress from different perspectives.

There are various options available depending on what aspect of change you wish to assess. Many of the tools outlined in the assessment section can also serve as outcome measures. Some of the measures available are listed below.

For children, young people and adults

- **Goal attainment** can be measured using goal attainment scaling (GAS; Turner-Strokes, 2009), which is heavily recommended in the literature as a method of measuring person-centred intervention outcomes (Keegan et al, 2025; INCOG 2.0 guidelines, 2023; Le et al, 2022; Mei et al, 2018).
- **Communication skills** can be evaluated through relevant performance-based measures of discourse, pragmatics etc, self-reported outcome measures and observational rating skills and checklists used by clinicians or everyday communication partners (CCEAS-Map, 2023).
- **Comprehensive communication function** can be evaluated using the relevant scale of the Therapy Outcome Measure (Enderby and John, 2025) to gauge function across five domains (impairment, activity, participation, wellbeing and carer wellbeing) aligned with the International Classification of Functioning, Disability and Health (ICF) model.

For adults

- **Communication partner training** can be evaluated using the Adapted Kagan scales (Togher et al, 2010).
- **Participation** can be measured using instruments such as the participation assessment and recombined tool (Bogner, 2013), the Sydney psychosocial reintegration scale (Tate, 2011), or

the communicative participation item bank (CPIB) (Baylor et al, 2013).

- **Quality of life** can be gauged using measures such as the quality of life after brain injury (QOLIBRI) questionnaire (von Steinbüchel et al, 2010).
- **Self-awareness** can be evaluated using measures such as the awareness questionnaire (Sherer, 2004), the patient competency rating scale (Kolakowsky-Hayner, 2010), or the self-awareness of deficit interview (Fleming et al, 1996).

The same domains would be useful to assess in children where relevant scales are, or become, available.

See also the RCSLT's **outcome measurement guidance** for more information.

Differential diagnosis

The signs and symptoms of cognitive communication disorders can be observed in, or co-occur with, other developmental and acquired conditions such as:

- mental health disorders (eg depression, anxiety, schizophrenia)
- neurodevelopment disorders (eg autism spectrum, ADHD, developmental language disorders)
- acquired language disorders (eg aphasia).

SLTs can mitigate the risks of missed diagnosis of cognitive communication disorders through careful assessment, MDT formulation, and differential diagnosis.

When attempting to determine the underlying nature of a person's communication difficulties, SLTs should:

- conduct a thorough case history, including asking questions that help identify if a brain injury has occurred in the past (Crumlish et al, 2024) or if a medical diagnosis has been made that may cause a cognitive communication disorder
- for children (or adults whose case history indicates an injury or diagnosis in childhood), gather information on previous development of language and cognition, looking specifically at their developmental trajectory, how and when it changed, and if the timing of the change can be related to a medical diagnosis that may cause an acquired cognitive communication disorder
- for children, who were older at the time of injury or diagnosis, and adults, gather information on previous communication skills. SLTs can compare current communication to previous communication using tools such as the La Trobe communication questionnaire (Douglas et al, 2007)
- utilise a range of sources to gather information such as healthcare, education and employment records and from close others such as family, friends or carers before making a diagnosis
- where possible, use assessments or assessment methods that are sensitive to cognitive communication disorders
- work with MDT colleagues to conduct a joint formulation on the nature of the person's communication difficulties to determine if they can be attributed solely or partly to an acquired cognitive communication (dual diagnoses are a possibility).

For further information, see RCSLT's **mental health (adults) guidance**, RSCLT's **autism guidance**, RCSLT's **aphasia guidance** and RCSLT's **developmental language disorder guidance**.

Working with others

Working with families and friends

Family, friends, carers and close others should be involved in speech and language therapy intervention, where possible, throughout the rehabilitation journey (CCEAS-Map, 2023). SLTs can work with families and friends in the following ways, with consideration of their specific support needs as indicated by the literature.

