



## Pediatric Dysphagia Service Provision in Canada: A Survey of Canadian Speech-Language Pathologists



## Prestation de services en dysphagie pédiatrique au Canada : un sondage auprès d'orthophonistes canadiennes et canadiens

### KEYWORDS

DYSPHAGIA

PEDIATRICS

FEEDING

SWALLOWING

SPEECH-LANGUAGE  
PATHOLOGIST

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### Abstract

There has been limited work to date capturing pediatric dysphagia services provided in Canada. The goal of this study was to describe current Canadian speech-language pathology practice in pediatric dysphagia using an online survey to inform understanding of potential barriers and opportunities. Of the 211 speech-language pathologists invited to participate in the survey, 177 responded, of which 72 reported working in pediatric dysphagia. Descriptive analysis was used to identify clinician demographics and practices for screening, assessment, and management of pediatric dysphagia. Most respondents ( $n = 40, 55.6\%$ ) worked in Ontario. The highest percentage of respondent caseload ( $M = 34\%$ ) was in pediatric outpatient rehabilitation settings. Of those working in pediatric dysphagia, 43 (59.7%) regularly screened for dysphagia and 58 (80.6%) conducted clinical dysphagia assessments. Although a high proportion of respondents ( $n = 68, 94.4\%$ ) reported having access to instrumental assessment, only 22 (32.8%) reported conducting instrumental assessments with pediatric patients. Various service delivery models were reported, including direct intervention, consultation, and caregiver/parent training. Thirty-nine (65%) respondents reported receiving specific pediatric dysphagia training during their professional academic program, with the majority ( $n = 19, 48.7\%$ ) reporting it to be a one-day course. Last, according to respondents, speech-language pathologists in Canada face multiple barriers related to pediatric dysphagia, including management by other professionals and lack of pediatric-specific training. Together these findings identified underutilized Canadian speech-language pathology resources in pediatric-specific dysphagia training, assessment, and interventions. There is a clear need to develop and disseminate curriculum standards to guide and support Canadian speech-language pathologists in pediatric dysphagia.

### Abrégé

À ce jour, peu de travaux se sont intéressés à l'état de la situation concernant la prestation des services de dysphagie pédiatrique au Canada. L'objectif de la présente étude était de décrire l'état actuel de la pratique orthophonique dans le domaine de la dysphagie pédiatrique au Canada par l'entremise d'un sondage en ligne, et ce, afin de mieux comprendre les obstacles potentiels et les opportunités de formation. Parmi les 211 orthophonistes ayant reçu une invitation à participer à cette étude, 177 ont répondu au sondage et 72 ont déclaré travailler dans le domaine de la dysphagie pédiatrique. Des analyses descriptives ont été utilisées pour relever les caractéristiques démographiques de ces orthophonistes et recenser leurs pratiques en matière de dépistage, d'évaluation et de prise en charge de la dysphagie pédiatrique. La plupart des répondantes et répondants ( $n = 40, 55,6\%$ ) ont indiqué travailler en Ontario. Les répondantes et répondants ont aussi indiqué voir la majorité de leur cas ( $M = 34\%$ ) dans des centres de réadaptation pédiatrique offrant des services externes. Parmi les répondantes et répondants travaillant dans le domaine de la dysphagie pédiatrique, 43 ( $59,7\%$ ) ont déclaré réaliser régulièrement des dépistages de la dysphagie et 58 ( $80,6\%$ ) ont déclaré effectuer des évaluations cliniques de la déglutition. Bien qu'une proportion élevée de répondantes et répondants ( $n = 68, 94,4\%$ ) ont déclaré avoir accès à des évaluations instrumentales de la déglutition, seulement 22 ont déclaré en réaliser avec leurs patientes et patients pédiatriques. Divers modèles de prestation de services d'intervention ont été rapportés, incluant des interventions directes, des consultations et de l'éducation aux parents. Trente-neuf répondantes et répondants ( $65\%$ ) ont déclaré avoir reçu une formation spécifique à la dysphagie pédiatrique dans le cadre de leur formation professionnelle. Une majorité de ces personnes ( $n = 19, 48,7\%$ ) ont déclaré que cette formation s'était tenue sur une journée. Enfin, les répondantes et répondants ont identifié de nombreux obstacles auxquels les orthophonistes du Canada devaient faire face dans le domaine de la dysphagie pédiatrique, incluant la prise en charge de cette problématique clinique par d'autres professionnelles et professionnels et un manque de formation spécifique à la dysphagie pédiatrique. Ensemble, ces résultats mettent en évidence une sous-utilisation des ressources orthophoniques canadiennes dans la formation, l'évaluation et l'intervention en dysphagie pédiatrique. Il existe un besoin manifeste de mettre au point et de faire connaître des normes de formation en dysphagie pédiatrique afin de guider et de soutenir les orthophonistes du Canada dans ce domaine.

