

Research Article

Alterations and Preservations: Practices and Perspectives of Speech-Language Pathologists Regarding the Intervention of Thickened Liquids for Swallowing Problems

Arlene McCurtin,^{a,b,c}  Hannah Byrne,^a Lindsey Collins,^{c,d} Michelle McInerney,^{a,c,e}
Tracy Lazenby-Paterson,^{c,f} Paula Leslie,^{c,g,h}  Shaun O'Keeffe,^{c,i} Claire O'Toole,^a and Alison Smith^{c,j}

^aSchool of Allied Health, University of Limerick, Ireland ^bHealth Research Institute, Health Implementation Science and Technology Research Cluster, University of Limerick, Ireland ^cSwallow Perspectives, Advocacy and Research Collective (SPARC), University of Limerick ^dCentre for Applied Dementia Studies, Faculty of Health Studies, University of Bradford, United Kingdom ^eCP-ACHIEVE in Murdoch Children's Research Institute, Parkville, Victoria, Australia ^fIntellectual (Learning) Disability Service, NHS Lothian, Edinburgh, United Kingdom ^gNewcastle External Assessment Group, Northern Medical Physics and Clinical Engineering, Newcastle upon Tyne Hospitals NHS Trust, United Kingdom ^hCenter for Bioethics and Health Law, University of Pittsburgh, PA ⁱDepartment of Geriatric Medicine, Galway University Hospitals, Ireland ^jNHS Hertfordshire and West Essex Integrated Care Board, Hemel Hempstead, United Kingdom

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ABSTRACT

Purpose: The intervention of thickened liquids (TL) is commonly used to reduce aspiration in people with dysphagia. Speech-language pathologists (SLPs) have traditionally believed it is an effective intervention. Recent articles highlight limited evidence, poor acceptance, and a variety of unintended consequences. This study explores if current debates have been reflected in SLP practices and perspectives.

Method: An e-survey was developed. Participants were recruited via professional associations in Australia, New Zealand, Ireland, the United Kingdom, and the United States. Descriptive and inferential statistics were used to explore the data. Principal component analysis was used to summarize SLP practices and perspectives.

Results: The 370 respondents represented mainly experienced, confident, hospital-based clinicians. While 20% of respondents frequently recommend TL, 61% believe it to be a burdensome treatment. "Best treatment" and "It works" beliefs continue to underpin decision making. Those who recommend TL most often are most influenced by penetration, coughing, and their own clinical experience. They are more likely to believe TL is evidence based and effective, reduces aspiration, and improves hydration. Person-centeredness is important among all respondents, although significant numbers would implement TL against patient wishes. Improvements in aspiration status and quality of life rank highly as reasons to discontinue TL.

Conclusions: The results of this study suggest that fewer respondents are regularly using TL. Divergent groups are evident with those frequently employing and believing in the efficacy of TL and those who do not. While current debates are influencing practice, there clearly remains a significant number of SLPs continuing to recommend TL. This study's findings highlight both alterations and preservations in the discipline's approach to TL and calls for SLPs to reframe our thinking regarding this intervention as well as consider alternative options in this treatment space.

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Correspondence to Arlene McCurtin: arlene.mccurtin@ul.ie. **Disclosure:** The authors have declared that no competing financial or nonfinancial interests existed at the time of publication.

Oropharyngeal dysphagia is an impairment of swallowing and includes a delay or disorder in the movement of a food or liquid bolus through the oral and pharyngeal spaces (Daniels et al., 2009). It is a common condition in a range of clinical populations, including people with

cerebral palsy and people with acquired conditions such as stroke. Since dysphagia can result in serious complications such as dehydration, malnutrition, aspiration, and premature mortality, early assessment and intervention are seen as fundamental to both improved outcomes for people/the person with dysphagia (PwD) and reduced health care expenditures (Martino et al., 2005; Takizawa et al., 2016).

The intervention of thickened liquids (TL) is commonly used to improve bolus control and reduce aspiration—a condition where food or liquid enters the lungs—and the sequelae of aspiration such as chest infections. A thickening agent is added to drinks to increase viscosity in order to slow the flow of the bolus and improve the swallow response, thus reducing or eliminating penetration into the airway. Speech-language pathologists (SLPs) typically demonstrate high dependence on TL (Jones et al., 2018; McCurtin & Healy, 2017), employing safety reasoning in doing so (McCurtin et al., 2020) and focusing on aspiration and aspiration pneumonia as the primary outcomes to rationalize efficacy (Lazenby-Paterson, 2020; Steele et al., 2021). The use of TL—94% in Jones et al.'s (2018) study on SLPs working with people post-stroke and 78% in the McCurtin and Healy's (2017) study—exists despite arguments that TL should be employed only when other treatment alternatives have been explored (Logemann, 1998) and dysphagia being only one of a number of predictors of aspiration pneumonia (Brogan et al., 2014; Langmore et al., 1998, 2002; Logemann et al., 2008; Robbins et al., 2008).

The frequent use of TL by SLPs occurs in the context of limited supportive research evidence. Hansen et al.'s (2022) recent systematic review showed no evidence to support use and made a weak recommendation against TL, reporting no convincing evidence that TL prevents death or pneumonia or improves quality of life, nutritional status, or oral intake. Despite this, as Lazenby-Paterson (2020) argues, the relative lack of well-conducted randomized control trials does not necessarily invalidate using TL or suggest there are no situations for which TL would be beneficial. However, when a treatment carries potential harms, there is a burden of proof on clinicians and the discipline, at a minimum, to acknowledge and share the uncertainty regarding the evidence of benefit. Additional challenges with this treatment exist. TL has well-known poor treatment adherence with impacts on independence and quality of life (e.g., Colodny, 2005; King & Ligman, 2011; McCurtin et al., 2018; Swan et al., 2015). Recent articles have highlighted person-centered impacts including treatment burdens such as reduced quality of life and treatment dislike (McCurtin et al., 2018; Steele et al., 2021) and informed consent and shared decision-making deficits—including PwD not being involved

in the decision to use TL (McCurtin et al., 2018; O'Keeffe et al., 2023). Further, the Royal College of Speech and Language Therapists' (2023) position statement highlights a number of unintended consequences including increased risk of dehydration, impaired medication bioavailability, thirst, urinary tract infections, altered bowel habits, oral and pharyngeal residue, and respiratory tract infections if thickened fluids are aspirated.

Thus, while the majority of SLPs have traditionally believed that TL is an effective intervention (Garcia et al., 2005), Bond et al. (2023) note that concern about the overuse of TL is growing “as it may unintentionally lead to inadequate fluid intake and related consequences such as dehydration” (p. 2). It is timely to review if current debates regarding TL have been reflected in changes to SLP practices or perspectives. The aim of this study was to identify current SLP practices and beliefs with regard to the intervention of TL and how perspectives and practices reflect current thinking and distinguish factors influencing use and discontinuation of TL.

Method

Survey Design

An e-survey (see the Appendix) was developed to explore contemporary practice and reflect current debates in the literature regarding TL. It was based on a number of articles (Cocks & Ferreira, 2013; Desai & Namasivayam-McDonald, 2020; Jones et al., 2018; Lazenby-Paterson, 2020; Lim et al., 2016; Logemann et al., 2008; McCurtin & Healy, 2017; McCurtin et al., 2018, 2020; O'Keeffe et al., 2023; Sharp & Shega, 2009) and the knowledge and expertise of the authors who are an interdisciplinary group of clinicians and researchers. Examples of survey content resulting from review of the above studies are shown in Supplemental Material S1.

The content was not intended to be exhaustive but represent a range of potential factors that might influence use of and attitude toward TL. An initial list was produced by three authors (H. B., C. O. T., and A. M.) and then disseminated to other team members for review and additional content.

