

RESEARCH REPORT

The core components of clinical planning for Comprehensive, High-dose Aphasia Treatment (CHAT): A task analysis

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Abstract

Background: Intensive comprehensive aphasia programmes (ICAPs) deliver intensive aphasia rehabilitation via a cohort approach, aligning with the World Health Organization's (WHO) International Classification for Functioning, Disability and Health (ICF). ICAPs are an effective treatment approach for aphasia rehabilitation, and their implementation within healthcare settings is currently being investigated. However, there are challenges associated with selecting and tailoring evidence-based treatments for delivery within ICAPs and supportive processes for selecting and tailoring therapy are required. To address this challenge, structured and collaborative clinical planning has been incorporated as a key element of one modified ICAP (mICAP), the Comprehensive, High-dose Aphasia Treatment (CHAT) programme. CHAT provides 50 h of personalized, goal-directed therapy for language impairment and function across 8 weeks. Our current understanding of how clinical planning is conducted for this programme is limited.

Aims: (1) To identify and define the individual tasks performed as part of a structured, collaborative clinical planning process for CHAT and its telerehabilitation counterpart TeleCHAT; and (2) to understand speech pathologists' perspectives of the key components, roles and resources for clinical planning.

Methods: A mixed methods hierarchical task analysis (HTA) approach was utilized to analyse observations of 10 goal-setting sessions and planning discussions of 13 patients across two CHAT and TeleCHAT cohorts. Focus groups and

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interviews with seven speech pathologists and two speech pathology leaders involved in delivering or supporting the delivery of the programmes were also conducted. Clinical planning tasks, personnel involved and resources used were iteratively built into a task analysis framework. Perspectives on the key elements of clinical planning were obtained and analysed using deductive qualitative content analysis.

Results: Seven clinical planning tasks, comprising 25 subtasks, were identified across CHAT and TeleCHAT: assessment and analysis, goal-setting, an initial planning meeting, scheduling and coordination, resource preparation, a mid-way planning meeting, and planning throughout therapy. One additional task was identified for TeleCHAT: identify and prepare technology. Identifying appropriate patients for CHAT and TeleCHAT was considered a precursor to clinical planning. Each clinical planning task was perceived as essential for its success. The involvement of both clinical and research teams and access to resources to structure clinical planning tasks were also described as key elements.

Conclusion/implications: Clinical planning is a central component of CHAT and TeleCHAT, involving a number of multifaceted processes. Understanding how clinical planning is executed in practice is the first step towards implementing ICAPs and mICAPs such as CHAT and TeleCHAT in other settings. Understanding the factors that influence the implementation of the clinical planning process is needed to further inform this translation.

KEYWORDS

aphasia rehabilitation, intensive, comprehensive aphasia programmes, clinical planning, evidence-based practice, speech pathology, task analysis

WHAT THIS PAPER ADDS

What is already known on the subject

- Speech pathologists experience challenges selecting and tailoring evidence-based aphasia therapy, and support for clinical planning has been reported to facilitate the delivery of ICAPs.

What this paper adds to the existing knowledge

- This study comprehensively describes the process of clinical planning for the CHAT and TeleCHAT programmes, two Australian-modified ICAPs (mICAPS), and is amongst a few descriptions of treatment mapping processes in broader aphasia rehabilitation practice.

What are the potential or actual clinical implications of this work?

- The detailed description of clinical planning processes, in addition to key resources and personnel for CHAT and TeleCHAT, may assist speech pathology teams in improving clinical planning practices. It is a key preliminary step in translating structured, collaborative clinical planning processes into aphasia rehabilitation practice.

INTRODUCTION

Aphasia, an acquired disorder of language, impacts approximately 30–40% of people living with stroke (Flowers et al., 2016; Mitchell et al., 2021). Aphasia often results in a significant communication disability, which negatively affects social participation, independence in activities of daily living and health-related quality of life (Lam & Wodchis, 2010; Worrall et al., 2011). Although aphasia is often a chronic and life-long condition, research demonstrates that aphasia therapy is effective in improving communication outcomes (Brady et al., 2016).

To optimize treatment efficacy, a contemporary service delivery model known as intensive comprehensive aphasia programmes (ICAPs) has been developed (Rose et al., 2013). ICAPs offer intensive therapy (minimum of 3 h per day, 5 days per week for 2 weeks) within a cohort model whereby patients start and finish the programme at the same time (Rose et al., 2013). They are comprehensive in that they target language impairment, activity and participation using a range of treatment formats and incorporate patient and family education throughout intervention (Rose et al., 2013). ICAPs can be tailored to improve fit within context by adapting one of these core elements, known as mICAPs (Rose et al., 2021). There is increasing interest in ICAPs internationally (Rose et al., 2021) and the evidence for their effectiveness is growing. Pre-post-cohort studies have demonstrated statistically significant improvements of a range of outcome measures, including language abilities (Babbitt et al., 2015; Griffin-Musick et al., 2022; Leff et al., 2023; Molino et al., 2024; Persad et al., 2013; Rodriguez et al., 2013; Winans-Mitrik et al., 2014), functional communication (Griffin-Musick et al., 2021; Hoover et al., 2017; Leff et al., 2021; Nicholas et al., 2022) and quality of life (Leff et al., 2023; Molino et al., 2024) following ICAP participation. Further, there is emerging evidence for the effectiveness of mICAPs, with statistically significant improvements to communication participation observed in the first randomized controlled trial (RCT) for this service delivery model (Worrall et al., 2024).