Direct involvement

Family, friends, carers and close others often play an integral role in intervention methods for people with cognitive communication disorders – both in approaches such as communication partner training, and in supporting engagement, home practice and strategy recall.

Families may have concerns about participating in communication partner training (eg relating to the person's response to feedback) so SLTs should be prepared to alleviate any concerns (Grayson et al, 2020b).

Education

Families of people with cognitive communication disorders have their own needs throughout the rehabilitation journey that should be considered (Grayson et al, 2020a; Grayson et al, 2020b). They may benefit from:

- information about expected recovery from cognitive communication disorders (Grayson et al, 2020a)
- information about community support services (Grayson et al, 2020a)
- communication partner training (Grayson et al, 2020a; Grayson et al, 2020b)
- signposting to peer support or therapy groups (Grayson et al, 2020a; Grayson et al, 2020b)
- one-to-one time to discuss the impact of cognitive communication disorders (Grayson et al, 2020a; Grayson et al, 2020b)
- information about how to monitor for changes and seek support when needed.

The need for information and training remains consistently important for family members, regardless of the length of time since the onset of the cognitive communication disorder (Grayson et

al, 2020a; Grayson et al, 2020b). The information should be offered at multiple time points and in a written or visual format so families can refer to it (Grayson et al, 2020a; Grayson et al, 2020b).

Working with the multidisciplinary team (MDT)

For people with cognitive communication disorders, SLTs will work with the MDT in both advocacy and collaborative roles.

Advocacy and education

SLTs should:

- raise awareness of cognitive communication disorders, their impact and the role of SLTs within the MDT (Howell et al, 2023)
- support other professionals to consider their role as key communication partners, which can lead to enhanced communication competence in relevant interactions in rehabilitation, school, work and the courtroom, etc (Christensen et al, 2023; Howell et al, 2023; MacDonald, 2017)
- provide communication partner training for healthcare, education and legal staff (Howell et al, 2023). Resources such as 'interact-ABI-lity' are available for free from the Social Brain Toolkit to train staff about the nature of communication disorders (due to ABI in this case) and strategies to use to facilitate interactions with people with cognitive communication disorders.

Collaboration and joint working

SLTs should:

- conduct individual (as an SLT) and joint (with members of the MDT) assessments of people with cognitive communication disorders to identify specific cognitive and communication strengths and areas of difficulty for the individual; each member of the team will be able to assess cognition and its impact on communication from the perspective of their discipline and areas of specialism (CCEAS-Map, 2023)
- integrate assessment findings to jointly formulate a holistic and integrated hypothesis of impairments, activity limitations, participation restrictions and environmental barriers (CCEAS-Map, 2023)
- jointly support the person with cognitive communication disorders to identify person-centred goals

- jointly support decision-making and mental capacity assessments when indicated
- involve MDT colleagues in generalisation of communication goals and strategies and support by providing reminder scripts and additional contexts for practice
- ensure regular and collaborative communication about goals, strategies and progress
- contribute to formal documents with MDT colleagues to advocate for the person's support needs, including discharge reports, education and healthcare plans and risk assessments.

Considerations for the SLT pathway

Each part of the rehabilitation pathway will have its own pressures in terms of resources, competing demands and likely priorities and needs of the person with a cognitive communication disorder and their support network. The next section recommends specific roles and priorities for the key phases of the rehabilitation pathway (ie acute, inpatient rehabilitation and community).

Acute

The role of SLTs working in acute settings is likely to focus on identification, advocacy, education and signposting.

Identification

SLTs should aim to establish a screening process that can make the initial identification of a potential cognitive communication disorder in people with known risk factors (MacDonald, 2024) and that can monitor for symptoms throughout the inpatient admission (Mei et al, 2018). The specific process can be determined by service needs and set-up, but it is recommended that everyday communication partners are involved to help ensure that changes in communication are accurately identified as cognitive communication disorders rather than being misattributed to pre-morbid communication style (Hewetson et al, 2017). Members of the MDT, especially those assessing cognitive function, should also be involved.