Survey content was then discussed, reviewed, and agreed by the authors in an iterative process, and once consensus was achieved, the included items were divided into five sections, as follows: A: general questions including demographics and general practices (Q1–14); B: beliefs regarding the TL intervention (Q15); C: practices typically employed by SLPs prior to making TL recommendation (Q16); D: factors influencing decisions to use TL (Q17);

and E: reasons to discontinue the TL intervention (Q18). Section B (beliefs) was a rating scale composed of 27 items, Section C (practices)—30 items, Section D (influences)—32 items, and Section E (discontinuation)—10 items. Some survey statements were duplicated to ensure reliability of responding. Likert scales (e.g., *strongly agree*, *agree*, *neither agree nor disagree*, *disagree*, and *strongly disagree*) were used to measure responses in Q12–17. Respondents were given the option to add further responses at the end of sections B–E. The survey was piloted by two researchers (H. B. and C. O. T.) on a convenience sample of three dysphagia-experienced SLPs who made recommendation with regards to terminology (e.g., TL only rather than TL/fluids) to make the survey easier to read. No further recommendations were made to modify the survey. In all cases, the survey tool took approximately 15–20 min to complete. The survey was transposed into Qualtrics (<https://www.qualtrics.com>) and disseminated with all responses set to be anonymized.

Ethics

Ethical approval was received from the main authors' university ethics board (2022_05_09_EHS).

Participants

SLPs working with PwD who had experience of using TL were recruited through dysphagia special interest groups associated with their national professional associations. These were the Irish Association of Speech and Language Therapists Dysphagia Special Interest Group, Royal College of Speech & Language Therapists Dysphagia Clinical Excellence Network UK, American Speech-Language Hearing Association Special Interest Groups 13 (Swallowing & Swallowing Disorders) and 15 (Gerontology), and Speech Pathology Australia. Recruitment was limited to representative English-speaking countries in Australasia (Australia, New Zealand), Northwest Europe (Republic of Ireland, England, Northern Ireland, Scotland, Wales), and the Americas (United States). The survey link was distributed to professional association/special interest group gatekeepers in each of the participating countries who forwarded the link to their membership. Reminders were sent at 3 and 6 weeks after which the survey was closed.

Analysis

Data were analyzed using the JAMOVI (2022) statistical package. Descriptive statistics were used to explore the data. Likert scales were reduced to three points (e.g., *agree*, *neither agree*, or *disagree*) after data collection to better summarize frequency of use and provide clarity of

responding behavior. Group comparisons were analyzed via analyses of variance with Tukey's post hoc tests employed to explore the direction of differences.

Principal component analysis (PCA) was used to identify relationships among larger sets of observed variables and group these based on responding behavior and common characteristics. PCA reduces a large set of variables into a smaller set while still retaining most of the information in the large set. Assumption checks were conducted using Bartlett's Test of Sphericity and Kaiser–Meyer–Olkin (KMO) test of sampling adequacy to ensure data would support a PCA. Bartlett's test is often performed to verify that a data reduction technique can actually compress the data in a meaningful way. If the p value is lower than the significance level ($p > .05$), then the data set is suitable for a data reduction technique. KMO values greater than 0.7–0.8 are considered an indication that factor analysis will be useful. A minimum factor score of 0.40 for statements to load onto a factor was employed (Stevens, 2009). Groups of statements formed components, and components in the analysis were retained if they contributed to 50% of the variance and scored an eigenvalue of 1 or above. Duplicated statements were retained in components with the highest loading. Component labels that best represented the majority of included statements were chosen through an iterative discussion process among the authors (H. B., P. L., T. L. P., A. M., C. O. T., and S. O. K.). This process involved several repeated discussions until consensus was reached. While component labels fit the majority of included statements, some statements may naturally be perceived as outliers in their group; however, the number of such statements is minimized by the protocols noted above involved in selecting statements for inclusion.

Results

A: Respondent Characteristics and General Practices

A total of 370 respondents completed the demographic section and at least one section and were included in the analysis. The numbers agreeing each statement are provided in Tables 2, 4, 6, and 8. As it was not possible to determine who had engaged with the survey in the electronic communities, response rates cannot be reasonably stated. Selected respondent and workplace characteristics are summarized in Table 1.

Over 70% of respondents had undertaken dysphagia training during their professional qualification training. Just over half of respondents had attended dysphagia seminars, workshops, or conferences in the previous 2 years.

Table 1. Selected respondent and workplace characteristics.

Attribute	N	% responses	Total
Geographic location			
Ireland & United Kingdom (Northwestern Europe)	212	57.3	
New Zealand and Australia	37	10.0	
USA	121	32.7	370
Years working in dysphagia			
Under 5 years	87	23.5	
Between 5 and 10 years	96	25.9	
More than 10 years	187	50.5	370
Work setting			
Hospital-based	176	47.5	
Rehabilitation setting	57	15.4	
Community-based	90	24.3	323
Other (private, mixed, other)	47	12.7	370
% of caseload which is dysphagia			
Less than 25%	23	22.9	
Between 25% and 50%	44	56.8	
More than 50%	216	4.2	283
Missing	87		370
Undertook dysphagia training during professional qualification studies			
Yes	202	71.1	
No	82	28.9	284
Missing	86		370

Nevertheless, respondents rated themselves as highly confident practitioners in both their management of dysphagia generally (86%) and their knowledge of TL (84%). Nearly half of SLPs were hospital based, and respondents covered the whole range of potential PwD. The main clinical populations identified were people with acute neurological conditions (33%), chronic progressive neurological conditions (18%), and intellectual/physical disability (11%). Most dealt primarily with adults (74%; mainly older adults [57%]), whereas 13% dealt primarily with pediatric patients.

When asked how often they recommend TL, just over half of respondents (54%) said they sometimes do, a fifth (21%) said they frequently or always recommend it, and nearly a quarter never or rarely recommend TL. Around two thirds of respondents have access to videofluoroscopy and one third to endoscopy. Over a third (38%) and a sixth (16.5%) respectively said they frequently conducted videofluoroscopic swallow study and fiberoptic endoscopic evaluation of swallowing (FEES). Almost 89% of respondents said they used the International Dysphagia Diet Standardisation Initiative (IDDSI) framework when recommending TL, with most respondents employing Levels 1 and 2 of the IDDSI.

B: Beliefs Regarding the Intervention of TL

SLP agreement with belief statements is presented in Table 2. SLPs believe in person-centeredness and being open to the wishes of the PwD when recommending TL with the most agreed statement reflecting this. Nearly two thirds of respondents believe TL is a burdensome treatment. However, some discord is evident in this area. For example, nearly 15% of respondents would recommend TL against patient wishes. Divergence is apparent in other ways also. Almost one in two respondents believe, for example, that TL is an effective intervention, yet only 3% believe it is the best treatment for aspiration.

Measures of sampling adequacy indicated that the strength of the relationships among variables was high (Bartlett's $p < .001$, KMO = 0.753). Five overarching components help explain TL beliefs (see Table 3). Components 1 (best treatment) and 2 (it works) explain over a quarter of variance highlighting the importance of these beliefs.

Tests of significance highlight a number of important findings. For example, those who most often recommend TL are significantly more likely to believe that TL is evidence based, effective, supported by clinical evidence, and prevents or reduces aspiration (see Supplemental Material S2). Respondents in Australia/New Zealand are significantly more likely to believe that TL is both evidence based and efficacious, supported by clinical evidence, and makes swallowing safer and ensures oral intake. Education of respondents also plays a role: Those who attend more seminars/conference/training events are significantly less likely to believe that TL is the best treatment for aspiration (see Supplemental Material S3).

C: The Practices SLPs Typically Employ Before Recommending TL

SLP practices are presented in Table 4. Highly employed practices prior to recommending TL include the assessment of oral residue and thin liquid trials. Practices least likely to be employed are instrumental assessments and assessment of the gag reflex.

Measures of sampling adequacy indicated that the strength of the relationships among variables was sufficient (Bartlett's $p < .001$, KMO = 0.788). Eight overarching components help describe TL practice with no particular component dominating (see Table 5).