The Comprehensive, High-dose Aphasia Treatment (CHAT) programme, developed iteratively through investigations of the Language Impairment and Functional Therapy (LIFT) programme (Rodriguez et al., 2013), is one of the first mICAPs in Australia. CHAT delivers 50 h of therapy across 8 weeks within impairment-based, functional, computer and group therapy components (described in detail in Dignam, Shrubsole et al., 2023). This more distributed treatment dose, as opposed to 30 h of therapy across 2 weeks, distinguishes CHAT from a formal ICAP (Rose et al., 2013). This modification was made following an investigation of the effects of intensive versus distributed delivery of LIFT, with superior spoken naming outcomes

observed for the distributed version (Dignam et al., 2015). Positive outcomes for the feasibility, acceptability and efficacy of the programme and its implementation within health settings have been demonstrated (Dignam, Shrubsole et al., 2023; Dignam et al., 2022). Further, CHAT has been successfully translated into telerehabilitation, known as TeleCHAT (Vuong et al., 2024), with preliminary data demonstrating the feasibility, acceptability, and potential effectiveness of online service delivery (Hill et al., 2023). Personalizing evidence-based aphasia therapy to target patients' meaningful goals is a key element of ICAPs/mICAPs such as CHAT and TeleCHAT. Despite their basis within best-practice principles, the implementation of ICAPs/mICAPs internationally overall remains low (Rose et al., 2021). There are known challenges associated with delivering individually tailored, evidence-based aphasia treatment in speech pathology practice, which could impact the implementation and quality of these programmes (Dignam, Harvey et al., 2023; Tierney-Hendricks et al., 2023).

However, speech pathologists report facing challenges in planning for individualized therapy as part of an ICAP (Dignam, Shrubsole et al., 2023; Shrubsole et al., 2022). Challenges reported included applying current research to guide the selection of appropriate therapies and time available to plan and prepare treatment resources (Dignam, Shrubsole et al., 2023; Monnelly et al., 2023). These barriers have been reported in broader aphasia practice (Berg et al., 2019; Shrubsole et al., 2019; Tierney-Hendricks et al., 2023) and are potentially exacerbated by the large and ever-growing volume of research literature in the field (Dignam Harvey et al., 2023). Challenges applying research to practice have resulted in a 'trial and error' versus targeted approach to treatment selection within aphasia practice, highlighting the need for tools and strategies to support clinical planning within aphasia rehabilitation programmes (Berg et al., 2019; Dignam, Harvey et al., 2023).

Clinical planning is an umbrella term describing the selection of treatment approaches to target patient goals (Springer, 2008). Components of clinical planning include collaborative goal-setting, reviewing the literature or seeking clinical expertise to identify treatments, developing an action plan for therapy, and reviewing goal attainment across therapy (Babbitt et al., 2013; Dekker et al., 2020; Scobbie et al., 2011). Speech pathologists delivering ICAPs have reported that having time and clinical support for clinical planning is a key facilitator for integrating evidence-based treatments into therapy (Babbitt et al., 2013; Dignam, Shrubsole et al., 2023; Shrubsole et al., 2022). For example, conducting clinical planning in

collaboration with colleagues has been described as enabling the sharing of ideas, peer support and problem-solving for issues relating to treatment delivery (Shrubsole et al., 2022). As such, a collaborative and structured process for clinical planning has been adopted as a core implementation strategy to enhance the application of research evidence into treatment plans for CHAT (Dignam, Shrubsole et al., 2023; Shrubsole et al., 2022). However, the steps taken to execute this process have not been comprehensively reported for CHAT, nor have the key components of clinical planning been explored. This gap is also present in the broader body of ICAP literature. Therefore, our understanding of *how* treatment planning could be conducted as part of an ICAP or mICAP is currently limited.

Although clinical planning has been identified as an important aspect of delivering ICAPs and mICAPs such as CHAT and TeleCHAT, there is little research describing how it is conducted as part of these programmes. Considering the identified challenges in selecting and tailoring research evidence to aphasia practice, this gap could impact the implementation of programmes such as CHAT and TeleCHAT within rehabilitation settings. As such, this study aimed for the following:

- To identify and define the individual tasks executed to implement the structured, collaborative clinical planning process for CHAT and TeleCHAT.
- To identify clinical stakeholders' perspectives on key components, roles, and resources for clinical planning.

Understanding how clinical planning for ICAPs and mICAPs such as CHAT and TeleCHAT is conducted is a critical preliminary step for their translation and scale-up across other rehabilitation sites.

METHODS

Design

A behavioural task analysis was conducted using a combination of observation and focus groups or interviews. Behavioural task analysis seeks to describe how clinical activities are delivered in context through the systematic description of individual tasks comprising the activity (Slagle et al., 2002). Specifically, the study adopted a hierarchical task analysis (HTA) approach, a common form of behavioural task analysis with previous application to healthcare research (e.g., Iflaifel et al., 2021; Raduma-Tomás et al., 2012). HTA builds on the behavioural approach by incorporating an examination

of the thought processes underpinning task execution and the sequencing of these tasks when delivering a clinical activity (Stanton, 2006). The HTA incorporated two phases: (1) development of a task analysis framework and (2) understanding speech pathology stakeholders' perspectives on key tasks, resources, and personnel associated with clinical planning. Ethical approval for this research was obtained via the Royal Brisbane and Women's Hospital Human Research Ethics Committee (RBWH HREC) for both the CHAT (HREC/2020/QRBW/50105) and TeleCHAT (HREC/2020/QRBW/61636) research projects before commencing this study. This study is reported in adherence with COREQ and STROBE reporting guidelines (Tong et al., 2007; Vandembroucke et al., 2007).

Setting

Data collection was conducted between July and November 2022. At the time of this study, CHAT was being delivered as part of a hybrid implementation-effectiveness research project within the Surgical, Treatment and Rehabilitation Service (STARS) speech pathology clinical service in Brisbane, QLD, Australia. TeleCHAT was being delivered as part of a pilot study by a research team at The University of Queensland from STARS, not attached to the clinical service. Collaborative planning meetings were conducted either face-to-face or online, depending on the preferences and availability of the team and/or any COVID-19 restrictions.