Advocacy

As part of their role, SLTs should support people with cognitive communication disorders to take part in or complete the verbal and written tasks encountered in acute care that require intact comprehension and expression, or train others who can support them with these tasks (LeBlanc et al, 2020).

Education

SLTs working in an acute setting should provide people who have, or potentially have, cognitive communication disorders and their families with initial education on the cognitive communication disorder, its potential impact, preliminary communication strategies, the long-term role of SLTs and how to refer to SLT in the future (CCEAS-Map, 2023). Providing information provision to enable self-monitoring and re-referral should be considered for people who may have or may develop cognitive

communication disorder, as well as those with a clear diagnosis (NICE, 2025).

Signposting

SLTs should also determine rehab needs and promote timely access to specialist inpatient, outpatient or community-based speech and language therapy (CCEAS-Map, 2023; Le Blanc et al, 2020) and mitigate the impact of unmet need (Hewetson et al, 2017).

Inpatient rehab

The role of SLTs working in inpatient rehabilitation units is likely to focus on detailed assessment and diagnosis, ongoing education, intervention and signposting for ongoing support.

Detailed assessment and diagnosis

SLTs working in inpatient rehabilitation units should conduct detailed assessment, formulation and differential diagnosis in liaison with MDT colleagues.

Ongoing education

SLTs should continue to educate the person with a cognitive communication disorder and their support networks. This should include providing information about the person's possible long-term prognosis and the likely impact of the cognitive communication disorder.

Intervention

A part of their role, SLTs in an inpatient rehabilitation setting should ensure that any intervention is as context sensitive as possible within the hospital environment. This could include working with family and friends, offering group interventions, working in the community and integrating the communication demands of individual social, family, community, educational and vocational contexts into interventions.

Signposting

SLTs should also promote timely access to specialist outpatient or community-based speech and language therapy services (CCEAS-Map, 2023) and to relevant third sector support services as required.

Community

Community services are likely to see people in both the new onset and chronic phases of rehabilitation. The role of SLTs working in the community is likely to focus on contextualised rehabilitation, supporting return to work and education and considering long-term support. They are also possibly more likely to work with people with cognitive communication disorders that are due to a progressive neurological condition.

Contextualised rehabilitation

Community services are more likely than other settings to be involved in supporting maintenance of relationships, return to work, return to school and return to college/university (MacDonald, 2024). These settings provide SLTs with valuable opportunities to deliver assessment, goal setting and interventions within the individual's everyday social, family, community and (depending on individual circumstances and service remits) educational and work contexts.

Educational and vocational rehab

Supporting individuals in educational or vocational contexts requires a personalised and collaborative approach. For students, this involves developing an individually tailored intervention plan and working closely with the student, their family, school staff, peers and their wider social network (CCEAS-Map, 2023). For individuals with vocational goals, speech and language therapy input may include personalised therapy, contributions to return-to-work planning (including reasonable adjustments), identification of in-work supports, pre-employment or work trials, graded return programs and ongoing monitoring (CCEAS-Map, 2023; Douglas et al, 2016a).

Long-term support

SLTs should recognise the long-term impact of cognitive communication disorders on individuals and their families, friends and carers (CCEAS-Map, 2023; Grayson et al, 2020a; Grayson et al, 2020b). This includes providing education, interventions, reports, recommendations and referrals that reflect this (CCEAS-Map, 2023).

SLTs should also support ongoing and repeated access to rehabilitation services as new goals and challenges emerge (CCEAS-Map, 2023; Grayson et al, 2020b). In addition, they should signpost to long-term services that address social participation and help maintain relationships for both the person with TBI and their family members (Grayson et al, 2020b).

