

**EXPLORATION OF SPEECH-LANGUAGE PATHOLOGIST PRACTICE PATTERNS
AND READINESS FOR IMPLEMENTATION OF A DYSPHAGIA REHABILITATION
DECISION-MAKING FRAMEWORK**

by

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Dalhousie University is located in Mi'kma'ki,
the ancestral and unceded territory of the Mi'kmaq.
We are all Treaty People

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To my partner, my family, my friends, and the SCSD Class of 2024

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ABSTRACT

There is a paucity of dysphagia rehabilitation (DR) research, which negatively influences how SLPs approach dysphagia management. Implementation of DR best practices into clinical practice could be facilitated by using the Consolidated Framework for Implementation Research. Therefore, this mixed-methods study explored current SLP DR practice patterns and SLP readiness for the implementation of a DR decision-making framework.

The study used an online survey and focus group session to obtain this data. Survey results were analyzed using descriptive statistics. Focus group data was analyzed using interpretive description, thematic analysis, and the framework method.

Survey results indicated that SLPs implement various DR strategies when appropriate, but the documentation of treatment outcomes is lacking. SLPs reported being ready to implement the DR decision-making framework. However, they anticipate that multiple barriers will negatively impact their implementation efforts. As such, actions must be taken to successfully bridge the gap between research and clinical practice.

LIST OF ABBREVIATIONS USED

ACF	Aged-Care Facility
ASHA	American Speech-Language-Hearing Association
CDT	Communication Disorder Technician
CFIR	Consolidated Framework for Implementation Research
CFIR-ERIC	CFIR-Expert Recommendations for Implementing Change
CSE	Clinical Swallowing Evaluation
CTAR	Chin Tuck Against Resistance
D-HNCP	Dance Head and Neck Clinical Pathway
DR	Dysphagia Rehabilitation
DCVT	Dysphagia Competency Verification Tool
EBP	Evidence-Based Practice
EMST	Expiratory Muscle Strength Training
FEES	Fiberoptic Endoscopic Evaluation of Swallowing
HRM	High-Resolution Manometry
HSNS	Hearing and Speech Nova Scotia
IDDSI	International Dysphagia Diet Standardization Initiative
IDT	Intensive Dysphagia Treatment Program
IOPI	Iowa Oral Performance Instrument®
MBS	Modified Barium Swallow Study
MBSImP™	Modified Barium Swallowing Impairment Profile
MDT	Multidisciplinary Team
NSRAC	Nova Scotia Rehabilitation and Arthritis Centre
PAS	Penetration-Aspiration Scale
PROM	Patient-Reported Outcome Measure
RCT	Randomized Controlled Trial
SAC	Speech-Language & Audiology Canada
SLP	Speech-Language Pathologist
TMDs	Texture Modified Diets
UES	Upper Esophageal Sphincter

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CHAPTER 1: INTRODUCTION

Swallowing disorders (dysphagia) are characterized by the disordered transportation of food, fluid, and saliva from the mouth to the stomach (Humbert & Robbins, 2008). Dysphagia is a symptom of many diseases (Ekberg, 2012) and is especially prevalent in the elderly population (Humbert & Robbins, 2008). Specifically, results from the *Canadian Longitudinal Study on Aging* have suggested that up to 10% of community-dwelling older adults and between 50-82% of those in hospital experience symptoms of dysphagia (Doan et al., 2022; Namasivayam-MacDonald et al., 2023). As such, clients with dysphagia are susceptible to negative outcomes in terms of their health (Wirth et al., 2018) and wellness (Pizzorni, 2017). These outcomes include risk of malnutrition, dehydration, and aspiration pneumonia – all of which can contribute to increased frailty or even death (Sura et al., 2012).

Speech-language pathologists (SLPs) are the primary healthcare professional responsible for the identification, diagnosis, and treatment of communication and swallowing disorders (Speech-Language & Audiology Canada (SAC), 2016) to improve health-related quality of life (Jones et al., 2018). SLPs provide dysphagia management as part of an interprofessional team. Therefore, dysphagia can be managed by taking surgical, pharmacological, and behavioural approaches (American Speech-Language-Hearing Association (ASHA), n.d.). As first steps to determining which approach to take, the assessment of swallowing structure and function is a critical component of the clinical process, especially for informing treatment decisions.

An Overview of Dysphagia Assessment and Treatment

SLPs may assess dysphagia in three ways: screenings, clinical swallow evaluations (CSEs), or instrumental assessments. Screenings are a quick, easy, and minimally invasive way to identify individuals at risk for dysphagia and determine which individuals need further

assessment (Suiter et al., 2020). SLPs, however, do not typically conduct screenings (Suiter et al., 2020). Instead, they tend to be involved with the implementation of screening protocols and they are the professional that receives a referral in the case of a failed screen (Suiter et al., 2020). CSEs are used to generate hypotheses about the overall safety and efficiency of the swallow and determine if instrumental assessment is warranted (Garand et al., 2020). CSEs involve a thorough chart review, assessing cranial nerve function, making general observations, and conducting trial swallows and/or a meal observation (Garand et al., 2020). CSEs also typically involve providing education about oral health (Garand et al., 2020). Finally, instrumental assessments allow for the direct visualization of swallow physiology which helps determine the nature and severity of the swallowing impairment (Logemann, 1998; Langmore et al., 1988). Examples of instrumental assessments include the Modified Barium Swallow Study (MBS, Logemann, 1998) or the Fiberoptic Endoscopic Evaluation of Swallowing (FEES, Langmore et al., 1988).

To implement dysphagia rehabilitation (DR) strategies, SLPs must visualize swallow physiology using instrumental measures. Following visualization, SLPs may suggest DR strategies that specifically target the nature and level of swallowing impairment. Strategies are further selected based on clinician expertise as well as client abilities and preferences. To fully appreciate the clinical reasoning behind treatment decisions, an overview of the various DR strategies are provided in Table 1 (Félix-Lusterman et al., 2021; Chaudhuri et al., 2002).

Table 1. Overview of Dysphagia Rehabilitation Strategies

Impairment	Strategy	Effect
Reduced tongue pressure; reduced tongue control;	Tongue Strengthening	Improve bolus preparation and control

reduced oral and/or
pharyngeal clearance

Poor bolus propulsion

Masako Maneuver

Reduce vallecular residue;
reduce post-swallow airway
invasion

Weak tongue pump; issues
with efficiency

Effortful Swallow

Voluntary increase in tongue
base to posterior pharyngeal
wall movement; reduce
vallecular residue

Reduced hyolaryngeal
excursion movement;
reduced epiglottic inversion;
reduced laryngeal vestibule
closure

Expiratory Muscle Strength
Training (EMST)

Improve cough strength;
increase activation of
submental suprahyoid
muscles to improve
hyolaryngeal excursion

Reduced extent or duration
of UES opening; decreased
laryngeal elevation

Mendelsohn Maneuver

Voluntary increase in
amplitude and duration of
laryngeal elevation resulting
in increased opening at the
UES

Reduced UES opening;
reduced hyolaryngeal
excursion; reduced laryngeal
elevation

Shaker/Head Lift Exercise

Strengthen suprahyoid
muscles which helps improve
hyolaryngeal excursion and
UES opening

Reduced UES opening;
reduced hyolaryngeal

Recline Exercise

Strengthen suprahyoid
muscles which helps improve

excursion; reduced laryngeal elevation		hyolaryngeal excursion and UES opening
Reduced UES opening	Chin Tuck Against Resistance (CTAR)	Reduce pyriform sinus residue; reduce post-swallow airway invasion
Reduced laryngeal closure; reduced laryngeal elevation	Supraglottic Swallow	Voluntary closure of vocal folds before and during the swallow to reduce risk of aspiration
Reduced laryngeal closure	Super-Supraglottic Swallow	Voluntary closure of airway entrance by tilting the arytenoids anteriorly to the base of the epiglottis before and during the swallow to reduce risk of aspiration

*Note: Upper esophageal sphincter is abbreviated as UES.

Compensatory versus Rehabilitative Swallowing Strategies

Research has found that the majority of SLPs treat dysphagia with texture modified diets (TMDs; SAC, 2017). Although compensatory strategies such as TMDs may improve the safety of a swallow (Sura et al., 2012; Carnaby & Harenburg, 2013), it is important to note that they are not without risk. For example, many clients report disliking TMDs (Logemann et al., 2008; Werden Abrams et al., 2023) and TMDs can increase risk for malnutrition (Vucea et al., 2018).

In contrast, DR is known to be effective in improving the strength and coordination of the muscles involved in the swallowing process (Langmore & Pisegna, 2015). Studies have shown

that DR leads to long-term improvements in swallow function (Langmore & Pisegna, 2015) and helps minimize risk of acquiring dysphagia-related morbidities (Sura et al., 2012). Collectively, these factors indicate that DR should be used when appropriate and as determined by the client's swallow physiology and overall physical and cognitive status (Félix-Lusterman et al., 2021). It should also be known that DR can be used either in silo, or in conjunction with compensatory strategies, like texture-modified diets (ASHA, n.d.).

Current DR Practice Patterns

Research efforts have revealed that many SLPs are not consistently using evidence-based practice (EBP; Carnaby & Harenburg, 2013) – a process defined as clinical decision-making based on the integration of the best available evidence, clinical expertise, and client preferences (Fulcher-Rood et al., 2020). In the case of dysphagia care, the problem persists and has contributed to highly variable practice patterns (Carnaby & Harenburg, 2013). This idea was supported by Dailey (2019) who explored the preferred practice patterns of Virginia-state SLPs providing dysphagia management in hospitals, nursing homes, and outpatient services. Data from the survey revealed that not only were a variety of strategies used, but the vast majority of SLPs preferred using compensatory strategies. These included sensory enhancements, maneuvers, and postural techniques, in addition to diet modifications and caregiver training. Consequently, this made the rehabilitative approaches among the least preferred in all work settings.

Internationally, similar conclusions have been found. For example, an Australian study found that most SLPs rely heavily on diet modifications (98.05%), modifications to bolus delivery modality (i.e., 90%), and modifications to bolus size (87.66%) (Rumbach et al., 2018). Of the 154 respondents, only 10-30% reported using active rehabilitation (Rumbach et al., 2018). In Canada, the use of TMDs and other compensatory techniques like postural adjustments and

swallow maneuvers are common (Steele et al., 2007). These findings closely aligned with the practice patterns in India where SLPs predominantly, or always, resort to postural adjustments and diet modifications (Rangarathnam & Desai, 2020). However, these SLPs also reported using rehabilitative strategies (71%), oral motor exercises (88%), and neuromuscular stimulation (15%) (Rangarathnam & Desai, 2020). Even in Malaysia, dysphagia management practice patterns vary and include diet modifications (80%), postural changes (70%), swallowing maneuvers (56.7%), sensory enhancement (43.3%), oromotor exercises (83.3%), caregiver training (76.6%), and use of biomechanical devices (3.3%) (Kamal et al., 2012).

Taken together, findings across all these studies suggest that dysphagia practice patterns tend to be inconsistent and lack empirical support. Findings also suggested that SLP practice patterns strongly favour improving the safety of the swallow rather than restoring swallowing function even when the chosen intervention, such as the use of TMDs, are not consistent with client goals and are associated with malnutrition and functional decline (Makhnevich et al., 2022). Although this is not considered best practice, it is important to realize that changing practice patterns is not an easy fix. Changing practice patterns requires unlearning certain habits and learning to rely on new ones (Gupta et al., 2017). This can take time, especially for clinicians who have been working in the field for several years. Equally, it involves recognizing any barriers that hinder the adoption of new information and behaviors (Gupta et al., 2017). Therefore, identifying and learning about the factors that guide SLP clinical decision-making may help researchers to better understand the reasons for existing dysphagia practice patterns.

The Role of Self-Efficacy in Determining Practice Patterns

Studies have found that many SLPs lack confidence when individualizing DR for their clients (Pede et al., 2016). One potential reason for this may be due to the novelty of DR

literature (Suiter & Easterling, 2007). In fact, very few meta-analyses of multiple randomized controlled trials (RCT) or single, well-designed RCTs exist. Of those, many are limited since they use ‘healthy’ individuals as participants, rather than those diagnosed with a swallowing impairment. This is a critical point considering that the characteristics of healthy individuals differ from those with a pathological condition.

Knowing this, the lack of standardized outcomes from RCTs is twofold. For one, SLPs must turn to lower levels of evidence to inform treatment planning. This may impact clinician confidence in the data, resulting in the avoidance of using certain treatments. Second, it has led to the perception that there is no ‘gold standard’ for treating a given impairment. This increases the likelihood of providing unethical treatment (Plowman & Humbert, 2018).

Another potential reason for the low confidence among SLPs may stem from a lack of educational training. This was suggested by Caesar and Kitila (2020) who discovered that the majority of their participants did not feel like their graduate training sufficiently prepared them for providing certain dysphagia services. These findings were supported by an earlier survey in the United States (McCoy & Desai, 2016), as well as by SLPs around the globe (Kamal et al., 2012; Singh et al., 2015). To date, little is known about the extent and level to which SLPs are being trained within this area of practice, but it is common knowledge that SLP clinical performance is highly correlated to how they perceive their clinical abilities (Caesar & Kitila, 2020). That said, it should come as no surprise that a clinician’s low self-efficacy might negatively affect their ability to properly assess and treat dysphagia.

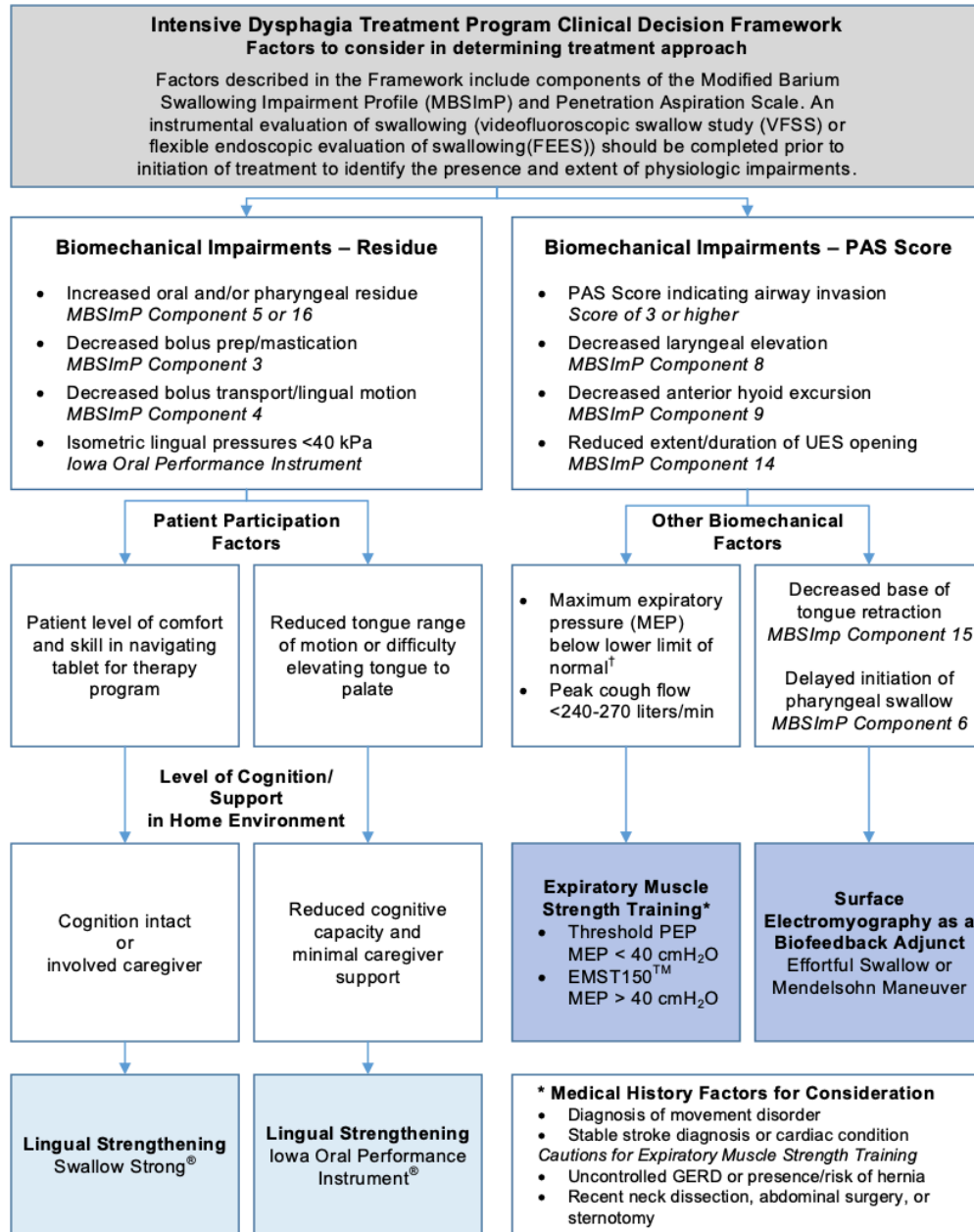
The Potential Role of a Decision-Making Framework

Introducing a decision-making framework – a clinical tool that helps clinicians quickly and easily map a client’s profile of impairment to the most appropriate treatments (Yee et al.,

2020) – may be useful in guiding and improving SLP confidence and practice patterns. This was suggested by an Intensive Dysphagia Treatment Program (IDT) that was successfully implemented at multiple Veteran Affairs Hospitals in the United States (Yee et al., 2020). Beginning in 2012, SLPs implemented the IDT which has three distinct arms – a device facilitated intervention arm, non-device facilitated intervention arm, and an intervention arm intended for individuals with head and neck cancer. Each arm is unique and takes into consideration client preferences and specific impairment. Treatment arms also incorporate standardized outcome measures to assist in optimizing client care.