Participants

Observations of clinical planning and goal-setting sessions occurred with speech pathologists ($n = 8$) delivering two CHAT and one TeleCHAT cohort from June to September 2022. An additional two goal-setting sessions recorded from a TeleCHAT cohort in April 2022 were incorporated into the analysis to increase the number of available observations. As observations were focused on examining the actions of speech pathologists, people with aphasia were not included as participants in this study.

Following these observations, a purposive sample of speech pathologists ($n = 6$) were invited via email to participate in a focus group or interview. Speech pathologists with a range of general clinical and programme-specific experience who had delivered at least one CHAT or TeleCHAT cohort were invited to participate. Additionally, for CHAT, two speech pathology leads were invited who provided clinical and operational support and oversight for the programme. All invited persons agreed to participate.

Procedure

Phase 1: Development of a task analysis framework

The task analysis was primarily informed by Stanton's (2006) proposed framework for HTA, with the process for integrating observational and focus group/interview data further informed by studies utilizing HTA to investigate healthcare processes (Iflaifel et al., 2021; Raduma-Tomàs et al., 2012).

Identify the boundaries of 'clinical planning'

Springer's (2008) description of treatment planning was adopted for this research, that is, the selection of treatment approaches to target the patient's goals with consideration of personal and clinical factors. Further, the overarching clinical planning goals and tasks, as outlined in Dignam, Shrubsole et al. (2023), were adopted to form the basis of the task analysis framework.

Use multiple data sources to conduct and validate the task analysis

As stated above, data collection occurred across two phases. Observations of the goal-setting and collaborative planning meetings were first reviewed to develop the initial task analysis framework. Focus group and interview data were subsequently incorporated. Processes for data collection across these two phases are detailed below.

Identify and describe tasks comprising clinical planning

Extraction of clinical planning tasks was led by the first author. Global missions that is, the overarching phases or objectives for clinical planning (Stanton, 2006), were first hypothesized and then refined following the identification of clinical planning tasks. These are the overarching contexts under which tasks are performed to achieve the goals of a clinical process. Under each global mission, clinical planning tasks were then identified. Tasks reflect individual activities completed to achieve the global mission (Stanton, 2006) and were further subdivided into individual steps via subtasks and discrete task elements.

The clinical planning tasks outlined in Dignam, Shrubsole et al. (2023) were iteratively added to and/or refined and separated into subtasks and task elements from observation and qualitative data. Goal-setting sessions and collaborative planning meetings/reviews were first observed in situ with subsequent review of video recordings to ensure all elements of the framework were captured. Goal-setting sessions were observed via video recordings only to avoid influencing the therapeutic relationship or goal-setting process. Observations of

individual patient cases were compared to previous cases to produce a consolidated task analysis. Comparison between cases also enabled the identification of 'core subtasks' (observed across all cases) and 'peripheral subtasks' (observed on a per patient basis). A separate task analysis was initially conducted for both CHAT and TeleCHAT however, these were later consolidated as there were minimal differences in processes identified. Associated clinical planning templates, instructional resources, and/or client-facing resources were reviewed and mapped to relevant task/s.

Other clinical planning tasks could not be directly observed or recorded as they were more administrative in nature. Information about non-observable clinical planning tasks was therefore obtained during the focus groups and interviews. Treating speech pathologists were invited to attend a focus group to enable the sharing of ideas, while CHAT speech pathology leaders were offered individual interviews to avoid any potential power imbalances. Separate focus groups were held for the CHAT and TeleCHAT speech pathologists to enable focused discussion about the delivery of clinical planning in person and via telerehabilitation and to identify any differences between these modalities. All focus groups and interviews were conducted by the first author using an interview guide, which was first piloted with a single participant (Supplementary Materials 1 and 2) and video and/or audio recorded. The pilot interview data was included in the final analysis as the participant satisfied the sampling criteria, and no changes to the interview schedule were required. Focus groups ran for approximately 90 min, while interviews were approximately 60 min in duration. Field notes were taken throughout the focus groups and interviews to note key discussion points, which assisted with summarizing and expanding the conversation. One focus group was partially repeated due to missing data from a technical failure of the recording device. Focus groups and interviews were transcribed in full, de-identified, and subsequently disseminated to participants for comment or correction if they wished.

Interview and focus group data were analysed deductively via qualitative content analysis (Graneheim & Lundman, 2004). Condensed meaning units were first derived from transcripts and subsequently organized into one of three categories: tasks, resources, and roles. The coding and categorization of the data were completed in full by the first author in Microsoft Excel. Categories and subcategories were subsequently reviewed and discussed with the research team.

Link tasks and subtasks

Tasks and subtasks were temporally linked to one another and categorized in one of three ways, as per Stanton (2006),