Evaluation and treatment of dysphagia across the lifespan is a recognized responsibility for speech-language pathologists (S-LPs; American Speech-Language-Hearing Association [ASHA], 2023; Speech-Language & Audiology Canada [SAC], 2017, 2022). This responsibility includes an active role for S-LPs in the identification and management of pediatric dysphagia at many stages of a child's development (ASHA, 2023). S-LPs may work independently or collaboratively with other professionals, including physicians, nurses, occupational therapists (OTs), and dietitians, depending on the client needs and setting (ASHA, 2023). Settings include neonatal and/or pediatric intensive care units, acute and rehabilitative hospital settings (Lefton-Greif & Arvedson, 2016), early intervention services, pediatric rehabilitation centres, community support services (ASHA, 2023), and schools (Lefton-Greif & Arvedson, 2008). Dysphagia in the pediatric population is different than in adults, with unique considerations for assessment and treatment, including anatomical differences, primary etiologies, ability to actively participate in tasks, and the importance of caregiver/child relationships (Lefton-Greif & Arvedson, 2016; Lefton-Greif et al., 2014). When discussing dysphagia in children, it is important to address difficulties in both feeding and swallowing, whereas in adults, dysphagia commonly refers to swallowing impairment only. Pediatric feeding disorders are defined as "impaired oral intake that is not age appropriate and is associated with medical, nutritional, feeding skill and/or psychosocial dysfunction" (Goday et al., 2019, p. 125); whereas swallowing disorders typically involve the impaired ability to move saliva, food, fluid, and medication from the mouth to the stomach (ASHA, 2023; Martino et al., 2000). Given that this study focused on the pediatric patient, dysphagia was operationally defined to include both feeding and swallowing disorders.

Within Canada, there has been valuable research using survey methodology about dysphagia practice patterns of S-LPs; however, that research has largely been limited to the adult population. For example, Martino et al.'s (2004) survey of 34 S-LPs working with dysphagia provided early insights on how Canadian S-LPs used clinical and instrumental dysphagia assessment methods regardless of patient age, etiology, or practice setting. In addition, SAC commissioned two national surveys of its members in 2006 (Steele et al., 2007) and 2016 to inform national position papers on dysphagia (SAC, 2017). Collectively, data from these efforts delineated important details related to overall Canadian dysphagia service delivery, but results were not stratified by age, leaving pediatric-specific practices unclear.

Survey methodology has also been used to document S-LP caseload demographics in dysphagia. For example, ASHA (2019) surveyed its members to identify caseload characteristics. Of the 2232 S-LPs who responded that they provide pediatric services, only 13%–16% reported providing dysphagia treatment. Within that group, S-LPs who worked in general medical hospitals spent a minimum of 23% of their pediatric clinical service time treating children with dysphagia, while S-LPs in pediatric-specific hospitals spent at least 31% of their clinical service time treating children with dysphagia. In evaluating the caseload characteristics of Canadian dysphagia practice using a national survey, Steele et al. (2007) reported that of 400 S-LPs surveyed, only 13% identified their dysphagia caseload as purely pediatric and 19% reported a mixed pediatric/adult caseload, though that survey sought to evaluate dysphagia practice in Canada at that time and was not specific to pediatrics.

Internationally, survey data has provided valuable information on the practice patterns of S-LPs working in the area of dysphagia. Specific to pediatric dysphagia, Peters et al. (2019) reported on the results of a survey of 36 New Zealand speech-language therapists working with infants with feeding difficulties. The survey focused on management and revealed a wide range of techniques used by respondents, including instrumental assessment and endoscopy to guide feeding decisions, with mixed opinions on the efficacy of those approaches. Peters et al.'s study provided preliminary information about the prevalence and practice patterns of S-LPs working in dysphagia outside of Canada; however, due to the differences in the healthcare landscapes across countries, the findings may not generalize to the Canadian context.

In Canada, a variety of healthcare professionals provide intervention for children with dysphagia, including S-LPs, OTs, dietitians, pediatricians, and registered nurses (Dion et al., 2015). Several of these professional groups have issued Canadian position papers detailing their role in the area of pediatric dysphagia and/or on the multidisciplinary dysphagia team across the lifespan (Canadian Association of Occupational Therapists, 2010; Dietitians of Canada, 2015; SAC, 2022). The SAC (2022) position paper noted areas where S-LPs are currently underrepresented in pediatric dysphagia practice in Canada, including neonatal intensive care, long-term care, end-of-life care, and in rural communities. Dion et al. (2015) used a survey to study the use of thickened liquids to manage feeding difficulties in Canadian pediatric healthcare settings. The majority of respondents working in those settings were OTs (65.2%), with S-LPs comprising 18.8% and dietitians 14.5%.

In an attempt to describe practice patterns in pediatric dysphagia in Canada, an environmental scan by the Canadian Agency for Drugs and Technologies in Health (Mason, 2017) produced a report which described the variety of practices across Canada. Results showed variation in not only assessment service practice models, but also in professional scopes of practice and utilization of available assessment tools and outcome measures. However, the work was limited by a small sample size ( $N = 21$ ) of professionals from acute and rehabilitation facilities. Thus, the report excluded other Canadian settings where pediatric dysphagia services are provided, such as community-based services, schools, and private practice. The report did not provide profession-specific data, and therefore, did not clarify the current roles and responsibilities of S-LPs in pediatric dysphagia across Canadian settings.