Tests of significance highlight some interesting findings. Significant practice differences are based most notably on geography, access to instrumental assessment, and time working as an SLP (see Supplemental Materials S4 and S5). Northwest European respondents are significantly less likely to assess the gag reflex, whereas respondents in the

Table 2. Speech-language pathologist's beliefs regarding the intervention of thickened liquids (TL).

Beliefs	N of respondents	% of respondents agreeing	M (0–3)	SD
I am open to the wishes of the PwD/family/staff regarding TL even if it goes against my clinical judgment.	258	92.6	2.9	0.34
It is not important to my decision making that TL is a commercial product.	257	68.9	2.6	0.72
TL is a burdensome intervention for PwD.	258	61.2	2.5	0.67
TL is an effective treatment.	259	49.4	2.3	0.76
I am concerned about the use of TL on the discipline image.	254	48.0	2.3	0.80
TL ensures the PwD get some oral intake.	257	44.4	2.2	0.78
I would choose TL for my family member.	258	43.4	2.2	0.79
TL is supported by clinical evidence.	258	39.5	2.1	0.78
TL prevents/reduces aspiration.	257	37.4	2.1	0.82
TL reduces the stress and discomfort of drinking for PwD.	256	35.2	2.1	0.67
Thickened liquids/fluids is an evidence-based intervention.	255	34.1	2.1	0.78
TL makes swallowing safer for PwD with swallowing difficulties.	257	29.1	2.1	0.71
If the scenario arose, I would choose TL for myself.	229	27.9	1.9	0.83
TL can help PwD who have trouble swallowing medication.	255	26.3	1.9	0.79
TL provides comfort for the family.	256	24.6	2.0	0.69
Most patients adhere to the TL recommendations.	257	19.5	1.7	0.77
I have chosen TL for myself/family member previously.	254	17.7	1.6	0.78
TL improves quality of life for the PwD.	257	16.8	2.8	0.87
I have a duty of care to provide TL to patients who are aspirating.	257	16.3	1.6	0.75
TL prevents pneumonia for PwD.	257	16.3	1.6	0.75
I would recommend TL even if the patient/family do not want it.	258	14.7	1.5	0.74
I do not believe there are any better options to TL currently.	257	14.4	1.5	0.73
Using TL aligns with neuroplasticity principles.	256	14.1	1.7	0.72
TL improves/helps maintain fluid intake.	257	13.2	1.7	0.70
Most PwD are happy with TL.	258	8.1	1.4	0.64
TL should be the standard of care for treatment of aspiration.	258	4.3	1.3	0.54
I believe that TL is the best treatment available for aspiration.	257	3.1	1.3	0.52

Note. PwD = people/person with dysphagia.

United States are significantly more likely to conduct a number of clinical practices including postural trials, swallow maneuvers, and videofluoroscopic assessment. They are also significantly more likely to educate the PwD on research and patient evidence (the experiences of other PwD who have received the TL intervention).

D: Influences on Decisions to Use/Not Use TL

Influences on SLP decision making regarding TL are presented in Table 6. Primary influences are patient-centric and clinician-centric with multiple items rating highly and the Top 5 being agreed upon by over 90% of respondents. Least important influences include pragmatic and disciplinary influences such as TL being perceived as an easy-to-use intervention.

Measures of sampling adequacy indicated that the strength of the relationships among variables was high (Bartlett's $p < .001$, KMO = 0.788). Six overarching

components help explain TL influences (see Table 7) with Components 1 (pharyngeal phase) and 2 (practice evidence) accounting for 30% of variance in the influence factor (see Table 7).

Tests of significance point to notable differences. Those who recommend TL most often are significantly more likely to be influenced by a number of factors including the presence of penetration and coughing and their own clinical experience with TL. They are significantly least likely to be swayed by influences such as a lack of supporting evidence for the intervention (see Supplemental Material S6). Other differences result mainly from respondent's geographical location and time working as an SLP. For example, SLPs living in Australia/New Zealand are significantly most likely to be influenced in their decisions to use TL by the presence of penetration, whereas SLPs working in Ireland/United Kingdom are significantly more likely to be influenced by aspiration volume than colleagues in the United States or Australia/New

Table 3. Belief factor.

Component name	Component elements	Component loadings	% variance
Best treatment	I have a duty of care to provide TL to patients who aspirate.	0.77	14.8
	TL is the best treatment available for aspiration.	0.65	
	TL should be the standard of care for the treatment of aspiration.	0.61	
	I do not believe there are any better options to TL currently.	0.61	
	I would recommend TL even if the PwD/family do not want it.	0.58	
It works	TL is an evidence-based treatment.	0.90	11.2
	TL is supported by practice evidence.	0.80	
	TL is an effective treatment.	0.67	
	TL prevents/reduces aspiration.	0.66	
	TL makes swallowing safer for PwD.	0.56	
	TL prevents pneumonia for PwD.	0.53	
Happy/unhappy PwD	Most PwD adhere to TL recommendations.	0.79	9.4
	Most people who are prescribed TL are happy with the treatment.	0.72	
	TL is a burdensome treatment for PwD.	0.56	
	If the scenario arose I would prescribe TL for myself.	0.43	
	Thickened liquids/fluids improves/helps maintain fluid intake.	0.43	
PwD benefits	TL reduces the stress and discomfort of eating for PwD.	0.79	9.2
	The use of TL provides comfort for the family.	0.79	
	TL improves quality of life for PwD.	0.53	
	TL ensures PwD gets some oral intake.	0.54	
	TL makes swallowing safer for PwD.	0.42	
Physiological	Using thickened liquids/fluids aligns with neuroplasticity principles – it works directly on the swallow.	0.85	6.1
	Thickened liquids/fluids ensures PwD get some oral intake.	0.54	

Note. TL = thickened liquids; PwD = people/person with dysphagia.

Zealand. Those working longest are significantly most likely to be influenced by penetration and coughing post-swallow and significantly least likely to be influenced by the opinion of colleagues (see Supplemental Material S7).

E: Factors That Influence Discontinuation of TL

Discontinuation influences on SLP decision making are presented in Table 8. Improvement in aspiration status, concerns for quality of life, and patient wishes rank highest as reasons to discontinue TL—approximately 85%, 80%, and 78%, respectively. Resource-based factors—both that of the PwD and the institution—do not appear to factor highly in discontinuation decisions (10% and 4.5%, respectively).

Measures of sampling adequacy indicated that the strength of the relationships among variables was sufficient (Bartlett’s $p < .001$, KMO = 0.753). Three overarching components explain discontinuation decision making (see Table 9) with Components 1 (quality of life) and 2 (resources) accounting for 40% of variance and thus being influential in SLPs’ discontinuation reasoning.

Tests of significance emphasize some differences. Respondent belief in TL evidence and efficacy influences

decisions to discontinue TL (see Supplemental Material S8). Those who believe that TL is evidence based and efficacious are significantly less likely to discontinue the treatment even if the PwD is dehydrated, wishes to discontinue TL, and their quality of life is negatively impacted. Supplemental Material S9 highlights additional significant differences in respondent characteristics and discontinuation influences.

Discussion

Divergence

This is the first study to show some divergence among SLPs in how they think about and employ TL. Cultural and or local contexts may help explain some of these discords as differences are evident between geographical locations; however, factors such as experience and training also appear important. These all warrant further exploration. The variability may also reflect some SLPs’ engagement with more recent literature that have highlighted issues and uncertainty surrounding the intervention (Bond et al., 2023; Lazenby-Paterson, 2020; McCurtin et al., 2018; O’Keeffe et al., 2023).

Table 4. Practices employed by speech-language pathologists when recommending thickened liquids (TL).