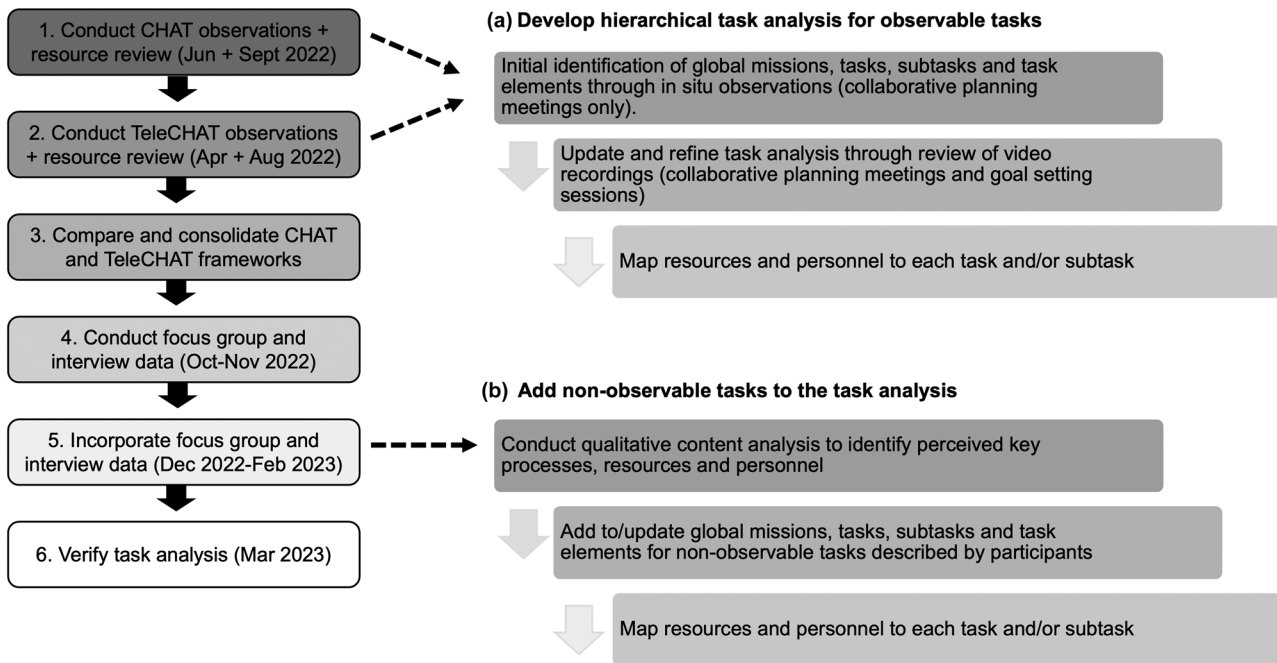


FIGURE 1 Process for developing the task analysis framework.

as being: (1) a procedure/chain, where tasks are performed in a fixed sequence (i.e., one must proceed the other); (2) time-sharing, where tasks/subtasks are performed at the same time; or (3) selection, where tasks/subtasks are performed depending on the outcome of another task/subtask.

Verify the task analysis with subject matter experts

Two CHAT participants, one TeleCHAT participant, and the second author (leading the CHAT research project at STARS and a chief investigator on the TeleCHAT research project) verified the final HTA to ensure the clinical planning description was complete and accurate. The process for developing the task analysis framework is summarized in Figure 1.

Phase 2: Understanding stakeholders' perspectives on key tasks, resources and personnel

Perceived key tasks, resources, and personnel were also identified via the focus groups and interviews. Data were analysed as per the phase 1 procedure; however, it included the additional identification of subcategories (in addition to categories). These subcategories described the key aspects relating to specific clinical planning tasks, roles, or resources from the perspectives of the participants.

Reflexivity and risk of bias

All observations, focus groups, interviews and primary analysis were completed by the first author. At the time this study was conducted, the first author worked with all participants in a paid position and had clinical experience supporting the delivery of CHAT at STARS. The author had a positive relationship with each participant, and all were aware of the author's research aims and personal motivations for conducting the research, that is, an interest in the implementation of best-practice care for aphasia as part of their PhD thesis. The researcher was also familiar with several of the people with aphasia discussed during the collaborative planning meetings and/or had previously provided speech pathology services to them at STARS. Similarly, the second author was leading the implementation of CHAT at STARS at the time of the study and was involved in all clinical planning discussions. It is acknowledged that the authors' professional engagement with CHAT and existing relationships with participants could be a source of bias for this research. All efforts were made to minimize the impact of these relationships and prior perspectives on the programme throughout the observations and focus groups/interviews. During observations, the first author took care not to provide prompts about clinical planning elements. Similarly, during the focus groups/interviews, the researcher was guided by the participants' responses to interview topics and avoided interjecting with personal experiences. Participants were

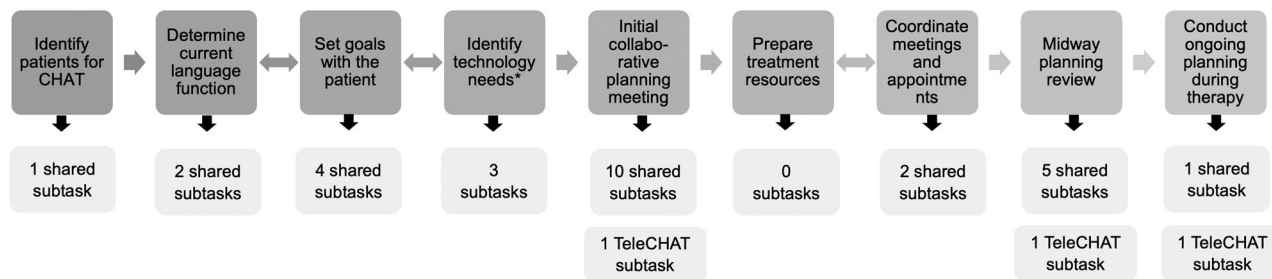


FIGURE 2 Clinical planning tasks across CHAT and TeleCHAT, including temporal relationships between tasks.

Note: *TeleCHAT only; unidirectional arrow = procedural sequence; and bidirectional arrow = time-sharing tasks which occurred across the clinical planning phase.

encouraged to discuss both positive and negative aspects of clinical planning. Other strategies to reduce the risk of bias included verification of the task analysis with a researcher and a sample of participating speech pathologists, sharing interview transcripts with participants to review, and reviewing categorized focus groups and interview data by the research team.

RESULTS

Study demographics

A total of 13 patient discussions during each of the initial and midway the collaborative planning meetings were obtained. Goal-setting sessions were observed for 10 patients. Some goal-setting sessions were not able to be recorded for patient-specific reasons (e.g., impact on rapport building).