Particularly of note, a decision-making framework was made available to SLPs for the device-facilitated treatment arm (see Figure 1). Within this arm, possible treatments included lingual strengthening via Swallow Strong®, lingual strengthening via the Iowa Oral Performance Instrument® (IOPI), expiratory muscle strength training (EMST), or surface electromyography as a biofeedback adjunct. In all cases, decisions were predominately based on the findings from instrumental examinations such as an MBS or FEES. However, the Modified Barium Swallowing Impairment Profile (MBSImP™) score, the penetration-aspiration scale (PAS) score, the client’s cognitive ability, and the availability of caregiver support were also supporting factors in decision-making.

Figure 1. Decision-Making Framework Used in the IDT Study (Yee et al., 2020).



In this quality improvement study, the use of a decision-making framework was found to strengthen clinician ability to manage dysphagia symptoms. Furthermore, results were highly suggestive that the widespread implementation of the IDT, or modifications of it, could enhance quality of life and overall health for individuals with swallowing disorders. Therefore, although

little is known about the IDT right now, more knowledge is likely to emerge in the coming years with the push toward client-centred, rehabilitative programs (Malandraki & Hutcheson, 2018; Charters & Clark, 2022).

Relevance of Implementation Research

The successful adoption of research supported practices that involve a change of current clinical practice requires the use of theories that account for client, clinician, and organizational factors (Nilsen, 2015). Thoughtful reflection about these factors is essential (Olswang & Prelock, 2015) because efforts to change practice frequently fail due to researchers conducting their studies in highly controlled environments, as opposed to “real world” settings (Douglas & Burshnic, 2019). This limits the generalizability of the results if organizations are not adequately equipped to facilitate change. As such, there is often a delay of approximately 17 years before research findings get integrated into routine clinical processes (Douglas & Burshnic, 2019).

Pre-implementation efforts recognize a quality gap and then identify an EBP to minimize that gap using the combined expertise of the key stakeholders and implementation researchers (Lu et al., 2021). This process of understanding existing organizational structure and practice, with the addition of scientific rigor, allows specific organizational needs to be met. Establishing this compatibility is crucial if there is any chance at facilitating long-term success and sustainability (Olswang & Prelock, 2015; Lu et al., 2021). The discipline of promoting research uptake into routine clinical practice is defined as *implementation science* (Douglas & Burshnic, 2019).

Implementation research is complex and has a variety of approaches. These approaches fall into three main categories: “(a) describing and/or guiding the process of translating research into practice, (b) understanding and/or explaining what influences implementation outcomes, and

(c) evaluating implementation efforts” (Nilsen, 2015; Douglas & Burshnic, 2019). Each approach is appropriate depending on study objectives. For example, Category (a) is useful for outlining the specific steps and procedures needed to translate research into clinical practice (Nilsen, 2015). Category (b) investigates the factors believed to influence implementation outcomes, describes change mechanisms, and aims to more fully understand and explain various factors associated with implementation (Nilsen, 2015). Lastly, Category (c) focuses on highlighting how implementation efforts are evaluated (Nilsen, 2015).

Consolidated Framework for Implementation Research

In the literature, one specific framework has been widely used in the design, evaluation, and implementation of health service interventions. This framework is known as the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009). The CFIR facilitates Category (b) of implementation research and is known as a determinant framework (Nilsen, 2015). Determinant frameworks are commonly used for identifying factors that serve as barriers or facilitators to implementation outcomes (Nilsen, 2015).

The CFIR is comprised of five domains – intervention characteristics, outer setting, inner setting, characteristics of individuals, and process (Damschroder et al., 2009). The first domain (intervention characteristics) specifies the features of the intervention, and how they may be adapted to fit the needs of a particular organization. This domain is key since it has a strong influence on how the intervention will be perceived by stakeholders and whether they buy-in to the purpose and goals of the intervention. The second domain (outer setting) identifies the economic, political, and social context related to the organization of interest and is often influenced by changes to the inner setting. The third domain (inner setting) explicitly addresses the influential variables within the implementation context. The fourth domain (characteristics of

individuals) accounts for the mindsets, norms, and interests of the key stakeholders. Finally, the fifth domain (process) relates to how change should be implemented. Within each domain, there are several constructs which are described in Table 2.

Table 2. Overview of CFIR Domains and Constructs (Damschroder et al., 2009).

Domain	Construct	Sub-construct	Description
I. Intervention Characteristics	Intervention Source		Refers to whether stakeholders believe the intervention was externally or internally developed, and whether they believe the legitimacy of the source.
	Evidence Strength and Quality		Refers to whether stakeholders believe the existing evidence that supports whether the intervention will have positive outcomes.
	Relative Advantage		Refers to whether stakeholders believe that this intervention is more advantageous than other potential solutions.

Adaptability

Refers to whether the intervention can be adapted and refined to meet the needs of the key stakeholders.

Trialability

Refers to the possibility of piloting the intervention with a small group before fully implementing into the workplace.

Complexity

Refers to whether stakeholders believe the intervention will be difficult to implement.

Design Quality and Packaging

Refers to whether stakeholders believe that the intervention was designed and presented well.

Cost

Refers to whether the organization and implementor have sufficient funds to

II. Outer Setting

Patient Needs and
Resources

cover the cost of the
intervention.

Refers to whether
stakeholders believe
the intervention will
meet the needs of
their clients affected
by the intervention.

Cosmopolitanism

Refers to the extent to
which the
organization of
interest is networked
with other outside
organizations.

Peer Pressure

Refers to the extent to
which there is
pressure from other
competing
organizations to
implement the
intervention.

External Policies and
Incentives

Refers to whether
there are policies,
regulations,
mandates, or
guidelines that

			influence the spread of the intervention.
III. Inner Setting	Structural Characteristics		Refers to the traits of the organization of interest. Examples include age, maturity, and size.
	Networks and Communications		Refers to the connections the organization has either through social networks, as well as formal and informal communications within the organization itself.
	Culture		Refers to the norms, values, and assumptions the organization has.
	Implementation Climate – <i>Refers to the capacity for change. There are six sub-constructs associated with this construct.</i>	Tension for Change	Refers to whether stakeholders believe there is a need for change.

Compatibility	Refers to whether stakeholders believe the intervention is compatible with organizational norms and values.
---------------	-------------------------------------------------------------------------------------------------------------

Relative Priority	Refers to whether stakeholders perceive the intervention as a priority for the organization.
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Organizational Incentives and Rewards	Refers to whether there are incentives that encourage stakeholders to partake in the intervention. Examples include promotions, salary raises, and performance reviews.
---------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Goals and Feedback	Refers to whether the goals of the intervention are clearly communicated and whether sufficient
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		feedback related to the goals of the intervention are provided to stakeholders.
	Learning Climate	Refers to whether stakeholders feel they are valued and knowledgeable partners in generating change through the intervention.
Readiness for Implementation – <i>Refers to any indicators that suggest that the organization of interest is committed to the implementation of the desired intervention. This construct has three sub-constructs.</i>	Leadership Engagement	Refers to whether the managers and other leaders are committed and involved to implementing the intervention.
	Available Resources	Refers to whether there is sufficient funding, training, physical space, and

		time to facilitate implementation of the intervention.
	Access to Information and Knowledge	Refers to whether stakeholders have easy access to readable information about the intervention and its goals, as well as how to implement the procedures into their work.
IV. Characteristics of Individuals	Knowledge and Beliefs About the Intervention	Refers to whether stakeholders have positive attitudes and beliefs about the intended intervention.
	Self-Efficacy	Refers to whether stakeholders believe they, as individuals, will be able to achieve the intended goals of intervention.
	Individual Stage of Change	Refers to whether stakeholders believe that they will be able to sustain the

		intervention goals over time.
	Individual Identification with Organization	Refers to whether stakeholders feel connected and committed to the organization.
	Other Personal Attributes	Refers to whether stakeholders believe they have other attributes that will be useful for implementation efforts. Examples include tolerance of ambiguity, motivation, and tenure.
V. Process	Planning	Refers to whether stakeholders believe there is sufficient planning around tasks and behaviours to facilitate successful implementation.
	Engaging – <i>Refers to the extent to which</i>	Opinion Leaders
		Individuals within the organization who are

leaders are attracted and involved in the intervention and can influence the behaviours, actions, and attitudes of other key stakeholders associated with the intervention. There are four main types of implementation leaders.

formally or informally able to influence the attitudes and beliefs of key stakeholders regarding the intervention.

Formally Appointed
Internal
Implementation
Leaders

Individuals within the organization who are formally appointed to take the lead on implementing the intervention.

Champions

Individuals who have informally appointed themselves as main supporters to help drive the intervention.

External Change
Agents

Individuals outside of the organization that can influence the

	intervention and its decisions.
Executing	Refers to the extent to which stakeholders believe the intervention will be executed according to plan.
Reflecting and Evaluating	Refers to the extent to which there will be opportunities for stakeholders to share their feedback on the progress and quality of implementation through either individual and/or team meetings.

According to a systematic review, many studies use the CFIR after implementation efforts and most of those studies use the CFIR to help with data analysis only (Kirk et al., 2015). Despite this, the CFIR is advantageous to use for both data collection and analysis since it prevents omitting or minimizing the importance of some implementation factors. Furthermore, the CFIR can support implementation at different stages (Kirk et al., 2015). Specific to pre-implementation efforts, the CFIR is used to guide the identification and assessment of existing barriers and facilitators prior to the intervention (Kirk et al., 2015).

One of few studies that have used the CFIR in the pre-implementation stage was conducted by Warner and colleagues (2018). These researchers sought to identify the barriers affecting the implementation of an online frailty tool into a primary healthcare setting. The CFIR was used to create an initial interview guide, which was then modified to gather information about the specific intervention. All five CFIR domains were deemed relevant. Following data collection, the CFIR was used to guide data analysis by informing the main themes associated with participant experiences with the Frailty Portal. Themes were identified in this way because of the high degree of overlap and difficulty separating key findings by CFIR domain or construct. Results from this study highlighted the utility of the CFIR in identifying multi-level factors that can directly impact successful implementation. As such, the CFIR is especially useful for critical program re-design before initial implementation efforts.

Additional Evidence Supporting the Use of the CFIR in Healthcare Initiatives

Many other researchers have used the CFIR to facilitate their implementation efforts related to SLP initiatives. Notably, most of these studies used the CFIR during or post-implementation efforts which focused on using the information to adapt the implementation plan and using the constructs to determine outcomes (Kirk et al., 2015). One example is a study conducted by Messing and colleagues (2019). These researchers used a mixed-methods approach to formally evaluate a previously established multidisciplinary team (MDT) Dance Head and Neck Clinical Pathway (D-HNCP). Using the CFIR, a guided survey was created for MDT members. The survey was constructed using all domains except for one (characteristics of individuals) and of each domain, only the ‘cosmopolitanism’ (domain: outer setting), ‘key stakeholders’ and ‘innovation participants’ (domain: process) constructs were omitted. Results indicated that although complexity was a significant barrier to implementation, all others were

perceived as facilitators in both establishing and sustaining the MDT D-HNCP.

Another example of the CFIR being used to systematically assess an intervention was the evaluation of an International Dysphagia Diet Standardization Initiative (IDDSI) in an aged-care facility (ACF; Wu et al., 2022). Like Messing and colleagues (2019), the researchers used a mixed-methods approach to guide data collection and analysis. Dissimilarly, however, all five domains and 39 constructs were included, and results were more variable. Specifically, ‘evidence strength and quality’ (domain: intervention characteristics), lack of ‘key stakeholders’, ‘opinion leaders’, and ‘time for reflection’ (domain: process) were notable barriers to this initiative. Staff reported that they were not aware of the online IDDSI resources, nor did they feel like they had to attend training sessions or engage in active learning.

A third example that used the CFIR includes a study on the implementation of CSE services via telepractice (Ward et al., 2021). CSEs are important as they are often the first step in assessing risk of dysphagia but with the COVID-19 pandemic, both clients and clinicians faced increased risk of infection. Offering a telepractice mode of delivery would, therefore, minimize this risk. Knowing that implementing this service would require thoughtful planning, researchers devised an implementation strategy and later, used the CFIR to evaluate their efforts. Results indicated that ‘relative advantage’, ‘design quality and packaging’ (domain: intervention characteristics), ‘patient needs and resources’ (domain: outer setting), ‘relative priority’, ‘learning climate’, ‘access to knowledge and information’ (domain: inner setting), as well as ‘planning’ and the role of all involved members (domain: process) were major facilitators. Among the barriers, ‘structural characteristics’ and the ‘availability of resources’ (domain: inner setting) were identified, namely because of the need to share equipment and staff turnover.

Based on these studies, there appears to be a benefit to using the CFIR to facilitate the

implementation of EBP's that constitute a change in practice. Takeaways from all three studies highlight the importance of buy-in among stakeholders. Buy-in is relevant because it determines the extent to which stakeholders will actively engage and be motivated to partake in the change process (Mathews & Crocker, 2016). When achieved, buy-in can reduce resistance to the idea of change and allow stakeholders to fully embrace improving their work processes (Mathews & Crocker, 2016). When not achieved, adherence to new protocols is not seen as a priority. This lack of buy-in was clearly problematic in the study conducted by Wu and colleagues (2022).

To increase the likelihood of buy-in, Damschroder and colleagues (2009) would argue that it is useful to ensure that the intervention aligns with the goals of the organization of interest. Ideally, the intervention would also address a need, so that the intervention is perceived as a priority among stakeholders. Following this, it would be useful for researchers to highlight any evidence that supports the intervention. Presenting a thoughtful and well-planned intervention is crucial for increasing support, engagement, and compliance with the initiative.