Practice	N of respondents	% of respondents agreeing	M (0–3)	SD
Assessment of oral residue	364	92.6	2.9	0.33
Trials of thin liquids	369	92.4	2.9	0.33
Ensuring fully informed consent	366	91.3	2.9	0.38
Assessment of voice quality postswallow	366	90.4	2.9	0.37
Trials of selected IDDSI/consistency levels	364	87.1	2.9	0.37
Confirming the PwD understands how TL works and why it is considered	368	86.1	2.9	0.40
Asking the PwD their wishes regarding implementation of TL	368	86.1	2.8	0.42
Shared decision making with PwD regarding implementing TL	368	86.1	2.8	0.43
Exploring potential impact on quality of life	365	84.1	2.8	0.47
Assessment of voluntary cough	366	81.4	2.8	0.57
Evaluation of cognition (e.g., thinking, memory, judgement)	368	80.7	2.8	0.54
Training of nursing/caring staff to inform/train regarding recommended consistencies	365	79.2	2.8	0.53
Evaluation of communication (e.g., receptive, expressive language)	365	79.2	2.7	0.55
Review of nutritional status	366	78.7	2.8	0.48
Observation for autonomic signs	363	78.0	2.7	0.61
Education of PwD/carer regarding research evidence for TL	367	76.6	2.7	0.56
Review of hydration status	366	72.7	2.6	0.69
Education of PwD regarding how to thicken liquids	367	72.5	2.7	0.65
Modeling how to thicken fluids to the specified consistency	365	68.8	2.6	0.63
Ability to perform/impact of physical maneuvers (e.g., chin tuck)	363	64.7	2.6	0.66
Discussion with dietitian regarding monitoring hydration and nutrition	367	64.3	2.6	0.65
Assessment of reflexive cough	366	61.7	2.4	0.78
Postural trials on nonthickened liquids	362	57.5	2.5	0.69
Trials of all IDDSI/consistency levels	364	51.6	2.3	0.81
Sharing patient evidence (i.e., patient experiences) regarding TL	366	49.7	2.3	0.76
Assessment of vallecular residue	362	47.5	2.3	0.80
Ability to perform/impact of various swallow maneuvers (e.g., supraglottic)	366	47.0	2.3	0.79
Conducting a VSS	367	41.7	2.2	0.78
Conducting a FEES	368	15.2	1.5	0.75
Assessment of gag reflex	364	13.5	1.4	0.71

Note. IDDSI = International Dysphagia Diet Standardisation Initiative; PwD = people/person with dysphagia; VSS = videofluoroscopic swallow study; FEES = fiberoptic endoscopic evaluation of swallowing.

Compared to previous studies (e.g., Jones et al., 2018; McCurtin & Healy, 2017), fewer respondents report regularly using TL and a significant proportion believe it to be a burdensome treatment for PwD. Less than one in 20 respondents believe that TL should be the standard of care in treating aspiration. However, the picture of practice and perspectives is not harmonious; one fifth of SLPs use TL frequently, half of respondents agree that it is effective, and nearly 40% agree that it prevents/reduces aspiration. Those who employ the intervention most regularly also believe that TL is an evidence-based intervention. Further, the core underlying beliefs supporting use of TL continue to be primarily based on practice evidence. Factor analysis indicates that the respondents believe it is the best treatment for aspiration and that “it works.” This is similar to previous studies in dysphagia (McCurtin & Healy, 2017) and SLP clinical reasoning generally

(Kahmi, 2006), which highlight the importance of beliefs and experience in supporting intervention decisions. In this study, respondents whose values and beliefs are founded on TL being an effective and evidence-informed treatment may persist in these beliefs in spite of contradictory evidence or even patient wishes. Further, there are clear differences in beliefs and practices based on where an SLP practices. However, the overall suggestion is that a change in practice and thinking is evident, and as with any changing system there are disconnects and variability—some respondents continue to operate traditionally and some are changing their practice.

Person-Centeredness

The valuing of person-centeredness in decision making by the majority respondents speaks well of SLP’s

Table 5. Practices factor.

Component name	Component elements	Component loadings	% variance
Core clinical practices	Ability to perform and impact of various swallow maneuvers	0.72	10.5
	Ability to perform and impact of various physical maneuvers	0.71	
	Assessment of reflexive cough	0.58	
	Assessment of voluntary cough	0.58	
Nutrition	Postural trials on nonthickened liquids	0.67	
	Review of hydration status	0.80	7.5
	Review of nutritional status	0.80	
	Discussion with dietitian/nutritionist regarding monitoring hydration + nutrition	0.44	
	Consideration of quality-of-life impact	0.52	
Cognition and communication	Communication evaluation	0.82	
	Cognitive evaluation	0.81	6.7
Shared communicating	Asking the PwD their wishes	0.82	6.7
	Shared decision making with the PwD	0.76	
	Ensuring fully informed consent	0.55	
Instrumental	Conduct a videofluoroscopic assessment	0.77	6.1
	Conduct a fibreoptic assessment	0.74	
	Assessment of vallecular residue	0.61	
Viscosity-focused	Trials of selected IDDSI/consistency levels	0.67	5.7
	Trials of thin/unthickened liquids	0.66	
	Trials of all IDDSI/consistency levels	0.51	
Consistency training	Modeling how to thicken fluids to the specified consistency	0.75	5.7
	Education of PwD/family regarding how to thicken liquids	0.66	
	Linking with nursing/caring staff to inform/train regarding recommended consistencies	0.47	
Patient evidence	Education of client/patient regarding patient evidence regarding thickened liquids/fluids	0.76	5.4
	Education of client/patient regarding evidence for thickened liquids/fluids	0.59	

Note. PwD = people/person with dysphagia; IDDSI = International Dysphagia Diet Standardisation Initiative.

engagement with PwD as partners in the therapeutic process. Most SLPs are open to the wishes of PwD even if it does not align with their clinical judgment. They also demonstrate an awareness of their responsibilities in sharing information and shared decision making with their clients. SLPs who accurately understand the state of the evidence about TL are more likely to be person-centered. SLPs who have erroneous beliefs may be sharing incorrect information, which may impact the decision making of PwD. Also evident is the small but worrying number of SLPs who may disregard patient wishes when making discontinuation decisions. The disconnects highlighted in this study and the variability of practice warrant further attention within the discipline.

Measuring Success

The vast majority of SLPs in this study report that they engage in quality-of-life discussions with PwD prior to implementing TL. This is an important finding given that only a sixth of respondents believe the intervention

improves quality of life. Although this study did not specifically address outcome measures, we know that core outcomes tend to be typically medically based, that is, related to aspiration and aspiration pneumonia (Lazenby-Paterson, 2020). Given the responsiveness to person-centeredness demonstrated in this survey, patient-reported outcomes should be an integral component of evaluating intervention efficacy. The current literature also supports additional broader, clinically meaningful outcomes including hydration in evaluating the impact of TL. With high numbers of respondents already reporting engagement with dietitians (two thirds of SLPs) and conducting hydration status reviews (three quarters of SLPs) as part of their practice, standardizing the monitoring of non-SLP outcomes such as dehydration and constipation should not be too problematic. Consideration of a variety of endpoints will only serve to improve SLP work in this area.

SLPs report primarily recommending TL based on clinical findings and not objective instrumental assessment. Although nearly all SLPs state that they use the findings

Table 6. Influences on speech-language pathologist’s decisions to use thickened liquids (TL).