Seven speech pathologists (CHAT $n = 4$, TeleCHAT $n = 3$) and two speech pathology leads (CHAT $n = 2$) participated in the focus groups/interviews. All participants were qualified speech pathologists with 1–26 years of clinical experience and had experience delivering and/or supporting at least one cohort of CHAT or TeleCHAT (range = 1–8 cohorts). Two CHAT speech pathologists were only able to participate in half of their scheduled focus group due to competing clinical demands. Participants were given the opportunity to speak to all questions and both reported they had nothing further to add at the end of their time.

The clinical planning task analysis framework

Clinical planning for CHAT and TeleCHAT occurred across two global missions: initial planning and planning review. Seven distinct tasks were identified across these two missions: (1) determine current language function:

in-depth assessment analysis with reference to psycholinguistic models of language processing; (2) set goals with the patient: identification of patient goal areas and translation to SMART goals; (3) conduct initial collaborative clinical planning meeting: collaborative meeting with speech pathologists and the researcher to translate patient goals into an individualized therapy plan for the CHAT block; (4) coordinate meetings and appointments: scheduling clinical planning phase appointments, meetings, and therapy; (5) prepare treatment resources: identification and/or development of personalized resources for therapy; (6) conduct midway planning review; review progress towards goals and ongoing suitability of treatment plans; and (7) conduct ongoing planning during therapy; update treatment plans in an ad hoc manner based on patient response to treatment and feedback. Although occurring before clinical planning, identifying suitable patients emerged as an important precursor, integrating processes that facilitated treatment planning (e.g., screening for preliminary goals), and was therefore included as an eighth shared task. One additional task was identified for TeleCHAT, which is identifying technology tasks. The shared tasks comprised 25 subtasks (of which 19 were considered ‘core’ tasks) and 100 task elements (56 core). An additional six subtasks specific to TeleCHAT were identified. Figure 2 displays each task and the temporal relationships between them. These elements are summarized in detail in Table 1.

On average, the goal-setting session took 52.25 min per participant. However, during the focus groups, clinicians discussed that goal-setting often also flowed into a second session and required additional offline time to develop SMART (specific, measurable, achievable, relevant, time-referenced) goals (Schut & Stam, 1994). Individual patient discussions during the initial collaborative planning meeting required 59.15 min on average, while discussions during the midway review required 28.4 min. Time taken to complete other planning tasks could not be reliably measured in the absence of video or audio recordings. Tasks, subtasks and task elements for CHAT and TeleCHAT are



TABLE 1 Clinical planning tasks, subtasks and task elements forming the consolidated task analysis framework.

Task and purpose	Subtask and purpose	Description of core task elements
Identify patients for CHAT. Establish a cohort for CHAT	Screen for eligibility. Determine individual patient suitability to participate in CHAT	<ul style="list-style-type: none"> Identify potentially eligible PWA through referral lists Identify the need for MDT input Prime patients for CHAT (including education about goal-setting)
Determine current language function. Identify language targets to contextualize goal-setting and inform treatment planning	Analyse assessment results (offline). Identify language strengths and weaknesses to inform therapy	<ul style="list-style-type: none"> Scoring assessments Mapping assessment results to models of psycholinguistic processing Forming a clinical impression about the nature of the aphasia
Set goals with the patient. Informs patient-centred, goal-directed treatment	<p>Identify goal areas. Ensure patient-centred therapy; set expectations for therapy</p> <p>Goal specification. Develop patient-centred therapy that is achievable and realistic</p> <p>Goal prioritization. Narrow down on goals to target during treatment</p> <p>Identify treatment targets. Personalize therapy</p>	<ul style="list-style-type: none"> Providing feedback on assessment results Educating on the goal-setting process Gathering personal information for goal-setting Identifying goal areas Probing specific parameters of the goal (e.g., targets, context) Generating preliminary SMART goals Verifying SMART goals with PWA Sort goals into levels of relative importance with PWA Identify personally meaningful targets (e.g., topics and specific words) to target within therapy
Initial collaborative planning meeting. Develop individualized, evidence-based treatment plans to achieve PWA goals	<p>Case history discussion. Provide context for goals and guide selection of treatment</p> <p>Discuss performance on language assessment. Describe the nature and severity of aphasia</p> <p>Discuss performance on extension assessment. Further understanding of the language impairment to guide treatment</p> <p>Present preliminary patient goals. Develop person-centred therapy that is measurable</p> <p>Goal discussion and review. Produce specific therapy goals</p> <p>Discuss patient factors which influenced goal-setting. Inform/contextualize goals</p> <p>Identify treatment approaches to target goals. Provide comprehensive, goal-directed, and evidence-based care. Ensure all relevant goals are targeted</p> <p>Treatment personalization. Optimize progress through CHAT. Deliver individualized therapy</p> <p>Identify outcome measures for treatment. Measure treatment outcomes</p>	<ul style="list-style-type: none"> Outline stroke history, rehabilitation and management Discuss social history Present assessment results and overall impression. Report on error analysis with reference to psycholinguistic processing models and provide examples Outline assessment results and interpretation. It may also include a discussion of additional assessment required or further patient information required Present PWA's goal areas and clinician-developed preliminary SMART goals Obtain feedback on the suitability and specificity of goals Discuss social and personal factors influencing goal-setting Identify and compare the suitability of evidence-based treatment approaches Allocate treatments to each functional, impairment, and computer therapy Identify specific treatment targets based on the level of language breakdown Discuss patient factors which may impact treatment Identify required resources No task elements identified

(Continues)

TABLE 1 (Continued)