Summary

In summary, SLPs have a significant role in managing symptoms of dysphagia. However, rather than using evidence-based DR strategies, SLPs tend to rely on compensatory strategies that are not always in the best interest of their client and their recovery. Introducing a DR decision-making framework guided by the CFIR may, therefore, lead to improved confidence and practice patterns of SLPs providing DR. This in turn, may have positive implications on client functioning and wellbeing.

Study Objectives

This study was developed in response to a request from SLPs associated with Hearing and Speech Nova Scotia (HSNS), who requested support to improve dysphagia management practices. To address this request, the purpose of this study was two-fold. First, this study explored current SLP DR practice patterns in Nova Scotia. Second, this study explored whether SLPs are ready for the implementation of a DR decision-making framework in their workplace.

With those objectives in mind, the following research questions were explored:

1. What are the current DR practice patterns of SLPs?
2. Are SLPs ready for the implementation of a DR decision-making framework?
3. What are the perceived barriers and facilitators believed to be associated with the DR decision-making framework?

CHAPTER 2: METHODOLOGY

Ethical Review

This study was reviewed and approved by the Nova Scotia Health Research Ethics Board (REB File #: 1027426) (Appendix A). Informed consent procedures were followed to ensure that each participant knew what the study entailed, how long the study would last, what happens if they take part in the study or if they choose to withdraw their participation, the potential benefits and risks associated with the research activities, and what happens at the end of the study (Appendix B).

Study Design

The study used a mixed-methods approach – an approach that is useful for studying complex processes found within healthcare systems (Fetters et al., 2013). There are six ways in which mixed methods can occur (Creswell, 2003), but in the present study, a convergent design was used. Convergent mixed methods involve concurrent collection of the quantitative and qualitative data (Fetters et al., 2013). This design allowed for a short, one phase period of data collection, which is helpful given the limited time clinicians have to offer. Additionally, since the quantitative and qualitative data are collected and analyzed separately, a convergent design also allowed for increased opportunities to demonstrate either the convergence or divergence of the two datasets. If obtained, this information would be incredibly insightful to inform future SLP practice guidelines, training, and resources for dysphagia management.

Participants

Purposive sampling was used to recruit a sample of SLPs and communication disorder technicians (CDTs) across Nova Scotia who provide dysphagia services to their clients. SLPs and CDTs who previously provided dysphagia services and now do not, were eligible so long as

this change occurred within one year. In total, there were 32 clinicians who fit this criterion.

Recruitment

Hearing and Speech Nova Scotia (HSNS), a publicly funded organization that employs the SLPs and CDTs who provide dysphagia services to clients across Nova Scotia, closely collaborates with members of the research team. HSNS approached an assistant professor, with expertise in dysphagia, at Dalhousie University with a request to support the continuing education and professional development of their clinicians. The assistant professor provided a series of continuing education events for the SLPs which focused on improving dysphagia management. This resulted in a discussion with both clinicians and management regarding ways to help SLPs incorporate evidence-based DR into their practice. As part of this discussion, and with strong support for the initiative from the HSNS director and co-lead of the Acquired Brain Injury Program at the Nova Scotia Rehabilitation and Arthritis Centre (NSRAC), SLPs and CDTs were recruited for this study from all provincial HSNS sites (see Table 3). Seven of these sites are located in urban areas, whereas the remaining 20 are located more rurally.

Table 3. Recruitment Sites Across Nova Scotia

Recruitment Sites	
Cumberland Regional Health Care Centre	Sutherland Harris Memorial Hospital
All Saints Springhill Hospital	Roseway Hospital
St. Martha’s Regional Hospital	Cape Breton Regional Hospital
South Shore Regional Hospital	Harbour View Hospital
Fishermen’s Memorial Hospital	Colchester East Hants Health Centre
Queens General Hospital	Kings Regional Rehab. Centre
Yarmouth Regional Hospital	Hants Community Hospital
Valley Regional Hospital	Cobequid Community Health Centre

Digby General Hospital	Dartmouth General Hospital
Strait Richmond Hospital	IWK Health Centre
Soldier’s Memorial Hospital	Queen Elizabeth II (QEII)– Dickson Site
Twin Oaks Memorial Hospital	QEII – Infirmarary Site
Eastern Shore Memorial Hospital	QEII – NSRAC
Aberdeen Hospital	

*Note: Queen Elizabeth II is abbreviated as QEII.

Recruitment efforts included providing a presentation to SLPs at a HSNS Provincial Dysphagia Meeting and writing a recruitment letter (Appendix C). In total, three rounds of recruitment occurred. The first round was the presentation, and the remaining two rounds involved sending out the recruitment letter, with help from the HSNS director.

Quantitative Method

To assess current DR practice patterns, the Dysphagia Competency Verification Tool (DCVT; ASHA, n.d.) was used. The DCVT is a tool that was developed in response to a need for established guidelines and a measure of clinical competence in the areas of feeding and swallowing disorders. The tool is intended to be used as a self-assessment tool for clinicians. However, it is also a means by which employers can evaluate and document the knowledge and competencies pertaining to feeding and swallowing disorders among their employees. Core competencies associated with clinical swallow assessment and dysphagia treatment, MBS, FEES, and high-resolution manometry (HRM) are included within this tool, as well as two additional sections related to ‘continued competency review’ and ‘specialization and professional development’.

The original version of the DCVT includes a binary rating scale where either the clinician or their supervisor marks whether the clinician’s execution of various skills are ‘in training’ or

deemed 'competent'. In the present study, the DCVT was modified to reflect a 5-point Likert-scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). The rationale for this decision was because using a binary rating scale could result in a ceiling effect. Using a 5-point Likert-scale allowed meaningful data to be collected by capturing greater variation in self-perceived competency (Hazelwood et al., 2022).

The modified version of the DCVT included 18 items taken from the '*Clinical Swallow Assessment and Dysphagia Treatment*' section – all of which pertained to general knowledge and treatment of feeding and swallowing disorders. To describe the sample of participating SLPs, ten demographic questions were also included. Questions investigated gender, age, workplace setting, years of experience, type of clientele, number of clients with dysphagia in a typical caseload, average number of hours spent managing dysphagia, average number of hours spent implementing DR, type of DR strategies frequently employed, and whether SLPs and CDTs have participated in specialized courses or training modules on dysphagia assessment and treatment. Overall, SLPs electronically responded to a total of 28 questions (Appendix D) through Opinio – a password protected survey management software stored on a Dalhousie server.

Qualitative Method

SLP readiness for implementation was assessed using a single focus group session. A focus group was chosen because they are beneficial when information pertaining to attitudes, experiences, and areas of consensus are desired and cannot be sufficiently explored through other methods (Gibbs, 1997). Unlike semi-structured interviews, responses are not confidential and therefore, have the potential to be influenced by other members of the group (Gibbs, 1997). This is particularly true if participants feel intimidated (Gibbs, 1997). Despite this, when steps to facilitate a comfortable and permissive environment are taken (Kitzinger, 1995; Krueger &

Casey, 2002), focus groups are highly useful for cross-validation and exploring or generating hypotheses in the initial stage of a study (Gibbs, 1997). For this reason, it was believed that the advantages to conducting a focus group outweigh the disadvantages.

According to Krueger and Casey (2002), a focus group session should comprise of no more than 12 questions. As such, SLPs in the present study were encouraged to respond to a series of 10 open-ended questions – three of which were related to survey responses, and seven of which focused on readiness for implementation. Additional sub-questions were asked and responded to as needed. Sub-questions were typically asked for clarification or when expansion on a participant’s response would be helpful in achieving study objectives. For example, asking the SLPs how the priority of implementing a DR decision-making framework compares to other priorities in their employment setting, and then following up by asking how they will manage those competing priorities in their own work.

Focus group questions that were informed by survey data pertained to caseload and hours spent implementing DR, rationale for using specific DR strategies, and the ability to document response to treatment. Two members of the study team believed these topics to be appropriate since it allowed the opportunity to better explore certain themes and discrepancies in the data. This is important because the goal of the study is to promote the uptake of the DR decision-making framework.

Given its widespread use in health service implementation, the remaining questions were constructed using the CFIR interview guide tool (Damschroder et al., 2009). As a first step to using this tool, the relevant domains and constructs were identified. As a measure of interrater reliability, two team members independently selected the domains and constructs they believed were most significant for the study. This was accomplished by having each rater complete a table

where they explicitly outlined the rationale for inclusion for each construct. Each rater then chose the seven constructs, and associated domains, they felt were best suited for the study goals. The two raters then compared their tables and discussed to consensus which domains and constructs would be used for the focus group. Notably, one rater was a second year, Master’s of Science in Speech-Language Pathology student who completed a three-month clinical placement at a rural Nova Scotia HSNS site following data collection. The other rater was an assistant professor in the School of Communication Sciences and Disorders and School of Dental Hygiene at Dalhousie University. A final version of this table is displayed in Table 4.

Table 4. Relevant CFIR Domains and Constructs

Domain and Construct	Rationale for Inclusion
I. Intervention Characteristics	
Evidence Strength and Quality	When stakeholders believe the evidence regarding the intervention is sufficient and of high quality, the intervention is more likely to be accepted and adhered to. Deemed necessary because it is important to know what evidence (relating to the usefulness of a decision-making framework) SLPs are already aware of.
II. Outer Setting	
Patient Needs and Resources	Interventions that aim to support and improve client services are more likely to be accepted among stakeholders. Deemed necessary since it is useful to know if SLPs believe they are already meeting the needs of their clients, or if there are gaps in what they can offer.

III. Inner Setting

Implementation Climate – Tension for Change

When stakeholders are aware of a gap in the research or their own knowledge about a particular aspect of their professional practice, they are more likely to seek help and accept the proposed intervention. Deemed necessary to gauge the extent to which clinicians believe there is a true need for change.

Implementation Climate – Relative Priority

Interventions that are perceived as high priority among stakeholders are more likely to be accepted, adhered to, and successfully implemented. Deemed necessary to determine the extent to which clinicians believe the intended intervention will be prioritized over other competing work tasks.

Implementation Climate – Learning Climate

Organizations that facilitate a climate where their employees feel safe, supported, and valued during the change process are more likely to lead to successful implementation. Deemed necessary to obtain insight into the working relationship between clinicians and their managers and gain insight into what the dynamic is like.

IV. Characteristics of Individuals

Self-Efficacy

Stakeholders with high self-efficacy are more likely to embrace change and commit to the intervention. Deemed necessary to determine

current confidence levels of clinicians when providing DR services.

V. Process

Engaging – Champions

Stakeholders who actively strive for successful implementation and motivate others to do the same, are more likely to facilitate change. Deemed necessary to determine the likelihood of any clinicians appointing themselves as ‘drivers’ for implementation goals and procedures.

Following the discussion between raters, the relevant domains and constructs were inputted into the CFIR interview guide tool. This tool generated pre-determined questions for each selected construct. Questions within each construct were then chosen based on SLP and CDT current knowledge about what the intended DR decision-making framework entails. At time of this study, SLPs and CDTs knew of the initiative, but their knowledge of the details regarding the DR decision-making framework was limited. The final version of the focus group interview guide is provided in Appendix E.

Procedures for Data Collection

SLPs and CDTs provided written consent prior to participating in two periods of data collection. First, SLPs and CDTs independently completed the online demographic and modified DCVT survey on Opinio. Once completed, a date and time was arranged for up to eight SLPs and/or CDTs to convene for one focus group session. This is an ideal number of individuals for focus groups given that the recommended range falls between six and ten (Gibbs, 1997). SLPs and CDTs were selected on a first come, first serve basis. SLPs and CDTs who were selected for

the focus group provided verbal consent prior to beginning the discussion and were reminded that they could withdraw their consent at any time. They were also reminded that withdrawal would not impact their employment or any performance evaluations they may have.

The focus group occurred online via Microsoft Teams for 90 minutes, as recommended by Kitzinger (1995). Furthermore, the session occurred under the supervision and moderation of a student researcher and was recorded and transcribed to assist with future data analysis. The student researcher was a second year, Master's of Science in Speech-Language Pathology student who completed a three-month placement at a rural Nova Scotia HSNS site after the focus group occurred.

Data Analysis

Quantitative data obtained from the survey were analyzed using descriptive summary statistics. Medians, instead of means, were calculated due to the ordinal data associated with the 5-point Likert scale. Survey data was reported in table-format to display the nature of the data pertaining to current SLP DR practice patterns.

Conversely, qualitative data obtained from the focus groups was transcribed, coded, and analyzed with NVivo (QSR International, 2020) using interpretive description (Thorne, 2016) and thematic analysis (Braun & Clarke, 2006). The framework method was also used to guide data management of the qualitative results (Gale et al., 2013). Interpretive description, derived from nursing epistemology, is a method that takes a creative approach to generate knowledge which can be used in the real world and hence, meet the needs of clinicians (Thorne, 2016). In contrast, thematic analysis requires researchers to sift through the data to systematically identify the prevalent themes in the data (Braun & Clarke, 2006). Using both these methodologies allowed for a thorough exploration of whether SLPs believe they are ready for implementation.

These methodologies, with the help of the CFIR, also help identify the major barriers and facilitators that SLPs anticipate with the introduction of a DR decision-making framework into their workplace.

Throughout analysis, both deductive and inductive analyses were used. First, deductive analysis involved identifying pre-determined codes in the literature and then determining if those codes were present in the current study. This type of analysis is useful for applying conceptual frameworks as well as organizing data so that it aligns with the intended research questions (Bingham & Witkowsky, 2022). In this study, pre-determined codes were guided by the CFIR constructs.

Following deductive analysis, inductive analysis was used to determine whether any new themes emerged from the data. Inductive analysis is particularly useful for truly understanding the meaning of the data. It involves summarizing the raw data, establishing links between the study objectives and findings, and developing conceptual frameworks (Bingham & Witkowsky, 2022; Thomas, 2006). Using both types of analysis is common in qualitative research because they enhance the organization and rigour of the data (Bingham & Witkowsky, 2022).

Consistency

The transcript was coded by two independent individuals – one being a Master's of Science in Speech-Language Pathology student and the other being a recently graduated audiologist who works as a research assistant and has expertise in qualitative analysis. The research assistant was provided with the transcript and a list of codes. Ample time was provided to review and discuss modifications to the codes, as well as to become familiar with and code the transcript. Once the transcript was coded by each person, the transcripts were compared. Any differences in coding were discussed until consensus was obtained. These actions served as a

measure of intercoder reliability.

Trustworthiness

According to Stahl and King (2020), trustworthiness is when readers have a high degree of confidence in the outcomes reported by the researchers. By nature, qualitative research involves storytelling and presenting findings in a way that they capture the human experience. This type of research, however, can lead to variation in how researchers interpret the findings. Since replicability is not the goal of qualitative research as it is in quantitative research, establishing trustworthiness is essential so that readers have a sense of confidence in what was found and reported.

In this study, trustworthiness was promoted via member checking. Study participants were asked to review and verify the focus group transcript prior to coding and request changes as needed. Trustworthiness was also promoted by the student researcher who, during the focus group, consistently paraphrased and summarized the findings after each proposed question. Doing so, gave the participants the opportunity to reflect on what was said and clarify any misunderstandings. Stahl and King (2020) argue that these two acts should lead to trust in the researcher.