Influence	N of respondents	% of respondents agreeing	M (0–3)	SD
The wishes of the PwD	283	94.7	2.9	0.32
Results of instrumental assessment/s	284	91.8	2.9	0.37
Ability to perform a swallow	280	91.4	2.9	0.43
Ability to clear penetration/aspiration	282	90.8	2.9	0.42
The feelings of the PwD toward the TL intervention	281	90.4	2.9	0.41
Severity of dysphagia	283	88.7	2.9	0.40
The overall condition/diagnosis of the PwD	282	87.2	2.8	0.47
Improved quality-of-life considerations for the PwD	281	86.5	2.8	0.46
Swallow ability on TL trials compared to thin liquids	282	85.8	2.8	0.47
My own professional training	281	85.8	2.8	0.49
History of pneumonia	284	84.2	2.8	0.49
Poor oral hygiene	281	84.0	2.8	0.61
Frequency of aspiration	283	81.6	2.8	0.52
Presence of aspiration	282	80.1	2.8	0.49
Acuity of dysphagia (time since onset)	281	80.1	2.8	0.54
Poor life expectancy	279	79.6	2.8	0.53
History of respiratory infections	280	78.9	2.7	0.54
Amount of aspirated material	282	77.3	2.7	0.55
Presence of silent aspiration	281	77.2	2.7	0.57
Presence of coughing postswallow	283	70.3	2.6	0.62
Lack of supporting evidence for the use of TL	282	63.8	2.5	0.70
Coughing preswallow	282	52.1	2.3	0.82
Lack of alternative options to TL	282	50.0	2.2	0.85
Supportive research evidence for the use of TL	282	46.5	2.2	0.82
Age of the PwD	282	45.7	2.0	0.82
SLPs own positive clinical experience with TL	280	39.3	2.1	0.86
Presence of penetration	283	39.2	2.2	0.76
Reduced oral transit time	281	36.3	2.1	0.81
Recommendations of experienced colleagues in support of TL	281	35.6	2.0	0.87
Staff familiarity/training with TL	283	33.6	2.0	0.84
TL is a commonly employed practice in the profession	279	24.4	1.7	0.83
TL is an easy-to-use intervention	281	21.0	1.7	0.80

Note. PwD = people/person with dysphagia; SLPs = speech-language pathologists.

of instrumental examinations, the suggestion is that this is when such findings are available—as only about a third and a sixth of SLPs respectively regularly conduct video-fluoroscopic and FEES evaluations. This raises the question of how SLPs are determining the effectiveness of the intervention and of associated recommendations such as postural maneuvers and, more, whether belief in the effectiveness of TL is based solely on clinical experience in a significant number of cases. Various studies point to issues with instrumental swallow exams including the presence of an immediacy effect (Logemann et al., 2008) and the short-term elimination of aspiration not equating with a reduction in negative outcomes (Robbins et al. 2008). This raises important questions and has strong clinical implications regarding both recommending TL for PwD and subsequently demonstrating the impact of the intervention.

Multiple approaches to measuring success appear vital in this treatment space.

Transition

While this study’s findings suggest that SLPs’ beliefs and values are somewhat unchanged, they also point to differences and more variability than previously identified. This suggests that change is occurring and SLPs may be moving away from what O’Keeffe et al. (2023) argue is “defensive practice” or overapplication of TL. In light of recent literature that highlights patient dislike, treatment burden, and unintended consequences associated with TL, it is timely for SLPs to reflect on practice and reframe our thoughts regarding not just the TL intervention but eating and drinking generally. As such, dysphagia evaluations

Table 7. Influences factor.

Component name	Component elements	Component loadings	% variance
Pharyngeal phase	History of pneumonia	0.76	17.0
	history of respiratory infections	0.76	
	Frequency of aspiration	0.72	
	Presence of aspiration	0.72	
	Presence of silent aspiration	0.71	
	Ability to perform a swallow	0.67	
	Swallow ability on trials	0.64	
	Amount of aspirated material	0.61	
	Ability to clear penetration/aspiration	0.58	
	Presence of coughing post swallow	0.52	
	Results of instrumental assessment/s	0.51	
Practice evidence	TL is a commonly employed practice	0.79	12.6
	Experienced colleagues recommend TL	0.75	
	SLPs' positive clinical experience with TL	0.73	
	TL is easy to use	0.68	
	Lack of alternative options	0.62	
	Staff familiarity/training with TL	0.62	
	Evidence of penetration	0.50	
	Reduced oral transit	0.48	
Patient wishes	The wishes of the PwD	0.95	8.3
	The feelings of the PwD regarding the intervention	0.72	
Medical	Acuity of dysphagia	0.80	6.7
	Overall condition/diagnosis of PwD	0.77	
	Severity of dysphagia	0.52	
	Prognosis	0.52	
Positive evidence	Improved quality-of-life considerations	0.72	4.6
Positive life	Published evidence supporting use of thickened liquids/fluids	0.54	
Poor evidence	Lack of evidence supporting TL	0.63	4.6
Poor hygiene	Poor oral hygiene	0.57	

Note. TL = thickened liquids; SLPs = speech-language pathologists; PwD = people/person with dysphagia.

should not over focus on risk but should also reflect eating and drinking as a highly personal endeavor replete with nutrition, pleasure, social connection, and quality-of-life elements. The data suggest a readiness to balance

concerns about aspiration risk with other factors such as patient wishes and more clinically meaningful outcome measures. Further, with only 3% of respondents believing TL is the best treatment for aspiration, the discipline

Table 8. Reasons to discontinue thickened liquids (TL).

Influences	N of respondents	% of respondents agreeing	M (0-3)	SD
The PwD no longer aspirates	272	84.9	2.8	0.46
Quality of life negatively impacted	272	79.8	2.8	0.41
The PwD wishes to discontinue	268	78.0	2.8	0.49
Implementation of other treatment options	268	55.6	2.5	0.66
The PwD is dehydrated	273	55.3	2.5	0.56
Noncompliance with recommendations by the PwD/family	272	46.0	2.3	0.70
The condition of the PwD deteriorates	269	24.9	2.1	0.64
Cost/limited resources of the PwD/family	267	10.1	1.6	0.66
The PwD is discharged from hospital/nursing home/care	268	8.2	1.6	0.64
Limited resources of institution	266	4.5	1.3	0.55

Note. PwD = people/person with dysphagia.

Table 9. Discontinuation factor.

Component name	Component elements	Component loadings	% variance
Quality of life	Quality of life negatively impacted	0.77	20.4
	PwD is dehydrated	0.76	
	PwD chooses to discontinue TL	0.69	
Resources	Institutional resources	0.83	20.4
	Cost to/resources of PwD/family	0.82	
	PwD discharged from hospital/nursing home/care setting	0.61	
Changes	PwD no longer aspirates	0.78	13.6
	Implementation of other treatment options	0.50	
	Condition of PwD deteriorates	0.41	

Note. PwD = people/person with dysphagia; TL = thickened liquids.

should be encouraged to actively explore alternative options for managing swallowing problems.

Implications

- Given the unintended consequences associated with TL and the potential for limiting individuals to “unnecessarily restrictive diets” (O’Keeffe et al., 2023), it is timely for SLPs to reflect on and explore alternative treatment options. This may include other bolus modification strategies including sensory enhancement strategies; more novel rehabilitation approaches such as respiratory strengthening, and as Huckabee et al. (2023) argue, direct swallow skill training. Other possibilities include environmental modifications including environmental adaptations, biofeedback, a hyper focus on oral care, common sense approaches including the use of regularly available thicker foods, pacing of drinking, volume regulation, or indeed free water protocols/no intervention.
- SLPs’ commitment to person-centeredness evident in this study is to be applauded especially in light of acknowledged and associated TL treatment burdens. SLPs must make every effort to formalize partnerships with PwD by ensuring that the wishes of the fully informed PwD are paramount. PwD should be enabled to make decisions by being supplied with relevant and accurate evidence from a range of sources including clinical, research, and patient information. SLPs should make targeted efforts to inform themselves of the state of research and patient evidence and engage in sharing this with PwD prior to support the informed consent process. This commitment to the PwD should also be reflected in the use of person-centered outcome measures. Reframing TL intervention is required to place person-centeredness front and center of TL decision making. Eating and drinking should be viewed as more than minimizing dysphagia and risk. SLPs are perfectly positioned to lead this charge and encourage our colleagues to approach eating and drinking as an everyday normal occurrence, as pleasure, as a social activity, and as personal choice.
- SLPs report largely recommending TL based on clinical findings and not objective instrumental assessment. It is likely that improved management would result if intervention decisions for each patient were more guided by objective instrumental evaluations. Thus, SLPs should consider recommending TL only in circumstances where objective data support the SLP’s decision making. In this scenario, it is also likely that alternative interventions could be objectively identified, which would potentially limit the overapplication of TL.
- SLPs should reflect on ways of evaluating success of the TL intervention and ideally include a variety of measures to demonstrate efficacy and an understanding that safety or risk is only one concern when intervening in the areas of eating and drinking. Use of a range of measures such as physiological measures (e.g., presence of penetration/aspiration), patient-reported outcome measures (e.g., quality of life and treatment burden), and clinically meaningful outcomes (e.g., hydration, survival) will enable SLPs to stand over TL treatment decisions with more certainty, evidence, and knowledge.
- Given the gap in understanding of the evidence base regarding TL that was demonstrated by some respondents in this study, SLPs and service leaders need to ensure focused training opportunities on the subject. Researchers and educators need to ensure that research findings are easily accessible to clinicians, colleagues, and the public with clear guidance for implementation. Governing bodies should continue to promote evidence-informed practice and