Task and purpose	Subtask and purpose	Description of core task elements
	Identify supports and services for discharge. Support continuity of care and maintenance	<ul style="list-style-type: none"> Identify onward services and/or referrals required
Scheduling and coordination. Ensure all assessment, planning, and therapy activities are completed	<p>Schedule pre-treatment and planning activities. Ensure required tasks are completed to inform treatment planning</p> <p>Develop a CHAT therapy timetable. Allocate sufficient resources, plan for leave cover, and ensure PWA will receive the intended dose</p>	<ul style="list-style-type: none"> Scheduling each assessment session, goal-setting session, clinical planning days, and resource development time Scheduling CHAT therapy for each PWA, scheduling group therapy, liaising with administration staff, and scheduling midway clinical planning
Prepare treatment resources. Individualize treatment to the PWA	Prepare treatment resources. Ensure therapy is individualized to the PWA; personalization of treatment plan	Source readily available resources and/or develop person-specific resources
Midway clinical planning review meeting. Formally review the treatment plan. Determine the need to modify goals, approaches, and/or treatment targets to optimize CHAT outcomes	<p>Review progress through therapy. Guides to need to modify current treatment/goals and optimize PWA progress through CHAT</p> <p>Review goals for the remainder of the block. Ensure individually tailored, goal-directed care; optimize PWA progress through CHAT</p> <p>Review treatment plan for the remainder of the block. Support goal attainment, ensure personally relevant, evidence-based therapy</p> <p>Identify supports and services post-CHAT. Support continuity of care and maintenance of therapy</p> <p>Determine if continuation in CHAT is appropriate. Determine ongoing suitability for participation in the context of significant medical/social interruptions and devise a plan for participation</p>	<p>Discuss progress/performance in therapy across goals and/or therapy tasks</p> <ul style="list-style-type: none"> Confirm current goals are appropriate OR Introduce any new goals AND/OR Refine cease targeting current goal/s Review current documented treatment plan and determine continuation/discontinuation/modification of elements Confirm/identify aphasia and/or MDT service options post-CHAT and plans for self-maintenance Observed infrequently. Discussion of research and clinical suitability to continue. If discontinuation was deemed necessary, a new plan for ongoing aphasia care was identified
Planning during therapy. Review and re-evaluation of the therapy plan	Modify treatment to patient response. Optimize outcomes through therapy	<ul style="list-style-type: none"> Iteratively reviewing progress towards goals/through therapy to modify targets, approaches, and goals as required

Note: Excludes TeleCHAT-specific tasks and subtasks. Subtasks shown in bold are core subtasks. Key: PWA = person with aphasia.

summarized in Table 1. The full clinical planning framework is available in Supplementary Material 3. Roles and resources for each task are displayed in Table 2.

Perceived key elements of clinical planning for CHAT and TeleCHAT

Key tasks

Participants described all clinical planning tasks as essential for successful planning. Goal-setting was described by all participants as particularly important and a prerequisite for the initial collaborative planning meeting to enable

the mapping of the patient's desired outcomes to a treatment plan. Detailed analysis of assessment results before goal-setting equipped speech pathologists with knowledge of what was achievable. Speech pathologists felt that thorough knowledge of language strengths and areas of breakdown helped them to shape patient-identified goals into SMART goals (Schut & Stam, 1994). Experience in CHAT and TeleCHAT was also important for negotiating goals with patients as it provided therapists with a sense of what would be 'achievable' within 50 h of therapy. Even with experience, the need to review goals was described. Informal review of goals typically occurs during the first 2 weeks of therapy in collaboration with the person with aphasia, with formal review of goals occurring during



TABLE 2 Roles and resources by clinical planning task.

Task	Roles	Resources
Determine the current language function	<ul style="list-style-type: none"> Treating speech pathologist: completes assessment and assessment analysis 	<ul style="list-style-type: none"> Assessment form/s (scored) Psycholinguistic progressing graphic models (predominantly single word used)
Set goals with the patient	<ul style="list-style-type: none"> Treating speech pathologist: leads the goal-setting process and supports PWA participation Family members: play a key role in supporting PWA to think about potential goals and/or identify goal areas 	<ul style="list-style-type: none"> CHAT patient goal-setting questionnaire Locally developed graphic goal-setting tool (CHAT) Individually tailored communication strategies Published goal-setting resources ± goal prioritization sheet
Initial clinical planning meeting	<ul style="list-style-type: none"> Treating speech pathologist: presents the patient's case, assessment results, preliminary SMART goals, and leads the development of the treatment plan. Provides clinical input into the suitability of treatments approaches and personalisation Senior clinician (CHAT only): ask probing questions where more information about the PWA's case or assessment is required, provide feedback on treatment goals and contribute to the development of the treatment plan The researcher probes for further information to support planning decisions, provides feedback on goals, supports access to evidence-based treatment approaches, and advises ways to preserve treatment fidelity 	<ul style="list-style-type: none"> Clinical planning day template/documentation Original test forms/data Access to electronic medical records Audio/visual technology to share samples of PWA assessment responses
Scheduling and coordination	<ul style="list-style-type: none"> CHAT/TeleCHAT speech pathologists jointly 	<ul style="list-style-type: none"> Therapy timetable template
Prepare treatment resources	<ul style="list-style-type: none"> Treating speech pathologist: coordinates resource preparation. It may involve different members of the clinical team 	Nil specified
Midway clinical planning review meeting	<ul style="list-style-type: none"> Treating speech pathologist: as per initial planning + leads discussion about revision of goals/treatment plan Senior clinician (CHAT only): as per initial planning The researcher: as per initial planning 	<ul style="list-style-type: none"> Up-to-date therapy planning document
Planning during therapy	<ul style="list-style-type: none"> CHAT/TeleCHAT speech pathologists 	Nil specified

the midway collaborative planning review meeting. Participants also described patient screening as an important adjunct to clinical planning. Screening involved determining the individual's ability to identify goal areas for therapy and their motivation for therapy, which informed them of their overall suitability for the programme. Importantly, clinical planning was described as an iterative process that occurred across the whole therapy block. One participant reflected that 'the whole goal-setting and clinical planning does take the whole time. It's not just the time before therapy, and I think it doesn't work if it's only the time before therapy' (P08). Factoring in offline planning time throughout the therapy period was considered important for ongoing tailoring. Participants' perceptions about key clinical planning processes are summarized in Table 3.