Reflexivity

Recently, reflexivity has been proposed as another essential aspect of qualitative research. According to Olmos-Vega and colleagues (2023), reflexivity can be defined as an ongoing process in which researchers constantly evaluate their subjectivity and how that influences their interpretation of study results and outcomes. Most commonly, the idea of reflexivity is believed to encourage researchers to view datasets with an open-mind as an attempt to neutralize their bias (Olmos-Vega et al., 2023). However, researcher subjectivity is not

entirely negative. In fact, many researchers argue that so long as their subjectivity is properly acknowledged, reflexivity may strengthen the results such that researchers can use their own knowledge and identity to co-construct study outcomes.

The current study used measures of personal and interpersonal reflexivity. Personal reflexivity involves the researcher acknowledging their background and how their experiences may have influenced their interpretation of the data (Olmos-Vega et al., 2023). Throughout the manuscript, the academic backgrounds of all involved research team members are disclosed. Additionally, the main student researcher actively worked with the qualitative data prior to and after their three-month internship placement. Establishing and fleshing out preliminary thoughts on the data before completing a clinical internship allowed the student researcher to reflect on their initial subjectivity and then evaluate how their subjectivity might have changed when reviewing and adding to those preliminary thoughts after completion. This improved the student researcher's ability to truly capture the experiences of the participating SLPs, contributing to the overall meaningfulness of the results.

In contrast, interpersonal reflexivity involves consideration of the context, the associated personnel, and the results and how those relationships impact the overarching research process (Olmos-Vega et al., 2023). In this study, measures to account for the power dynamic during the focus group were taken. For example, a second year, Master's of Science in Speech-Language Pathology student independently supervised and moderated the focus group session. This decision was made because one of the team members, an assistant professor in the School of Communication Sciences and Disorders and School of Dental Hygiene at Dalhousie University, has pre-existing relations with the HSNS clinicians and continues to collaborate with them today. Having this team member present may have prevented the SLPs from sharing certain details that

could be significant when informing future recommendations. Likewise, having the session supervised and moderated by a second-year student may have also balanced the power dynamic since at that time, the student had not previously completed any clinical placements related to dysphagia services.

CHAPTER 3: RESULTS

Demographic Information

In total, 32 SLPs and CDTs in Nova Scotia received the recruitment email. Of those, five registered SLPs responded with interest and proceeded to participate in the study. Overall, the response rate for this study was 16%.

The sample comprised of participants who all identify as females and who vary in age between 20-29 years old (2), 30-39 years old (1), and 40-49 years old (2). Work locations that were identified included the QEII – Infirmarary Site (1), the QEII – NSRAC Site (1), as well as inpatient acute care units (3) and outpatient sites associated with HSNS (3). Notably, some SLPs work in multiple locations and three of the clinicians work out of the same inpatient acute care unit. Across locations, SLPs reported working with a variety of clients with various diagnoses and conditions (see Table 5).

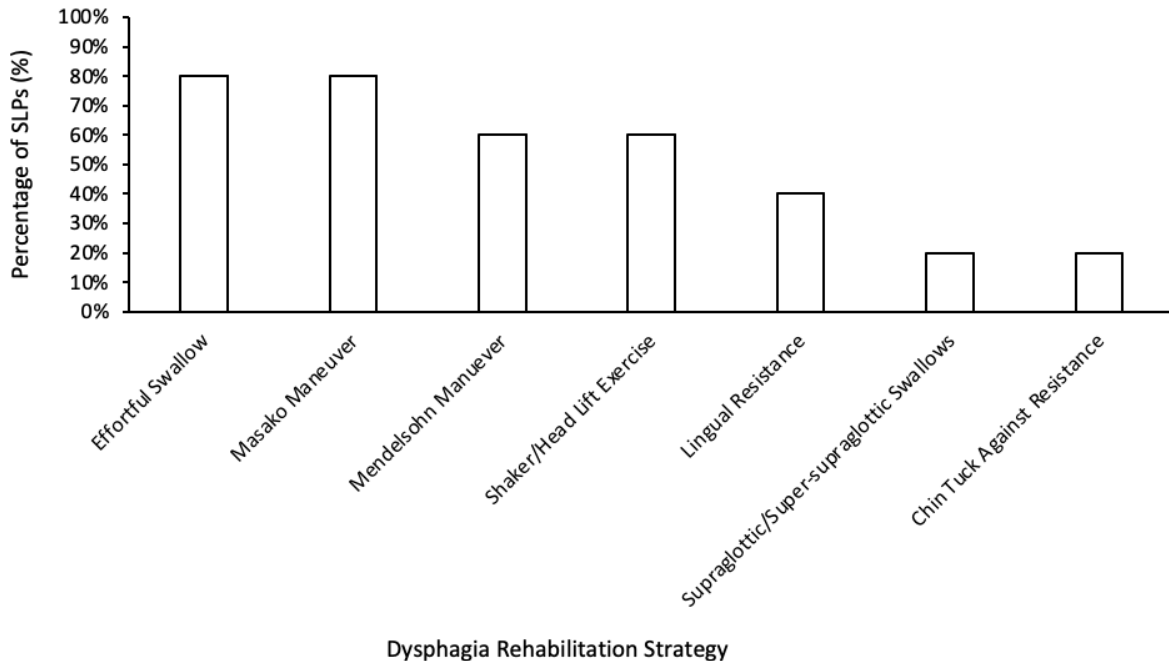
Table 5. Common Characteristics of SLP Clientele

Diagnosis or Condition	
Oropharyngeal dysphagia	Orthopedics
Stroke	Generalized weakness
Dementia	Difficulties with oral phase
Neuromuscular condition (e.g., Parkinson's)	Difficulty swallowing medication
Head and neck cancer	Coughing/choking with food/liquid
Traumatic brain injury	Dysphagia related to the absence of teeth
Intensive care unit	Risky eating behaviour
Post-extubation	Dysphagia due to neuro/cardiovascular surgery
Dysphagia associated with Developmental/physical/intellectual disabilities	

In terms of their experience working with clients with dysphagia, responses varied. Some SLPs reported having less than six months (1) of experience whereas others reported having more than 10 years (2). The remaining SLPs indicated that they have 1.5-2 years (1) or 5.5-10 years (1) of experience. Despite this, SLPs reported having either 11-15 (1) or more than 15 (4) clients with dysphagia on their caseload in a typical month.

During a typical 8-hour workday, SLPs most commonly reported spending 4-6 hours on managing dysphagia (3), while the remaining two clinicians spent less than 2 hours. In contrast, time spent implementing DR was most commonly less than hour (3) or not at all (1), with only one clinician indicating 2-4 hours. When DR is implemented, SLPs reported using a variety of strategies. These strategies are displayed in Figure 2.

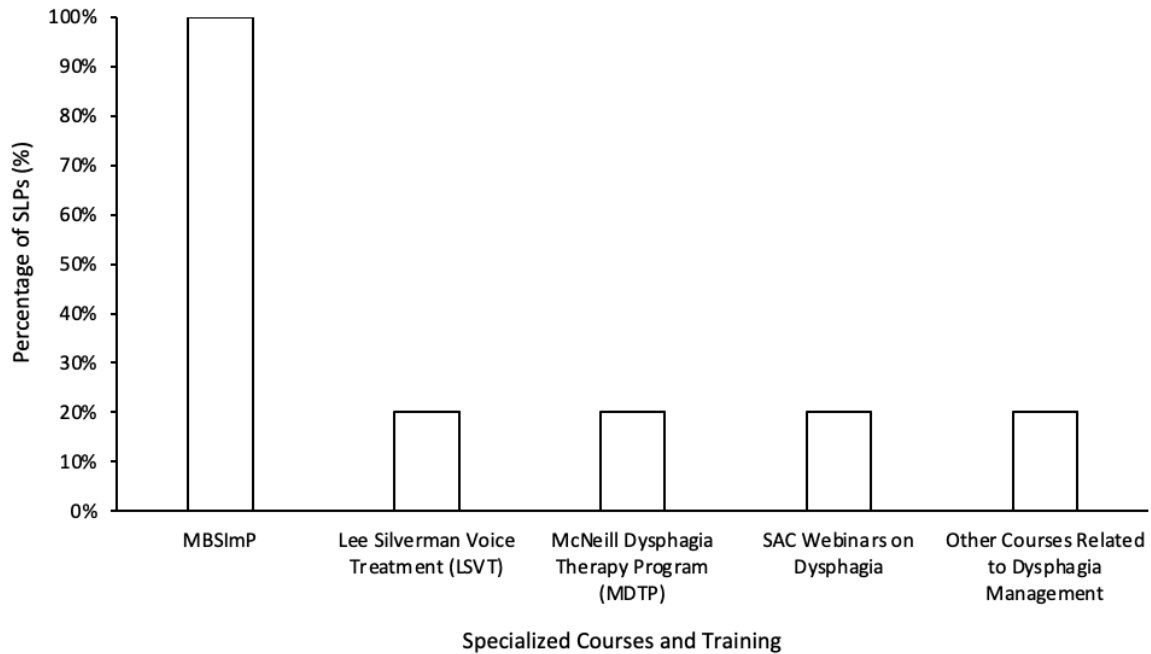
Figure 2. Percentage of SLPs Using Specific Dysphagia Rehabilitation Strategies.



Across the five participants, all SLPs have either completed or begun their MBSImP certification. Aside from MBSImP, some SLPs reported having additional specialized training on

dysphagia assessment and/or management. These are displayed in Figure 3.

Figure 3. Percentage of SLPs that Engaged in Specialized Training Related to Dysphagia.



Survey Results

Survey findings associated with the modified version of the DCVT are provided below. Table 6 provides a summary of the median responses for each statement. Results indicated that SLPs agreed or strongly agreed with most statements relating to their knowledge and treatment of feeding and swallowing disorders. The exception was item 16 which inquired about their ability to document response to treatment.

Table 6. Measure of SLP Knowledge and Treatment of Feeding and Swallowing Disorders.

Statement	Median Response	Range
1. I can explain the strengths and limitations of clinical examination, including the ability to detect aspiration and determine treatment strategies for pharyngeal swallowing disorders.	5	1
2. I can describe and integrate evidence-based practice into patient assessment and care.	4	1
3. I can identify when swallowing assessment and intervention is appropriate.	4	1
4. I can identify abnormal/atypical swallow-related structure and function.	5	1
5. I can test interventions, including but not limited to postural changes, behavioral changes, maneuvers, bolus modifications (e.g., texture, volume), delivery method (e.g., spoon, cup, bottle, nipple type), and sensory enhancement techniques to improve safety and efficiency of the swallow and trials, as appropriate.	4	1
6. I can provide recommendations regarding the delivery of nutrition and hydration (oral, non-oral, or combination of the two).	5	1

7. I can provide recommendations regarding specific oral intake modifications (e.g., volume, viscosity, texture, etc.).	5	1
8. I can provide recommendations regarding compensatory and feeding precautions (e.g., strategies, positioning, assistance, supervision, etc.).	5	1
9. I can provide recommendations regarding rehabilitation treatments targeting physiologic deficits identified on assessment, utilizing evidence-based techniques when available.	4	2
10. I can integrate and adapt the plan of care to include patient's cultural and personal preferences.	4	1
11. I can educate the patient and family/caregiver about findings and recommendations, including options and relative risks/benefits.	5	1
12. I can educate the staff (e.g., physicians, nurses/certified nursing assistants, care planning team, teachers, aides) about findings and recommendations, and advocates for swallowing-related services.	5	2
13. I can identify necessary follow-up care, including frequency of treatment, monitoring, and/or re-evaluation.	5	2

14. I can provide ongoing assessment and revise treatment goals as appropriate, based on patient response.	5	2
15. I can develop and implement treatment plans targeting physiologic deficits identified on assessment.	4	2
16. I can document response to treatment using objective and measurable data collection systems.	3	1
17. I can adjust treatment plans, content, and delivery to the level of the person being educated, counselled, or trained.	4	1
18. I can describe best practices for providing interventions when complicated and/or special medical conditions are seen, which may have an impact on an individual's feeding and swallowing.	4	2

Focus Group Results

The following data represents the responses of participants obtained from the focus group session. The results are reflective of both field notes and a transcript. The transcript was verified and approved by the participants prior to analysis.

Readiness for Implementation

SLPs believe they are ready to implement a DR decision-making framework. Generally speaking, SLPs reported that they are confident in their current knowledge and skillset to meet

the goals of the intervention. SLPs indicated that they have strong, supportive leadership within their organization. Furthermore, SLPs also perceive that there is a need for change, for them and their clients, and they are interested in learning more about what the decision-making framework can offer. This readiness, at the stakeholder level, is captured in more detail during the discussion on ‘facilitators to implementation’.

Analysis of Barriers and Facilitators

Major themes were identified and derived using the CFIR constructs. Additionally, several sub-themes were established inductively, outside of the CFIR constructs. Themes were categorized as either barriers or facilitators, although there was some overlap across constructs. Specifically, overlap occurred within the ‘Patient Needs and Resources’, ‘Available Resources’, and ‘Access to Knowledge and Information’ constructs. These themes and sub-themes are listed in Table 7 and then elaborated on in the following sections.

Table 7. Themes and Sub-Themes.

	Theme	Sub-Theme
Barriers	Patient Needs and Resources	Confusion; frailty; other comorbidities; ability to understand; special populations; spontaneous recovery
	Available Resources	Time/caseload constraints; staffing; ease of access to MBS; providing treatment packages without follow-up

	Access to Knowledge and Information	Limited knowledge on DR; lack of supporting research evidence
	Relative Priority	HSNS new consult policy; bigger focus on assessment; communication therapy; administrative work
	Reflecting and Evaluating	Client response to treatment is subjective and based on staff report
Facilitators	Patient Needs and Resources	Client desire for intensive treatment
	Culture	Philosophy of person-centered care; drive to go above and beyond; drive to stay on top of the literature; learning and trying new techniques; prioritizing clients with severe dysphagia
	Leadership Engagement	Leadership and managerial support
	Available Resources	CDTs or other support people overseeing and supporting treatment

Access to Knowledge and Information	Swallow physiology
Tension for Change	Desire for standardized protocols; enhancing other team member understanding of treatment decisions
Self-Efficacy	Clinician self-efficacy

Barriers to Implementation

During the focus group, several barriers were identified. These barriers will be important to address when thinking about the long-term uptake and sustainability of a DR decision-making framework. Barriers were reported within five CFIR constructs/sub-constructs.

Patient Needs and Resources. During the focus group, SLPs reported having several clients who are confused, frail, and/or have various other comorbidities (e.g., cardiac complexities) on their caseload. Additionally, some SLPs reported working with clients with head and neck cancer, intellectual disability, clients who are tube-fed, have cognitive deficits, cerebral palsy, and/or physical disabilities. These physical and cognitive-related factors can impact client ability to understand instructions and/or their ability to properly execute the actions associated with some of the DR strategies, particularly in the acute stage of their recovery.

For example, SLPs reported that the Mendelsohn Maneuver can often be too difficult for clients to perform where it “forces the person to manipulate and think about the movements [which can be] challenging...” (Participant 4). The Shaker Exercise is another DR strategy that poses difficulty for some clients since “[they] have to lay flat for [it and] a lot of our patients are

tube-fed and can't lay flat, or... they're too frail" (Participant 5). SLPs, however, did not seem to be aware that the Shaker Exercise can be performed reclined in a chair.

Upon review of the transcript, an additional sub-theme was revealed by Participants 1 and 5. These SLPs mentioned that DR is not always implemented because "...many of [their] acutely ill patients spontaneously recover, and [do not] require rehab" (Participants 1 and 5).

Collectively, all these factors influence how SLPs use their clinical judgement to determine whether DR is appropriate for their clients.