Further understanding of current Canadian S-LP practice in pediatric dysphagia is critical to the clinical community to identify service gaps and advocate for future growth in the S-LP role in this practice. This knowledge will inform decisions around human resource management, education policies, and professional advocacy. Understanding current pediatric practice can help S-LPs bring data to policymakers as they distribute limited healthcare resources to include S-LP in areas of practice that may be underserved. These data may also be used to ensure university S-LP coursework prepares future graduates to provide the highest quality of pediatric dysphagia care. Therefore, this study aimed to identify and describe the Canadian S-LPs currently involved in pediatric dysphagia, characterize their assessment and treatment practice patterns, and capture their reports on the barriers and facilitators to their practice.

## Methods

### Questionnaire Development

An initial list of relevant items was generated by four S-LPs (RP, JW, VS, and RM) with experience of 5–25 years in dysphagia assessment and management in pediatric and/or adult patients. To ensure our questions comprehensively addressed issues related to pediatric dysphagia, an extensive review of items from previously published (Martino et al., 2004; Steele et al., 2007) and yet-unpublished surveys identified missing items and further guided wording. Target survey items addressed respondent demographics, practice description, screening, clinical assessment, instrumental assessment, intervention, and advocacy initiatives. The final list of question items was finalized using consensus among the four S-LPs.

### Participants

Eligible participants were all pediatric S-LPs, regardless of patient etiology, practice setting, or years of experience. Pediatric S-LP was defined to include any S-LP serving clients under the age of 18 years.

### Conduct of Surveys

A sequential 3-step process was followed: (a) designing the online survey, (b) piloting the survey, and (c) conducting the survey. This study was approved by the University of Toronto Ethics board (37154).

### Designing the Online Survey

The final list of survey items was structured as an online self-administered survey using SurveyMonkey (<https://www.surveymonkey.com>). Response options aligned with each item and included *yes/no*, multiple choice from a closed set, and open text; *not applicable* was an available response where appropriate. All survey questions were mandatory except the respondent's name and contact information. To ease respondent burden, skip questions were incorporated. A flowchart was created to identify groups of related questions to guide the order of item presentation. Operational definitions were included for any potentially ambiguous terms. The final online survey consisted of 54 questions and took a maximum of 15 min to complete.

### Piloting of the Online Survey

The final online survey was piloted with five S-LPs who were not involved in item generation to assess for face validity, including feasibility for completion, ease of item understanding, item relevance, and overall flow of survey questions. This process yielded only minor format changes to facilitate reading and led to the skip question feature being added where appropriate.

### Conducting the Online Survey

Invitations to participate were sent through the SAC listserv database and to any other S-LP practising in pediatrics known to the authors. Identified S-LPs received invitations to participate by email, with an introduction detailing the specific aims of the survey, confirming the option for anonymous participation with results summarized for publication in only aggregate form. Participation in the survey was clarified as voluntary. To incentivize respondent participation, participants were offered preliminary survey findings prior to publication if they opted to provide contact details. Eligible and interested participants emailed their consent to then receive an anonymous link to the survey. To maximize response rates, every participant was issued email

reminders every 2 weeks for up to 6 weeks after the initial survey invitation. The survey was initially launched in June 2019 and closed in September 2019.

The survey response data was summarized and analyzed descriptively using response frequencies, proportions, means, standard deviations, and 95% confidence intervals.

## Results

### Participants

The survey targeted a comprehensive sample of Canadian pediatric S-LPs regardless of patient etiology or practice setting. Of those invited, 211 S-LPs expressed interest in completing the survey, 177 respondents completed the survey, and of those, 72 (40.7%) indicated that they worked directly with pediatric patients for dysphagia concerns.

### Respondent Demographics

Demographic information was collected from all 177 respondents, who represented all provinces and territories, except the Yukon, and is provided in **Table 1**. Ninety-eight (55.4%) respondents practiced in Ontario, with few respondents from Manitoba and Saskatchewan ( $n = 2$ ). All S-LPs approached from Newfoundland and Labrador, Northwest Territories, Nunavut, Prince Edward Island, and Saskatchewan consented to participate and responded to the survey. Of the 177 respondents, 112 (63.3%) worked in major metropolitan areas and 49 (27.7%) worked in cities.

### Education and Training Profiles Within Pediatric Dysphagia Respondents

As detailed in **Table 2**, a total of 72 respondents reported working in pediatric dysphagia, of whom 22 (30.6%) had over 21 years of experience. Regarding training, 60 (83.3%)