Progressive neurological conditions

SLTs working in community settings should ensure that people with progressive neurological conditions are educated about and screened for potential cognitive communication disorders (Carotenuto et al, 2018; Schalling et al, 2017). If a cognitive communication disorder is suspected, the

SLT should work with the person and their support network on any communication problems (Schalling et al, 2017).

Given the progressive nature of these conditions and the documented benefits of supportive, understanding networks, intervention should prioritise working with families, carers and other communication partners to adopt and maintain supportive communication strategies (Swales et al, 2021; Carotenuto et al, 2018).

Lived experience/case studies

Adults with a cognitive communication disorder

Philip: a person living with a cognitive communication disorder on an inpatient rehabilitation unit following resection of a brain tumour

Background

Philip presented with a significant cognitive communication disorder following surgical resection of a brain tumour. His cognitive communication disorder was characterised by perseveration and rigidity of thought, reduced recall, repetitive content, distractible, tangential topic changes and reduced spoken and written comprehension. He had no insight into his cognitive communication disorder. He had better insight into his physical impairments, with which he was frequently pre-occupied. His concern about physical recovery was a repeated topic of conversation and caused distress. He struggled to remember reassurances and information that had previously been provided.

Assessment

Despite poor insight, Philip consented to assessment. Standardised assessment was completed using the Montreal Protocol for the Evaluation of Communication. This highlighted impaired conversational discourse, reduced comprehension of indirect language, reduced story recall and reduced verbal fluency. He and his partner completed the La Trobe communication questionnaire (LCQ). Philip did not note any changes or problems in his communication. However, his partner noted that negative communication behaviours were happening often or always and this was a change from previous communication.

Intervention

Insight-building was the initial focus of intervention. Philip was given feedback on the assessment results, which he largely attributed to his record of past poor academic attainment. He was defensive and dismissive of his partner's opinion. Goal setting was initially very challenging. Philip did accept a knowledge-focused goal, 'to increase my awareness of changes to communication', when the SLT suggested it.

A bespoke education book was created, outlining the consequences of his brain injury, including communication, and the steps being taken in rehabilitation. A consistent MDT approach was taken to providing frequent and contextual education, using Philip's education book as required.

He was responsive to identity mapping. Whilst he continued to deny any cognitive communication changes per se, identity mapping enabled him to acknowledge that he was not communicating in his

preferred way. Being a friendly, chatty man who could draw out others in conversation was a strong part of his identity and he realised that he was not currently able to act in this way. Setting a subsequent goal based on re-establishing his identity, 'to find out about other people by asking questions', enabled Philip to participate in strategy training and group therapy.

Outcome

Philip's insight into his cognitive communication disorder fluctuated but improved overall. He participated well in therapy focused on his social communication goal. By the end of the intervention, he talked less about his physical impairments and could recall his communication goal and strategy. Turn-taking improved and he would frequently ask other people questions about themselves to get them talking.

Eva: a person living with a cognitive communication disorder in the community following a traumatic brain injury

Background

Eva had a traumatic brain injury at a work event. She was referred to speech and language therapy in a community rehab team from an acute hospital due to word-finding difficulties and dysarthria.

Eva was a journalist, and her main goals concerned work. At the point of initial assessment in the community, she felt under pressure to return to work within weeks as her paid sick leave was due to expire. However, she was not feeling confident and was considering options to exit from work. In the initial case history, she reported issues "absorbing" complex information (especially written), word-finding difficulties, saying and writing too much (getting "bogged down" by details), and increased processing time (everything was taking her longer). It was suspected that her communication issues may be consistent with a cognitive communication disorder rather than aphasia or dysarthria.

Assessment

Eva participated in standardised assessment using a formal naming test and the FAVRES. Work-related tasks were also assessed by comparing current research skills and written output with previous written output. It was concluded, with Eva, that she was experiencing a cognitive communication disorder characterised by difficulty processing and understanding complex spoken and written information, reduced word fluency, reduced verbal reasoning in complex tasks, impaired discourse formulation, verbosity on topics of personal interest, and reduced self-monitoring of errors. Aphasia was ruled out due to a combination of her neurology (diffuse TBI), good confrontational naming for high and low frequency words, excellent grammar and syntax, and findings from cognitive assessments by other professionals. Occupational therapy and

neuropsychology identified impaired speed of processing and executive function in complex functional tasks and on cognitive testing, which aligned with the conclusions of SLT assessment.