Available Resources. Perhaps the most prominent barrier SLPs acknowledged was the lack of time and low staffing levels. Currently, this is an issue that is present across a variety of workplaces and health professions (Alatawi et al., 2020; Heiwe et al., 2011; Weng et al., 2013; Baatiema et al., 2017). SLPs reported that there is simply not enough time or manpower to design, deliver, and oversee DR treatment.

As some means of compensation, SLPs have shifted their focus to designing and delivering treatment packages pertaining to DR, when appropriate. SLPs, however, were quick to say that this is not a perfect solution since it often leaves clients to complete the exercises independently. This puts clients at a disadvantage because follow-up sessions are rare, resulting in the client's rehabilitation not being followed closely. Additionally, this attempt to compensate necessitates the need for SLPs to set realistic expectations, so they do not "[set] the bar too high with [their] time and what [they] can actually offer" (Participant 4). As Participant 4 stated and reiterated, "[We] don't want to overpromise and underdeliver".

Poor ease of access to MBS equipment was also a reported issue. This was especially noted among the SLPs who work at more rural sites. For example, Participant 3 stated that at their site, "[Some patients may be able to go elsewhere to get an outpatient MBS] if it's really

recommended, but since [I've] been [at this site, I] haven't sent anyone for an MBS in...8 months, so [I] don't think it happens." Since many DR strategies must be trialed under instrumental assessment first, this significantly reduces the ability of some clinicians to provide appropriate DR recommendations.

Access to Knowledge and Information. In this study, some SLPs reported having limited knowledge about DR, specifically as it relates to certain populations. This was indicated by Participant 3 who stated, "[I] haven't found a huge amount of research on [dysphagia and intellectual disability] and rehab exercises, so... that limits the amount of treatment [I] do". This challenge was reportedly further compounded by the overall lack of supporting DR evidence available in the literature. As stated by Participant 4, "... it is difficult to wade through the research and to [read one paper and find that CTAR is best]. You read the other paper and it sucks..., you go to one talk... and nothing works except a certain approach... It is very confusing what to do." SLPs reported that these two factors make designing treatment packages difficult, especially when it comes to determining treatment dosage. This complicates using evidence-based DR since EBP involves clinician expertise, the best available research, and client characteristics.

It should not go unnoticed that this theme is closely related to 'available resources.' Despite this, it was the decision of the student researcher to keep these themes separate. The construct 'available resources' focuses more on the actual resources that are needed to support on-going implementation (e.g., money, training, time). In contrast, the construct 'access to knowledge and information' relates more to the ease with which people can easily and directly access digestible information. The problems identified within this section pertain to how the literature on DR is sparse or inconsistent, making it difficult for clinicians to easily find sources

that support their use. Therefore, it is less of a training and educative barrier and more about the difficulty accessing the evidence that is needed to justify the implementation of certain DR strategies. As such, keeping these two themes separate is appropriate.

Relative Priority. The presence of competing priorities were also major barriers that SLPs reported. In conjunction with time and staffing constraints, SLPs are faced with numerous other tasks – some of which take priority over implementing DR. For example, Participant 4 reported that HSNS has a policy stating that SLPs must address and assess new consults within 48 hours. Currently, “there’s no standard in regards to treatment, [either] communication [or] dysphagia” (Participant 4). As a result, “... communication therapy [also becomes] a major competing demand” (Participant 1). It is possible that this priority may be influenced by the role of CDTs, who are often responsible for planning and leading the bulk of communication and dysphagia treatment (SAC, n.d.).

Furthermore, SLPs indicated that administrative work is a significant competing demand. As reported by Participant 4, “there’s a lack of administrative support right now widespread across [our region], so SLPs are doing a lot of non-clinical tasks”. In turn, SLPs are having to prioritize administrative work (e.g., registering patients, making photocopies) which takes time away from providing direct client services.

Reflecting and Evaluating. When DR is implemented, SLPs reported a barrier being their ability to document response to treatment using objective and measurable data collection systems. Particularly of note, all SLPs either reported or agreed that they do not collect any data after implementing DR. Participant 1 suggested that this was “...because [their] patients are independently doing the exercises, [therefore, they’re] not really collecting any data.”

In contrast, some SLPs reported that they attempt to document response to treatment.

However, rather than using objective outcome measures, their treatment outcomes are documented based on subjective client responses and/or staff report. This was the case for Participant 3 where they stated, “I’m not always there during mealtimes... and I don’t have MBS at this site, so I don’t have the objective before and afters.” As such, it became clear that this barrier was predominately a result of time constraints, low staffing, and for some, lack of access to MBS equipment. It is, however, worth noting that the finding could also relate to a weaker competency level in this skill since survey responses revealed that all clinicians either disagreed or neither agreed nor disagreed with their ability to perform this clinical task. It remains unclear whether SLPs believe they are competent in this skill under ideal circumstances.

Facilitators to Implementation

Despite the barriers that were identified, SLPs did report multiple facilitators. This is positive as they represent factors that could be capitalized and built upon moving forward. Facilitators were reported within seven CFIR constructs/sub-constructs.

Patient Needs and Resources. Although this construct was previously identified as a barrier to implementation, it is also considered a facilitator. SLPs reported that their clients sometimes ask and advocate for more intensive treatment. This motivation manifests in different ways but according to Participant 4, many “... patients [print] things off from the Internet or [share] YouTube videos...” and are curious to know whether it will benefit them.

Culture. Organizational norms and values were identified as a facilitator. HSNS has a philosophy that emphasizes the importance of person-centred care. This philosophy has become even more important now that “... We’re moving [away] from a generation of people who just did what the doctors told them... [to a] younger generation of people [who] are more directly involved in their recovery process and their care...” (Participant 5). With that in mind, SLPs

reported that they consistently strive to go above and beyond for their clients while keeping realistic expectations in mind. SLPs also acknowledged that they do their best to stay up to date on research findings and do their best to learn and try new techniques when possible. This concept of being a life-long learner is widely recognized as part of the responsibility of an SLP (SAC, n.d.; ASHA, n.d.).

Organizations may also differ in how they prioritize clients. In keeping with HSNS' organizational culture, one SLP lent insight into how they determine which clients get priority. Specifically, Participant 4 shared that they "...prioritize based on the acuity or how severe the dysphagia is... but also patient motivation and what they're asking for."

Leadership Engagement. In this study, SLPs indicated that they have strong leadership within their organization. As stated by Participant 5, "... I, myself, have a very supportive manager who definitely listens and helps us navigate our way through implementing new things." This was a sentiment echoed by most other SLPs. To add to this discussion, Participant 5 also acknowledged that "...we're really fortunate [that] Hearing and Speech has great support for continuing education. They're always open to hearing new research [and] new ideas." These are all positive factors that contribute to a safe learning climate where clinicians feel supported and valued in the change process – a critical component that impacts successful adoption of the intervention, especially in the early stages (Damschroder et al., 2009).

Despite this, it is important to note that strong, supportive leadership can be manager dependent. This was mentioned by Participant 3 who noted that managers without a speech-language pathology background may not be as receptive to change and new ideas and claimed that "...more education around dysphagia... would be beneficial, so they know what I was trying to do, or what was going on, and [what] new research [is saying]". Education surrounding these

initiatives will be imperative to help drive change, so that all team members share a common understanding of its intent and objectives. Doing so will promote interprofessional communication and collaboration which is integral to providing strong service delivery and oftentimes, improved outcomes (Reeves et al., 2017).

Available Resources. Although SLP staffing tends to be limited, some hospitals have one or more CDTs in the facility. CDTs have a supportive role where they provide multiple clinical services under the supervision of an SLP. One of these services include leading and following-up on treatment sessions (SAC, n.d.). As such, SLPs reported that having CDTs or other professionals (e.g., recreational therapy assistants) on hand are helpful in implementing and supporting their DR efforts.

Access to Knowledge and Information. As previously noted, not all hospitals have easy access to MBS equipment. However, when MBS technology is readily available, it acts as a facilitator to implementing DR. Having access to MBS equipment allows clinicians to observe the flow of a bolus or liquid as it moves through the oropharynx and hypopharynx and identify the nature and level of the impairment (Logemann, 1998). An MBS also allows SLPs to trial DR strategies, that are specific to the impairment, to see if they have a positive impact on swallow physiology. Therefore, having access to this imaging equipment ultimately provides access to client information that is pertinent for informing treatment decisions.

Tension for Change. SLPs indicated that there is a push for an initiative, like a DR decision-making framework, within their organization. Perhaps the biggest reason being the desire for standardized protocols. SLPs acknowledged that the attitudes, beliefs, and practice patterns surrounding DR can vary widely across the province and as a result, treatment opportunities vary between sites. To put that into perspective, Participant 4 stated that, “From a

few clinicians, [they've heard] things like, 'I don't do dysphagia rehab' or 'we don't do things like that at my site'". While Participant 4 recognizes that there will always be variation and differences in clinical judgement, they continue to say that "...[they] don't think that it's necessarily very reasonable that someone who really wants special treatment [will get] a drastically different set of options [at one place] compared to elsewhere."

The issue is further compounded by the fact that rural clinicians often have more diverse caseloads which can make it difficult to stay on top of all the literature. As mentioned by Participant 5, "...there's no way that they can possibly keep up on everything." SLPs feel that this is a disservice to clients, and that having standardized protocols could be a good resource for both rural and more specialized, urban clinicians. Since time constraints are a major barrier to implementing DR, this idea of having standardized information readily available and accessible as two benefits. It could reduce clinician burden of having to search through the literature, and it also has the potential to greatly change and improve practice patterns.

An additional reason why SLPs believe there is a need for the intervention includes the impact it could have on the knowledge and awareness of their non-SLP counterparts. Similar to what Participant 3 stated earlier, SLPs believe that enhancing team member understanding would help facilitate an appreciation for their treatment decisions, as well as improve the quality of care their clients receive. For example, when SLPs are not in hospital, other team members could learn to identify clients who would benefit from a specific treatment or protocol and could then, share that information with the SLP. This was explicitly suggested by Participant 2 who stated that, "... we use a Between Meal Water Protocol. [There is an algorithm] to decide if a client is a good candidate for [the] protocol and I feel like if it's clearly laid out in that format, then team members can [better] understand why someone might be a good candidate for something... For

us, the dietitian is often not the person ever delivering the treatment, but they're the touch point person. Like I'm not even working at the hospital. I'm just there on Tuesday and Thursday mornings, so clients may have questions and then [the dietitian] might have a better way to answer those questions or to relay information to me.” This idea of increasing the knowledge and awareness of non-SLP work colleagues is especially important in Nova Scotia where SLPs typically work as part of a dysphagia team, with close collaboration with dietitians.

Self-Efficacy. The last facilitator that was revealed during the focus group was the level of confidence SLPs expressed in their ability to implement the intervention in the near future. SLPs believe that they, and their co-workers, have the knowledge and skillset to use the DR decision-making framework. However, they reported that their confidence wavers when they compare what they can do under ideal circumstances versus in a realistic work setting. It goes back to the “logistical barriers and [whether there is] enough staff to do [it]” (Participant 4). This is a common problem and one that contributes to the ongoing issue of translating research knowledge into routine clinical practice.

Movement in the Data

To determine whether SLP responses were consistent between the survey and focus group, the two datasets were compared. Generally speaking, the results converged indicating that SLP responses on the survey aligned with their reports during the focus group. This convergence is captured in Table 8 which links survey items to specific focus group themes and sub-themes.

Having said that, there was one instance of divergence. Specifically, the barrier associated with ‘access to knowledge and information’. During the focus group, some SLPs reported having limited knowledge about DR and/or felt unsupported by the lack of evidence for

certain rehabilitative treatments in the literature. In contrast, survey results revealed that SLPs agreed with the statements pertaining to their ability to implement EBP into client care, and their ability to implement rehabilitative treatment specific to physiologic deficits. This small discrepancy may be useful for informing future practice guidelines, training, and resources related to dysphagia management.

Table 8. Convergence and Divergence Between the Datasets

CFIR Construct	Convergence or Divergence	Quantitative Data	Qualitative Data
Barriers			
Patient Needs and Resources	Convergence	Knowing when assessment and treatment are inappropriate; identifying best practices for complex conditions	Confusion; frailty; other comorbidities; ability to understand; special populations; spontaneous recovery
Available Resources	Convergence	In an 8-hour workday, time spent implementing DR is typically less than an hour	Time/staffing constraints; ease of access to MBS; providing treatment packages without follow-up
Access to Knowledge and Information	Divergence	Variable use of DR strategies, but can describe and integrate	Limited knowledge on DR; lack of

		evidence-based practice and provide rehab treatments that target physiologic deficits	supporting research evidence
Relative priority	Convergence	4-6 hours managing dysphagia but less than one hour implementing DR	New consult policies; bigger focus on assessment; communication therapy; administrative work
Reflecting and evaluating	Convergence	Neutral reports associated with ability to document response to treatment using objective outcome measures	Client response to treatment is subjective and based on staff report
Facilitators			
Patient Needs and Resources	Convergence	Can adapt plan of care to client preferences and adjust treatment to the level of the level if the client being trained	Client desire for intensive treatment
Culture	Convergence	MBSImP training (completed or in-	Philosophy of person-centered care; drive

		progress); some SLPs previously participated in other specialized courses on dysphagia assessment and/or management	to go above and beyond and stay on top of the literature; learning and trying new techniques; prioritizing clients with severe dysphagia
Leadership Engagement	N/A		Support from organizational managers
Available Resources	Convergence	Can educate non-SLP co-workers on findings and recommendations	CDTs or other support people overseeing and supporting treatment
Access to Knowledge and Information	Convergence	Can develop and implement treatment based on physiologic deficits	Swallow physiology
Tension for change	Convergence	Can educate non-SLP co-workers on findings and recommendations	Desire for standardized protocols; enhancing other team member understanding of treatment decisions

Self-Efficacy	Convergence	Confident in all areas assessed, except documenting response to treatment	Clinician self- efficacy
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CHAPTER 4: DISCUSSION

This study explored current SLP DR practice patterns and SLP readiness for the implementation of a DR decision-making framework. To address these objectives, three research questions were developed and explored. The findings associated with each question are outlined and discussed in the following sections.

Research Question 1: What are the current DR practice patterns of SLPs?

Findings from this study indicated that despite high dysphagia caseloads, SLPs are not routinely using evidence-based DR. These results were evident in the demographic questions where SLPs reported having at least 11-15 clients with dysphagia on their caseload per month but oftentimes, spend less than one hour in a typical 8-hour workday implementing DR. The finding was also threaded throughout the focus group where SLPs indicated that several other priorities (e.g., assessment, administrative work) rank higher on their task list. Both quantitative and qualitative results are comparable to those reported by Carnaby and Harenburg (2013) who found that only 19% of their participating SLPs used DR as their primary intervention.

Potential reasons for these findings are numerous. For one, client-related factors (construct: ‘patient needs and resources’) are significant determinants when deciding whether DR is appropriate or even needed. According to Félix-Lusterman and colleagues (2021), many DR strategies are complex, physically demanding, and require a great deal of concentration. For example, the Mendelsohn Maneuver requires clients to stop and hold the swallow at peak laryngeal elevation with the purpose of increasing the width or duration of UES opening (Félix-Lusterman et al., 2021). This can be challenging for clinicians to teach, as well as for clients to perform, even when healthy – in this case, meaning the non-neurogenic population (Félix-Lusterman et al., 2021).