<b>Table 1</b>			
<b>Target Clinicians and Survey Respondents (N = 211)</b>			
<b>Location of practice</b>	<b>Total invited N = 211 n (%)</b>	<b>Total consented respondents n = 177 n (%)</b>	<b>Respondents working in pediatric dysphagia n = 72 n (%)</b>
<b>Location of practice</b>			
Alberta	12 (5.7)	11 (6.2)	5 (6.9)
British Columbia	14 (6.6)	8 (4.5)	5 (6.9)
Manitoba	3 (1.4)	1 (0.6)	0 (0.0)
New Brunswick	16 (7.5)	14 (7.9)	7 (9.7)
Newfoundland and Labrador	7 (3.3)	7 (4.0)	4 (5.6)
Northwest Territories	2 (0.9)	2 (1.1)	2 (2.8)
Nova Scotia	15 (7.1)	14 (7.9)	5 (6.9)
Nunavut	1 (0.5)	1 (0.6)	1 (1.4)
Ontario	119 (56.4)	98 (55.4)	40 (55.6)
Prince Edward Island	8 (3.8)	8 (4.5)	2 (2.8)
Quebec	12 (5.7)	11 (6.2)	0 (0.0)
Saskatchewan	2 (0.9)	2 (1.1)	1 (1.4)
Yukon	0 (0.0)	0 (0.0)	0 (0.0)
<b>Density of location of practice</b>			
Major metropolitan area <sup>a</sup>	141 (66.8)	112 (63.3)	42 (58.3)
City	53 (25.1)	49 (27.7)	24 (33.3)
Town	12 (5.7)	11 (6.2)	1 (1.4)
Rural	4 (1.9)	4 (2.3)	4 (5.6)

<sup>a</sup> Major metropolitan area was defined as a city with population greater than 100,000.

<b>Table 2</b>	
<b>Respondent Profiles of Those Working in Pediatric Dysphagia (n = 72)</b>	
<b>Characteristic</b>	<b>n (%)</b>
<b>Level of final training</b>	
Bachelor's	3 (4.2)
Master's	69 (95.8)
PhD	0 (0.0)
<b>Country of training</b>	
Canada	57 (79.2)
United States	13 (18.1)
Other	2 (2.8)
<b>Years of active practice</b>	
0–5	18 (25.0)
6–10	13 (19.1)
11–15	10 (13.9)
16–20	9 (12.5)
21+	22 (30.6)
<b>S-LP clinical program included dysphagia academic coursework</b>	
Yes	60 (83.3)
No	8 (11.1)
Don't recall	4 (5.6)
<b>Received pediatrics dysphagia coursework</b>	
Yes	39 (65.0)
No	17 (28.3)
Don't recall	4 (6.7)
<b>Total coursework time (n = 39)</b>	
Less than half day	14 (35.9)
Full day	19 (48.7)
Half course	1 (2.6)
Full course	3 (7.7)
Did not report	2 (5.1)
<b>Pediatric dysphagia clinical practicum hours</b>	
Yes	22 (30.6)
No	50 (69.4)
<b>Post-graduate clinical pediatric dysphagia training<sup>a</sup></b>	
None	2 (2.8)
Conferences	58 (80.6)
Certification programs	17 (23.6)
Job shadowing	41 (56.9)
Independent study	48 (66.7)
Consultation with other professionals	65 (90.3)

Note. S-LP = speech-language pathologist.

<sup>a</sup> Respondents were asked to select all that apply, so totals add to more than 100%.

respondents received dysphagia training, of whom 39 (65.0%) received training specific to pediatric patients during their academic curriculum. Of the respondents who received pediatric dysphagia training in their academic curriculum, 14 (35.9%) received less than half a day of training, 19 (48.7%) received a full day of training, 1 (2.6%) had half a course, and 3 (7.7%) completed a full course. Twenty-two (30.6%) respondents working in pediatric dysphagia received pediatric dysphagia training as part of their clinical practicum.

### Pediatric Dysphagia S-LP Caseload

As shown in **Table 3**, of the 72 respondents working in pediatric dysphagia, patients between the ages of 2 and 6 years old made up the greatest percentage of respondent caseloads ( $M = 43.8\%$ ; 95% CI [35.7, 52.0]). Of the different practice categories, the highest percentages of respondent caseloads were pediatric outpatient rehabilitation settings ( $M = 34.0\%$ ) and pediatric community-based services ( $M = 20.4\%$ ). Acute settings made up a very low percentage of respondent caseloads, including the neonatal intensive care unit ( $M = 3.8\%$ ; [0.6,

6.9]), pediatric acute care ( $M = 7.6\%$ , [2.7, 12.5]), and pediatric inpatient rehabilitation ( $M = 4.4\%$ , [0.6, 8.3]).

### Dysphagia Assessment Practice Profiles

**Table 4** provides details of respondents' assessment practices as summarized in this section. Of the 72 respondents who indicated they saw pediatric patients, 65 (90.3%) received referrals for pediatric dysphagia concerns.

### Screening

Of the 72 respondents, 43 (59.7%) reported that they regularly screened for dysphagia in patients who were initially referred for communication concerns. Of those who conducted regular screening, the most commonly reported next steps if a patient was flagged at risk were to complete a clinical dysphagia assessment ( $n = 32$ , 74.4%), referral to multidisciplinary feeding and swallowing clinic with an S-LP as part of the team ( $n = 28$ , 65.1%), and a referral to another professional ( $n = 15$ , 34.9%). Of those who referred to another professional ( $n = 15$ ), the most common professional was an OT ( $n = 13$ , 86.7%).