Key resources

The personnel involved in clinical planning were described as the most important resource available, with researchers and experienced speech pathologists providing expertise in aphasia management and evidence-based practice. This was exemplified by one participant who stated: 'I felt supported throughout, which I don't know if any process or standardised resource would've gotten me there' (P05). Instructional documents, such as a clinical planning manual and clinical resources, including treatment decision-making tools and goal-setting tools, were still considered necessary. Such documents provided speech pathologists with knowledge about how to conduct clinical planning and were particularly useful for those new

TABLE 3 Clinician perspectives of key processes for clinical planning.

Clinical planning category	Subcategories describing the task
Assessment analysis	<ul style="list-style-type: none"> • Prerequisite for goal-setting and treatment planning. Needs to be in-depth. Dedicated time is required • Timing. Occurs as close to assessment as possible. Goal-setting cannot be completed until assessments are analysed
Goal-setting	<ul style="list-style-type: none"> • Goal-setting needs to be its own session. Allows for in-depth discussion about assessment and the person's life. Those not delivering CHAT may perceive that assessment and goal-setting can be completed in the same session • Importance of setting clear goals. Knowing what is realistic/achievable, being specific. Educating the patient about this • Goal-setting is a prerequisite for planning day. Guides decisions about treatment planning • Collaborative goal-setting is crucial. Setting goals with patients and their families, driven by and confirmed with the PWA • PWA need support for goal-setting. Support from the clinician/family to set goals and to know what's achievable through tailored support to engage in the process • Goal-setting is an iterative process. Identification of goal areas, goal refinement and confirmation of goals with the PWA
Treatment planning	<ul style="list-style-type: none"> • Determining set size is a clinical skill. Decisions are reliant on clinical judgement due to a lack of research evidence, a learnt skill. Continual evaluation during the treatment period • TeleCHAT weekly debrief is helpful. Dedicated time to problem-solving issues relating to treatment amongst the team • Delegation of therapy. Determining which tasks can be delegated to students and/or AHAs. Changes per cohort, consideration of the suitability of each individual PWA
Resource development	<ul style="list-style-type: none"> • Resource personalization is key. Having dedicated time for resourcing is critical to the success of therapy. It is collaborative with patients

to the caseload. Clinical resources were used to support goal-setting and selection of treatment approaches.

Key personnel

Speech pathologists, speech pathology leads, and the research team were all part of the clinical planning team. Treating speech pathologists led the clinical planning processes. They were responsible for screening and recruiting patients, collating all key case information, carrying out clinical planning activities, and supporting coordination of these activities. Speech pathologists were perceived to contribute clinical expertise to treatment planning, for example, by leading discussions about treatment personalization. As stated by one participant, 'it was like, they're [CHAT speech pathologists] like the real-world people ... pairing like best practice and like what ... the best research is saying with like, oh, the patient's not going to be able to do that, but how about we try this?' (P05). Speech pathologists also supported others to develop clinical skills in treatment planning.

Members of the research team also played a key role. Researchers were considered to have a consultative role with three key functions emerging: enabling access to evidence-based therapy (by raising awareness of

and sharing therapy protocols), technology expertise, and enhancing the fidelity of the research. During collaborative planning meetings, the researchers facilitated quick access to evidence-based treatment approaches and supported decisions about which treatments to include in therapy. One participant described that 'the bonus of that relationship is that we are implementing, and we are seeing translation of research very quickly into practice ...' (P09). Whilst the speech pathologists were considered to have expertise in the practical application of research, the researcher offered guidance around treatment fidelity for CHAT and its theoretical underpinnings. Finally, the researchers were also perceived to provide connections to other researchers with expertise in technology, which supported the integration of evidence-based technologies into therapy.

For CHAT, the involvement of speech pathology leads acted as a conduit between the research and clinical teams. They provided high-level clinical advice to support holistic treatment planning oversight of CHAT delivery and supported communication between the research and clinical teams about the implementation of the clinical planning process. From an operational perspective, this role was also important for providing oversight of the program's delivery in the clinical setting. Ultimately, although individual roles and responsibilities for these key personnel

were identified, clinical planning was considered a highly collaborative effort.

DISCUSSION

The development of a personalized treatment plan that addresses meaningful patient goals is a key component of ICAPs and mICAPs such as CHAT/TeleCHAT. This study sought to understand, in detail, the processes by which speech pathologists conduct clinical planning and speech pathology stakeholders' perspectives on key planning elements. This is the first study reporting on how clinical planning is conducted for CHAT and TeleCHAT, and indeed, the first detailed description of clinical planning for an ICAP or mICAP.

The tasks identified in this study addressed the overarching aims of clinical planning for CHAT/TeleCHAT and appeared to be executed in accordance with the intended framework (Dignam, Shrubsole et al., 2023). Although the evidence base for clinical planning in aphasia rehabilitation is currently limited, the CHAT/TeleCHAT clinical planning process appeared well-aligned with best practice recommendations for treatment preparation. For example, several aspects of the process were aligned with recommendations from the Australian Aphasia Rehabilitation Pathway (AARP), a validated set of 82 best-practice statements for aphasia management (Power et al., 2015). First, the CHAT/TeleCHAT clinical planning process strongly complied with AARP recommendations for goal-setting. The goal-setting for CHAT/TeleCHAT was dynamic, with review and refinement of goals occurring across the intervention block using a collaborative and client-centred approach which included routine education about the goal-setting process. The AARP also recommends assessment should be iterative and address both function and disability (Power et al., 2015). This recommendation was met through the clinical planning process by identifying/conducting extension assessment and outcome measures to address multiple, relevant aspects of the WHO-ICF in a hypothesis-driven manner. Third, clinical planning aligned with AARP recommendations for treatment provision through development of individualized treatment plans targeting everyday activities and participation alongside language impairment. Finally, recommendations for planning for transitions were met through discussion of services and support networks the person with aphasia could access following discharge.