Additionally, the Shaker/Head-Lift Exercise involves clients lying flat on the ground, lifting their head to look at their toes, and holding that position for 30 seconds to increase UES opening (Félix-Lusterman et al., 2021). This can be difficult for clients who are frail or easily fatigued, as indicated by the participating SLPs. Furthermore, sometimes swallowing function simply improves without any treatment – a concept known as spontaneous recovery (Cramer, 2008). Implementing DR may also continue to be inappropriate in the later stages of recovery due to persisting cognitive deficits. Unfortunately, none of the existing standardized cognitive measures can determine a person’s ability to participate in DR consistently. However, by using a dynamic process, it may be possible to use visual cues or spaced retrieval training to support clients with cognitive impairment in participating in DR programs. This was suggested by Benigas and Bourgeois (2016) who found that spaced retrieval training, with visual aids, was effective in helping people with memory deficits recall their safe swallowing strategies.

Consistent with other implementation studies (Warner et al., 2018; Robins et al., 2013; Ward et al., 2021), having a lack of available resources (construct: ‘available resources’), such as time, staffing, and access to materials, are driving factors associated with the inconsistent use of evidence-based DR. The issue of time and staffing will be discussed within the third research question, but the reality of having limited access to MBS equipment will be discussed here. Limited access to MBS may be particularly noteworthy in rural communities where both human and material resources are often limited (Couper, 2003). Bearing that in mind, some rural hospitals do not have an MBS onsite. Moreover, many clients with symptoms of dysphagia may not even be able to go to other hospitals for an MBS. This was the case for one of the participating SLPs who reported that it is possible to refer clients for an MBS if it is really recommended, but it does not happen often. Since instrumental assessment is vital for

implementing DR, not having access to MBS equipment and evaluation time limits the potential for rehabilitation that SLPs can offer.

Anecdotally, reports in this province further indicate that depending on the location, most MBS assessments tend to be conducted on outpatients. These clients receive referrals for an MBS from their family physician, typically for complaints such as “feeling like something is stuck in their throat”, or “choking on food or drink”. On objective assessment, many of these individuals end up presenting with normal swallow physiology (no aspiration or penetration, minimal-to-no oral or pharyngeal residue). This suggests that referrals for an MBS, in some ways, have become a first step to any swallowing difficulty. Consequently, this means that the existing resources are being used for inappropriate referrals rather than for treatment planning. As such, more education on when an MBS is indicated should be provided to the interprofessional team, including family physicians. Doing so will increase the availability of site resources and prevent clients from having unnecessary procedures.

Based on the literature review from the present study, it is also unsurprising that SLPs may not routinely use evidence-based DR due to a lack of knowledge about DR and/or lack of supporting evidence on DR treatments (construct: ‘access to knowledge and information’). As found by Suiter and Easterling (2007), much of the current research focuses on trialing DR outcomes on healthy individuals, rather than on neurogenic populations or special populations such as those living with physical or intellectual disability. Many clinicians encounter clients living with these comorbidities. Therefore, it is reasonable that SLPs have difficulty navigating the literature on rehabilitative treatment for these clients. This, however, has resulted in either providing therapies that are not individualized for the client (Plowman & Humbert, 2018) or avoiding the use of DR altogether (Pasupathy & Bogschutz 2013) – the latter seemingly being

more common based on participant reports. This, in part, could be because clinicians are trained to provide a service only if they are competent in doing so (ASHA, n.d.; SAC n.d.).

Lastly, this study found that facility policies can be tricky to navigate when it comes to prioritizing certain tasks over others (construct: 'relative priority'). This finding is consistent with the work from Damschroder and colleagues (2009) who described the role of competing priorities on implementation efforts. Participant responses were also supported by O'Connor & Pettigrew (2009) who stated that EBP is often seen as a low management priority. For example, it is difficult for SLPs to implement and oversee evidence-based DR when their facility policy dictates prioritizing assessment over treatment. Equally, it is challenging to provide any direct client services when administrative work continues to build over time. This can lead to high levels of stress and burnout (Edgar & Rosa-Lugo, 2007) and contributes to taking a clinician's attention away from direct client services to finishing more mundane, but important, tasks.

Before moving onto research question two, it is important to remember that although the SLPs in this study are not routinely using evidence-based DR, they are providing DR when they can – either themselves or with the help of CDTs. Likewise, it is relevant to note that none of the SLPs indicated that they had difficulty identifying physiologic deficits on instrumental assessment. This result differs from that of Plowman and Humbert (2018) who found that their participants had difficulty differentiating normal from disordered swallowing on MBS. More consistent with the existing literature, however, was that SLPs were inconsistent in their responses surrounding their ability to individualize DR for specific physiologic deficits. These results are similar to those described by Carnaby and Harenburg (2013) who found that their participants commonly provided treatment that was not entirely specific to their client's impairment. This suggests that SLP current DR practice patterns are not solely influenced by a

lack of knowledge and/or education, but also influenced by client and facility-related factors.

Research Question 2: Are SLPs ready for the implementation of a DR decision-making framework?

Overall, SLPs believe they are ready to implement a DR decision-making framework. SLPs reported that they believe they have the knowledge and skillset to meet the goals of the intervention. SLPs also perceive that there is a need for change, for them and their clients, and are interested in learning more about what the decision-making framework can offer. Knowing that there is a growing demand for DR, it will be important for SLPs to consider using the DR decision-making framework as a tool to help meet the unique needs and preferences of their clients. Meeting these needs will help clinicians build and strengthen their existing therapeutic rapport and guide them in the provision of person-centered care – a growing phenomenon that identifies and uses client preferences to guide all aspects of care (The American Geriatrics Society Expert Panel on Person-Centered Care, 2016). Strong managerial support for implementation was also acknowledged among most of the participants. All findings are positive facilitators and align with Damschroder and colleague's (2009) construct of 'self-efficacy' and sub-constructs of 'tension for change' and 'leadership engagement'.

To discuss the theme of 'tension for change' in greater depth, one main reason why SLPs believe that a DR decision-making framework will be useful for their practice is because they hope that the initiative will help standardize DR protocols across the province, including those pertaining to exercise dosage. According to Wasfy and Baggish (2016), exercise dosage is a term that is characterized by duration, frequency, and intensity and it is a key component needed for implementing DR due to the principles of motor learning (Bislick et al., 2012; Maas et al., 2008). Without this information, it can be challenging to determine how dosage might affect treatment

outcomes (Wasfy & Baggish, 2016). It also means that clinicians are forced to rely on their own expertise and clinical judgement when making these decisions. To some extent, a clinician's own judgement is needed, since each client is unique and has their own goals and set of abilities (Wasfy & Baggish, 2016). However, placing too much of that decision-making onto clinicians can result in reduced confidence when designing and implementing DR, especially given the overall research gap on DR. This in turn, can negatively impact clinical performance (Caesar & Kitila, 2020).

The issue of identifying a standardized exercise dosage is not uncommon in the rehabilitative literature of other professions. Similar to SLPs, physiotherapists use exercise to restore movement and function following injury, illness, or disease, but they also lack clarity when it comes to optimal dosing. This was exemplified by Young and colleagues (2018) who conducted a systematic review on the influence of exercise dosing on outcomes in patients with knee disorders. In their study, the researchers gathered a series of studies containing information about dosage relating to knee osteoarthritis, patellar tendinopathy, and patellofemoral pain. Using effect size to identify what dosage leads to improved outcomes, Young and colleagues (2018) discovered that 24 therapy sessions and 8-12-weeks of exercise were associated with large effects, whereas exercising once per week had no effect. No obvious trends were identified for patellar tendinopathy and patellofemoral pain.

In the SLP scope of practice, Krekeler and colleagues (2021) conducted a scoping review to provide an existing record of frequently used doses by clinicians. Overall, the results were variable. Frequency (the number of sets per day or session) was dependent on the exercise. Repetitions (the number of actions performed within a given set) were reportedly anywhere from 1-120 repetitions per day. Duration (the total length of the exercise regimen) was found to be as

short as four weeks or as long as one year, and finally, intensity (referring to the effort exerted during one repetition) involved measures of force, movement duration, or verbally specifying “as hard as possible”. It is true that some exercises doses are more consistent. For instance, lingual strengthening typically involves 3 sets of 10 repetitions, 7 days/week and EMST typically involves 5 sets of 5 repetitions, 5 days/week for 5 weeks, and performed at 60-75% intensity. However, in general, the findings identified by Young and colleagues (2018) and Krekeler and colleagues (2021) reiterate a need for more dosage information across health domains.

A second reason why SLPs believe they are ready for this initiative surrounds the benefits it could offer to their clients, in addition to their non-SLP work colleagues. Within the past few years, there has been a trend in which clients are beginning to take more control over their health decisions and recovery. This idea is encompassed within the term “person-centered care” (The American Geriatrics Society Expert Panel on Person-Centered Care, 2016). As a result, clients are pushing for active rehabilitation over more compensatory treatments, like TMDs and thickened liquids. This, however, is a specialty area for SLPs compared to other health professionals who are involved in dysphagia management, like dietitians. Given the recent push for interprofessional collaboration, Dondorf and colleagues (2016) argue that it is important for nurses, dietitians, and other point-in-touch team members to better understand how SLPs may be able to further support clients with their dysphagia symptoms. Doing so will help non-SLP professionals more appropriately respond to questions or refer their clients to SLPs, as needed, when the SLP is busy or providing services in other locations.

Research Question 3: What are the perceived barriers and facilitators believed to be associated with the DR decision-making framework?

Many of the facilitators were addressed within the second research question (constructs:

‘patient needs and resources’, ‘culture’, ‘leadership engagement’, ‘tension for change’, ‘self-efficacy’). Additional facilitators related to the sub-constructs ‘available resources’ and ‘access to knowledge and information’ were identified and are likely to help facilitate implementation. For example, given their supportive role, CDTs have the potential to offload some of the work from the SLP (SAC, n.d.). This may look different depending on the facility, but oftentimes CDTs have a significant role in leading treatment sessions, following up with clients, and preparing materials for home practice (SAC, n.d.). These are all tasks that may be less of a priority for SLPs due to work policies that emphasize a greater need for assessment.

Likewise, when SLPs are fortunate enough to have an MBS at their site, they ultimately gain access to client information that is essential for informing treatment decisions. With this equipment, SLPs can better understand the nature of impairment and from there, they can trial DR strategies and troubleshoot as needed. Doing so could provide clients with something tangible to take home and practice, rather than suggesting what they should and should not eat. This may better serve their clients since many people report disliking TMDs (Logemann et al., 2008) and the fact that TMDs can also increase risk for malnutrition (Vucea et al., 2018). As such, having access to MBS technology will open doors for implementing DR, while having CDTs in the vicinity will be an incentive for SLPs to introduce evidence-based DR, without putting extra demands on their caseloads.

In terms of the perceived barriers, many of them were discussed within the first research question (constructs: ‘patient needs and resources’, ‘access to knowledge and information’, ‘relative priority’). However, it is worth acknowledging that low staffing and time constraints (construct: ‘available resources’) were the most noteworthy. In fact, time and staffing constraints were integrated within most other barriers such as the impact of competing priorities and lack of

follow-up, reflection, and evaluation after introducing DR strategies. These results are consistent with demographic findings which found that most SLPs spend less than an hour implementing DR to their clients. It also matches focus group reports of infrequent documentation of response to treatment, as well as lower scores on that item on the modified DCVT survey.

Time and staffing constraints appear to be a widespread problem across healthcare professions. For instance, Alatawi and colleagues (2020) conducted a literature review to investigate barriers to implementing EBP in nursing. Across 12 studies, the researchers found both individual and organizational barriers to implementing EBP. Most notably, four organizational barriers were identified and related to (a) lack of support and supervision, (b) lack of training and education, (c) limited resources, and (d) time restriction. Within these major barriers, workload, shortage of nursing staff, and insufficient time to read and keep up on research, on top of providing direct client services based on EBP, were highlighted. Time and staffing constraints were also reported among a variety of other allied health professionals including, but not limited to, physicians, physiotherapists, occupational therapists, and dietitians (Heiwe et al., 2011; Weng et al., 2013; Baatiema et al., 2017).

Specific to SLPs, lack of time was a barrier that was identified by O'Connor and Pettigrew (2009). Using a 29-item, 5-point Likert barriers scale, SLPs across southern Ireland rated the extent to which they believed an item was a barrier to implementing EBP. In their study, the most consistent barrier indicated by SLPs was the lack of time to read research. With moderate consistency, insufficient time to implement new ideas was considered a barrier, and at low consistency, some SLPs further indicated that administrative tasks prevent implementation from occurring. All these results highlight the discrepancy between caseload demands and the time constraints imposed on clinicians. These become even more constrained by low staffing.

SLP Response to Barriers

In response to time and staffing-related barriers, the participating SLPs reported having a means to compensate for the lack of time and low staffing. For instance, designing and preparing treatment packages to leave with clients. The act of providing clients with treatment packages is a good first step, and one that demonstrates that SLPs try to implement DR whenever possible.

Likewise, Patel and colleagues (2017) stated that patient-reported outcome measures (PROMs) are often used to evaluate treatment effectiveness. In the present study, it appears that the participating SLPs do not routinely use reliable and valid PROMs, if at all. Instead, SLPs reported that they obtain reports from the client, family members, or other supportive staff for treatment effects and outcomes. The sole reliance on subjective reports by the client or other people, however, can be problematic without an objective measure to confirm those reports, especially since they have the potential to influence results in clinical studies (Patel et al., 2017). As such, these two forms of compensation are, by no means, perfect solutions.

Potential Solutions and Recommendations

Clearly then, there is a need to mitigate the barriers of time and staffing constraints. Identifying strategies and first steps to address these barriers, however, can be challenging. This was proposed by Manspeaker & Van Lunen (2011) who conducted a study that (a) identified barriers to the implementation of EBP in athletic training education, and (b) suggested ways that the barriers could be overcome. In their study, undergraduate athletic training educators reported some barriers that are comparable to those acknowledged by Alatawi and colleagues (2020) and O'Connor and Pettigrew (2009). For example, lack of time and lack of knowledge and/or quality evidence. Yet, when educators were asked to identify a starting point for how to improve the implementation of EBP into their work processes, there did not appear to be a clear consensus on

what the first steps should be. Some educators suggested starting with a conversation about implementation and what it entails while others argued that a statement from the designated board of certification is needed.

In the context of speech-language pathology, it is likely that similar initiatives would be beneficial. Starting a conversation about implementation objectives could lend insight into early concerns and barriers perceived by stakeholders. This supports the use of the CFIR in the pre-implementation stage (Kirk et al., 2015). Likewise, having the board of certification mandate the use of EBP could be helpful for reiterating the overall importance of EBP to clinicians and potentially, supporting the need for increased funding toward implementation research. For instance, it could act as a push for hybrid studies that concurrently investigate clinical effectiveness and implementation, or even encouraging the publication of a guide that outlines how to apply new research into existing work processes (Lynch et al., 2018). In Canada, this mandate comes from the SAC position paper on the evaluation and intervention for swallowing and feeding disorders across the lifespan (SAC, 2022).

The CFIR Expert Recommendations for Implementing Change (CFIR-ERIC) matching tool may also lend some insight into how to address the various barriers identified within this study (Powell et al., 2015). Developed from survey responses of 169 implementation experts, the CFIR-ERIC matching tool involves a spreadsheet with all the domains and constructs listed. As part of this spreadsheet, the experts provided a description of how each construct might act as a barrier (e.g., the construct of ‘tension for change’ – stakeholders do not feel that their current practices need change, and therefore, they do not believe that there is a need for the intervention). From this list, users mark the barriers they have identified in their own research before clicking the ‘query’ button. From there, the ‘query’ button generates a list of possible

strategies that can target those specific barriers.

This tool is user friendly and even sorts the strategies by cumulative level of endorsement. Strategies that are coded in green indicate higher levels of endorsement and strategies coded in yellow represent lower levels of endorsement (at least 20% of respondents). Strategies without any color code are considered inappropriate for the identified barrier. In this study, five barriers were identified (‘patient needs and resources’, ‘relative priority’, ‘available resources’, ‘access to knowledge and information’, and ‘reflecting and evaluating’). Once inputted into the spreadsheet, the CFIR-ERIC tool generated various strategies (see Table 9).