**Table 3**

#### Patient Caseload Managed by Respondents Working in Pediatric Dysphagia

Characteristic	M% (SD)
<b>Age group in years</b>	
0–1	16.0 (24.9)
2–6	43.8 (34.6)
7–12	11.7 (16.6)
13–17	5.5 (10.1)
≥ 18	23.0 (36.6)
<b>Practice categories</b>	
Neonatal intensive care unit	3.8 (13.3)
Adult acute care	9.8 (25.6)
Pediatric acute care	7.6 (20.8)
Adult inpatient rehabilitation	2.3 (8.5)
Pediatric inpatient rehabilitation	4.4 (16.5)
Adult outpatient rehabilitation	4.7 (17.4)
Pediatric outpatient rehabilitation	34.0 (40.9)
Adult private practice	2.1 (9.8)
Pediatric private practice	3.0 (11.0)
Adult community-based services	3.1 (12.9)
Pediatric community-based services	20.4 (37.2)
School-based services	4.7 (18.2)

<b>Table 4</b>	
<b>Assessment Practices of Respondents Working in Pediatric Dysphagia (n = 72)</b>	
<b>Practice</b>	<b>n (%)</b>
<b>Referrals received for pediatric dysphagia</b>	
Yes	65 (90.3)
No	7 (9.7)
<b>Screening</b>	
Screen for dysphagia in patients referred for communication concerns	
Yes	43 (59.7)
No	29 (40.3)
Next steps for pediatric patients suspected to have dysphagia (n = 43) <sup>a</sup>	
Refer to another profession	15 (34.9)
Complete clinical feeding/swallowing assessment yourself	32 (74.4)
Refer to another S-LP for assessment	12 (27.9)
Refer to multidisciplinary feeding/swallowing clinic with S-LP	28 (65.1)
Refer to multidisciplinary feeding/swallowing clinic without S-LP	3 (7.0)
If referring to another profession for pediatric dysphagia, what is other professional (n = 15) <sup>a</sup>	
Occupational therapist	13 (86.7)
Dietitian	8 (53.3)
Physical therapist	1 (6.7)
Physician	11 (73.3)
<b>Clinical assessment (n = 72)</b>	
Conduct pediatric clinical swallow assessment	
Yes	58 (80.6)
No	14 (19.4)
Common elements of the pediatric clinical swallow assessment (n = 58) <sup>a</sup>	
Case history	58 (100.0)
Oral/peripheral examination	57 (98.3)
Feeding observation	57 (98.3)
Cervical auscultation	15 (25.8)
Consistency trials	45 (77.6)
Feedback to clients/patients/caregivers	57 (98.3)
Provide recommendations for intervention	55 (94.8)
Provide recommendations for further evaluation	56 (96.6)
Recommend instrumental assessment if applicable	52 (89.7)
Next steps when instrumental assessment is required (n = 58)	
Complete instrumental assessment myself	16 (27.6)
Refer within organization	11 (19.0)
Refer to another organization	27 (46.6)
Instrumental assessment not available	4 (6.9)

Practice	n (%)
Other professions in the organization who perform pediatric clinical dysphagia assessments	
None	8 (13.8)
S-LP	30 (51.7)
Occupational therapist	43 (74.1)
Registered (practical) nurse	3 (5.2)
Dietitian	15 (25.9)
Physiotherapist	1 (1.7)
Physician	3 (5.2)
<b>Instrumental assessment (n = 72)</b>	
Pediatric instrumental assessment available	
Yes	68 (94.4)
No	4 (5.5)
Type of available instrumental assessment	
Videofluoroscopic swallow study	64 (95.5)
Fiberoptic endoscopic evaluation of swallowing	15 (22.4)
Other	5 (7.5)
Missing	1 (1.4)
Of those above, involved in pediatric instrumental assessments (n = 67)	
Yes	22 (32.8)
No	45 (67.2)
An S-LP is involved in conducting pediatric instrumental assessment (n = 45)	
Yes	33 (73.3)
No	12 (26.7)
Elements of assessment that respondents contribute (n = 22) <sup>a</sup>	
Determining assessment protocol	21 (95.5)
Determining positioning for the study	16 (72.7)
Determining when to discontinue the study	20 (90.9)
Passing of endoscopy scope	1 (4.5)
Feeding patients	15 (68.2)
Interpreting results	19 (86.4)
Providing feedback to caregivers	21 (95.5)
Report writing	19 (86.4)
Signing off on report	19 (86.4)
Decisions regarding NPO/PO status	16 (72.7)

Note. S-LP = speech-language pathologist; NPO/PO = nothing by mouth [nil per os]/by mouth.

<sup>a</sup> Respondents were asked to select all that apply, so totals add to more than 100%.

### Clinical Assessment

Of the 72 respondents, 58 (80.6%) reported that they completed pediatric clinical dysphagia assessments, and of those, the following elements were included in the assessment by over 90% of respondents: case history

(100%), oral/peripheral examination (98.3%), feeding observation (98.3%), feedback to clients/patients/caregivers (98.3%), providing recommendations for intervention (94.8%), and recommending further evaluation (96.6%). Recommendation of instrumental assessment was

also a highly reported element at 89.7% ( $n = 52$ ). The less common elements included cervical auscultation (25.8%) and consistency trials (77.6%).

### Multidisciplinary Assessment

Of the 58 respondents who conducted pediatric clinical dysphagia assessments, 44 (75.9%) reported they participated in multidisciplinary clinical dysphagia assessments. Multidisciplinary team members most commonly included OTs ( $n = 38$ , 86.4%) and dietitians ( $n = 27$ , 61.4%). Tasks reported to be within the S-LP role on the multidisciplinary team included conducting feeding observations and providing further recommendations for further evaluation for all respondents ( $n = 44$ , 100%). Other common tasks included obtaining dysphagia history ( $n = 43$ , 97.7%) and providing feedback to clients, caregivers, and family ( $n = 43$ , 97.7%).