up-to-date policy/practice guidance as new research is published to help keep SLPs informed. Educational institutions should incorporate up-to-date evidence and lack of supporting evidence about TL into their SLP education programs.

Strengths and Limitations

This survey reflects the views of those who responded and should be interpreted in light of this. The respondents tend to be highly confident in their practice, experienced, and based in acute settings. These findings may not reflect SLPs working in other areas or with less confidence or experience. Not all respondents answered all questions. Only English-speaking countries were included in the survey, and the number of respondents from Australia/New Zealand was small and may not be fully representative. However, the sample size is relatively large, compares well to other surveys, and provides in-depth knowledge on an area of practice that is the subject of concern within and outside the discipline.

Conclusions

The results of this study suggest, for the first time, variability among SLPs in how they think about and employ TL with less respondents regularly using TL. Divergent groups are evident with those frequently employing and believing in the efficacy of TL and those who do not. This suggests that current debates are influencing practice, although there clearly remains a significant number of SLPs continuing to recommend and believe in the effectiveness of the intervention. This study's findings highlight both alterations and preservations in the discipline's approach to TL and calls for SLPs to both reflect on and reframe our thinking regarding this intervention, as well as focus on the use, development, and research of alternative interventions in this treatment space.

Author Contributions

Arlene McCurtin: Conceptualization (Lead), Data curation (Lead), Formal analysis (Lead), Investigation (Supporting), Methodology (Lead), Project administration (Lead), Resources (Lead), Supervision (Lead), Visualization (Lead), Writing – original draft (Lead), Writing – review & editing (Lead). **Hannah Byrne:** Data curation (Lead), Formal analysis (Supporting), Investigation (Lead), Project administration (Supporting), Writing – original draft (Lead). **Lindsey Collins:** Conceptualization (Supporting), Formal analysis (Supporting), Investigation

(Supporting), Visualization (Supporting), Writing – review & editing (Supporting). **Tracy Lazenby-Paterson:** Conceptualization (Supporting), Formal analysis (Supporting), Investigation (Supporting), Visualization (Supporting), Writing – review & editing (Supporting). **Paula Leslie:** Conceptualization (Supporting), Formal analysis (Supporting), Investigation (Supporting), Visualization (Supporting), Writing – review & editing (Supporting). **Michelle McInerney:** Visualization (Supporting), Writing – review & editing (Supporting). **Shaun O'Keefe:** Conceptualization (Supporting), Formal analysis (Supporting), Investigation (Supporting), Visualization (Supporting), Writing – review & editing (Supporting). **Claire O'Toole:** Data curation (Lead), Formal analysis (Supporting), Investigation (Lead), Project administration (Supporting), Writing – original draft (Lead). **Alison Smith:** Conceptualization (Supporting), Formal analysis (Supporting), Investigation (Supporting), Visualization (Supporting), Writing – review & editing (Supporting).

Data Availability Statement

Data files are available on request to the corresponding author.

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References

- Bond, V. E., Doeltgen, S., Kleinig, T., & Murray, J. (2023).** Dysphagia-related acute stroke complications: A retrospective observational cohort study. *Journal of Stroke and Cerebrovascular Diseases, 32*(6), Article 107123. <https://doi.org/doi.org/10.1016/j.jstrokecerebrovasdis.2023.107123>
- Brogan, E., Langdon, C., Brookes, K., Budgeon, C., & Blacker, D. (2014).** Respiratory infections in acute stroke: Nasogastric tubes and immobility are stronger predictors than dysphagia. *Dysphagia, 29*(3), 340–5. <https://doi.org/10.1007/s00455-013-9514-5>
- Cocks, N., & Ferreira, H. (2013).** What information do UK speech and language therapists use when making oral versus nonoral feeding recommendations for adults with oropharyngeal dysphagia? *Dysphagia, 28*(1), 43–57. <https://doi.org/10.1007/s00455-012-9411-3>
- Colodny, N. (2005).** Dysphagic independent feeders' justifications for noncompliance with recommendations by a speech-language pathologist. *American Journal of Speech-Language Pathology, 14*(1), 61–70. [https://doi.org/10.1044/1058-0360\(2005/008\)](https://doi.org/10.1044/1058-0360(2005/008))
- Daniels, S. K., Schroeder, M. F., DeGeorge, P. C., Corey, D. M., Foundas, A. L., & Rosenbek, J. C. (2009).** Defining and measuring dysphagia following stroke. *American Journal of Speech-Language Pathology, 18*(1), 74–81. [https://doi.org/10.1044/1058-0360\(2008/07-0040\)](https://doi.org/10.1044/1058-0360(2008/07-0040))