Table 9. Matching of ERIC Strategies to Barriers (Powell et al., 2015)

Barrier	ERIC Strategy and Level of Endorsement
Patient Needs & Resources	<p data-bbox="824 982 997 1014">Green-coded:</p> <ul data-bbox="873 1041 1414 1297" style="list-style-type: none"> <li data-bbox="873 1041 1414 1129">• Obtain and use patients/consumers and family feedback (76%) <li data-bbox="873 1150 1414 1239">• Involve patients/consumers and family members (71%) <li data-bbox="873 1260 1414 1297">• Conduct local needs assessment (57%) <p data-bbox="824 1373 1013 1404">Yellow-coded:</p> <ul data-bbox="873 1432 1414 1858" style="list-style-type: none"> <li data-bbox="873 1432 1414 1520">• Prepare patients/consumers to be active participants (48%) <li data-bbox="873 1541 1414 1629">• Assess for readiness and identify barriers and facilitators (33%) <li data-bbox="873 1650 1414 1738">• Conduct local consensus discussions (29%) <li data-bbox="873 1759 1414 1848">• Use advisory boards and workgroups (29%)

-
- Intervene with patients/consumers to enhance uptake & adherence (24%)

Relative Priority

Yellow-coded:

- Conduct local consensus discussions (46%)
- Alter incentive/allowance structures (39%)
- Assess for readiness and identify barriers and facilitators (36%)
- Conduct local needs assessment (32%)
- Mandate change (32%)
- Increase demand (29%)

Available Resources

Green-coded:

- Access new funding (78%)

Yellow-coded:

- Change physical structure and equipment (48%)
 - Fund and contract for clinical innovation (39%)
 - Develop resource sharing agreements (26%)
 - Capture and share local knowledge (22%)
 - Use other payment schemes (22%)
 - Make billing easier (22%)
 - Alter patient/consumer fees (22%)
-

Access to Knowledge and Information

Green-coded:

- Conduct educational meetings (79%)
- Develop educational materials (59%)
- Distribute educational materials (55%)

Yellow-coded:

- Create a learning collaborative (45%)
- Conduct ongoing training (38%)
- Capture and share local knowledge (31%)
- Conduct educational outreach visits (28%)
- Identify and prepare champions (24%)
- Provide local technical assistance (24%)

Reflecting and Evaluating

Green-coded:

- Develop and implement tools for quality monitoring (60%)
- Audit and provide feedback (56%)

Yellow-coded:

- Develop and organize quality monitoring systems (40%)
 - Facilitate relay of clinical data to providers (36%)
 - Organize clinician implementation team meetings (28%)
 - Purposely re-examine the implementation (28%)
-

-
- Use data experts (28%)
 - Obtain and use patients/consumers and family feedback (28%)
 - Capture and share local knowledge (24%)
 - Facilitation (20%)
-

Although each proposed strategy has its purpose, some strategies are more applicable to the Nova Scotian context and this specific scenario. Consistent with the points made above, a local consensus meeting would be highly beneficial. Now that the present study has identified some key barriers and facilitators, a discussion to determine first steps to implementation is needed. This discussion should ideally address time and staffing constraints as these were the primary concerns of the participating SLPs.

According to the CFIR-ERIC tool, this means finding ways to access more funding. Increased funding is needed to give the clinicians the resources they need to optimize the use of a DR decision-making framework. Hiring an additional clinician to alleviate caseload constraints while the participating SLPs attempt to fully engage with the intervention may be helpful, but either way, changing the infrastructure will be a critical component of enhancing the success of this intervention. Actions such as these are needed to help minimize the 17-year gap between new research and its routine implementation (Lynch et al., 2018).

As a final recommendation, due to the impact of low, perceived self-efficacy among some clinicians, it is important to consider that various personnel can help change and improve DR practice patterns. First, researchers can help by continuing to conduct well-designed studies to investigate the effectiveness of all DR strategies. When possible, researchers should recruit individuals with swallowing impairment as opposed to healthy individuals, and they should

focus on establishing exercise dosage and standardized DR protocols since this information is lacking in the literature (Krekeler et al., 2021; Félix-Lusterman et al., 2021).

Second, educators could help improve practice patterns through course re-design. Re-design may differ between universities but could include providing a thorough overview of what DR is and what it entails, as well as incorporating problem-based learning – a learning approach that involves students working in small groups to solve case studies, or other open-ended problems (Gwee, 2009). The idea of this approach is to shift the focus away from memorizing information and instead, encourage students to actively engage with the learning process (Gwee, 2009). This helps increase student motivation by highlighting the relevance of problem-solving skills in their routine clinical practice (Frost, 1996).

Lastly, managers at sites where clinicians provide dysphagia services can help improve practice patterns by providing and promoting continuing education opportunities on dysphagia management. Following these opportunities, managers can help support clinicians implement what they learned by creating a safe and supportive learning environment. Ensuring that their employees feel supported is essential for driving feelings of competency which can impact overall task performance (Damschroder et al., 2009).

Limitations

There are several limitations to the present study. One major limitation was the small sample size. A sample size of five SLPs, with three of the five working at the same site, does not necessarily provide a comprehensive view of how SLPs in Nova Scotia manage dysphagia. Recruitment efforts included a recruitment letter that was sent out to all eligible SLPs via email, as well as a presentation at a Provincial HSNS Dysphagia Meeting. It is possible that if clinicians had reduced caseloads, more time, and/or received compensation for the study, recruitment

efforts may have been more successful.

Another limitation was the variation in level of input provided by each clinician during the focus group session. Although all SLPs participated, some SLPs were willing to speak more than others. A possible reason for this could be that some clinicians spoke for their co-workers since they work at the same site all or some of the time. It could also suggest that the quieter participants felt that their feelings and opinions were adequately captured by those who spoke more frequently. Prompting by the moderator was used throughout the focus group as needed and member checking was completed following the session. However, it may have been helpful to prompt a bit further on some occasions when differences between urban and rural sites could potentially be identified.

A further limitation was the inability to use all the CFIR constructs and sub-constructs during the focus group session. Given the 90-minute time constraint, it was impossible to investigate all the constructs. Likewise, SLPs knew very little about the goals and design of the DR decision-making framework at time of this study. This resulted in an even narrower selection of which constructs were appropriate to use and base the questions on. Therefore, although the most relevant constructs were chosen and used for the focus group interview guide, other constructs may have provided additional insight into the extent to which SLPs feel prepared for implementation. That said, it may be beneficial to use the CFIR in a 5-point Likert scale survey first, and then ask participants to build on certain responses during a focus group session.

Future Directions

Results from this study yielded insight into potential areas for future research to focus on. First, clinicians want increased knowledge and understanding of how to treat dysphagia related to reduced laryngeal vestibule closure in clients with cardiac complexities. Some of the strategies

that currently exist, namely the supraglottic and super-supraglottic swallow maneuvers, are not always appropriate since they may result in sudden cardiac death or cardiac arrhythmias (Chaudhuri et al., 2002). Given the risk of penetration and/or aspiration with impaired laryngeal vestibular closure, there is a need for more research at this level of impairment.

Second, research on exercise dosage is extremely limited. Although exercise dosage for tongue strengthening and EMST have been identified, dosage for many other strategies remain unknown. This makes it difficult for clinicians to confidently design and implement DR treatment programs, especially when time is limited. Knowing that self-efficacy is a major factor that determines practice patterns, this is an important area for future researchers to target.

Finally, the use of outcome measures has not translated well into routine clinical practice. Outcome measures are essential for demonstrating the effectiveness of treatment (Pantaleon, 2019). When implemented pre- and post-treatment, they reflect outcomes that are meaningful for the client and can increase compliance to treatment protocols (Deshpande et al., 2011). Without this information, clinicians may have difficulty determining how treatment has affected the client's health over time. SLPs reported that the limited time allotted to follow-up and limited access to MBS impacts their ability to obtain pre- and post-objective outcome measures or use PROMs. As such, additional research to improve the feasibility of using outcome measures on a regular basis would be beneficial.

CHAPTER 5: CONCLUSION

This study identified current DR practice patterns used by SLPs in Nova Scotia and determined their readiness for the implementation of a DR decision-making framework. Results indicated that SLPs implement a variety of DR strategies – the Masako Maneuver and Effortful Swallow being the most used due to their ease of explaining and demonstrating to clients. Findings demonstrated that SLPs are competent in most areas relating to their general knowledge and treatment of feeding and swallowing disorders but highlighted that their ability to document response to treatment is lacking. Furthermore, results found that SLPs are cautiously optimistic and prepared for the future implementation of a DR decision-making framework in their workplace, but they foresee several barriers that may negatively impact their implementation efforts and long-term adoption of the intervention.

Contribution of the Research

There are three ways in which this study can contribute to the existing body of literature. First and foremost, this research has helped address the gap in the literature pertaining to DR practice patterns. Second, findings have lent insight into existing barriers and facilitators that may influence whether a DR decision-making framework will be effective and sustainable in a Canadian setting. Lastly, results have the potential to contribute to future implementation projects by outlining how the CFIR can be used to help bridge the gap between research and clinical practice during the pre-implementation stage.

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Appendix A

Ethical Approval from the Nova Scotia Health Research Ethics Board



Nova Scotia Health Research Ethics Board

Centre for Clinical Research, Room 117
5790 University Avenue
Halifax, Nova Scotia, Canada B3H 1V7
jennifer.macvicar@nshealth.ca

December 20, 2022

Ms. Rebecca Affoo
Health\Human Communication Disorders
Sir Charles Tupper Medical Building
5850 College Street 2nd Floor Room 2C01
Halifax NS B3H 4H7 Canada

Dear Ms. Affoo:

RE: Implementing a Decision-Making Framework for Swallowing Rehabilitation

REB FILE #: 1027426

On behalf of the Nova Scotia Health Research Ethics Board, I have examined the proposed amendment to this research study. I am pleased to confirm the Board's approval of this amendment request, effective December 20, 2022.

The following denotes new items approved with this amendment:

Document Name	Comments	Version Date
Consent Form - paper version	Consent Form	2022/12/05
Research Protocol	Research protocol	2022/12/05
Supporting Materials	Updated Survey Instrument	2022/12/05

Sincerely,



Dr. Chris MacKnight, Executive Chair

Appendix B

Informed Consent Form



Page 1 of 8

Consent Form

STUDY TITLE:	Implementing a Decision-Making Framework for Swallowing Rehabilitation
PRINCIPAL INVESTIGATOR:	Rebecca H. Affoo, Ph.D., CCC-SLP, SLP-Reg, SLP(C) Assistant Professor, School of Communication Sciences and Disorders, Faculty of Health, Dalhousie University, Sir Charles Tupper Medical Building, 5850 College St. 2 nd Floor RM 2C01, Halifax NS, B3H 4H7, Canada Phone: (902) 494-5154 Email: rebecca.affoo@dal.ca
SUPERVISING INVESTIGATOR	Suzanne Salsman, MD, MSc, FRCPC Research Director for Division of Physical Medicine and Rehabilitation, NSH Assistant Professor, Division of Physical Medicine and Rehabilitation, Department of Medicine, Dalhousie University Rm 214, 1341 Summer Street, Halifax, NS B3H 4K4 Phone: (902) 473-1238 Email: Suzanne.salsmann@nshealth.ca
THESIS STUDENT	Hailey Brien, BSc Master's Thesis Student, School of Communication Sciences and Disorders, Dalhousie University, Sir Charles Tupper Medical Building, 5850 College St. 2 nd Floor, Halifax NS, B3H 4H7, Canada Email: h1947247@dal.ca

1. Introduction

You have been invited to take part in a research study. A research study is a way of gathering information on a treatment, procedure, or medical device or to answer a question about something that is not well understood. Taking part in this study is voluntary. It is up to you to decide whether to be in the study or not. Before you decide, you need to understand what the study is for, what risks you might take and what benefits you might receive. This consent form explains the study.

The research team will tell you if there are any study timelines for making your decision.



Please ask the research team to clarify anything you do not understand or would like to know more about. Make sure all your questions are answered to your satisfaction before deciding whether to participate in this research study.

The researchers will:

- Discuss the study with you
- Answer your questions
- Be available during the study to deal with problems and answer questions

You are being asked to consider participating in this study because you are a speech-language pathologist or SLP assistant who provides dysphagia services to patients in Nova Scotia, Canada. You are also being asked to consider participating if you previously provided dysphagia services to your patients, and now do not, so long as this change occurred within one year.

If you decide not to take part or if you leave the study early, your employment evaluations will not be affected.

2. Why is there a need for this study?

Dysphagia (swallowing impairment) is a serious health condition that is characterized by disordered transportation of food, fluid, and saliva from the mouth to the stomach. Dysphagia is a symptom of many diseases and injury processes and is especially common in older adults. Treatment for dysphagia can include surgical, pharmacologic, and behavioural interventions. However, since speech-language pathologists (SLPs) are typically the primary medical provider for swallowing impairments, behavioural interventions are often used. These SLP-led interventions can include compensatory approaches, eating and swallowing strategies, and rehabilitative interventions.

Dysphagia rehabilitation (DR) is known to be effective in improving the strength and coordination of muscles involved in the swallowing process. In fact, DR can lead to long-term improvements in swallow function and help minimize risk of acquiring dysphagia-related morbidities. Despite these benefits, studies have revealed that many SLPs frequently use DR techniques that are not appropriate for a client's specific symptoms and swallowing impairments and/or use treatments that are not supported by evidence.

Introducing a decision-making framework may, therefore, be useful in guiding and improving SLP confidence and practice patterns. This was suggested by a recent study in the United States where results indicated that the use of a DR decision-making framework led to improved clinician competence and confidence in managing dysphagia symptoms. Still, little is known about the effectiveness of a DR decision-making framework, let alone in Canada. Therefore, prior to implementing a DR decision-making framework in a Canadian setting, it is important to assess the relevant client, clinician, and organization factors that may facilitate, or impede, the successful adoption of this initiative.

As such, the goals of this study are to:

1. Explore the current practice patterns of speech-language pathologists (SLPs) providing dysphagia rehabilitation (DR) in Nova Scotia.
2. Explore whether SLPs are ready for the implementation of a DR decision-making framework.



3. How Long Will I Be In The Study?

The length of this study for participants is *110 minutes (20 minutes for the survey and 90 minutes for the focus group session)*. The results should be known in less than one year.

4. How Many People Will Take Part In This Study?

It is anticipated that no more than 32 clinicians will participate in this study throughout Nova Scotia, Canada.

5. How Is The Study Being Done?

To explore current SLP DR practice patterns, you will be asked to complete a modified version of the Dysphagia Competency Verification Tool (DCVT) survey which will take approximately 20 minutes to complete. Following survey completion, you may also be asked to participate in a single, online focus group session which will take approximately 90 minutes of your time. Focus groups involve a moderator asking questions to a small group of people with the intention of exploring attitudes, experiences, and area of consensus. In the present study, the focus group will be used to explore SLP readiness for implementation of a DR decision-making framework.

The survey will contain questions about your general knowledge and treatment of swallowing and feeding disorders. There are also some demographic questions pertaining to gender, age, workplace setting, years of experience, type of clientele, number of clients with dysphagia in a typical caseload, average number of hours spent managing dysphagia, average number of hours spent implementing DR strategies, type of DR strategies frequently employed, and whether SLPs have participated in a specialized course or training module on dysphagia assessment and treatment. The focus group will allow you to discuss your current knowledge and practice patterns surrounding DR. The focus group will also encourage you to share your thoughts related to having a DR decision-making framework implemented in your routine clinical practice. The focus group will occur on Microsoft Teams and will be audio and video-recorded and stored in a file on OneDrive.