### Instrumental Assessment

Of the 72 respondents, 68 (94.4%) reported access to instrumental assessment, of which 64 (95.5%) had access to videofluoroscopic swallowing assessments and 15 (22.4%) had access to fiberoptic endoscopic evaluation of swallowing. Of the respondents who reported access

to instrumental assessment, 32.8% ( $n = 22$ ) reported that they were involved in conducting those instrumental assessments. Of those respondents who were not directly involved themselves, 73.3% ( $n = 33$ ) identified that an S-LP at their workplace was involved.

### Intervention Services

**Table 5** includes details of respondents' intervention practices. Fifty-seven (80.3%) respondents reported they provided pediatric dysphagia intervention, including service delivery models of consultation with parent/child with follow-up as required ( $n = 53$ , 93.0%), caregiver/parent training ( $n = 51$ , 89.5%), direct intervention with child ( $n = 47$ , 82.5%), one-time consultation with parent/child ( $n = 16$ , 28.1%), and provision of group workshops ( $n = 12$ , 21.1%). The most common type of intervention provided by the S-LP was pacing/volume modification ( $n = 52$ , 91.2%), followed by diet modification ( $n = 46$ , 80.7%). Other commonly reported intervention types included sensory intervention ( $n = 35$ , 61.4%), behavioural intervention ( $n = 31$ , 54.4%), and oral motor therapy ( $n = 29$ , 50.9%). The frequency of intervention most reported was weekly ( $n = 24$ , 42.1%), followed by monthly ( $n = 21$ , 36.8%). Sixty-two respondents (87.3%) reported that other

<b>Table 5</b>	
<b>Intervention Practices of Respondents Working in Pediatric Dysphagia (<math>n = 71</math>)</b>	
<b>Practice</b>	<b><math>n</math> (%)</b>
<b>Provide pediatric dysphagia intervention</b>	
Yes	57 (80.3)
No	14 (19.7)
<b>Service delivery models (<math>n = 57</math>)<sup>a</sup></b>	
Direct intervention with child	47 (82.5)
Caregiver/parent training	51 (89.5)
Consultation with parent/child with follow up as required	53 (93.0)
One-time consultation with parent/child	16 (28.1)
Provision of group workshops	12 (21.1)
<b>Types of intervention offered (<math>n = 57</math>)<sup>a</sup></b>	
Diet modification	46 (80.7)
Pacing/volume modification	52 (91.2)
Oral motor therapy	29 (50.9)
Dysphagia/swallowing exercises	15 (26.3)
Behavioural intervention	31 (54.4)
Sensory intervention	35 (61.4)
Neuromuscular electrical stimulation	0 (0.0)
Standardized available feeding intervention programs	7 (12.3)

Practice	n (%)
<b>Frequency of intervention typically provided (n = 57)<sup>a</sup></b>	
Daily	14 (24.6)
2–3 times per week	13 (22.8)
Once weekly	24 (42.1)
2–3 times per month	19 (33.3)
Monthly	21 (36.8)
Bimonthly	10 (17.5)
Quarterly	7 (12.3)
Every 6 months	5 (8.8)
Yearly	0 (0.0)
<b>Do other S-LPs in your organization provide pediatric dysphagia intervention?</b>	
Yes	62 (87.3)
No	9 (12.7)
<b>Are other professions in your organization involved in pediatric dysphagia intervention?</b>	
Yes	52 (73.2)
No	19 (26.8)
<b>Which other professions are involved in pediatric dysphagia intervention? (n = 52)</b>	
Communication disorders assistant	8 (15.4)
Occupational therapist	48 (92.3)
Physiotherapist	1 (1.9)
Registered dietitian	24 (46.2)
Physician	7 (13.5)
Teacher	0 (0.0)
Early childhood educator	0 (0.0)
Dentist	0 (0.0)
Don't know	1 (1.9)
Other	9 (17.3)
<b>Do the S-LP and other professionals collaborate for pediatric dysphagia intervention? (n = 52)</b>	
Yes for every client	20 (38.5)
Yes for some clients	31 (59.6)
Never	1 (1.9)

Note. One respondent did not respond to this question. S-LP = speech-language pathologist.

<sup>a</sup> Respondents were asked to select all that apply, so totals add to more than 100%.

S-LPs in their organization provided pediatric dysphagia intervention, and 52 (73.2%) reported other professions in their organization were involved in the intervention, which most commonly included OTs ( $n = 48, 92.3\%$ ), followed by dietitians ( $n = 24, 46.2\%$ ). Fifty-one of the 52 respondents reported they collaborated with the other professionals for the intervention, with 20 (38.5%) indicating collaboration

for every client and 31 (59.6%) indicating collaboration for some clients.