- Desai, R. V., & Namasivayam-MacDonald, A. (2020). Practice patterns of speech-language pathologists managing dysphagia in dementia: A cross-sectional survey in the United States. *Perspectives of the ASHA Special Interest Groups*, 5(6), 1631–1646.
- Garcia, J. M., Chambers, E., & Molander, M. (2005). Thickened liquids: Practice patterns of speech-language pathologists. *American Journal of Speech-Language Pathology*, 14(1), 4–13. [https://doi.org/10.1044/1058-0360\(2005/003\)](https://doi.org/10.1044/1058-0360(2005/003))
- Hansen, T., Beck, A. M., Kjaersgaard, A., & Poulsen, I. (2022). Second update of a systematic review and evidence-based recommendations on texture modified foods and thickened liquids for adults (above 17 years) with oropharyngeal dysphagia. *Clinical Nutrition ESPEN*, 49, 551–555. <https://doi.org/10.1016/j.clnesp.2022.03.039>
- Huckabee, M.-L., Mills, M., Flynn, R., & Doeltgen, S. (2023). The evolution of swallowing rehabilitation and emergence of biofeedback modalities. *Current Otorhinolaryngology Reports*, 11(2), 144–153. <https://doi.org/10.1007/s40136-023-00451-8>
- JAMOVI. (2022). *jamovi*. (Version 2.3) [Computer Software]. <https://www.jamovi.org>
- Jones, O., Cartwright, J., Whitworth, A., & Cocks, N. (2018). Dysphagia therapy post stroke: An exploration of the practices and clinical decision-making of speech-language pathologists in Australia. *International Journal of Speech-Language Pathology*, 20(2), 226–237. <https://doi.org/10.1080/17549507.2016.1265588>
- Kahmi, A. G. (2006). Prologue: Combining research and reason to make clinical decisions. *Language, Speech, and Hearing Services in Schools*, 37, 255–256. [https://doi.org/10.1044/0161-1461\(2006/028\)](https://doi.org/10.1044/0161-1461(2006/028))
- King, J. M., & Ligman, K. (2011). Patient noncompliance with swallowing recommendations: Reports from speech-language pathologists. *Contemporary Issues in Communication Science and Disorders*, 38, 53–60. https://doi.org/10.1044/cicsd_38_S_53
- Langmore, S. E., Skarupski, K. A., Park, P. S., & Fries, B. E. (2002). Predictors of aspiration pneumonia in nursing home residents. *Dysphagia*, 17(4), 298–307. <https://doi.org/10.1007/s00455-002-0072-5>
- Langmore, S. E., Terpenning, M. S., Schork, A., Chen, Y., Murray, J. T., Lopatin, D., & Loesche, W. J. (1998). Predictors of aspiration pneumonia: How important is dysphagia? *Dysphagia*, 13(2), 69–81. <https://doi.org/10.1007/PL00009559>
- Lazenby-Paterson, T. (2020). Thickened liquids: Do they still have a place in the dysphagia toolkit? *Current Opinions in Otolaryngology Head & Neck Surgery*, 28(3), 145–154. <https://doi.org/10.1097/MOO.0000000000000622>
- Lim, D. J. H., Mulkerrin, S. M., Mulkerrin, E. C., & O’Keeffe, S. T. (2016). A randomised trial of the effect of different fluid consistencies used in the management of dysphagia on quality of life: A time tradeoff study. *Age and Ageing*, 45(2), 309–312. <https://doi.org/10.1093/ageing/afv194>
- Logemann, J. A. (1998). *Evaluation and treatment of swallowing disorders* (2nd ed.). Pro-Ed. <https://doi.org/10.1097/00020840-199812000-00008>
- Logemann, J. A., Gensler, G., Robbins, J., Lindblad, A. S., Brandt, D., Hind, J. A., Kosek, S., Dikeman, K., Kazandjian, M., Gramigna, G. D., Lundy, D., McGarvey-Toler, S., & Miller Gardner, P. J. (2008). A randomized study of three interventions for aspiration of thin liquids in patients with dementia or Parkinson’s disease. *Journal of Speech, Language, and Hearing Research*, 51(1), 173–183. [https://doi.org/10.1044/1092-4388\(2008/013\)](https://doi.org/10.1044/1092-4388(2008/013))
- Martino, R., Foley, N., Bhogal, S., Diamant, N., Speechley, M., & Teasell, R. (2005). Dysphagia after stroke; incidence, diagnosis, and pulmonary complications. *Stroke*, 36(12), 2756–2763. <https://doi.org/10.1161/01.STR.0000190056.76543.eb>
- McCurtin, A., Brady, R., Coffey, K., & O’Connor, A. (2020). Clarity and contradictions: Speech and language therapists’ insights regarding thickened liquids for post-stroke aspiration. *International Journal of Therapy & Rehabilitation*, 27(6), 1–15. <https://doi.org/10.12968/ijtr.2019.0020>
- McCurtin, A., & Healy, C. (2017). Why do clinicians choose the therapies and techniques they do? Exploring clinical decision making via treatment selections in dysphagia practice. *International Journal of Speech-Language Pathology*, 19(1), 69–76. <https://doi.org/10.3109/17549507.2016.1159333>
- McCurtin, A., Healy, C., Kelly, L., Murphy, F., Ryan, J., & Walsh, J. (2018). Plugging the patient evidence gap: What patients with swallowing disorders post-stroke say about thickened liquids. *International Journal of Language & Communication Disorders*, 53(1), 30–39. <https://doi.org/10.1111/1460-6984.12324>
- O’Keeffe, S. T., Leslie, P., Lazenby-Paterson, T., McCurtin, A., Collins, L., Murray, A., Smith, A., Mulkerrin, S., & SPARC (Swallow Perspectives, Advocacy and Research Collective). (2023). Informed or misinformed consent and use of modified texture diets in dysphagia. *BMC Medical Ethics* 24(1), Article 7. <https://doi.org/10.1186/s12910-023-00885-1>
- Robbins, J., Gensler, G., Hind, J., Logemann, J. A., Lindblad, A. S., Brandt, D., Baum, H., Lilienfeld, D., Kosek, S., Lundy, D., Dikeman, K., Kazandjian, M., Gramigna, G. D., McGarvey-Toler, S., & Miller Gardner, P. J. (2008). Comparison of 2 interventions for liquid aspiration on pneumonia incidence: A randomized trial. *Annals of Internal Medicine*, 148(7), 509–518. <https://doi.org/10.7326/0003-4819-148-7-200804010-00007>
- The Royal College of Speech and Language Therapists. (2023). *Position statement on the use of thickened fluids in the management of people with swallowing difficulties*. <https://www.rcslt.org/wp-content/uploads/2023/03/Position-statement-thickened-fluids-1.pdf>
- Sharp, H. M., & Shega, J. W. (2009). Feeding tube placement in patients with advanced dementia: The beliefs and practice patterns of speech-language pathologists. *American Journal of Speech-Language Pathology*, 18(3), 222–230. [https://doi.org/10.1044/1058-0360\(2008/08-0013\)](https://doi.org/10.1044/1058-0360(2008/08-0013))
- Steele, S. J., Ennis, S. L., & Dobler, C. C. (2021). Treatment burden associated with the intake of thickened fluids. *Breathe*, 17(1), Article 210003. <https://doi.org/10.1183/20734735.0003-2021>
- Stevens, J. P. (2021). *Applied multivariate statistics for the social sciences*. Routledge.
- Swan, K., Speyer, R., Heijnen, B. J., Wagg, B., & Cordier, R. (2015). Living with oropharyngeal dysphagia: Effects of bolus modification on health-related quality of life—A systematic review. *Quality of Life Research*, 24(10), 2447–2456. <https://doi.org/10.1007/s11136-015-0990-y>
- Takizawa, C., Gemmell, E., Kenworthy, J., & Speyer, R. A. (2016). A systematic review of the prevalence of oropharyngeal dysphagia in stroke, Parkinson’s disease, Alzheimer’s disease, head injury, and pneumonia. *Dysphagia*, 31(3), 434–441. <https://doi.org/10.1007/s00455-016-9695-9>

Appendix (p. 1 of 5)

Survey Questions

A. General Questions

Q1 How long have you been working as a Speech and Language Therapist/Pathologist? Under 5 years (1), Between 5 and 10 years (2), Above 10 years (3)

Q2 How long have you been working with People with Swallowing difficulties (PwD) since qualification? Under 5 years (1), Between 5 and 10 years (2), Above 10 years (3)

Q3 Which country do you reside in? Australia (1), England (2), Ireland (3), New Zealand (4), Northern Ireland (5), Scotland (6), United States (7), Wales (8), Other (9)

Q4 How confident would you say you are with regard to the assessment/treatment of swallowing disorders/dysphagia? Not confident at all (1), A bit confident (2), Sometimes confident, sometimes not confident (3), Confident (4), Completely confident (5)

Q5 How confident would you say you are with regard to your knowledge of thickened liquids/fluids (TL)? Not confident at all (1), A bit confident (2), Sometimes confident, sometimes not confident (3), Confident (4), Completely confident (5)

Q10 What setting/s do you currently work in? Community (1), Acute (2), Rehabilitation (3), Voluntary/Charitable Organization (4), Other - please identify type of organization (5)

Q6 Which conditions represent the majority of your swallowing disorders/ dysphagia caseload (e.g. stroke, intellectual disability). Please make number 1 your most represented condition, number 2 the condition which is second most represented, and number 3 your third more represented condition _____ 1 (1), _____ 2 (2), _____ 3 (3)

Q7 What age range represents the majority of your swallowing disorders/dysphagia caseload? Neonates (1), Children (2), Adolescents (3), Adults (4), Geriatrics (5), Combination of pediatrics (6), Combination of adults (7), Combination of all (8)

Q8 Percent of your current caseload who are people with swallowing difficulties (and of whom you have manage/d their dysphagia) Less than 10% (1), Between 10 and 25% (2), Between 25 and 50% (3), More than 50% (4)

Q9 Did your professional qualification degree include training in feeding, eating, drinking & swallowing disorders / dysphagia? Yes (1), No (2)

Q10 Have you undertaken post qualification certification/training in: Swallowing disorders/dysphagia (1), Videofluoroscopic Swallow Studies - VSS (2), Fiberoptic Endoscopic Evaluation of swallowing - FEES (3)

Q11 How many swallowing disorders/dysphagia seminars or workshops or conferences or training events do you attend on average every two years? 0 (1), Between 1–2 (2), 3+ (3)

Q12 As a general rule, when assessing swallowing, what access do you have to:

Statement	No access	Occasionally I can access it when needed, but most often I cannot	Sometimes I can access it when required and sometimes I cannot	I can mostly access it when required	I have full access – whenever I need it
Videofluoroscopic Swallow Studies (VSS)					
Fiberoptic endoscopic evaluation of swallowing (FEES)					

Q13 A few more general questions about your practice: Please tick the most appropriate box for each statement.