6. What Will Happen If I Take Part In This Study?

If you wish to participate in this study, you must participate in all the activities described above. You must complete the survey and participate in a single, online, audio and video-recorded focus group session if you are asked to do so. If, at any time you no longer wish to participate, you are free to leave the study at any time. You will not need to participate in any study activities if you choose to leave the study.

7. Are There Risks To The Study?

There are potential risks associated with this research:

Due to the nature of collecting survey data and conducting focus groups with a small group of clinicians who all know each other, a potential risk of this project is that we cannot guarantee that your participation in this study will remain confidential. We also cannot guarantee that the information you share will remain confidential or anonymous. It is possible that your fellow participants and your employer may be able to identify you based on the information you share.



We will do everything possible to keep your information confidential including removing all identifying information from information collected from the focus group, contacting you after the focus group to ensure the accuracy of the information that was collected, and publicly sharing only major themes (no direct quotations) collected from the focus group. All names and identifiers will be deleted during the transcription process. Transcription is taking the words and dialogue on the audio tape and writing or typing it word for word. We will also not be disseminating the demographic data related to race, ethnicity, and culture that we collect. Furthermore, you may find the focus group and survey you receive during the course of the study upsetting or distressing. You may feel anxiety, embarrassment, or sadness and you may not like all of the questions that you will be asked. You do not have to answer those questions you find too distressing.

The researchers will use their Dalhousie University credentials for the Microsoft Teams meeting, which will ensure that the Teams meeting recordings are securely stored in Canada. During the live Teams meeting, audio and video content is routed through the United States, and therefore may be subject to monitoring without notice, under the provisions of the US Patriot Act while the meeting is in progress. After the meeting is complete, meeting recordings made by Dalhousie are stored in Canada and are inaccessible to US authorities.

8. Are There Benefits Of Participating In This Study?

Participation in this study may result in improved clinician knowledge of evidence-based dysphagia rehabilitation practices and improved confidence to design and implement dysphagia rehabilitation plans for patients. It could also result in improved health outcomes for patients.

9. What Happens at the End of the Study?

It is anticipated that the results of this study will be published and presented in a variety of forums. In any publication and/or presentation, information will be provided in such a way that you cannot be identified, except with your express permission.

10. What Are My Responsibilities?

As a study participant you will be expected to:

- Follow the directions of the research team
- Complete the survey and participate in a single, online focus group session (as required)
- Report any problems that you experience that you think might be related to participating in the study

11. Can My Participation in this Study End Early?

Yes. If you chose to participate and later change your mind, you can say no and stop the research at any time. If you wish to withdraw your consent, please inform the research team. If you choose to withdraw from this study, your decision will have no effect on your employment and will not affect any work performance evaluations you may have.

Also, the Nova Scotia Health Research Ethics Board and the principal investigator have the right to stop patient recruitment or cancel the study at any time.



Lastly, the principal investigator may decide to remove you from this study without your consent if you do not follow the directions of the research team.

If you are withdrawn from this study, Dr. Affoo will discuss the reasons with you.

12. What About New Information?

You will be told about any other new information that might affect your health, welfare, or willingness to stay in the study and will be asked whether you wish to continue taking part in the study or not.

13. Will It Cost Me Anything?

Participating in this study will not result in added costs to you.

Research Related Injury

If you become ill or injured as a direct result of participating in this study, necessary medical treatment will be available at no additional cost to you. Your signature on this form only indicates that you have understood to your satisfaction the information regarding your participation in the study and agree to participate as a subject. In no way does this waive your legal rights nor release the principal investigator, the research staff, the study sponsor or involved institutions from their legal and professional responsibilities.

14. What About My Privacy and Confidentiality?

Protecting your privacy is an important part of this study. Every effort to protect your privacy will be made. If the results of this study are presented to the public, nobody will be able to tell that you were in the study.

However, complete privacy cannot be guaranteed. For example, the principal investigator may be required by law to allow access to research records. Furthermore, due to the nature of collecting survey data and conducting focus groups with a small group of clinicians who all know each other, a potential risk of this project is that we cannot guarantee that your participation in this study will remain confidential. We also cannot guarantee that the information you share will remain confidential or anonymous. It is possible that your fellow participants and your employer may be able to identify you based on the information you share.

If you decide to participate in this study, the research team will look at your personal health information and collect only the information they need for this study. "Personal health information" is health information about you that could identify you because it includes information such as your;

- Name,
- Address,
- Telephone number



Access to Records

Other people may need to look at your personal health information to check that the information collected for the study is correct and to make sure the study followed the required laws and guidelines. These people might include:

- The Nova Scotia Health Research Ethics Board (NS Health REB) and people working for or with the NS Health REB because they oversee the ethical conduct of research studies within Nova Scotia Health

Use of Your Study Information

Any study data about you that is sent outside of Nova Scotia Health will have a code and will not contain your name or address, or any information that directly identifies you.

De-identified study data may be transferred to:

- Dalhousie University

The research team and the other people listed above will keep the information they see or receive about you confidential, to the extent permitted by applicable laws. Even though the risk of identifying you from the study data is very small, it can never be completely eliminated.

The research team will keep any personal health information about you in a secure and confidential location (OneDrive) for seven years and then destroy it according to NS Health policy. Your personal health information will not be shared with others without your permission. Audio recordings and all other project data will be stored at Dalhousie University.

You have the right to be informed of the results of this study once the entire study is complete.

The REB and people working for or with the REB may also contact you personally for quality assurance purposes.

Your access to records

You have the right to access, review, and request changes to your study data.

15. Declaration of Financial Interest

This study is unfunded. The PI has no vested financial interest in conducting this study.

16. What About Questions or Problems?

For further information about the study, you may call the principal investigator who is the person in charge of this study.

The principal investigator is Rebecca Affoo
Telephone: (902)-494-5154



17. What Are My Rights?

You have the right to all information to help you decide whether or not to participate in this study. You also have the right to ask questions about this study and to have them answered to your satisfaction before you make any decision. You also have the right to ask questions and to receive answers throughout this study. You have the right to withdraw your consent at any time.

If you have questions about your rights as a research participant and/or concerns or complaints about this research study, you can contact

1. The Nova Scotia Health Research Ethics Board Office
 - email: ResearchEthics@nshealth.ca
 - Phone: 902-222-9263



18. Consent Form Signature Page

I have reviewed all of the information in this consent form related to the study called:

Implementing a Decision-Making Framework for Swallowing Rehabilitation

I was given the opportunity to discuss this study. All my questions have been answered to my satisfaction.

This signature on this consent form means that I agree to take part in this study. I understand that I am free to withdraw at any time without affecting my future care.

I agree to audio and video recordings as described in this consent form.

E-messaging (email and texting) can be used by a member or members of the research team to communicate with you while you are in this study. All communication done with you will be done through an NS Health email account or text by a phone issued to a research member through NS Health. All efforts are made to keep information sent or received private, but it is possible other people may be able to see, read, and change messages sent to or from NS Health.

I give my permission to be contacted by a member or members of the research team from an NS Health email account or an NS Health cell phone by research staff to communicate during this study. _____ (initials and date).

Email YES NO
Text message YES NO

I do not wish to be contacted by email or text message, unless I otherwise give permission at another time during this study _____ (initial and date).

Signature of Participant Name (Printed) Year Month / Day* / _____

Signature of Person Conducting
Consent Discussion Name (Printed) Year Month / Day* / _____

Signature of Principal Investigator Name (Printed) Year / Month / Day*

***Note: Please fill in the dates personally**

I will be given a signed copy of this consent form.

Appendix C

Recruitment Letter



Dear Speech-Language Pathologists and SLP Assistants in Nova Scotia,

We would like to invite you to participate in a study that will explore your current dysphagia rehabilitation (DR) practice patterns and readiness for the implementation of a DR decision-making framework.

You are eligible to participate in this study if you provide dysphagia services to your clients in Nova Scotia, Canada. You are also eligible to participate if you provided dysphagia services previously, but now do not, so long as this change occurred within one year.

If you wish to participate in our study, you will be required to participate in at least one activity. All participants will be required to complete the first activity. The first activity will require you to individually complete an electronic survey that will assess your current DR practice patterns. The survey will also include a few demographic questions. The survey will take approximately 20 minutes of your time.

Following the survey, up to 16 participants will be asked to participate in a single, focus group session. This focus group will occur virtually on Microsoft Teams. Participants will be selected for focus groups based on a first come first serve basis. Focus groups involve a group discussion, moderated by a research team member, to determine attitudes, experiences, and area of consensus on a certain topic. In this case, we will encourage you to discuss your thoughts and feelings regarding the future implementation of a DR decision-making framework into your routine clinical practice. The focus group session will take approximately 90 minutes of your time.

Reimbursement: You will not receive any compensation for participation in this study.

If you have any questions, please contact the lead researcher, Rebecca Affoo (902-494-5154 or rebecca.affoo@dal.ca) or one of the other research team members listed below.

Supervising Investigator:

Suzanne Salsman, MD, MSc, FRCPC

Research Director for Division of Physical Medicine and Rehabilitation, NSH
Assistant Professor, Division of Physical Medicine and Rehabilitation, Department of
Medicine, Dalhousie University
Rm 214, 1341 Summer Street, Halifax, NS B3H 4K4
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Other researchers:

Nicole Rogus-Pulia, PhD, CCC-SLP

Romeo File No. 1027426

Version No. 4/ November 11, 2022



Assistant Professor
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Thank you for your time and we look forward to hearing from you!

Romeo File No. 1027426

Version No. 4/ November 11, 2022

Appendix D

Modified Version of the Dysphagia Competency Verification Tool (DCVT)

DR Practice Patterns

1. What is your gender?

- Male
- Female
- Prefer not to answer
- Other

2. How old are you?

- 20-29
- 30-39
- 40-49
- 50-59
- 60 and above
- Prefer not to answer

3. Where do you work?

- Outpatient sites associated with Hearing and Speech Nova Scotia
- Nova Scotia Rehabilitation and Arthritis Centre
- Prefer not to answer
- Other

4. Describe your clientele (i.e., what kind of swallowing impairments do your clients typically have?).

5. How many years of experience do you have working with clients with dysphagia?

- Less than 6 months
- 6-12 months
- 1.5-2 years
- 2.5-5 years
- 5.5-10 years
- More than 10 years
- Prefer not to answer

6. How many clients with dysphagia do you have on your caseload in a typical month?

- 1-5
- 6-10
- 11-15
- More than 15
- I don't know
- Prefer not to answer

7. During a typical 8-hour day, how many hours do you spend managing dysphagia?

- Less than an hour
- 1-2 hours
- 2-4 hours
- 4-6 hours
- More than 6 hours
- Prefer not to answer

8. During a typical 8-hour day, how many hours, on average, do you spend implementing dysphagia rehabilitation?

- None
- Less than an hour
- 1-2 hours
- 2-4 hours
- 4-6 hours
- More than 6 hours
- Prefer not to answer

9. Which dysphagia rehabilitation techniques do you most frequently use? (Select all that apply)

- Expiratory Muscle Strength Training
- McNeill Dysphagia Therapy Program
- Lingual Resistance
- Shaker/Head-lift Exercise
- Masako Maneuver
- Mendelsohn Maneuver
- Super- and Supraglottic Maneuvers
- Effortful Swallow
- Lee Silverman Voice Treatment
- Other

10. Have you taken any specialized courses/training on dysphagia assessment and/or management? If so, please briefly describe.

For the following questions, please read and indicate the extent to which you agree or disagree with each statement.

11. I can explain the strengths and limitations of clinical examination, including the ability to detect aspiration and determine treatment strategies for pharyngeal swallowing disorders.

- | | | | | |
|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

12. I can describe and integrate evidence-based practice into patient assessment and care.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. I can identify when swallowing assessment and intervention is appropriate.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. I can identify abnormal/atypical swallow-related structure and function.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. I can test interventions, including but not limited to postural changes, behavioral changes, maneuvers, bolus modifications (e.g., texture, volume), delivery method (e.g., spoon, cup, bottle, nipple type), and sensory enhancement techniques to improve safety and efficiency of the swallow and trials, as appropriate.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. I can provide recommendations regarding the delivery of nutrition and hydration (oral, non-oral, or combination of the two).

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. I can provide recommendations regarding specific oral intake modifications (e.g., volume, viscosity, texture, etc.).

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. I can provide recommendations regarding compensatory and feeding precautions (e.g., strategies, positioning, assistance, supervision, etc.).

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. I can provide recommendations regarding rehabilitation treatments targeting physiologic deficits identified on assessment, utilizing evidence-based techniques when available.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. I can integrate and adapt the plan of care to include patient's cultural and personal preferences.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. I can educate the patient and family/caregiver about findings and recommendations, including options and relative risks/benefits.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. I can educate the staff (e.g., physicians, nurses/CNAs, care planning team, teachers, aides) about findings and recommendations, and advocates for swallowing-related services.

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

23. I can identify necessary follow-up care, including frequency of treatment, monitoring, and/or re-evaluation.

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

24. I can provide ongoing assessment and revise treatment goals as appropriate, based on patient response.

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

25. I can develop and implement treatment plans targeting physiologic deficits identified on assessment.

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

26. I can document response to treatment using objective and measurable data collection systems.

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

27. I can adjust treatment plans, content and delivery to the level of the person being educated, counselled, or trained.

Strongly
Disagree

Disagree

Neither Agree
nor Disagree

Agree

Strongly Agree

28. I can describe best practices for providing interventions when complicated and/or special medical conditions are seen, which may have an impact on an individual's feeding and swallowing.

Strongly
Disagree

Disagree

Neither Agree
nor Disagree

Agree

Strongly Agree

Finish

Appendix E

Focus Group Interview Guide

Survey-Related Questions

1. On the survey, many of you reported that you have more than 15 clients with dysphagia on your caseload. Many of you also reported that less than one hour is spent on implementing dysphagia rehabilitation.
 - a. *What challenges do you currently encounter that limit the amount of time you are able to dedicate to implementing dysphagia rehabilitation?*
2. When asked to report your frequently used dysphagia rehabilitation techniques, there was a high degree of consensus in using the Masako Maneuver and the Effortful Swallow. These were closely followed by the Mendelsohn Maneuver and the Shaker/Head-Lift Exercises.
 - a. *What driving factors lead you to use these specific techniques?*
3. Question 26 asked about your ability to document response to treatment using objective and measurable data collection systems. Group responses were more variable compared to all other survey questions.
 - a. *Why do you think this might be?*
 - b. *Do barriers currently exist when documenting response to treatment?*

Questions re: Readiness for Implementation

1. What evidence are you aware of that shows whether or not a dysphagia rehabilitation decision-making framework will work in your employment setting?
 - a. How does this knowledge affect your perception of the intervention?
 2. How well do you think a dysphagia rehabilitation decision-making framework will meet the needs of your clients? In what ways?
 3. In your opinion, do you believe there is a need for this intervention? Why or why not?
 4. Other than the formal implementation leader, are there people in your organization you believe are likely to go above and beyond what might be expected for the intervention? If so, how might they do this?
 5. Describe how the priority of implementing this intervention would compare to other priorities in your employment setting.
 - a. How will you juggle competing priorities in your own work?
 6. To what extent do you feel like you can try new things to improve your work processes? Please explain.
 - a. What role does your supervisor (or other leaders) have in facilitating or hindering a learning climate?
 7. How confident are you that you will be able to successfully implement the intervention? What gives you that level of confidence, or lack thereof?
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