#### Barriers to Practice

As shown in **Table 6**, for all 72 respondents who worked in pediatric dysphagia, the main barriers to providing clinical assessment were lack of training ( $n = 18, 25.0\%$ ) and other

<b>Table 6</b>	
<b>Perceived Barriers to Providing Pediatric Dysphagia Services</b>	
<b>Barriers</b>	<b>n (%)</b>
<b>To clinical assessment (n = 72)</b>	
Not in job description	8 (11.1)
Lack of training	18 (25.0)
Not interested in this area	0 (0.0)
Other S-LPs at my site perform this role	5 (6.9)
Other professions at my site perform this role	10 (13.9)
Lack of time	7 (9.7)
Lack of referrals	4 (5.6)
Lack of funding/resources	7 (9.7)
No barriers	13 (18.1)
<b>To instrumental assessment (n = 67)<sup>a</sup></b>	
Other S-LPs in my organization conduct instrumental assessments	10 (14.9)
S-LPs do not complete instrumental assessments in my setting	16 (23.9)
Difficulty obtaining medical orders for instrumental assessment	6 (9.0)
Must refer outside of organization	29 (43.3)
Lack of training	26 (38.8)
Not interested in conducting these assessments	3 (4.5)
Lack of radiology time	14 (20.9)
Lack of funding/resources	5 (7.5)
No barriers	4 (6.0)
<b>To providing intervention services (n = 71)<sup>a</sup></b>	
Not in job description/organizational roles	7 (9.9)
No access to equipment/supplies	2 (2.8)
Limited time to provide therapy	28 (39.4)
Lack of training	21 (29.6)
Lack of funding/resources	2 (2.8)
Managed by other professionals	3 (4.2)
Lack of referrals	2 (2.8)
No barriers	4 (5.6)

Note. S-LP = speech-language pathologist.

<sup>a</sup> One respondent did not respond to this question.

professionals performing this role ( $n = 10$ , 13.9%). Of all S-LPs who conducted instrumental dysphagia assessments ( $n = 67$ ), the most common barrier to providing pediatric instrumental assessment was that they had to refer to outside of their organization ( $n = 29$ , 43.3%), followed by lack of training ( $n = 26$ , 38.8%). Of all 71 participants who practiced in pediatric dysphagia and responded to questions related to barriers (note that 1 participant did not respond to this

question), the most common barrier to providing dysphagia intervention was limited time to provide therapy ( $n = 28$ , 39.4%), followed by lack of training ( $n = 21$ , 29.6%).

As shown in **Table 7**, of the 105 respondents who reported that they did not currently practice in pediatric dysphagia, 78 (74.2%) were interested in providing such services. These respondents perceived two main barriers to

**Table 7****Perceived Barriers to Providing Pediatric Dysphagia Services Among Respondents Who Were Interested but Not Currently Practicing in Pediatric Dysphagia ( $n = 78$ )**

Main barrier	$n$ (%)
Not in job description	19 (24.4)
Lack of training	21 (26.9)
Lack of referrals	4 (5.1)
Pediatric dysphagia managed by other professionals	26 (33.3)
Lack of funding/resources	6 (7.7)
Other S-LPs responsible at site	2 (2.6)

Note. S-LP = speech-language pathologist.

their practice: that at their facility this domain was managed by other professions ( $n = 26, 33.3\%$ ) and that they lacked training ( $n = 21, 26.9\%$ ).

### S-LP Advocacy

All the respondents ( $n = 71, 100\%$ ; note that 1 participant did not respond to this question) endorsed the view that advocacy is needed to enhance awareness of the S-LP role in pediatric dysphagia. Suggestions on how to achieve this were provided: additional training and coursework prior to graduation ( $n = 59, 83.1\%$ ), consideration of specialized certification ( $n = 55, 77.5\%$ ), and a national role statement to guide S-LP practice ( $n = 54, 76.1\%$ ).

### Discussion

Our study is the first to capture practice patterns of Canadian S-LPs working with children with dysphagia. Survey success was demonstrated with a high survey response rate across the country, which we believe to represent the high interest among S-LPs in this important topic. We had 72 of the 177 respondents self-identify as working in pediatric dysphagia, with the majority from Ontario and located in major metropolitan areas. Interestingly, none of the respondents from Manitoba or Quebec indicated they practiced in the area of pediatric dysphagia. All four clinicians who indicated they practiced in rural areas reported providing service in the area of pediatric dysphagia. The vast majority of respondents working in pediatric dysphagia practiced in outpatient rehabilitation and community-based settings. Only a very small number reported working in acute settings such as the neonatal intensive care unit or inpatient settings. The numbers from this survey are lower than Canadian dysphagia practice in adults (Martino et al., 2004) and pediatric dysphagia practice in the United States, where in a 2023 survey the S-LP was the primary provider of dysphagia service in pediatric hospitals ( $n = 49; 89.8\%$ ; ASHA, 2023).

Of the 72 respondents, just over half ( $n = 43, 59.7\%$ ) reported that they regularly screened for dysphagia in pediatric patients referred to them for communication concerns. This is a similar number compared to the result found by Steele et al. (2007), who found that 58% of Canadian respondents reported some sort of formal swallowing screening procedure. Dysphagia screening can be conducted using formal or informal methods; however, due to the nature of the pediatric population (Heckathorn et al., 2016), there are additional challenges when selecting an appropriate formal tool.