Statement	Never	Rarely	Sometimes	Frequently	Always
How often do you conduct VSS?					
How often do you conduct FEES?					
How often as a general rule would you recommend thickened liquids/fluid as an intervention?					
Do you use IDDSI (international Dysphagia Diet Standardization Initiative) when recommending thickened liquids?					

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Survey Questions

Q14 As a general rule, how often would you say you recommend the following selected International Dysphagia Diet Standardization Initiative (IDDSI) or equivalent consistency management levels? Please tick the most appropriate box for each statement.

Statement	Never	Rarely	Sometimes	Frequently	Always
Level 1- slightly thick					
Level 2- mildly thick					
Level 3- moderately thick/liquidized					
Level 4- extremely thick/pureed					

B. Beliefs Regarding the Thickened Liquid Intervention

Q15 Rate your agreement with the following statements. Please tick the most appropriate box for each statement.

Statement	Disagree completely	Disagree	Neither agree nor disagree	Agree	Agree completely
Thickened liquids is an evidence-based intervention					
I believe thickened liquids is an effective treatment					
I am open to the wishes of the PwD/family/staff regarding TL even if it goes against my clinical judgement					
Thickened liquids is supported by clinical evidence					
I believe most PwD are happy with thickened liquids					
Thickened liquids should be the standard of care for treatment of aspiration					
I have a duty of care to provide thickened liquids to PwD who are aspirating					
I would recommend thickened liquids even if the PwD/family do not want it					
Thickened liquids prevents/reduces aspiration					
Thickened liquids is a burdensome intervention for the PwD					
I believe most patients adhere to thickened liquid recommendations					
If the scenario arose, I would choose thickened liquids for myself					
Thickened liquids makes swallowing safer for the PwD					
If I found myself in a position where it was recommended, I would choose thickened liquids for my family member					
It is not important to my decision making that thickened liquids is a commercial product					
I have chosen thickened liquids for myself/family member previously					
I believe that thickened liquids is the best treatment available for aspiration					
Thickened liquids prevents pneumonia for PwD					
Thickened liquids can help PwD who have trouble swallowing medication					
Thickened liquids provides comfort for the family					
Thickened liquids reduces the stress and discomfort of drinking for PwD					
Thickened liquids improves/helps maintain fluid intake					
Using thickened liquids aligns with neuroplasticity principles – it works directly on the swallow					
Thickened liquids ensures PwD get some oral intake					
I am concerned about the use of thickened liquids on the discipline image					
I do not believe there are any better options to thickened liquids currently					
Thickened liquids improves quality of life for PwD					
Other (please state)					

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Survey Questions

C. Practices Employed by SLPs Before Recommending Thickened Liquids

Q16 What practices do you typically engage in before recommending thickened liquids? Please tick the most appropriate box for each statement.

Statement	Never	Rarely	Sometimes	Frequently	Always
Asking the PwD their wishes regarding implementation of thickened liquids					
Assessment of the voluntary cough					
Trials of thin/unthickened liquids					
Education of the PwD/family/carer regarding research evidence for thickened liquids					
Conducting a fiberoptic endoscopic evaluation of swallowing (FEES) evaluation					
Discussion with Dietitian/Nutritionist regarding monitoring hydration and nutrition					
Education of the PwD regarding how to thicken liquids					
Trials of selected IDDSI/consistency levels					
Evaluation of cognition (e.g., thinking, memory, judgement)					
Evaluation of communication e.g. receptive and expressive language					
Shared decision making with the PwD/carer regarding implementing the TL intervention					
Trials of all IDDSI/all consistency levels					
Assessment of vallecular residue					
Sharing patient evidence (i.e. other patient experiences with TL) regarding thickened liquids with the PwD/carer					
The ability of the PwD to perform and the impact of various swallow maneuvers e.g. effortful swallow, supraglottic swallow					
Assessment of the reflexive cough					
Postural trials on non-thickened liquids					
Conducting a videofluoroscopic swallow study (VSS)					
Assessment of gag reflex					
Review of hydration status					
Exploring how the use of thickened liquids/fluids will impact the PwD's quality of life					
Assessment of voice quality post swallow					
Confirming that the PwD understands how the thickened liquid intervention works and why it has been considered for them					
Observation for autonomic signs					
The PwD's ability to perform and impact of various physical maneuvers e.g. chin tuck, upright positioning					
Modeling how to thicken fluids to the specified consistency					
Ensuring fully informed consent					
Review of nutritional status					
Training of nursing/caring staff to inform/train regarding recommended consistencies					
Assessment of oral residue					
Other (please state)					

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Survey Questions

D. Influences Informing Decisions to Use Thickened Liquids

Q17 Rate the general influence of the following factors in informing your decisions to use the thickened liquids intervention. Please tick the most appropriate box for each statement.

Statement	Not at all influential	May slightly influence	Sometimes influences, sometimes does not	Influential	Highly influential
The overall condition/diagnosis of the PwD					
Acuity of dysphagia (time since onset)					
The feelings of the PwD toward the thickened liquid intervention					
The severity of dysphagia					
The presence of penetration					
Swallow ability on thickened liquid trials compared to thin liquids					
Ability to clear penetration/aspiration					
Coughing pre swallow					
Poor life expectancy					
Presence of aspiration					
Poor oral hygiene					
Lack of supporting evidence for the use of thickened liquids					
Thickened liquids is an easy-to-use intervention					
Presence of silent aspiration					
Presence of coughing post-swallow					
The wishes of the PwD					
The PwD's history of pneumonia					
The age of the PwD					
Frequency of aspiration					
My own positive clinical experience with thickened liquids					
Staff familiarity/training with thickened liquids					
Supportive research evidence for the use of thickened liquids					
The PwD's history of respiratory infections					
The PwD's ability to perform a swallow					
Improved quality of life considerations for the PwD when taking thickened liquids					
Reduced oral transit time					
TL is a commonly employed practice in the profession					
Results of instrumental assessment/s					
My own professional training					
Amount of aspirated material					
Lack of alternative options to thickened liquids					
Recommendations of experienced colleagues in support of thickened liquids					
Other (please state)					

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Survey Questions

E. Reasons to Discontinue the Thickened Liquid Intervention

Q18 Once prescribed, what would influence your decision to discontinue a recommendation for thickened liquids/fluids? Please rate the following scenarios. Please tick the most appropriate box for each statement.

Statement	Would never stop recommending in this scenario	Mostly don't stop recommending in this scenario	Sometimes stop recommending/ sometimes continue recommending in this scenario	Mostly stop recommending in this scenario	Always stop recommending in this scenario
The PwD no longer aspirates					
Quality of life is negatively impacted					
The PwD is dehydrated					
The PwD is discharged from hospital/ nursing home/care					
Non-compliance with TL recommendations by the PwD/Family					
Cost /limited resources of the PwD/ family					
Limited resources of institution					
Implementation of other treatment options such as free water protocols or "risk" feeding					
Condition of PwD deteriorates					
The PwD wishes to discontinue					
Other (please state)					