Intervention

Eva identified goals related to reading and prioritising written information and synthesising and organising a written response. Intervention included discovering and exploring reading comprehension and written discourse strategies, practising identified strategies in work-related tasks and setting real-world actions once a graded return to work was started. Assistive technology (text to speech) was used to promote detection of written errors. At the appropriate time, feedback was sought from peers. Eva declined to seek feedback from her manager.

Outcome

Eva returned to her work. Her written articles were considered by her work peers to be professionally written with excellent content and relevance. She achieved all her goals and repeated rating scales indicated increased confidence. She reported she would not have returned to work without the confidence gained in therapy.

Children with a cognitive communication disorder

Ameilia: a child living with a cognitive communication disorder following a brain injury at four years old

Background

Ameilia sustained a traumatic diffuse axonal brain injury after being hit by a car at four years old. Before her injury, her development was typical, with no concerns raised by her parents or nursery.

Presentation

Acute: In hospital, Ameilia experienced post-traumatic amnesia and mild physical weakness and incoordination. She was seen by an SLT. Her parents reported that her language had returned to normal. Screening assessments were done through observations of her playing with her siblings and the Renfrew action picture test. She was using age-appropriate language and play but it was noted that she was easily distracted and needed prompts to remain on task. She was discharged home after 10 days with no community referrals.

Nursery and school: Ameilia had a phased return to nursery and settled in well. On transition to mainstream school, nursery staff reported that some areas of learning were borderline for her age and noted that, although she enjoyed playing with her peers, she had not formed a close friendship group. During guided activities she would often need prompting or support to remain seated, focus on the task and complete her work.

In school, her teachers noted similar concerns. These included difficulties following classroom routines and a need for one-on-one instruction with repeated exposure to learn new information. She fell behind expected levels for English, literacy and maths.

The school put an individual education plan in place, but this did not lead to her catching up. The school discussed their concerns with her parents and became aware of her TBI. She was referred to speech and language therapy.

Assessment

The SLT observed Ameilia in the classroom and noted that she was easily distracted, needed frequent reminders of the task, fatigued quickly, frequently interrupted and made off-topic comments during group activities and did not appear to talk or play with her peers.

The SLT took a language sample using story retell of an activity Ameilia was doing in the classroom. She did not recall most of the key details from the narrative, only remembering the main features from the last sentence. The SLT completed standardised assessment using the CELF-P3, which placed Ameilia's core language score in the ninth percentile for her age, indicating a mild disorder. She struggled on the sentence comprehension test with a relative strength with expressive vocabulary; however, this was still below what would be expected of her age. She was subsequently diagnosed with an acquired cognitive communication disorder.

Intervention

The SLT recommended environmental strategies to support Ameilia in accessing the curriculum and participating in the classroom. This included:

- using her name to gain her attention before giving instructions
- using visuals to reduce her need to rely on her memory
- using concrete language and emphasising key vocabulary to improve her attention
- ensuring that she was seated near the front and away from distractions
- ensuring she had access to a quiet area for regular breaks.

The SLT also followed an intervention program including pre-teaching new vocabulary and revisiting previously taught concepts.

Outcome

Over the next few years, Ameilia made good progress across all academic areas but continued to need extra support and the use of the initial SLT strategies for her memory, attention and recall. She continued to present with a cognitive communication disorder. As she got older, this presented as difficulties with higher level language, and deficits in expressive and receptive language and pragmatics. Her therapy now focuses on listening comprehension, story retell and social-pragmatic

skills, areas of need that most negatively impact her friendships and participation in school.