Overall, there was a high rate of consistency of responses for clinical assessment protocols. Clinical dysphagia assessments commonly included the following elements: case history, oral peripheral exams, feeding observations, and providing recommendations and feedback to clients/caregivers. This high level of agreement in assessment procedures demonstrates that clinicians are following available guidelines in pediatric feeding assessment (ASHA, 2023). Additionally, many clinicians had the ability to refer on for instrumental assessment as required.

Overall, S-LPs reported involvement in pediatric instrumental assessment (73%), but this result is lower than in the survey reported by Steele et al. (2007), where 96% of Canadian respondents reported S-LP involvement in adult inpatient videofluoroscopic swallow studies. Of those who participated in the assessment, the S-LP appeared to contribute to all elements of the assessment from determining assessment protocol to conducting and interpreting results to decisions guiding patient care. When S-LPs were not involved in instrumental assessment, it was either because referrals had to be made to a different facility for the instrumental assessment or that it was completed by other professionals.

There was also a high level of consistency in intervention methods, with consultation and caregiver training as the primary models. The most common types of intervention included pacing, volume, and diet modifications. These types of interventions reflect a more compensatory approach to augment the development of a child's feeding and swallowing skills, different from the more rehabilitative treatment approach in adults utilizing exercise maneuvers, for example, to regain a functional swallow. Intervention approaches including pacing, volume, and diet modifications align well with the developmental needs and environment in which children learn to eat (Evidence to Care: Feeding and Swallowing Team, 2017). In contrast to adults, children are developing their feeding and swallowing skills in a growing and maturing system. Caregivers may follow chronological and cultural expectations even when children are developmentally not yet ready for these changes; thus, coaching parents to modify foods or methods of administration to better align with their child's developmental level is a key element of pediatric dysphagia management. As reflected in our findings, consultation and caregiver training are key parts of pediatric dysphagia intervention.

S-LPs are considered important members of the multidisciplinary dysphagia team due to their extensive training in oropharyngeal anatomy and physiology (SAC, 2022). As part of their training, S-LPs must demonstrate extensive knowledge in the neuroanatomy and neurophysiology of the respiratory, articulatory, phonatory, resonatory, and swallowing systems (SAC, 2021). Additionally, the Canadian curriculum standards require students to gain knowledge of the different populations that may present with dysphagia and the many impacts of dysphagia, including social, emotional, cultural, ethical, vocational, and economic. Despite this extensive training on dysphagia in general, our results indicated limited training specific to pediatric feeding and swallowing, with clinicians reporting it as a barrier to practice.

Over 30% of the respondents had greater than 21 years of work experience, thus one can assume clinical training may have differed across the years. However, pediatric dysphagia is not included in even the most recent documents guiding education, including the Canadian Curriculum Standards for Audiology and Speech-Language Pathology (SAC, 2021), suggesting that this continues to be an area where curriculum enhancement is required. In addition, there were no PhD-trained S-LPs who completed the survey, suggesting that there is limited research being completed in Canada in the area of pediatric dysphagia. As a result, knowledge-to-practice gaps are not being addressed

in the Canadian context, likely having a large impact on the gaps in education and policy development for this area of practice in Canada.

### Limitations

Our results are only descriptive in nature, thus further work would be beneficial to understand differences across provinces, barriers related to specific practice locations, and other relationships (such as the year of S-LP training) with practice patterns. Although we do not believe there have been changes in practice patterns in the last few years, it is important to note that the data collection period was in 2019. In large, the delay in publishing results was due to the impact of COVID-19, as the authors are primarily clinicians and educators and had to shift focus in early stages of the pandemic.

We also identified areas where we could have collected additional information such as details on methods of screening and use of assessment tools and outcome measures. These ideas would be valuable considerations in future research. This study sought to capture the S-LP role in pediatric dysphagia management in Canada, however, it may be beneficial for future research to include a multidisciplinary lens.

The French data has not yet been analyzed, but 11 respondents from Quebec completed our English survey, thus it seems reasonable to assume we have preliminary data specific to a French province.

### Conclusion

Our survey had a high response rate from S-LPs across Canada, identifying 72 who practiced in pediatric dysphagia. We identified practice patterns specific to screening, assessment, and intervention. Importantly, we identified a gap in education as many respondents indicated a lack of specific pediatric dysphagia training opportunities in academic programs. We also identified several barriers to S-LPs practicing in pediatric dysphagia in Canada, including lack of clinical training, decreased inclusion in completion of instrumental assessment, and limited time for intervention. Our results show that while S-LPs are actively involved in some areas of pediatric dysphagia practice in Canada, they are not working to their full professional scope, thus requiring continued advocacy efforts. Results also indicated a high degree of consistency within pediatric dysphagia practice patterns. It is now important to develop and disseminate clear best practice guidelines and curriculum standards in pediatric dysphagia practice for Canadian S-LPs. Last, it is essential that we expand the support for Canadian research

and knowledge translation in pediatric dysphagia providing evidence-based guidance that supports practice in the unique Canadian healthcare context.

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## Acknowledgments

This study was funded by a Speech-Language & Audiology Canada Clinical Research Grant.

## Disclosures

No conflicts of interest, financial or otherwise, are declared by the authors.