A core clinical planning task was collaborative treatment planning meetings, viewed as essential components of both the CHAT and TeleCHAT programmes. Participants described two key benefits of these meetings, both of which reflected the importance of a team-based and col-

laborative approach to planning: (1) rapid access to and knowledge of evidence-based treatments via the research team; and (2) clinical expertise to guide the personalization and delivery of therapy. Participants identified that both researchers and clinicians played a key role in clinical planning, supporting the assumption that a collaborative approach may facilitate clinical planning (Shrubsole et al., 2022). This collaboration has been described as a particularly rewarding component of ICAPs, providing opportunities for professional growth in evidence-based aphasia rehabilitation and support for troubleshooting issues relating to therapy (Babbitt et al., 2013; Shrubsole et al., 2022). This is in contrast to usual aphasia practice, where although the translation of research into aphasia practice is a key priority and highly valued by speech pathologists, clinicians' interaction with research may be limited (Dignam, Harvey et al., 2023; Page & Howell, 2015; Shrubsole et al., 2018). Access to researcher expertise throughout clinical planning for CHAT and TeleCHAT could be a method for improving research translation. However, this may be challenging to implement on a larger scale if clinical teams do not have an existing connection with a research team. Understanding the barriers and facilitators to the implementation of collaborative planning is warranted to further explore this potential strategy.

Developing clear goals was also identified as a critical component of clinical planning and a prerequisite for treatment planning. Participants' views about the importance of setting clear goals are mirrored in the literature. For example, in a survey of UK speech pathologists, 93% of respondents ($n = 154$) agreed that setting clear goals for therapy was an important component of delivering intensive and/or comprehensive care (Monnelly et al., 2023). This belief appears to be reflected in broader stroke rehabilitation practice, with audit data demonstrating that goal-setting forms a routine part of rehabilitation practice (Baker et al., 2021; Stroke Foundation, 2020). Participants of the present study reported a need for goal-setting to be conducted in collaboration with the patient and their family member/s, a view that is consistent with best practice guidelines (Power et al., 2015; Stroke Foundation, 2023). Further, speech pathologists describe the involvement of family members as a key facilitator for setting with patients with cognitive and communication challenges (Berg et al., 2019; Torrence et al., 2016). Although efforts were made to ensure CHAT and TeleCHAT goals were patient-led, it was often necessary for speech pathologists to guide what was feasible within a time-limited service. This education was a key task element for goal-setting for CHAT and TeleCHAT and is reflected in broader clinical practice as involving insight building and a high level of negotiation to frame the patient's goal in an achievable way (Berg et al., 2016). Goal negotiation has been described as a particularly

challenging element of goal-setting (Berg et al., 2019). Participants of the present study reported thorough assessment analysis before the goal-setting session was a key precursor to goal negotiation, helping them to identify what was achievable through therapy. This perspective challenges best-practice guidance from the AARP, which recommends conducting goal-setting before assessment to ensure the relevance of assessments (Power et al., 2015). However, this need was addressed in clinical planning for CHAT through the conduct of personalized outcome measures and additional assessments after goals were identified to enable greater specificity in the measurement of goal achievement.

Determining a person with aphasia's clinical suitability to participate in CHAT/TeleCHAT emerged as an important precursor to clinical planning. To date, there is no evidence to guide who is suitable to participate in an ICAP. However, factors that treating speech pathologists in the present study noted to support participation included an ability to attend and tolerate intensive therapy, the ability to identify goals for rehabilitation, motivation for therapy, and expectations about what targeted treatment could achieve. These facilitating factors emerged through clinical experience in delivering CHAT and TeleCHAT but have been reported as important considerations for ICAP participation elsewhere (Monnelly et al., 2023; Shrubsole et al., 2022). Further research into the 'ideal' candidate for CHAT and TeleCHAT may provide greater guidance for speech pathologists when identifying suitable participants.

Limitations and future directions

One limitation of this study was the first author's professional relationship with participants and involvement in delivering clinical planning, posing a potential risk of bias towards favourable opinions of clinical planning for CHAT and TeleCHAT being shared. Further, the first and second author's own previous experiences in supporting the clinical delivery of CHAT potentially added bias to the interpretation of findings. Reflexivity strategies were employed to reduce the impact of this limitation, such as subject matter validation of the task analysis and peer review for interview data. A potential methodological limitation of this study was a focus on task description versus gaining an in-depth understanding of cognitive processes underlying task decisions. Further, it was not possible to observe all clinical planning tasks as many occurred offline. Incorporating focus group and interview data helped to overcome these issues; however, it is acknowledged that decision-making processes were not explored in detail for all clinical planning tasks. Finally, this paper only examined the delivery

of clinical planning and did not consider factors which may have influenced its implementation in practice. A study examining speech pathology stakeholders' perspectives on implementing clinical planning for CHAT and TeleCHAT is underway.

CONCLUSIONS

Clinical planning is an important component of delivering CHAT and other ICAPs. Understanding the processes involved and key elements of clinical planning for CHAT and TeleCHAT is the first step to supporting its implementation in other settings. Further, the explicit description of clinical planning resulting from the task analysis framework may increase speech pathologists' knowledge of how to develop comprehensive treatment plans as part of other ICAPs/mICAPs or in their usual aphasia practice. Examination of the barriers and facilitators to implementing a structured and collaborative clinical planning process is required to further support the translation of this model into practice. A study examining the barriers and facilitators to clinical planning for CHAT and TeleCHAT is underway.

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CONFLICT OF INTERESTS STATEMENT

The authors are not aware of any conflicts of interest in relation to this research.

DATA AVAILABILITY STATEMENT

Data are available in the Supplementary Material.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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