Kevoy: a child living with a cognitive communication disorder following a brain injury at fourteen years old

Background

Kevoy is a 14-year-old boy in Year 10 at a mainstream school. He lives at home with his mum and older brother, who has ADHD. He was performing within expected ranges in his school subjects. He presented to hospital after falling off his bike while riding to school and suffered a subdural hematoma, which required evacuation. Teachers and parents reported no concerns regarding language or behaviour before his brain injury and no concerns were noted during his inpatient admission. However, once back at home, his mum reported noticing differences in his behaviour. She described him as being "blunt" and often coming across as rude. He was easily distracted by what was happening around him. She described how he appeared to not be as aware of his safety when out and about. If any issues were highlighted, he would get angry and his mum reported that this was very different to his usual polite self. He was referred to speech and language therapy by his teachers on the advice of the Children's Brain Injury Trust given his history of traumatic brain injury.

Assessment

Language sampling was completed during a narrative generation and retell task. The test of problem solving – adolescents (TOPS-A) was completed to explore his language-based thinking, reasoning and problem-solving abilities. He was also observed during interactions with his peers in the classroom. He presented with good vocabulary and grammar structures on language sampling. Within discourse, he often became tangential and needed reminders from the SLT to return to the topic. Overall, his ideas followed a logical order during the retelling, but during his generation he often became distracted, providing too little information for the story to be followed by the listener. He showed significant difficulties on all subtests of the TOPS-A. In the classroom, he often interrupted lessons with unrelated comments. During interactions with his peers, he had poor turn-taking and topic maintenance and poor social filter, which presented as inappropriate comments. He did not appear to be aware of this. He was subsequently diagnosed with an acquired cognitive communication disorder.

Intervention

Kevoy's SLT provided education about his cognitive communication disorder to him and his family, friends and teachers. The SLT also provided strategies to support his participation at home and with his friends, including gently reminding him of what they were doing/talking about when he went off topic, setting clear expectations when in the community, using written schedules via his phone

calendar, which gave reminder alerts, bringing attention to comments that were inappropriate or hurtful and explaining why this was the case in a calm way.

His school was also provided with strategies to help him continue achieving his academic goals and GCSEs including providing notes for him to review before and after lessons, modifying his workload with clear directions on what assignments to complete, and breaking down tests into smaller sections with teacher support to ensure he had understood the exam material and remained on task during the test.

Direct SLT intervention focused on his pragmatic language by directly teaching strategies such as ‘stop, think, do’ and practising these in roleplays and scenarios, completing social scripts and problem-solving various real-life situations. His academic performance was monitored and he was re-assessed for any changes to his language after 12

Contributors

Recruitment to the working group was established by applications to RCSLT. Applications were reviewed to ensure there was representation across a predetermined set of skills and characteristics. Each of the four UK nations had representation as well as the independent sector.

Lead author

Simon Grobler, Consultant Speech and Language Therapist and Independent Speech and Language Therapist

Supporting authors

- Anisha Desai, Independent Speech and Language Therapist and Lecturer
- Christine Gormley, Highly Specialist Speech and Language Therapist
- Hayley Davies, Highly Specialist Speech and Language Therapist
- Helen Maclean, Speech and Language Therapist
- Jaclyn Dallas, Highly Specialist Speech and Language Therapist
- Jessica Taranto, Advanced Speech and Language Therapist
- Kelly Reeder, Highly Specialist Speech and Language Therapist and PhD Candidate
- Paddy Moriarty, Clinical Lead Speech and Language Therapist
- Sylvia Taylor-Goh, Consultant Speech and Language Therapist
- Vicky Lack, Principal Speech and Language Therapist

Experts by experience

- Anna Ridley
- Ben Lukowski
- David Robertson
- Robert Ellis-Aji
- Dr Sue Williams

With thanks also to the project reference group.

If you have any questions about this guidance or would like to contact an RCSLT clinical adviser, please contact **info@rcslt.org**.

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